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Mercury's Shadow: The Pharmaceutical Sources of Hysteria

Claudia Stokes

The sudden outbreak of hysteria in the nineteenth century remains one of the great unsolved mysteries of modern medical history. During a span of about seventy-five years, untold numbers of women complained of a baffling array of debilitating emotional and physical maladies: depression, anxiety, and extreme mood swings, in addition to numbness and even paralysis of hands and limbs, tremors, anorexia, and difficulties seeing, hearing, speaking, and walking. Physicians failed to find a medical explanation for this constellation of symptoms, and famed American physician Silas Weir Mitchell dubbed this syndrome "mysteria" in concession to its unknown etiology.¹ Its origins shrouded in mystery, hysteria inexplicably declined in the first decades of the twentieth century, with the diagnosis of hysteria becoming relatively rare by World War I.²

Without a clear medical explanation for this epidemic, critics sought to understand hysteria's larger cultural significance, with many influential commentators characterizing it as a form of bodily protest against gender constraints. This mode of interpretation began with Charlotte Perkins Gilman, who famously wrote "The Yellow Wallpaper" (1892) in response to her experience with Mitchell's notorious rest cure, which required hysterics to undergo weeks and even months of mandatory bed rest without any social, intellectual, or physical activity. Mitchell directed Gilman to abstain permanently from any form of writing or creative endeavor, and in such works as *Women and Economics* (1898), Gilman characterized creative

self-expression as a fundamental human need, the prohibition of which may cause needless suffering.³ In keeping with Gilman's precedent, Elaine Showalter argued that hysteria "has served as a form of expression, a body language for people who otherwise might not be able to speak or even to admit what they feel."⁴ Diane Price Herndl similarly interpreted hysteria as women's bodily refusal to remain silent and invisible, pointing to Gilman as confirmation that writing and public discourse may help remedy hysteria.⁵ For generations, hysteria has been understood as the response of elite white women to the cultural expectation that they remain idle, with domesticity and needlework their only creative outlets.⁶

However important and influential, such interpretations suggest that nothing was medically wrong with these women and that their sufferings were the product of unhappiness as well as cultural, if not psychological, repression. In recent years, however, a different mode of analysis has emerged that seeks to take seriously the bodily symptoms of hysteria and find a plausible medical explanation for this epidemic. For instance, Jennifer Lunden has proposed that the pervasiveness of arsenic in the nineteenth century may account for some of these mysterious symptoms. Lunden notes that arsenic was included in dyes, soaps, candles, and food wrappings, and Lucinda Hawksley has similarly documented the omnipresence of arsenic in wallpaper, which emitted poisonous gases into the household.⁷ Both Lunden and Hawksley reconsider Gilman's "The Yellow Wallpaper" as a depiction of the neurotoxicity of the nineteenth-century home, with the eponymous wallpaper figuring less as a metaphor of the narrator's domestic unhappiness than as the toxic source of her precipitous decline. Although arsenic undoubtedly caused significant public health problems, its symptoms do not align with those of hysteria: arsenic poisoning primarily causes digestive maladies, headaches, and even death, not the mental health problems or sensory and motor impairments associated with hysteria.⁸

Following Hawksley and Lunden's work in recovering the everyday toxicity of the nineteenth-century environment, I propose an alternate explanation for nineteenth-century hysteria: mercury poisoning. Today, mercury is widely recognized as a dangerous toxin, debated by parents concerned about its inclusion in vaccines and cited in warnings that consumers limit their intake of tuna and swordfish, both of which accumulate mercury in muscle tissue.⁹ In the nineteenth century, however, mercury was used to treat everything from teething pains to syphilis, and Americans habitually used mercury in numerous forms—in ointments, in a potent treatment called blue pill or blue mass, and in the popular panacea calomel, the common name for mercuric chloride. A cathartic used to increase salivary and biliary secretions, mercury was particularly favored as a treatment for common digestive problems such as constipation and diarrhea, as well as more serious intestinal illnesses like dysentery; it was

also widely used as a preventative to defend against cholera, yellow fever, and even madness.¹⁰

