

# Benjamin Franklin's Wife's Apoplexy and Mid-Eighteenth Century Medicine

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On 16 April 1768, Benjamin Franklin (1706–90), then 62 and in England, wrote a letter to his stay-at-home wife, Deborah (Franklin, née Read; 1708–74; Figure 1).<sup>1</sup> “Amidst all the sickness and misfortunes of our friends,” he began, “what reason have you and I to bless God, that we at these years enjoy with our children so great a Share of health and so much happiness in other respects.” Franklin continued:

Let us be thankful for what is past and present and not presume too much on a continuance of the same felicity for the future. All human affairs are subject to vicissitude and we should prepare our minds for those reverses which it is a wonder and mercy we have escaped so long. Age and its infirmities now tread close at our heels and must soon overtake us; and God only knows what afflictions, or what diseases, lingering, painful and violent may be in store for us.

Franklin penned this brief note during his second lengthy diplomatic trip to London, this time representing both his Pennsylvania Assembly and other colonies that hoped for more understanding and help from Parliament. Deborah stayed in Philadelphia both times, partly because she feared sea travel but also because she did not expect her husband to stay away long and would have been uncomfortable with the company he kept as a world-famous natural philosopher and writer—the sort of rarified air that was not for a hard-working “Plain Country Joan” (Franklin’s term in a song from 1742) like her.

Franklin was being pragmatic and realistic when he composed the aforementioned letter to “My dear Child,” the term of endearment he and Deborah often used for each other. Given Deborah’s precarious state of health during the next year, he was also prophetic.

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1 Benjamin Franklin, *The Papers of Benjamin Franklin* (New Haven: Yale University Press) 15, 97–8. This series, started in 1954 with many editors and new volumes still being added, is available at <http://www.franklinpapers.org>.



FIGURE 1. Deborah Read Franklin (c. 1708–74) in her 40s wearing standard portraiture clothes. This small oil painting by London artist Benjamin Wilson (1721–88) is the only surviving image of Deborah, and it was based on a since-lost portrait by an unidentified Philadelphia artist. Courtesy of the American Philosophical Society, Philadelphia.

Given (a) how little has been written about Deborah Franklin; (b) what her husband, who was no stranger to medicine,<sup>2</sup> suggested to his wife and those attending her; and (c) how colonial physicians were treating patients with apoplexy (a clinically defined disorder that included but was not limited to strokes), examination of what Deborah was experiencing during her last 6 years of life seems warranted.

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<sup>2</sup> Stanley Finger, *Dr. Franklin's Medicine* (Philadelphia: University of Pennsylvania Press, 2006).

## DEBORAH READ FRANKLIN

Deborah Read<sup>3</sup> was born between 1704 and 1708, most likely in or near Birmingham, England. Her parents moved in 1711 to Philadelphia, where her father worked as a carpenter. Franklin first saw his future wife in 1723, immediately after arriving in Philadelphia, where he was looking for work in the printing trade. After a complicated on-and-off courtship, the couple entered into a common-law marriage in 1730,<sup>4</sup> with Franklin bringing his bastard son William (1730–1813) with him.<sup>5</sup>

Deborah helped her husband grow his printing business and ran the stationary (really general) store in their house, selling books and papers, as well as such things as soaps made by Benjamin's family in Boston and salves for the "itch" (probably scabies) made by Deborah's mother.<sup>6</sup> Beginning in 1737, a part of the first floor of their house became the regional post office, which Deborah helped run. She also mothered two children—Francis ("Frankie") Folger Franklin (1732–36), who succumbed in childhood to smallpox, and Sarah ("Sally") Franklin (later Bache; 1743–1808)—and managed the household with its servants and guests.

The Franklins' business ventures prospered thanks to their hard work, a profitable newspaper (the *Pennsylvania Gazette*), and the especially lucrative *Poor Richard's Almanac*. By 1748, Benjamin was one of the most successful tradesmen in the colonies. Then, as befitting a proper gentleman, he retired from the day-to-day operations of his printing businesses and engrossed himself in natural philosophy (most famously his electrical experiments) and numerous projects for self-betterment and the common good. After working with her husband for 18 years,

3 For biographical material and commentary about Deborah's role in Franklin's life, see Charles van Doren, *Benjamin Franklin* (New York: Viking Press, 1938); Claude-Anne Lopez and Eugenia W. Herbert, *The Private Franklin: The Man and His Family* (New York: W. W. Norton, 1975); Sheila Skemp, "Family Partnerships: The Working Wife, Honoring Deborah Franklin," in *Benjamin Franklin and Women*, ed. Larry E. Tise (University Park: The Pennsylvania State University Press, 2000), 19–36; Jennifer Reed Fry, "Extraordinary Freedom and Great Humility: A Reinterpretation of Deborah Franklin," *Pa. Mag. Hist. Biogr.* 77 (2003), 167–96; Walter Isaacson, *Benjamin Franklin: An American Life* (New York: Simon & Schuster, 2003); and Leo Lemay, *The Life of Benjamin Franklin* (3 vols.) (Philadelphia: University of Pennsylvania Press, 2006–09).

4 Franklin wrote only a single, non-encouraging note to Deborah while he was in London buying printing equipment, and she, in turn, married another man before he returned. That man then ran off, and rumors arose that he had died in the West Indies. Facing severe adultery penalties if he were alive, Franklin and Deborah moved in together and declared themselves married, a then-accepted solution for such problems.

5 William's mother has never been positively identified nor has the date of his birth. Deborah never warmed up to "Billy," who would become Royal Governor of New Jersey and would fully support the Royalists during the War of Independence, causing an irreconcilable split with his father.

6 For a list of goods, see Lopez and Herbert, *The Private Franklin*, 30–1.

Deborah would spend 15 of her remaining 17 years in Philadelphia without him, overseeing their various personal, societal,<sup>7</sup> and charitable affairs while he was engaging in diplomacy, attending meetings of the Royal Society, and spending time with friends in London.

The couple's two lengthy separations forced them to communicate mainly through letters,<sup>8</sup> although they also exchanged news via people making trans-Atlantic crossings. Unlike her husband, who was one of the great writers of the era, Deborah's letters prior to her becoming sick show that she (a) spelled phonetically (sometimes mixing phonetics with older British English [e.g., adding a silent "e" at the end of a word]) and irregularly; and (b) had little regard for punctuation marks. For example, while informing her husband about a community event, she wrote:

I am set down to Confab a littel with my dear child as it Semes [seems] a Sorte of a hollow [hallowed] day for we have an ox arosteing [a-roasting] on the river and moste pepel [people] semes plesd with the a fair [affair] but as I partake of none of the diver-shons I stay at home and flatter myselef that the next packit will bring me a letter from you."<sup>9</sup>

She viewed herself as "so verey poor a writer,"<sup>10</sup> yet conveyed her thoughts clearly enough to be understood. Additionally, her handwriting was easy to read (Figure 2).

Recognizing that Deborah was not formally educated and not a skilled writer, although certainly literate and quite capable of communicating her thoughts on paper, is important. This is because without a baseline, a modern reader might be inclined to think that her communicative abilities were even more severely affected than they really were after she became ill.

#### NEWS OF DEBORAH'S FIRST "INDISPOSITION"

Benjamin Franklin must have learned about his wife's health problems on or shortly before 3 June 1769. Given the time needed for an Atlantic crossing and the fact that ships rarely ventured across the ocean during

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7 Although more often portrayed as a working woman who did not fit into Philadelphia society, Fry (2003) makes a strong case that, even if not considered "upper crust," Deborah was very much a part of Philadelphia society, entertaining dignitaries, hosting important visitors, and serving as her husband's representative in America.

8 Deborah wrote many letters to her husband while he was in London, of which 35 have been catalogued. They date from 1765 to 1773; unfortunately, those sent during Franklin's 1757–62 trip to London have been lost.

9 *Franklin Papers*, 12, 43–4.

10 *Ibid.*, 12, 270.

the People is come safe and in the thing as every one has that has seen it  
 I am very much obliged to you for it every body knows it that has seen it  
 as to the Condit shes and and Co's screw they will do when you return in  
 the spring be so good as to give my love to Mrs Stephenson and her Daughters tell  
 me is Dotley is a going to be married I think you will have such thing sometime  
 a go when she does I hope it will be to one that will deserve her  
 it comes a doubt with me whether Sally writes by this ship as there is nothing  
 for her Dick too for her Brother she is to be playing on the ar money  
 the visit is gon down so I wrote but this all here  
 I have not got a note for the thing  
 I am your a faithful wife

December 13 1766

D Franklin

FIGURE 2. Deborah Franklin's handwriting on 13 December 1766, prior to her first indisposition. Courtesy of the American Philosophical Society, Philadelphia.

the most treacherous of the winter months, the letter he received might have been written in February or March. His daughter, Sally, provided the unwelcome news in a letter since lost.