Nineteenth-century physicians recognized a few symptoms of acute mercury poisoning, among them tooth loss, gum inflammation, and gangrene of the jaw, all of which typically afflicted patients who took mercury orally and which physicians regarded as confirmation of mercury's efficacy. However, doctors did not recognize the problems caused by chronic mercury use or by exposure through inhalation or direct skin contact. Such symptoms include depression, anxiety, irritability, tremors, numbness in the hands and limbs, extreme fatigue, anorexia, headaches, mobility disturbances, inability to speak, and loss of vision.¹¹ There is no discounting the extraordinary similarity of these symptoms to those of hysteria, and one commentator has recorded numerous incidences in which patients suffering from mercury poisoning were initially misdiagnosed as hysterical.¹² As I show, the health histories of numerous nineteenth-century Americans confirm that exposure to mercury often preceded the development of hysteria's telltale symptoms. These medical histories also demonstrate that hysteria was by no means a special condition afflicting only elite white women, as we have often presumed, but it also affected men, people of color, and working-class people.¹³ Mercury was so pervasive—promoted in almanacs, household manuals, and women's periodicals—that it often eluded documentation or even notice, much like over-the-counter analgesics today. Mercury was also administered to livestock, so Americans may have been exposed to mercury through the ingestion of dairy and meat. Because of its wide, unregulated circulation in the nineteenth century, mercury likely contributed to many of the period's unexplained ailments, hysteria foremost among them.

Despite its ubiquity in the nineteenth century, mercury has received limited attention in studies of the period, which depict this treatment, if at all, as a mere oddity of medical and pharmaceutical history.¹⁴ Furthermore, mercury is wholly absent from the vast scholarly and medical literature examining nineteenth-century hysteria. Mercury's continuing invisibility may be attributed in part to physicians' inattention to the symptoms of chronic mercury poisoning, which often emerged long after initial exposure, with little indication that they were caused by a common nostrum administered weeks earlier. Seizures could begin and end at irregular intervals, with no discernible trigger. In the absence of pharmaceutical regulation, mercury treatments also varied widely in potency, and physicians often prescribed heavy doses because they were uncertain about the purity level of available mercurials.¹⁵ As a result, one patient might report no unusual problems and another might exhibit symptoms of varying severity. Entrenched medical opinion also prevented physicians from recognizing that this venerable treatment, recommended by such eminences as Paracelsus in the sixteenth century and by Benjamin Rush in the eighteenth century,

might pose a danger to public health, causing widespread suffering and permanent impairment among countless Americans.

Mercury may no longer be available as an over-the-counter remedy, but it nonetheless continues to influence common therapeutic practice. As I show, mercury contributed to the creation of psychoanalysis, the period's most famous treatment for hysteria that provided the foundation of modern psychotherapy. Sigmund Freud's case histories inadvertently chronicled his hysterical patients' exposure to mercury, and although he contended that these women's problems were emotional and psychological rather than medical, Freud's innovative system of talk therapy derived from physicians' continuing belief in the curative properties of purgation. Mercury may be remembered only as a curiosity of nineteenth-century medicine, but its legacies endure.

The History of Hysteria

Hysteria has a long and storied history, recorded in Egyptian papyri and described in ancient Greek medical writings as a uterine disorder, in which the uterus becomes dislodged and circulates throughout the female body.¹⁶ Its name taken from the Greek word for "uterus," hysteria functioned for literally millennia as a catch-all diagnosis for unexplained female maladies, some of which today might be diagnosed as endometriosis, pelvic inflammatory disease, or premenstrual syndrome.¹⁷ By the nineteenth century, hysteria had come to denote a new syndrome of unexplained problems, which, as I described earlier, included debilitating anxiety, depression, and mood swings accompanied by bodily disorders, among them sudden muscle contractures, paralysis, numbness of hands and limbs, impaired mobility, and difficulties seeing, speaking, or hearing. Incidences of hysteria increased exponentially throughout the century. The renowned French sanitarium Salpêtrière saw a dramatic spike in its numbers of hysterical patients, who increased from about one percent of patients in the 1840s to seventeen percent in the 1880s, with ten patients a day reputed to have sought treatment for hysteria at this clinic.¹⁸

Physicians differed widely in their opinions of the epidemic's etiology. Neurologist George M. Beard, who coined the term "neurasthenia" to describe this condition, observed that men were also afflicted, and he attributed this outbreak to the excessive demands of modern society and the capitalist marketplace, both of which he believed had exhausted the central nervous system. Silas Weir Mitchell similarly argued that these problems were caused by depletion, and he noted that hysteria particularly afflicted thin, "feeble" women who, he believed, lacked a sufficient blood supply.¹⁹ Mitchell recommended not only prolonged rest but also a milk-based diet and regular massages out of the belief that larger, inactive bodies would insulate women's otherwise exposed, raw nervous system. Charlotte Perkins Gilman's story reminds us that Mitchell's treatments

could cause terrible suffering, and the 1889 death of Winifred Howells, daughter of novelist and editor William Dean Howells, while under Mitchell's care conveys the dangers posed by the rest cure.

Famed French neurologist Jean-Martin Charcot contended that hysteria originated not in exhaustion but in an injury to the central nervous system or in a genetic predisposition. An accomplished medical researcher, Charcot's nosological work helped to identify the particular symptoms of both multiple sclerosis and Parkinson's disease, and he sought to distinguish hysteria from other ailments, such as epilepsy and anxiety disorders, photographing women during seizures and cataloguing the symptoms and phases of hysteria in an effort to identify its distinctive features.²⁰ His clinic, Salpêtrière, functioned as the epicenter of scientific research into hysteria, with Freud briefly studying there in the 1880s. Charcot's reputation has been somewhat marred by his interest in using hypnosis to treat hysteria, but underlying these inquiries was his suspicion that metals might play a role in this unexplained epidemic. Influenced by Victor Burq's research in the psychological uses of metals, Charcot investigated whether metal rods of different composition might alter patients' moods or state of mind.²¹ Charcot's experiments with metals have been dismissed as "credulous," and they convey how little physicians understood the workings of the body beyond the readily visible.²² At the same time, Charcot was astute in his observation that metals may influence mood and health, as well as his suspicion that metals might play a central role in hysteria.

Mercury Rises

The pervasiveness of toxic heavy metals in the nineteenth-century American household cannot be overstated, as illustrated by the inclusion of arsenic in cosmetics and of lead in house paint. However, mercury reigned as the century's predominant heavy metal due to its frequent use and consumption. Mercury deposits in Spain and Italy have been mined since antiquity; for instance, the Romans used mercury to create vermilion pigment and aid in the extraction of gold ore.²³ In the nineteenth-century United States, mercury was widely employed in innumerable industries, among them gilding, mirror silvering, seed dressing, printing, felt production, engraving, embossing, and glassblowing. Hatmaking was especially renowned for its health dangers, and the impact of mercury on hatmakers resulted in the expression "the Danbury shakes," describing the tremors common to hatmakers in Danbury, Connecticut. The Mad Hatter of Lewis Carroll's *Alice's Adventures in Wonderland* (1865) is doubtless the best-known example of the dangers posed by industrial exposure to mercury, but public knowledge about workplace hazards did not result in protective legislation or regulations limiting exposure. On the contrary, industrial use coincided with the widespread medical prescription of mercurial treatment.

Mercury has no known curative or health properties, but its extensive use derives from the enduring influence of the humoral model of disease, which designated the balance of bodily fluids as essential to human health. According to this ancient model, disease occurred when fluids were excessive or inadequate, a conviction that underlay Mitchell's assertion that hysteria was caused by insufficient blood supply. Within this medical model, the liver functioned as the seat of human health, and any irregularity in biliary secretions was believed to cause disease.²⁴ A cathartic that promoted salivation and digestive elimination, mercury became physicians' favored tool in stimulating the production of bodily fluids and restoring equilibrium to the imbalanced human body. Physicians erroneously interpreted the green stools of patients taking mercury as evidence of increased biliary production, and they likewise deemed excessive salivation as proof of mercury's effectiveness. Physicians also believed that purgation could expel infection and used both cathartics and bloodletting, often together, to eject illness from the body.

Mercury was traditionally used to treat leprosy, and by the sixteenth century, it became the favored remedy for syphilis.²⁵ One common adage quipped, "A night with Venus, a lifetime with Mercury," acknowledging that the diagnosis of syphilis could result in lifelong treatment with mercury. Historians estimate that at the time of hysteria's peak, in the late nineteenth century, syphilis affected anywhere between two and ten percent of the U.S. population, and its conventional treatment caused widespread mercury exposure across the social spectrum, with well-to-do professionals and uneducated laborers alike receiving the same toxic treatment.²⁶ Infected mothers could also transmit syphilis to their children, who would then require their own mercury treatments and acquired a host of cognitive and developmental impairments as a result.²⁷ The common use of mercury for syphilis treatment likely contributed to physicians' continuing ignorance about chronic mercury poisoning because its symptoms closely resembled those of syphilis, which could also result in partial paralysis, impaired mobility, extreme mood swings, and even madness. Physicians may have observed signs of chronic mercury poisoning in their syphilitic patients but misconstrued them as symptoms of the underlying infection, not of the treatment.