We know that Franklin wrote a short letter to Deborah on June 3.<sup>11</sup> With about 2 months needed for Captain Jeffries's *Britannia* to cross the Atlantic in a westerly direction, Deborah probably received it in August or September. He informed her that he was well "and that having receiv'd Sally's letter by Capt. Falkner, I rejoice to hear you so soon got over your later Indisposition, but am impatient for the next Packet which I hope will bring me that good News under your own hand." He assured his wife he would write again, mentioning a ship scheduled to sail on Wednesday, and ended the hastily written note with, "I am your ever loving Husband," followed by "B Franklin."

How much Sally actually told her father is uncertain. Nevertheless, Franklin soon knew more about his wife's condition because he also received a communication from Thomas Bond (1713–84), Deborah's physician and a man Franklin knew and respected.

Bond was the most esteemed physician-surgeon in Philadelphia, if not the colonies, at that time.<sup>12</sup> He had trained under the apprenticeship system and furthered his medical education in Philadelphia, London,

<sup>11</sup> Ibid., 16, 144.

<sup>12</sup> Carl Bridenbaugh, "Dr. Thomas Bond's Essay on the Utility of Clinical Lectures," *J. Hist. Med. Allied Sci.* 2 (1947), 10–9; Elizabeth H. Thompson, "Thomas Bond, 1713–84: First Professor of Clinical Medicine in the American Colonies," *J. Med. Ed.* 33 (1958), 614–24; Whitfield J. Bell, Jr., *Patriot-Improvers: Biographical Sketches of Members of the American Philosophical Society* (Philadelphia: American Philosophical Society, 1997), 1, 37–47.



and Paris, albeit never formally receiving a medical degree. He had been a member of Franklin's Junto and Library Company, and both men belonged to the same Masonic Lodge. In 1743, he and his brother Phineas Bond (1717–73), who had a medical degree, helped Franklin and botanist John Bartrum (1699–77) found the American Philosophical Society. When the organization was resurrected and restructured in the year of Deborah's illness, Franklin was elected its president (*in absentia*) and Bond its vice-president. Franklin also worked with Bond to establish the landmark Pennsylvania Hospital in 1751<sup>13</sup> and the Academy of Philadelphia (later the College of Philadelphia and ultimately the University of Pennsylvania) in 1749, to which the first American medical school was connected in 1765.

In his letter to Franklin, dated 7 June 1769, Bond mentioned (a) how he had "long Meditated a Revival of our American Philosophical Society," (b) how everyone was excited about measuring the transit of Venus, and (c) Deborah's health.<sup>14</sup> Regarding her "late Indisposition," he wrote: "Your good Mrs. Franklin was affected in the Winter with a partial Palsey in the Tongue, and a sudden Loss of Memory, which alarmed us much." Nevertheless, he went on, "she soon recovered from them, tho her constitution in general appears impaired."

His prognosis was not good. "These are bad Symptoms in advanced Life and Augur Danger of further Injury on the nervous System," he explained, while assuring Franklin, "you may depend every Relative of yours will engage my Particular Care and Attention." Thus, Bond served as Deborah's primary physician, although others probably visited her as well.<sup>15</sup>

Bond rightfully recognized that Deborah was experiencing an ominous event, one which could make her a candidate for additional brain damage, particularly given her age. Still, Franklin must have been relieved to read, "she soon recovered from them," immediately after Bond mentioned her memory problems and her "partial Palsey in the Tongue." Nevertheless, it is important to look at what Bond had written in more detail and in its eighteenth-century context.

First, Bond was linking her problems to her brain. Although a

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13 This hospital was the first major charity hospital in the colonies. Franklin, for his part, had been highly instrumental in securing funding for the project, and both Thomas and Phineas Bond served on its staff.

14 *Franklin Papers*, 16, 152–4.

15 Franklin also knew a number of other Philadelphia physicians quite well, including Cadwallader Evans (1716–73), one of Thomas Bond's first pupils. Evans and Franklin had previously treated a case of hysteria using mild electrical shocks (Cadwallader Evans, "A Relation of a Cure Performed by Electricity," *Med. Obs. Inq.* 1 [1754], 83–6), and the two men were now corresponding about other matters. None of their surviving letters to each other, however, mention Deborah's case.

cardiac episode must also be considered, Bond was probably correct, given what Deborah would experience over the next few years. Central nervous system problems are also more likely to be associated with both impaired speech and memory problems like those described.

Second, terms such as “recovery” and “cured,” even when preceded by the adjective “partially,” were used in a much looser way in the past than they are today. They were often applied to patients with residual problems, such as locomotor weaknesses, less-than-perfect memory, and ongoing but not incapacitating speech disorders. The real focus at that time was on whether a person could manage to take care of him- or herself and return either to work or to running a household. To appreciate this orientation, one need only look at how Franklin virtually brushed aside the retrograde and anterograde amnesias that he suffered when he accidentally received some strong electrical shocks to his head—being much more focused on the fact that one could not only survive but return to work afterward.<sup>16</sup> Thus, Deborah could well have had other deficits, perhaps even lasting deficits, which were deemed not important enough for her physician or even family members to mention in their letters.

Third, given that Bond recognized that Deborah's condition involved the brain, did he really mean some sort of a palsy of the tongue? That he did not mention swallowing difficulties, eating and drinking problems, or anything about a facial paralysis, would at least raise the possibility that what he was witnessing was probably a brain disorder affecting speech rather than one paralyzing the tongue itself.

Fourth, Bond was ambiguous about Deborah's memory. Did she have only a “verbal memory” (speaking) problem? Was he alluding to her inability to recollect what she was doing at the time she was affected? Was he witnessing an anterograde amnesia that was affecting her ability to retain new information? Or was he referring to impairments in multiple domains?<sup>17</sup>

Lastly, Bond does not mention how he was treating Deborah. After reading his letter, Franklin must have been wondering what Bond was doing therapeutically, given his reputation for moderate treatments, “directed more by observation and experience than by theory.”<sup>18</sup> With his extensive medical knowledge, Franklin might have surmised that his wife

16 Stanley Finger and Franklin Zaromb, “Benjamin Franklin and Shock-induced Amnesia,” *Amer. Psychol.* 61 (2006), 240–8.

17 Much has been written in recent years about subjective memory complaints and how poorly they might correlate with objective memory measures, particularly in the elderly. In this context, it must be remembered that it is the physician, not the patient, mentioning memory problems. Moreover, Deborah's extant letters show no evidence of her complaining about memory issues prior to 1769, further indicating that her memory loss was real rather than feigned or imagined.

18 Bell, *Patriot Improvers*, 41.

was (a) being bled, although not too copiously given her age; (b) being encouraged to stay warm and rest; and (c) being instructed to drink certain beverages and eat specific foods that might prove helpful and could easily be digested. Moreover, he must have assumed that her physician was attempting to lift her spirits with his grace and encouraging words.

Although no other surviving communications between Bond and Franklin from 1769 exist, Deborah will provide more information about her health in a letter written to her husband later in the year. At the same time, she will show signs of something else happening, possibly another event or events further damaging her brain, much as Bond had been predicting. Therefore, that Deborah had experienced a stroke(s), especially given her signs and symptoms and what her future medical history would show, has to be considered a strong possibility. It is, however, impossible to know whether it was hemorrhagic stroke or some sort of ischemic stroke,<sup>19</sup> or whether cortical structures and/or deeper underlying brain tissue were damaged.

Of course, some of the same questions can be asked about her later indispositions, which appear to have had more enduring and incapacitating effects. However, one must recognize that retrospective diagnoses are inherently dangerous, particularly when the case history of a person who died long ago only contains a scattering of observable signs and patient-reported symptoms.<sup>20</sup> There are, in this particular case, no autopsy records revealing the status of the brain and vasculature, as a necropsy was not performed after she died from what was described as a severe paralytic stroke late in 1774.

#### DEBORAH'S FIRST TWO POST-INDISPOSITION COMMUNICATIONS

The first known letter that Deborah wrote after her illness is dated "Auguste the 31 1769."<sup>21</sup> Most of this letter to "My Dearest Child" deals with their new grandson, Benjamin Franklin Bache (1769–98), who had clearly captured Deborah's heart. She would affectionately call him the "Kingbird," and she told her husband, "His Unkill and

19 Occlusive or embolic strokes (e.g., from diseased carotid arteries) are far more common in Western societies today than hemorrhagic ones, which usually start with severe, sudden headaches and are associated with significantly worse prognoses. The ratio of 85% to 15% in the United States at this time, however, might not reflect what was occurring in Deborah Franklin's time, as the percentage of hemorrhagic strokes has decreased markedly with the advent of effective hypertension treatments.

20 Karenberg emphasizes this point, while also asking whether many retrospective diagnoses would even matter (Axel Karenberg, "Frédéric Chopin and His Neuropsychiatric Problems," in *Music, Neurology, and Neuroscience: Historical Connections and Perspectives*, eds. Eckart Altenmüller, Stanley Finger, and François Boller [Oxford: Elsevier, 2015]); *Prog. Brain Res.* 216, 343–54.

21 *Franklin Papers*, 16, 187–9.



gen the paper and money and the child and his name is to gen whomever  
 states. His name is expected if she dont come sooner then she will com  
 down to your house firste Mr. Beach is in hopes and keeps her company  
 I send the News paper for I Cante tell aney thing about the publick news  
 my love to every body as there I had men showed them I am handling  
 better then ever the weather is colder then it was I am now Dear child  
 your Loving wife  
 D. Franklin  
 October 15

FIGURE 3. Deborah Franklin's handwriting late in 1769, when she was recovering from her first indisposition. Courtesy of the American Philosophical Society, Philadelphia.

Ante stood for him Mr. Banton as procksey [proxy] for you and I was well aneuf [enough] to stand for my selef." That Deborah seemed to be improving might also be inferred (rightly or wrongly) from what she wrote farther down in the same paragraph, further informing him, "tomorrow we air to dine to morrow with Mr. Hopkinson<sup>22</sup> if I am well aneuf to dine abroad" (p. 188).

Deborah mentioned having cognitive difficulties in this letter. "So I write today," she explained, "leste I not write to morrow you will see hough [how] in Conneckted staet I write." Exactly what she meant by "in Conneckted staet" is not clear. One possibility is that she felt her writing was reflecting the "unconnected" or disconnected state of her mind. The fact that she repeated the word "tomorrow" (the second time as "to morrow") in the same sentence might be indicative of the muddle-headedness, confusions, and attentional problems she was now experiencing, all notably being common and typically fluctuating (with stress, fatigue, inadequate sleep, etc.) aftermaths of brain damage.

Her second letter, also beginning "My Dear child," was written about 5 weeks later on "Ocktober the 4 1769."<sup>23</sup> It begins: "I have mised to write from this plase so I write a gen by the packit as I see in the paper that it donte saile tell nexte Satter day" (p. 213). She mentions a sick neighbor, while also providing information about several other Philadelphians and, of course, Sally and the baby. The contents of the remainder of this single-paragraph letter tell us more about her medical condition. "I send the Newspaper," she tells her husband, "for I Cante tell aney thing a bout [about] the publick news." Although this would

22 Most likely Francis Hopkinson (1737–91), a Philadelphia lawyer and surviving son of natural philosopher Thomas Hopkinson (1709–51).

23 *Franklin Papers*, 16, 213–4.

again appear to reflect ongoing cognitive problems, she now goes on to state that she feels she is improving, thanks to the weather (“I am sumthing better than senes [since] the wather is Coler then it was”). Her handwriting, although not the same as it was before 1769, is readable, and her words are reasonably spaced apart and presented in fairly straight lines (Figure 3).

#### COMPLICATIONS LATER IN 1769

Deborah’s third known letter from 1769 was dated November 20.<sup>24</sup> This time, Franklin did not read about how his wife felt like she was recovering even more. Rather, the letter provides a great deal of pertinent material about her worsening condition and how Thomas Bond was treating her. She begins, however, by acknowledging that she had just received a letter from her husband (sent 9 weeks earlier), along with some advice from one of the most celebrated physicians in London, Sir John Pringle (1707–82).

Pringle had studied medicine in Edinburgh and Leiden (with Boerhaave and Albinus) and was an expert on military, hospital, and jail medicines,<sup>25</sup> promoting various methods to prevent infection and introducing the term *antiseptics*.<sup>26</sup> He was dedicated to Baconian “factual” science and approached medicine more like an experimental natural philosopher than an academic theorist. Among the significant honors bestowed on him, he had become physician to the queen in 1761 and was made a baronet (hence “Sir”) 3 years before Deborah became ill.

Pringle had been one of Franklin’s closest friends since the American’s arrival in London in 1757, the year in which Franklin was formally initiated into the Royal Society.<sup>27</sup> The future president of the society communicated Franklin’s landmark letter on medical electricity for treating palsies to its membership before the year ended,<sup>28</sup> and

<sup>24</sup> Ibid., 16, 230–2.

<sup>25</sup> His most famous publications in these fields are *Observations on the Nature and Cure of Hospital and Jail Fevers* (1750) and *Observations on the Diseases of the Army in Camp and Garrison* (1752).

<sup>26</sup> Dorothy W. Singer, “Sir John Pringle and His Circle,” *Ann. Sci.* 6 (1949), 127–80, 229–61; Sydney Selwyn, “Sir John Pringle: Hospital Reformer, Moral Philosopher and Pioneer of Antiseptics,” *Med. Hist.* 10 (1966), 266–75.

<sup>27</sup> Franklin was elected in 1756, 11 years after Pringle, but he was not “official” before he signed the requisite papers in London. At this time, residents of the British North American Colonies could become Fellows. French and other non-nationals, in contrast, were classified as foreigners.

<sup>28</sup> Benjamin Franklin, “An Account of the Effects of Electricity in Paralytic Cases,” *Phil. Trans. R. Soc. (London)*, 50, pt. 2 (1758), 481–3.

when consulted about a girl from an aristocratic family who was suffering from “spasms and convulsions,” he asked Franklin to attempt medical electricity.<sup>29</sup> Being close to Pringle, who had become his favorite traveling companion, Franklin told him about Deborah’s illness and found him eager to help.

Unfortunately, Pringle’s letter has also been lost. Thus, one can only hypothesize about what he wrote, guided by what is known about his medical philosophy and what was learned about how Deborah was treated at that time. Regarding the former, Pringle’s “view of medicine might almost be epitomized as cleanliness, to be achieved by purification of the air without and of the bloodstream within the patient.”<sup>30</sup> Clean air would have posed little problem, as Deborah was not confined to a hospital, did not live by marshes with dreaded miasmas, and would have been warmed, if needed, by “Franklin stoves,” which greatly reduced smoke and other eye and lung irritants. But what about blood purification?

During a time when physicians were obsessed with blood, this was, first and foremost, a call for bleeding patients to remove suspected impurities, purulent matter, and other obstructions from the bloodstream.<sup>31</sup> What is often overlooked about Pringle is that his medical thesis at Leiden was, in fact, on “senile decay.”<sup>32</sup> Writing in Latin, he described how hardening and shrinking of the blood vessels in advanced years can impair the circulation, giving rise to fatal diseases. This phenomenon was not idle speculation: it was something that could be ascertained with post-mortem examinations. As a result, he stressed making sure the blood could continue to flow freely to the brain, especially in elderly patients with a history indicative of blockages in the bloodstream.

Deborah was pleased to receive Pringle’s advice. As expressed in her own words: “. . . yisterday I reseved [received] yours dated September the 9 whare in you was so kind as to sende me Sir John Pringels advise to me all I am much obliged to you and to so worthey a good man as Sir John.” In the same letter, however, she chastised her husband for staying away so long and framed his absence as one reason for her “distrest” and “disatisfid” state. “I loste all my resey lushon [resolution],” she wrote, and

29 *Franklin Papers*, 14, 95–7; Finger, *Dr. Franklin’s Medicine* (2006), 121–2.

30 Singer, “Sir John Pringle,” 127.

31 This is especially clear in Boerhaave’s writings, which were highly influential during the eighteenth century (see Koehler, 2007). See Whitaker, Smith, and Finger (2007) for more on medicine during this century, with an emphasis on understanding and treating disorders of the brain and nerves.

32 John Pringle, *Dissertatio medica inauguralis, de marcore senili* . . . (Lugduni Batavorum: Joh. Arnold. Langerak, 1730); Singer, “Sir John Pringle,” 129–30.

“live so verey lonley that I had got in so verey low a Staite and got into so unhapey a way that I Cold not sleep a long time.”

With her loneliness, dark mood, and loss of “resey lushon,” Deborah would have been considered *melancholic* by her physicians, a term loosely corresponding to *clinically depressed* in today’s parlance. Her diminished writing skills also reveal a seriously impaired mind. Further, she described how she had just gone to visit a neighbor, and how “while thair I loste all my memerey.” She even revealed how her excessive tiredness<sup>33</sup> and protracted sleeping was worrying Sally, and how Bond bled her—perhaps following what Sir John Pringle had recommended, perhaps because this is what Bond would have done anyway. As expressed in a very confusing way:

I Cold [could] not tell aney thing but stayed all day but verey sleepey and as soon as I got to bed I sleep all night and semed quite hapey and esey [easy] and I shold a got better but Salley was surrised [surprised] att my sleeping so [?] as I did and you know that I had aney Complaintes I yousd to live verey spairing but on know [unknown] to me for Dr. Bond to cume and supmited [submitted] to be Bleeded and took sumthing againste my one [own] Judgment (to oblige Salley as shee was in such a Condison [condition] as shee was) I had no head ake or fever the Dr. sed [said] my blood was verey good but sed he would sende to you I beged him not but it gave me much onesey nes [uneasiness] aboute it or I wold not a lett you to aknowe aboute it.