By the late eighteenth century, mercury had entered the medical mainstream in part because of the advocacy of Dr. Benjamin Rush, an eminent Philadelphia physician who served as surgeon general of the Continental Army during the American Revolution and represented Pennsylvania in the Continental Congress. During Philadelphia's yellow fever epidemic of 1793, Rush treated countless people with calomel, the popular name for mercuric chloride and mercury's most common medical form, and a year later, he published an account that forcefully promoted the medical

uses of mercury. Rush recounted initially feeling skeptical about calomel but became convinced of its effectiveness after seeing other physicians use large doses to treat fevers during the American Revolution. Unaware that yellow fever was carried by mosquitos, Rush believed it was a "bilious" illness originating in the liver, and he treated the sick by purging them with both calomel and bloodletting.²⁸ He specifically recommended administering twenty grains of calomel three or four times a day, a measure that came to be known as a heroic dose and that is roughly equivalent to about 5,000 milligrams a day; it bears stressing that today's environmental agencies cap acceptable mercury consumption at only 0.021 milligrams per day.²⁹ Rush defended calomel's efficacy in treating various disorders—including madness, dysentery, and hypochondriasis, a catch-all term for depression—and claimed that it even "restored the affection of a mother for her child."³⁰ Later observers noted that Rush's treatment likely caused more fatalities than the yellow fever epidemic he sought to treat, but at the time, Rush's reputation contributed to the widespread use of calomel to treat fevers, inflammations, and infections of all kinds and led to its reputation as the "Samson of the *Materia Medica*," able to defeat all medical foes.³¹

The nineteenth century may be understood as the zenith of mercury's medical use, when physicians' willingness to prescribe it was regarded as an indication of their professionalism and seriousness.³² Between 1854 and 1887, mercury was the second-most-frequently prescribed medication, surpassed only by opiates used to treat pain.³³ Mercury was available in about eight different preparations, which included unguents, vapors, injections, and the more potent "blue pill" or "blue mass" made from liquid mercury. Dosages varied depending on the prescribing physician and the relative purity of the drug, but the popular blue pill has been estimated as containing roughly sixty-six milligrams of mercury, with intravenous injections used to treat syphilis estimated to contain about forty milligrams of mercury.³⁴ Mercury was used to treat everything from diaper rash and intestinal parasites to rheumatism and pneumonia. It was also a mainstay of gynecology, used in douches and suppositories to prevent conception, induce abortion, and prevent sexually transmitted disease.³⁵ The century's most influential pharmaceutical manual, Edward Parrish's *Introduction to Practical Pharmacy* (1856), included a formula for "anti-bilious pills," which included calomel as well as other cathartics, and boasted that its recommended "preparation is vended in great quantities over the country" and exceeds in quality popular "nostrums" and patent medicines.³⁶ Mercury treatments acquired particular prominence in the South and West, where calomel was commonly used to deworm children and treat fevers.³⁷ Western migrants with little medical access especially relied on calomel as a cure-all, a practice derided by Francis Parkman in *The Oregon Trail* (1849), his account of traveling across the western fron-

tier. For instance, Parkman described an “assistant surgeon’s deputy” who “brought them each a huge dose of calomel, the only medicine... which he was acquainted with.”³⁸

Women’s magazines regularly included recipes for home remedies using calomel, as with an 1873 article in *Godey’s Lady’s Book* that suggested using it for muscle sprains and another in 1876 recommending its repeated use for vomiting.³⁹ *Godey’s* even included suggestions of chemistry experiments suitable for children, which entailed direct handling of mercury and the possible inhalation of toxic fumes.⁴⁰ Domestic manuals also commonly included home remedies using various forms of mercury. For instance, a domestic manual of 1853 recommended a remedy to treat “inflamed eye-lids,” which entailed applying calomel mixed with whale oil directly to the eyes.⁴¹ Another manual included mercury-based treatments for sheep, cattle, and horses as well as recommendations for the treatment of croup and worms.⁴² These treatments harmed not only their recipients but also the women who prepared them, because mercury emits gases at room temperature. The preparation of blue pill, which entailed repeatedly hammering liquid mercury, was especially likely to cause the emission of toxic fumes.