In her next sentence, Deborah provided Benjamin with even more worrisome information about her physical and mental health, memory problems, lost appetite, and more:

I . . . did loos my apeytite and loosing memerey grew verey week no paine tell [‘til] one day I had one of a sever pain in my sid[e] and stomick I yousd to have and then wold be better agen [again] for sume time after but this time I was verey ill for a few days verey mortely [mortally] and tanke god I have my memerey in sume meshaer [some measure] returnd, I donte remember I have had one fitt of the head ake [headache] excepte while Salley was ill as I loste my sleep I donte taste molleyes [molasses] for severel mounthes and I Cold [could] very eseyley [easily] to for bair [forebear] aney thing of drinke or aney thing to eate I did grow verey thin so much that Billey [William Franklin] sed he had never seen so much chainges in me and senes the wather I have grone [grown] better and recoverd my Coller [color] agen.

Deborah told her husband that she was attempting to hide her true

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33 Excessive tiredness is, of course, a sign of depression and a common aftermath of stroke.

condition from their friends and resolved to not bother him with what she construed as just more complaining:

I am in hopes I shall get better agen to see you I ofen tell my frindes  
I was not sick I was only more [unable] to bair aney more and so  
fell down and cold [could] . . . not get up agen indead [indeed] it  
was not aney sicknes but two much disquii [disquiet] of mind but  
I had taken up a resey lushon [resolution] never to make aney  
Complainte to you or give aney disquiet to you.

The last known letter from Deborah to her husband in this year is dated “Desember the 13 1769.”<sup>34</sup> This short communication shows Deborah still melancholic, lamenting to her husband how awful it feels to have heard “not one line [from him] in the Ocktober packit.” It is, however, easier to read than the previous letter, exemplified by a sentence that nonetheless should have been divided into two smaller sentences, in which she writes: “I am to tell you that I am much better then I was when I wrote to you the laste letter I Can find my selef Stringer [stronger] and my culler [color] and look as yous all [usual].” Most of the remainder is about neighbors and acquaintances, and she again sends her “Compley mentes [Compliments] to Sir John Pringill for his goodness and for his advise to me.”

#### THE NEXT FEW YEARS

Benjamin Franklin remained in London during the next few years, initially expecting more from his wife than she could do. Her chores included paying bills, checking balances, keeping him informed of their debts, and sending him money for his London expenses. In a manner that seems entirely out of character for him, he once even chastised her for financial mismanagement.

The regrettable event occurred in 1771, after he concluded her mind was not quite right and therefore limited her spending money, albeit without informing her.<sup>35</sup> Short of cash, Deborah borrowed money to pay her bills, which was embarrassing for her and greatly distressed Franklin when he found out. On May 1, he told her that she should have been saving more, and how “I do not like your going about among my Friends<sup>36</sup> to borrow Money for that purpose, especially as it

<sup>34</sup> *Franklin Papers*, 16, 262–3.

<sup>35</sup> *Ibid.*, 18, 90–2.

<sup>36</sup> She borrowed money from David Hall (1714–72), the Scottish immigrant printer who had started working with her husband in 1743. Franklin turned over the daily operations of this business to Hall in 1748, and he bought Franklin out of their partnership in 1766 to form the new printing house of Hall and Sellers.

is not at all necessary.” He explained why he did what he did, pointing to her memory problems:

I judged such a Limitation the more necessary, because you never have sent me any Account of your Expenses, and think yourself ill-used if I desire it; and because I know you were not very attentive to Money-matters in your best Days, and I apprehend that your Memory is too much impair’d for the Management of unlimited Sums, without Danger of injuring the future Fortune of your Daughter and Grandson.

The couple continued to write to each other after this time, with Deborah going out of her way to not annoy her husband in even the slightest way, and with Benjamin, seemingly remorseful about this cruel outburst, being gentler with her. For example, just 2 months later, on 4 July 1771, he wrote: “I have received your kind Letters of April 24 . . . [and] hope that very bad Cold you had is gone off without any ill Consequences.”<sup>37, 38</sup> Similarly, on 22 August 1772, he penned: “I am happy to hear that your Headache and other Pains have left you,” and “I hope you will yet be favoured with a good Measure of Health.”<sup>39</sup>

While the frequency of Deborah’s communications had diminished, most of her surviving letters from the 1770s remained rather lengthy and informative, although they would become increasingly more difficult to read. Benjamin sent her a greater number of letters, although most were short, telling her he was fine, mentioning a visiting friend, asking her to do a small something, and habitually promising her a follow-up letter. He wrote nothing about London politics or his activities at the Royal Society.

Much more can be learned about Deborah’s physical and mental health from the letters starting in 1770. For example, on 13 June 1770, a little less than a year before her husband would scold her over their finances, she told him: “I am much as I have bin for sune time,” communicating fairly clearly relative to how confusing her writing had been a year earlier.<sup>40</sup> A lengthier letter written that August includes the same upbeat message: “I will tell you that as to my helthe I am as well as I ever expeckte to be and I think better then I ever did [expect] I

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37 To which he added, “I have found that three of four doses of Bark taken on the first Symptoms of a Cold, will generally put it by,” thereby suggesting that she try what was also called *Peruvian bark*, *Jesuit’s bark*, or *cinchona bark* to alleviate her disorder. The active ingredient in this bark is now known to be quinine, and it was most effective when dealing with “intermitting fever,” or what we now call malaria.

38 Ibid., 18, 161.

39 Ibid., 19, 275.

40 Ibid., 17, 175.



Shold be.”<sup>41</sup> She nevertheless informed him that her memory problems were continuing, which she attributed partly to her age: “I have recovered flesh and look more like I did for a yeair but [for] my memorey but I muste expecte when I am a verey old woman.”

On “Ocktober the 14 1770,” Deborah wrote a long letter filled with small talk.<sup>42</sup> At the end she revealed having taken a nasty fall. “As to the hurte I had with Sliping down Dr. Shippins<sup>43</sup> Stairs,” she penned, it “is worse and dus everey falls and I Sufer pain.” What she meant by “dus everey falls” is far from clear, but based on what she reveals in her next few letters, she might have been trying to say that she is no longer stable and is now falling repeatedly.

Looking back, one can again only speculate about what was transpiring. Among the possibilities are that Deborah had now had a fairly large cortical infarction or perhaps a hemorrhagic stroke, given that she will mention having experienced head pain in her next letter and was now dealing with motoric issues. Another possibility, given her awareness of her memory problems, is that she was continuing to suffer from smaller infarctions deeper in the brain, or what is now called *white matter disease*. And yet another possibility might be vertebrobasilar insufficiency or ischemia with a drop attack, a condition associated with significantly decreased blood flow to the posterior parts of the brain. Not to be overlooked, her falling might have caused additional neurological damage, regardless of what initially made her slip.

The letters of 1772 show that Deborah’s continuing instability and memory problems were still very much with her. Reflecting the latter, that May she might have written a letter only to have lost it, or perhaps she had intended to write one kind of a letter only to find that she had written a very different one. “I did to write anothr sorte of a letter but it has lefte me at presant,” she explained.<sup>44</sup> One day later, she wrote more about her deteriorating condition using these words: “I am very uncapall [uncapable] of dueing aney bisnes [business] as I am not abell [able] to walke a boutte [about] and my memory so so poorley and sum times worse than others.”<sup>45</sup> She also alluded to her melancholy, stating: “I hope I shall be in better sperrites [spirits] by next opertunety.”

In June, Deborah revealed she had lost her writing ability and was

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41 Ibid., 17, 205.

42 Ibid., 17, 250–5.

43 The reference is to William Shippen (1736–1808). Franklin had helped him complete his education with a medical degree from Edinburgh (1761) and hospital training in London. In 1762, Shippen gave the first medical courses (anatomy lessons) in the Colonies, and 3 years later, he co-founded (with John Morgan [1735–89]) its first medical school, also in Philadelphia, where he was a professor of anatomy, surgery, and midwifery.