In all its forms, mercury is metabolized in the form of mercuric chloride, which is typically absorbed in the kidneys as well as the central nervous system. Mercury consumption may lead to kidney failure, but it also interferes with the “proteins and enzymes involved in synaptic and neuromuscular transmission,” resulting in the interruption and deterioration of neurological and muscular function.⁴³ Chronic exposure to mercury, even at low doses, has been shown to cause both neurological and cardiovascular disease as well as serious impairments of neuromuscular function.⁴⁴ Mercury may be expelled from the body through feces, but the slow nature of this elimination may allow mercury to accumulate in the body and cause permanent damage.⁴⁵ The terrible irony is that mercury was presumed to detoxify the body but instead created dangerous toxicity in patients treated with it. In this respect, mercury suggestively evokes Jacques Derrida’s notion of the *pharmakon*, the medicinal cure that doubles as a poison.⁴⁶

However, mercury was not universally lauded, and it received some public criticism, often from physicians who questioned its effectiveness and cautioned against its abuse. By the 1840s, a few prominent physicians warned about the chronic use of calomel, which they claimed could cause permanent damage to the stomach.⁴⁷ Other physicians conducted experiments and determined that calomel and other mercurials failed to alter liver secretions, as was believed, but instead irritated the intestines and stomach. Concern about calomel led to the rise of numerous alternative health movements—among them homeopathy, hydrotherapy,

Grahamism, and Thomsonianism—which promoted the use of traditional herbal remedies and openly opposed the use of all mercurials.⁴⁸ *Godey's Lady's Book* included many home remedies that used calomel, but it also acknowledged that these treatments could harm patients. An 1854 article, "A Few Words About Delicate Women," described a healthy, lively girl whose school governess found her too boisterous and recommended a course of calomel; as a result, she became "languid and listless," her energy depleted and her personality essentially changed through use of calomel.⁴⁹

The most prominent public criticism of calomel occurred in 1863, when Union Surgeon General William A. Hammond issued a memo announcing the removal of calomel from federal dispensaries and prohibited its continued use in military hospitals. Hammond wrote, "It appears that the administration of calomel has so frequently been pushed to excess by military surgeons as to call for prompt steps by this office to correct this abuse; an abuse the melancholy effects of which, as officially reported, have exhibited themselves not only in innumerable cases of profuse salivation, but in the not infrequent occurrence of mercurial gangrene."⁵⁰ Hammond's announcement received public outrage from both medical and military personnel, who refused to heed his instructions, and it likewise led to his dismissal and court-martial, a response that conveys calomel's near-sacrosanct status.

Mercury and Mental Health

Hammond's mention of mercury's various "melancholy effects" acknowledged that mercury poisoning manifests not just in bodily symptoms but also in mood changes, anxiety, and depression.⁵¹ The health histories of twentieth-century workers repeatedly registered the emotional changes symptomatic of mercury poisoning. For instance, Lesley Bidstrup's 1964 study of industrial mercury poisoning described a forty-year-old woman who, two years after exposure to mercury, suffered not only from "impaired vision, sensation of unpleasant smell, tiredness... [and] unsteady gait" but also from "depression... excitability and restlessness."⁵² A twenty-five-year-old female lab assistant was similarly diagnosed with fatigue, "headaches, irritability... [and impairment] of memory and power of concentration."⁵³ Another woman of unidentified age who worked in a seed processing factory registered "nervousness and irritability," as well as tremors and difficulty with motor coordination.⁵⁴ Researchers also noted that mercury poisoning often resulted in weight loss and even anorexia, a condition often associated with elite, young white women but that was also observed in numerous workers diagnosed with mercury poisoning. For instance, a thirty-two-year-old man manifested extreme weight loss, numbness, tremors, difficulty walking and speaking, vision changes, and irritability.⁵⁵

These symptoms mirrored those of hysteria, which typically manifested in emotional disorders—depression, anxiety, and irritability—accompanied by unexplained muscular, motor, and sensory problems. Bidstrup's study included numerous examples of workers who were initially misdiagnosed as suffering from hysteria before physicians recognized the signs of mercury poisoning. For instance, a thirty-one-year-old worker who suffered from problems with motor coordination as well as difficulties speaking and processing information was originally believed to be hysterical, but the discovery of similar cases among his coworkers led to the recognition of workplace mercury exposure.⁵⁶ The thirty-two-year-old man suffering from extreme weight loss, mentioned earlier, was also initially diagnosed as hysterical. In response to numerous such misdiagnoses, Bidstrup cautioned physicians to undertake more thorough examinations and "enquire carefully into the possibility of exposure to mercury as a cause of the symptoms before attributing them to anxiety or 'neurasthenia.'"⁵⁷ The problem, as Bidstrup saw it, was that physicians of the mid-twentieth century were no better than their nineteenth-century predecessors at recognizing the symptoms of mercury poisoning and were too quick to attribute these maladies to psychological problems.

Freud offered the period's most influential commentary on hysteria, and his case histories recorded symptoms that matched those of people diagnosed with mercury poisoning. Anna O., the famed patient of Freud's early collaborator, Josef Breuer, was documented as suffering from vision disturbances, headaches, numbness and paralysis of limbs, and difficulty speaking.⁵⁸ The patient known as Emmy von N. also suffered from leg and arm pains, and Elizabeth von R. similarly complained of debilitating leg pain and difficulty walking.⁵⁹ Dora, the subject of Freud's most extensive case history of hysteria, suffered from problems speaking and walking, respiratory problems, and a constant cough. In the main, these case histories included little mention of calomel or other mercurials, but their omission speaks largely to the commonplace nature of such treatments, which would hardly merit special notice from a physician.

However, mercury figured prominently in Freud's famed case history of Dora. Freud first came into contact with Dora's family when he treated her father for syphilis, for whom Freud prescribed "an energetic course of anti-luetic treatment": that is to say, Freud prescribed what may have been a heroic dose of mercury for the treatment of syphilis.⁶⁰ In an aside relegated to a footnote, Freud described an arresting pattern he had discerned among the families of his hysterical patients:

Now a *strikingly high* percentage of the patients whom I have treated psycho-analytically come of fathers who have suffered from tabes [syphilis] or general paralysis. In consequence of the novelty of my therapeutic method, I see only the *severest* cases,

which have already been under treatment for years without any success.... Indeed, I was able to obtain direct confirmation of such an infection in a number of cases.... Syphilis in the male parent is a very relevant factor in the aetiology of the neuropathic constitution of children.⁶¹ [emphasis in original]

Freud mentioned this pattern to suggest that hysteria may have an underlying genetic component. He may have been partially correct in this supposition, for recent studies have shown that ailments caused by mercury poisoning may be transmitted across generations.⁶² In the case of Dora, her father's exposure to large doses of mercury may have epigenetically contributed to her own health problems. At the same time, Freud's observation indirectly acknowledged that hysterics commonly had a family history of sustained mercury consumption and likely had regular exposure to this toxic substance. Freud's case history mentioned both that Dora's father contracted syphilis before his marriage and that he subsequently transmitted it to Dora's mother, who, during the course of Dora's therapy with Freud, departed to a sanitarium for the treatment of her own syphilitic symptoms.⁶³ It remains unclear whether Dora's mother used mercury while pregnant or nursing, but Freud interpreted Dora's own gynecological problems and her limping gait as indicators that she too had inherited this infection, which is transmissible between mother and child. As a result, Dora would have also received treatment with mercury. Freud postulated that Dora's hysteria originated in her extended family's complex sexual dynamics, as well as her conflicted sexual feelings for various family members, but her family's history of sexually transmitted disease and mercurial treatment may have played a more prominent role in her health problems than Freud recognized.

As part of his interest in the relation between hysteria and syphilis, Freud mentions in another footnote that he treated a colleague's sister for hysteria, which manifested in difficulty walking. After taking a detailed medical history, Freud concluded that she was suffering not from hysteria but from syphilis, which he described as a "not very advanced stage of tabes [syphilis]." Freud then mentioned that she was "treated with Hg injections (Ol. cinerum) by Professor Lang with markedly beneficial results."⁶⁴ Hg, a term Freud used in a kind of medical shorthand, is the chemical abbreviation for mercury. This aside is meant to suggest Freud's diagnostic ability, but mercury injections likely caused additional symptoms, as well as a subsequent diagnosis of hysteria.