44 Ibid., 19, 141.

45 Ibid., 19, 141.

now feeble, although no longer suffering what must have been intense headaches:

You may see what blunders by the scratchin oute that I am not capabel of writin so I shall only say that I find my selef growing verey febel [feeble] verey faste. I leve Mr. Beach [Bache] and Sally to write as I am verey unfit to due. I have nothing that is good only that I have but verey littel of the head ake nor of the pain that I was so much aflickted for which I am verey thank full to god.<sup>46</sup>

Franklin received the same message, albeit less intelligibly, with more about the palsy that affected her right side in a letter written that August.<sup>47</sup> Whether her physician(s) attributed the paresis to yet another event affecting her brain is not mentioned in that letter or in other documents. However, although her right hand had become so weak that she could no longer even clothe herself, she told him that she was not shaking:

I cante write to you as I am so verey unfitt to expres myself and not a bell [able] to due as I yousd [used to do] for that illnes I had was a polsey [palsey] all thou [although] I donte shake my memerey failes me I cante expres my selef as I yousd to due. I did tell your friend Dr. Small when he was heare that I had thoute it was a polsey my write [right] hand is verey weak some times I am not abel to try on my close [clothes]. I am verey Low sperreted [spirited] that there is verey trubel some [troublesome] to tell what I wold sat it wold be of servis to ride but it is not my lot in life but yister day my Nabor Haddock took me a little way round a feeld or two for I have been verey un well for 5 or 6 days . . .

Franklin seemed in denial about or oblivious of Deborah's plight, writing back to his ailing wife on 1 December 1772: "I am glad to hear you continue so well, and that the Pain in your Side and Head have left you."<sup>48</sup> He did, however, offer her some advice. "Eat light Foods, such as Fowls, Mutton, &c. and but little Beef or Bacon," he wrote, and "avoid strong Tea, and use what Exercise you can; by these Means, you will preserve your Health better, and be less Subject to Lowness of Spirits."

Similarly, on 6 January 1773, he told her: "We have however great Reason to be thankful that so much of our Lives has pass'd so happily; and that so great a Share of Health and Strength remains, as to render Life yet comfortable . . . I rejoice to hear that you all continue well"[!].<sup>49</sup>

The last known letters that Deborah sent to her husband were

<sup>46</sup> Ibid., 19, 192.

<sup>47</sup> Ibid., 19, 230–1.

<sup>48</sup> Ibid., 19, 395.

<sup>49</sup> Ibid., 20, 16.

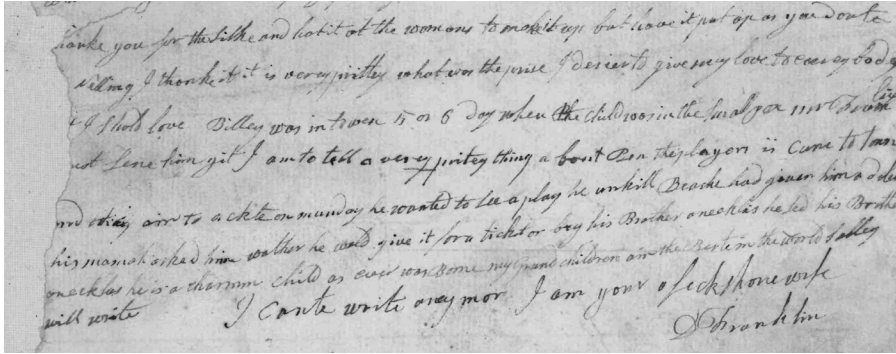


FIGURE 4. Deborah Franklin's handwriting in 1773, the year of her last known letters, when she was failing physically and mentally. Courtesy of the American Philosophical Society, Philadelphia.

penned 16 November 1772 (she mistakenly dated it 1773), and 6 April and 29 October 1773. In her short November letter, she told him, "What a taske it is to write a line."<sup>50</sup> The April letter<sup>51</sup> was also brief, and here she wrote, "I shold not due writs," which might have meant that she should not and would not attempt writing any more. The last letter<sup>52</sup> is, however, the most interesting. Composed a little more than a year before she died, she again obsessed about her husband still not coming home, before telling him: "our youngest Grand Son is the finest child as a live;" that he recovered from smallpox<sup>53</sup>; that she is shipping a "Squerel" for the daughter of one of Franklin's friends; and various other things unrelated to her health, before ending with, "Salley will write. I Cante write aney mor."

Figure 4 shows the final segment of this letter. Here one can see how hard it is to read some of her words, how she fluctuates between firm and weak strokes, and how she is no longer spacing her words and writing in nice straight lines. Her upstrokes show no evidence of tremor, suggesting that, although she now had notable writing problems, a shaking palsy (i.e., parkinsonism) was not in part responsible for these changes.<sup>54</sup> Furthermore, her written expression does not show changes frequently seen in aphasic-agraphic patients, whose efforts tend to be orthographically, lexically, and/or syntactically impaired.

<sup>50</sup> Ibid., 19, 373.

<sup>51</sup> Ibid., 20, 152.

<sup>52</sup> Ibid., 20, 449–50.

<sup>53</sup> This was a mild case of smallpox caused by inoculation, a procedure Franklin strongly supported (see Finger, *Dr. Franklin's Medicine*, 49–65).

<sup>54</sup> In Parkinson's patients, the writing is also very small (micrographia) but still clear enough to make it easy to read.

## THE NOW-WORRIED HUSBAND

By 1774, Benjamin Franklin was clearly more worried about his wife, starting an April letter to her with “my dear Love” and telling her he hoped to find her “well and hearty . . . when I have the Happiness once more of seeing you.”<sup>55</sup> On July 22, still worried, he returned to “My dear Child,” writing: “I have had no Line from you by several late Opportunities: I flatter myself it is owing not to Indisposition, but to the Opinion of my having left England, which indeed I hope soon to do.”<sup>56</sup> About 6 weeks later, on 10 September 1774, he sent her another note, explaining that it has been 9 months since he had last heard from her, also telling her, “I continue well” and how “It would be a great Pleasure to me to hear that you are so.”<sup>57</sup> He even listed three reasons why she might not have written: “your continual Expectation of my return,” “that some Indisposition had rendered you unable to write,” and “a Supposition that your kind Attention towards me was abated.”

The surviving letters to Franklin show that no one close to Deborah had reinforced the message that his once sturdy, hardworking wife was failing. If anything, he was hearing the opposite during the time of Deborah’s silence. We know that his son William sent him a letter on 3 May 1774, telling him that, “Betsy and I are here [from New Jersey] on a visit to my Mother, who, with all the Family are in good Health.”<sup>58</sup> Furthermore, and at about the same time, his son-in-law Richard Bache ended a letter he had written during William’s visit with “Mother [Deborah], Sally and the Children are all well.”<sup>59</sup>

Franklin would soon know the truth. To the dismay of his family and friends in Philadelphia, he would end 1774 as a widower 3,500 miles from home, although it would not be until early 1775 that he would know of his wife’s passing.

## DEBORAH’S FINAL STROKE

Richard Bache sent his father-in-law a letter on December 17 (since lost), telling him that Deborah had just suffered a severe paralytic stroke. The bad news is alluded to at the start of a follow-up letter, which he composed a week later,<sup>60</sup> a communication that opens with these words: “By a Vessel Via Bristol under the date of the 17th. Current

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<sup>55</sup> *Franklin Papers*, 21, 205.

<sup>56</sup> *Ibid.*, 21, 246.

<sup>57</sup> *Ibid.*, 21, 303.

<sup>58</sup> *Ibid.*, 21, 206.

<sup>59</sup> *Ibid.*, 21, 210.

<sup>60</sup> *Ibid.*, 21, 401–2.

I sent you the unwelcome Information, of my Mother's [read mother-in-law] being attacked by a paralytick Stroke, the 14th of this Month . . . ." Bache now mentions that those with her had been optimistic for her recovery, explaining:

. . . we were not then without hopes of her getting thro' it, and indeed Doctor Bond fed us with these hopes 'till Sunday Evening, when we discovered a considerable change in her for the worse; She continued without seeming to suffer much Pain 'till Monday Morning about 11 o'Clock, when without a Groan or even a Sigh, she was released from a troublesome World, and happily relieved from all future Pain and Anxiety. In the natural course of human Events, we could not expect her Continuance may years longer with us.

Bache told his father-in-law that he called for William, now the Royal Governor of New Jersey, to hasten to Philadelphia for his stepmother's funeral on the evening of December 22, which William did. Further quoting Bache: "A great number of your old Friends attended on this mournful Occasion, to pay their last respects to a Memory, which will be ever held dear by all who knew her, for the good she has done in this Life." He informed Franklin that William would be providing more details.

The same ship carried William's letter, which he began by telling his father how he had nearly missed the funeral at Christ Church Cemetery because of bad weather.<sup>61</sup> He now admitted that his stepmother had been in a tenuous state of health ever since her first "paralytic Stroke":

Her Death was no more than might be reasonably expected after the paralytic Stroke she received some Time ago, which greatly affected her Memory and Understanding. She told me, when I took Leave of her, on my Removal to Amboy [New Jersey], that she never expected to see you unless you returned this Winter, for that she was sure she should not live till next Summer . . . I think her Disappointment in that respect preyed a good deal on her Spirits.

A third document describing Deborah's demise was written by Quaker Thomas Walton, Jr. (1735–78) to his cousin Samuel Wharton (1732–1800), then in England.<sup>62</sup> It was sent on 21 December 1774, and in it the future first President of Pennsylvania after American independence told Samuel:

<sup>61</sup> Ibid., 21, 402–5.

<sup>62</sup> Thomas Wharton, Jr., "Selections from the Letter-books of Thomas Wharton of Philadelphia," *Pa. Mag. Hist. Biog.* 33 (1909), 432–53.

This day the remains of Deborah Franklin the wife of our greatly esteemed friend B. Franklin will be interred.—She died on the 19th having lately been struck with a fit of the palsey, which deprived her of the use of her speech, tho' not of her senses. As the family will be distressed . . . [and] may not write by this conveyance [ship]; it would be kind and right for thee to convey this intelligence to our Friend.

This note is important because it mentions a loss of speech after the apparent stroke. However, like so many of the letters cited in the current paper, it again has us wondering about missing pieces of the picture that these letters have painted. The murkiness in this letter is exemplified by the phrase “tho' not of her senses.” Wharton does not tell his brother whether he was referring to (a) her hearing, vision, smell, and the like; (b) her state of mind and mental competency (the opposite would be “having lost one's senses”); or (c) that perhaps she did not lose consciousness. In 1774, this phrase might have had a more specific meaning than it would for readers today.

#### FRANKLIN'S INACTION

To the extent that it is possible to put the various pieces of a 250-year-old medical puzzle together, it seems probable that Deborah Franklin suffered multiple strokes during her 60s. Her symptoms varied in severity with these events, most notably including a paralytic palsy of the right side of the body; the deterioration of what would now be called her *executive functions* (e.g., memory); and bouts of depression (then melancholia).

Many authors have written that it is regrettable that Franklin did not sail home to spend time with his ailing wife in 1769 or over the ensuing years when her condition deteriorated, leaving England only after being informed of her death. Franklin's failure to return to Philadelphia to be at his wife's side has led some critics to scoff that he always treated her more like a business associate than a woman he really loved. But is this really a fair portrayal? After all, Franklin was sent to England to try his best to prevent what he knew would be a horrible war that could be devastating to frustrated Americans. Also, neither his son nor his son-in-law had written to tell him about how incapacitated and needy Deborah was becoming. Therefore, he might have been unable to judge whether her complaints might have had more to do with her dark moods, which would probably pass, than with ongoing, life-threatening physical deterioration.

In his biography of Benjamin Franklin, H. W. Brands points to



another factor that might have kept Franklin in England—the poor state of therapeutics at the time:

In fairness, there was nothing he could have done at home to alleviate her condition. She would get better, God willing, or she would not, God unwilling. It was out of human hands.<sup>63</sup>

Brands makes a good point, but to appreciate it more fully, it is necessary to look back at what was known about stroke and its management at that time, and at Franklin's personal involvement with a new, faddish treatment option that many thought would help stroke victims.

#### STROKE FROM ANCIENT GREECE TO FRANKLIN'S TIME

The practice of physic in the mid-eighteenth century, despite the advent of Baconian science with its empiricism, disdain of time-honored theories, and advances, had not completely broken away from Greco-Roman ideas and therapeutics.<sup>64</sup> Thus, a better understanding of why Thomas Bond submitted Deborah Franklin to bleeding and why other things might or might not have been recommended requires an understanding of ideas that had taken root over two millennia earlier.

As medical historian Edwin Clarke<sup>65</sup> has shown, many references exist to what were probably strokes in the *Hippocratic Corpus*, multi-authored writings dating from approximately 400–200 B.C. At that time, *apoplexy* was the term used to describe a disorder with a sudden onset (hence the word *stroke*) that affects consciousness and breathing, causing paralyses, speech disorders, and other problems in survivors. The Greeks did not correlate these signs and symptoms with autopsy findings, so what they called *apoplexy* could have resulted from cerebrovascular disorders, myocardial infarctions, toxic states, and more. To make understanding these ancient writings even more difficult, some authors also used the term *apoplexy* to denote a paralysis of a specific body part, whether caused by an apoplectic attack or not. Nevertheless, the Hippocratic writers rightfully emphasized that the elderly were most prone to apoplexy, which they viewed as a brain disease with natural causes.

In the latter context, they often implicated black bile or phlegm in these attacks, which they considered the two humors that could cool

63 H. W. Brands, *The First American: The Life and Times of Benjamin Franklin* (New York: Anchor Books, 2002), 418.

64 Harry Whitaker, C. U. M. Smith, and Stanley Finger, *Brain, Mind and Medicine: Essays in Eighteenth-Century Neuroscience* (Boston: Springer, 2007).

65 Edwin Clarke, "Apoplexy in the Hippocratic Writings," *Bull. Hist. Med.* 37 (1963), 301–14.

the blood coursing to one's head, making it turgid and thereby affecting the transmission of needed spirits, or *pneuma*. They also pointed to a second major cause of apoplexy: the buildup of excessive blood (one sign being a reddish color of the face). In accordance with these ideas and the prevailing theory of treating with opposites to restore balance, warmth (in baths, climate, foods, etc.) was recommended, and running a fever, which would counteract the cold matter, was considered a good omen. Additionally, with their focus on the blood, some Hippocratic healers called for bleeding from a prominent vein (usually in the arm) to reduce excessive blood. They were not optimistic, however. Among their many aphorisms, we find the following: "It is impossible to cure a severe attack of apoplexy, and difficult to cure a mild one."

In Celsus's (25 B.C.–50 A.D.) *De medicina*, there is a section on apoplexy that also bears on Deborah Franklin's case.<sup>66</sup> Celsus tells his readers that less severe cases "may live a long while, yet rarely however regain health—Mostly they drag out a miserable existence, their memory lost also." He, too, strongly recommended bloodletting, stating: "If after blood-letting, neither movement nor the mind is recovered, there is no hope left." He also advised avoiding the cold, eating certain foods (e.g., game), and drinking warm water.

Galen (130–c. 200), the most influential physician of the Roman Era, accepted most of the Hippocratic writers' basic ideas about apoplexy and integrated them into his own theory.<sup>67, 68</sup> He imagined cold, thick phlegm and black bile accumulating in the ventricles that would affect the flow of animal spirits, but he also implicated the brain substance itself. Plethoric lifestyles, he emphasized, are often responsible for this "cold" disorder, which can result in paraplegia (becoming *hemiplegia* in the seventh century). Additionally, too much food and

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66 Aulus Cornelius Celsus, *De medicina*, trans. W. G. Spencer (Cambridge: Harvard University Press, 1971), III, 27.

67 Shigehisa Kuriyama, "Interpreting This History of Bloodletting," *J. Hist. Med. Allied Sci.* 50 (1995), 11–46; Axel Karenberg and Irmgard Hort, "Medieval Descriptions and Doctrines of Stroke," *J. Hist. Neurosci.* 7 (1998), 162–200. The most important primary sources for Galen on apoplexy are his *De locis affectis* and *In Hippocratis aphorismos commentarii*.

68 There were, of course, other Greco-Roman writers who addressed apoplexy, including Soranus of Ephesus (98–138). For more on the early history of apoplexy (i.e., stroke), see the previous note and Francis Schiller, "Concepts of Stroke Before and After Virchow," *Med. Hist.* 14 (1970), 115–31; William S. Fields and Noreen A. Lemak, *History of Stroke: Its Recognition and Treatment* (New York: Oxford University Press, 1989); Maurizio Paciaroni and Julien Bogousslavsky, "The History of Stroke and Cerebrovascular Disease," in *Stroke, Pt. 1: Basic and Epidemiological Aspects*, ed. M. Fisher, *Handbook of Clinical Neurology* (Edinburgh: Elsevier, 2009), 92, 3–28; Catherine E. Storey and Hans Pols, "A History of Cerebrovascular Disease," in *History of Neurology*, ed. Stanley Finger, François Boller, and Kenneth L. Tyler, *Handbook of Clinical Neurology* (Elsevier: Edinburgh, 2010), 95, 401–16.

wine depleting the body's "natural warmth," inadequate exercise, and exposure to cold and rainy weather are dangers to one's health.

Galen also agreed with the Hippocratic healers about the second major cause of apoplexy: too much blood. Aging remained part of the picture because it not only decreased the body's "indwelling warmth," but it also terminated the monthly release of excessive blood in women. To Galen, it continued to make sense to treat apoplexy with "opposites," especially heat, to counteract the cold humors, and bleeding (usually by venesection) when an excess of blood was suspected. He also recommended sternutatories to discharge some of the cold phlegm by sneezing, and other remedies, but nothing as much as bloodletting. The expectation that most victims would die immediately or perhaps a few days after an apoplectic attack did not change.

Galen's ideas, including his strong endorsement of phlebotomy as a preferential treatment for apoplexy, dominated Western thinking into the Early Modern Era. His conceptions did, however, undergo some changes and embellishments over the centuries. For example, more precision was added to the way physicians thought about the signs and symptoms of apoplexy (e.g., paralyses, loss of memory) with the advent of the theory of ventricular localization of function. Additionally, some Scholastic and Renaissance writers, as exemplified by Gilbertus Angelicus (1180–1250), increasingly linked the onset of apoplexy and its management to astrology. Because the moon affected the tides, Angelicus and others believed that it could also influence the ebb and flow of bodily fluids, including blood. Thus, some healers turned to the moon, stars, and planets to determine when and whether blood could be drawn safely.<sup>69</sup>

During the seventeenth century, Charles Le Pois (1563–1633), a French physician, among others, began to speculate that accumulated "serum in the blood" might be a cause of apoplexy.<sup>70</sup> The endurance of this idea can be seen in Thomas Bond's efforts to "purify" or remove the impurities from Deborah's blood. However, the pathological anatomy of apoplexy remained poorly recognized until several morbid anatomists showed two things: first, that apoplexy is not associated with accumulated phlegm or black bile in the cerebral ventricles; and second, that many of its victims exhibit bleeding on or in the brain, which these physicians nevertheless continued to associate with an impaired flow of animal spirits.

Jean Fernel (1497–1558) was among the first physicians to recognize that apoplexy can be due to hemorrhaging.<sup>71</sup> However, it was

69 Kuriyama, "History of Bloodletting," 1995.

70 Charles Le Pois, *Selectionum observationum et consiliorum* (Ponte ad Monticulum: Apud Carolum Mercatorem, 1619).

71 Jean Fernel, *Universa medicina* (Lutetiæ Parisiorum: Apud Andream Wechelum, 1554).

Johann Jakob Wepfer (1620–95), working in the more receptive mid-seventeenth century, who drew greater attention to hemorrhagic apoplexy when he described four cases with intracranial hemorrhages.<sup>72</sup> Two decades later, a second Swiss physician, Theophile Bonet (1620–89), presented 70 cases of apoplexy in his *Sepulchretum sive anatomia practica*.<sup>73</sup> Autopsies revealed 55 had brain abnormalities, with “Observations 7–28” showing intracranial hemorrhages.<sup>74</sup> Bonet’s publication, especially in its enlarged 1700 edition, was the most widely consulted pathological anatomy text of the period.<sup>75</sup>

In 1761, Italian physician Giovanni Battista Morgagni (1682–1771) published his *De sedibus*.<sup>76</sup> Citing 21 cases that had hemorrhaging, he wrote that the most dangerous type of apoplexy is “sanguineous,”<sup>77</sup> the other major type being “serous” (19 cases). Morgagni recognized that the paralysis appears opposite the affected side of the brain and that speech is disturbed in many patients with a paralysis on the right side of the body. He also wrote that some apoplectic conditions could develop gradually. This was just 8 years before Deborah’s first indisposition, which was also the year of the Latin-to-English translation of Morgagni’s opus.

Although no more than a cursory summary of the apoplexy literature bearing on Deborah Franklin’s strokes, at least one other morbid anatomist deserves mention, given the specific features of her case. He is Francis Bayle (1622–1709). Bayle observed calcification and plaques in the cerebral arteries, making him one of the first physicians to

72 Johann Jakob Wepfer, *Observationes anatomicae ex cadaveribus eorum, quos sustulit apoplexia* (Schaffhausen: J. C. Suter, 1658).

73 Theophile Bonet, *Sepulchretum, sive anatomia practica ex cadaveribus morbo denatis* (Genevae: sumptibus Leonardi Chouët, 1679); Henry S. Schutta and Herbert M. Howe, “Seventeenth Century Concepts of ‘Apoplexy’ as Reflected in Bonet’s ‘Sepulchretum,’” *J. Hist. Neurosci.* 15 (2006), 250–68.

74 Bonet does not divide apoplexy into subtypes, but many of his cases were *serous*, a term then used to signify the observed or imagined accumulation of what was most often a colorless or straw-colored fluid in the head.

75 Thomas Willis (1621–75), Bonet’s contemporary in England, argued from more limited clinical material and what he knew about the connected vessels at the base of the brain, that hemorrhaging was a more likely cause of apoplexy than arterial occlusion. See Thomas Willis, *The London Practice of Physick* (London: Thomas Bassett and William Crooke, 1685); and John D. Spillane, *The Doctrine of the Nerves* (Oxford: Oxford University Press, 1981), 69–70.

76 Giovanni Battista Morgagni, *De sedibus et causis morborum per anatomen indagatis* (Venetii: Ex typographia Remondiniana, 1761); Henry S. Schutta, “Morgagni on Apoplexy in *De sedibus*: A Historical Perspective,” *J. Hist. Neurosci.* 18 (2009), 1–24.

77 Most of these cases showed parenchymatous hemorrhages, but there were also subarachnoid hemorrhages and subdural and epidural hemorrhages in the series. All types of hemorrhaging, Morgagni contended, produce signs and symptoms by compressing the brain and disrupting the movement of animal spirits in their channels.

associate narrowing of the arteries with the disorder.<sup>78</sup> Bonet and Morgagni agreed with what Bayle wrote, linking “rigid” arteries to aging and stroke, as did John Pringle, whose 1730 dissertation was on the hardening of blood vessels and “senile decay.”

In contrast to these advances in pathological anatomy, some thoughts were slower to change. One was how the observed pathology continued to be linked to the impaired flow of invisible animal spirits, which by Franklin's time were viewed as particulate matter flowing through or perhaps, as Sir Isaac Newton (1643–1727) and David Hartley (1705–57) believed, vibrating along the nerve tubes.<sup>79</sup> Another was that many physicians still used some tenets of Greco-Roman thinking to explain its causes and, perhaps more importantly, to treat apoplexy.

Of particular relevance for Deborah Franklin, who became ill when the weather was cold,<sup>80</sup> time-honored therapies calling for warmth and depletion (especially bloodletting)<sup>81</sup> still dominated treatments for apoplexy.<sup>82</sup> In effect, even the most “enlightened” mid-eighteenth-century physicians were still tied to tradition, which, when translated from Bonet's Latin of the previous century, demanded that they “let blood in every apoplexy, according to the conditions of the patient, and quantity of blood in the Vessels, and that plentiful.”<sup>83</sup>

Given this historical context, with bloodletting and the eighteenth century's more general obsession with preventing and treating plethoric states, we can now better understand why Thomas Bond quickly bled and probably prescribed ways to help keep Franklin's wife warm after

78 Francis Bayle, *Tractus de apoplexia* (Toulouse: B. Buillemette, 1677).

79 C. U. M. Smith, Eugenio Frixione, Stanley Finger, and William Clower, *The Animal Spirit Doctrine and the Origins of Neurophysiology* (New York: Oxford University Press, 2012).

80 For Morgagni, it was not that the cold made the humors turgid, but rather the solidist idea that freezing weather caused the arteries to go from flaccid to rigid, thereby making them more likely to rupture.

81 This is not to suggest that there were not critics of excessive bloodletting, which had long been recognized as dangerous for children, pregnant women, the old, and the weak. Flemish physician Jan Baptist van Helmont (1580–1644) and his followers argued that it depleted a patient's strength and drained one's soul, and therefore, they strongly opposed the practice. For more on the pros and cons of bloodletting at this time, see Guy Williams, *The Age of Agony* (Chicago: Academy Chicago Publishers, 1968); Peter H. Niebyl, “Galen, Van Helmont and Blood Letting,” in *Science, Medicine and Society in the Renaissance*, ed. Allen G. Debus (New York: Science History Publications, 1972) 13–23; Kuriyama, “History of Bloodletting,” 1995.

82 Although some specialized fishes (e.g., torpedoes, a South American “eel”) were shown to be electrical in the 1750s and 1760s, thanks in part to experiments Franklin designed while in London (Finger and Piccolino, 2011), the idea that the nerves and muscles of other animals, including frogs, barnyard animals, dogs, and humans, might function by electricity only began to be debated at the end of the century (Galvani, 1791) and did not garner strong scientific support until well into the 1800s.

83 Schutta and Howe, “Bonet,” 264.

her first indisposition. These practices were mainstream medicine and were most likely what John Pringle had also prescribed in his since-lost letter. But what might be just as notable is what the extant letters do not mention. Specifically, there is no mention in these letters about the new treatment option closely tied to Benjamin Franklin's name and scientific fame.

#### FRANKLIN AND MEDICAL ELECTRICITY

Administering mild electrical shocks to the affected body parts of palsy victims came into vogue in the 1740s, probably because experimental natural philosophers found that shocks could, in fact, elicit involuntary muscle movements in people, as was true with animals and even isolated animal part preparations.<sup>84</sup> The idea of shocking paralyzed limbs to help strengthen the nerves and promote the flow of nerve "juices" made sense to physicians at this time. Indeed, early publications made it seem like a panacea for hands, feet, and legs that stroke and other patients could no longer move voluntarily. The new therapy held so much promise, especially given the excitement surrounding electricity in this era, as well as the failures of other therapeutics, that it was soon prescribed for a myriad of other disorders. With books hastily written about the miraculous cure,<sup>85</sup> it became a fad within a few decades.

Franklin was regarded as the world's leading "electrician" when he arrived in England in 1757. He had come forth with a new theory of electricity based on positive and negative charges, conducted experiments on "points" that led him to a more effective lightning rod, shown that electricity captured from the heavens was qualitatively similar to the electricity generated by frictional machines, and much more.<sup>86</sup> Importantly, having read an anonymous paper (probably by Haller) about the new electrical cure in a 1745 issue of *The Gentleman's Magazine*, and anxious to try it with palsy victims in and near Philadelphia, Franklin conducted clinical trials on a number of people, including at least two very important colonial leaders, even though he was not formally trained in medicine.<sup>87</sup>

84 Finger, *Dr. Franklin's Medicine*, 89–91.

85 For example, John Wesley's *Primitive Physick or an Easy and Natural Way of Curing Most Diseases* (London: Thomas Trye, 1747).

86 I. Bernard Cohen, *Benjamin Franklin's Experiments* (Cambridge: Harvard University Press, 1941); John L. Heilbron, *Electricity in the Seventeenth and Eighteenth Centuries* (Berkeley: University of California Press, 1979).

87 Finger, *Dr. Franklin's Medicine*, 80–101; Stanley Finger, "Benjamin Franklin, Electricity, and the Palsies," *Neurol.* 66 (2006), 1559–63; Stanley Finger, "Benjamin Franklin and the Neurosciences," *Funct. Neurol.* 21 (2006), 67–75; Stanley Finger, "Benjamin Franklin and the Electrical Cure for Disorders of the Nervous System," in *Brain, Mind and Medicine*:



In contrast to what some exuberant therapists were reporting, Franklin did not obtain lasting results with his sample of paralytics, which he described as a group having the common paralytic disorder for some time. He chose this group because he knew that many patients would recover some functions on their own soon after having a small stroke, making it hard to determine if the improvements were due to the therapy or natural healing. In some instances, however, he did witness slight but temporary improvements, which he believed were probably due to the shocks exercising the limbs or the power of suggestion, a subject to which he would return when assessing Mesmerism.<sup>88</sup>

Franklin presented his findings to the Royal Society in December 1757, in a letter that was published in the *Philosophical Transactions* early in 1758<sup>89</sup> and reprinted in newer editions of his *Experiments and Observations on Electricity*, first published in 1751.<sup>90</sup> He had seen enough with his own eyes when he wrote:

The Limbs too were found more capable of voluntary Motion, and seem'd to receive Strength; . . . These Appearances gave great Spirits to the Patients, and made them hope for a perfect Cure; but I do not remember that I ever saw any Amendment after the fifth Day: Which the Patients perceiving . . . they became discourag'd, went home and in a short time relapsed; so that I never knew any Advantage from Electricity in Palsies that was permanent.<sup>91</sup>

Many of Franklin's contemporaries, however, were not willing or ready to accept his verdict about electricity for the palsies, possibly because they were being deceived or perhaps because they were driven by a money motive. But his thoughts about medical electricity for the common paralytic disorder (and some other conditions, though not for the hysterias) did resonate with the two physicians most involved with his wife's case, namely, Thomas Bond and John Pringle. There is not the slightest indication that the so-called miracle cure of the second half of the nineteenth century was recommended by Pringle or attempted by Bond on Deborah Franklin, nor is there any evidence that Cadwallader Evans, who had previously worked with Franklin in Philadelphia to

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*Essays in Eighteenth-Century Neuroscience*, eds. Harry Whitaker, C. U. M. Smith, and Stanley Finger (Boston: Springer, 2007), 245–56.

88 Finger, *Dr. Franklin's Medicine*, 219–34.

89 Benjamin Franklin, "An Account of the Effects of Electricity in Paralytic Cases," *Phil. Trans. Roy. Soc.*, 50, pt. 2 (1758), 481–3.

90 For example, Benjamin Franklin, *Experiments and Observations on Electricity* (5th ed.) (London, Newbery, 1774).

91 Franklin, "Electricity in Paralytic Cases," 482.

successfully cure a hysterical girl with mild electrical shocks,<sup>92</sup> now stepped forth to attempt an electrical cure with her.

#### POSTSCRIPT

Bloodletting would remain the preferred treatment for strokes and palsies well into the 1800s, whereas apoplexy would not be fully recognized as a cerebrovascular disease until the early-nineteenth century, a classification based largely on the observations of Paris physicians Jean-André Rochoux (1757–1852) and Léon Rostan (1790–1866), Scottish physician John Abercrombie (1780–1844), and English physician Richard Bright (1759–1858). Nevertheless, after apoplexy became virtually synonymous with intracranial hemorrhaging physicians began to shy away from this archaic term, favoring *stroke* instead. Today, *apoplexy* is rarely encountered in medical texts other than for cases of pituitary apoplexy or pituitary tumor apoplexy, disorders characterized by bleeding into, or an impaired blood supply of, the pituitary gland.

As for whether bloodletting might have medical benefits for stroke victims, no hard evidence exists showing that it can cure a paralysis, overcome communication disorders, or reverse memory loss—three of the problems that, at various times, hampered Deborah Franklin. Two of bloodletting's recognized features are, however, that it can temporarily reduce blood pressure, which for a limited time might decrease the risk of more hemorrhaging, and reduce agitation if done copiously, as had been recognized even in Deborah's time.<sup>93</sup>

Not to be overlooked, the bleeding and medical attention Deborah received might have made her feel better, at times lifting her from her gloom and increasing her will to live a productive life. These are changes often seen with placebos, suggestion, and other forms of psychological medicine, which was an area in which Franklin had considerable expertise.<sup>94</sup>

American medical historian Charles Rosenberg has argued that therapeutics should be seen as more than a series of pharmacological or surgical experiments.<sup>95</sup> "On the cognitive level," he writes, "thera-

92 Evans, "A Cure Performed by Electricity," 83–6; Sherry A. Beaudreau and Stanley Finger, "Medical Electricity and Madness in the Eighteenth Century: The Legacies of Benjamin Franklin and Jan Ingenhousz," *Perspect. Biol. Med.*, 49 (2006), 330–45.

93 These ends are now achieved without bloodletting, although bloodletting still has a place in contemporary medicine, being used to treat several rare diseases, notably hemochromatosis and polycythemia. Also, as part of a broader treatment regimen, it might lower the chances of additional strokes in children with sickle cell anemia and a history of stroke.

94 Finger, *Dr. Franklin's Medicine*, 102–14, 219–34, 241–7.

95 Charles E. Rosenberg, "The Therapeutic Revolution: Medicine, Meaning and Social Change in Nineteenth-century America," in *The Therapeutic Revolution: Essays in the Social*

peutics confirmed the physician's ability to understand and intervene in the ongoing physiological processes which defined health and disease," whereas emotionally, "the very severity of drug [etc.] action [e.g., the changed pulse, seeing the quantity of blood drawn] assured the patient and his[/her] family that something was indeed being done."<sup>96</sup>

Therefore, Thomas Bond and the other physicians who tried to help Deborah Franklin might have helped her by drawing blood, while also providing attention and assurances when doing so, and when visiting her. In this broader, more psychological context, Benjamin Franklin might have also helped, had he chosen to return to Philadelphia. But whether his presence and well-chosen words would have done anything for his wife's body as opposed to her mind (especially given her age and propensity for strokes) will forever remain, like so many other features of this fascinating case history, a matter for endless speculation.

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*History of American Medicine*, eds. Morris J. Vogel and Charles E. Rosenberg (Philadelphia: University of Pennsylvania Press, 1979) 3–25.

96 Ibid., 9.