In the United States, any number of prominent figures displayed hysterical symptoms after consuming mercury. As Norbert Hirschhorn and others have shown, Abraham Lincoln took blue pill in the 1850s for headaches, and during this time, he manifested depression, tremors, difficulties walking, and extraordinary mood swings, which often resulted in

fits of rage.⁶⁵ These symptoms did not interfere with Lincoln's ability to work or conduct a productive public life, nor did he appear to seek treatment for these maladies. As a result, Lincoln has not been generally perceived as suffering from hysteria or neurasthenia (the more common diagnosis for men), although he was recognized as prone to depression. Women more openly struggled with the complications of mercury poisoning, their symptoms often making it impossible for them to carry out their domestic responsibilities and thereby creating additional labor for others. Harriet Beecher Stowe, novelist and author of the bestselling *Uncle Tom's Cabin* (1852), had a long history of mercury exposure. In 1841, for instance, she described preparing mercurial home remedies for her husband after he became sick: she wrote, "I have been... making pills (blue of course, or *azure* if you want to be genteel) & doing them up in invisible shapes for him to swallow."⁶⁶ Stowe's preparation of blue pill for her husband may explain Calvin Stowe's own documented episodes of limb paralysis as well as his lifelong struggle with depression. A modern experiment confirmed the serious health hazards posed by Stowe's work preparing such remedies. Several scientists followed a nineteenth-century formula for the home preparation of blue pill and determined that the resulting ambient gases measured around 1.99 mg of mercury per cubic meter, which is more than forty times the limit permitted by the U.S. National Institute for Occupational Safety and Health. They also determined that each pill contained about 65 mg of mercury, which is roughly 4,000 to 5,000 times the amount of mercury deemed acceptable for human consumption by modern American environmental standards.⁶⁷ Home preparation of mercurial treatments thus exposed nineteenth-century women to toxic levels of mercury, and it may explain Freud and Breuer's observation that women who worked as nurses were more likely to develop hysteria.⁶⁸

Stowe's papers confirm that she too consumed mercury on numerous occasions. For instance, in a letter to her brother Henry Ward Beecher, she mentioned that a doctor prescribed "blue pill enough to last one life time... in consequence whereof I have been four or five times saturated."⁶⁹ As Stowe's biographer Joan D. Hedrick noted, Stowe clearly manifested the symptoms of mercury poisoning. In 1842, she developed paralysis of her arms, and for some time Stowe was unable to tend to domestic tasks or care for her children, which created a veritable crisis in the Stowe household. This episode eventually subsided, but Hedrick noted that Stowe throughout her life continued to struggle with headaches, fatigue, and confusion.⁷⁰ Stowe experimented with numerous forms of homeopathy, including hydrotherapy, which Hedrick speculates likely facilitated Stowe's expulsion of mercury, but she continued to suffer some of its lasting consequences for the rest of her life.

Louisa May Alcott, Stowe's contemporary and fellow novelist, also suffered lifelong health problems after treatment with mercury. The Alcott

family preferred homeopathy and herbal remedies, so it is unlikely that Alcott habitually used calomel, blue pill, or other mercurials.⁷¹ However, in 1863, Alcott developed typhoid pneumonia while serving as a nurse in Washington, DC, and, in accordance with medical convention, she was treated with massive doses of calomel. She quickly began to manifest symptoms of mercury poisoning: mouth sores and gums so inflamed that she had trouble eating.⁷² After her recovery, Alcott complained throughout her life of tremors, pain and numbness in limbs, fatigue, irritability, and anxiety. Her mood fluctuations became so extreme that one modern biographer conjectured that she may have suffered from what we might today recognize as bipolar disorder.⁷³

Unlike her contemporaries suffering from similar problems, Alcott became convinced that her health problems were due to mercury consumption.⁷⁴ In 1870, an English physician diagnosed her consistent limb problems as the consequence of mercury poisoning. She wrote in a letter to her family, "Dr Kane... says, my leg trouble and many of my other woes, come from the calomel they gave me in Washington. He has been through the same thing with an Indian-Jungle-fever, and has never got the calomel out of him. The bunches on my leg are owing to that, for the mercury lies round in a body and don't [*sic*] do much harm till a weak spot appears when it goes there and makes trouble. I dont [*sic*] know anything about it, only [my] leg is the curse of my life."⁷⁵ In 1871, eight years after her treatment, she composed a parodic poem, based on the popular song "The Graves of a Household," about her lingering dental problems. She wrote:

They grew in beauty side by side,
 They filled one mouth with glee;
 Their graves are severed far & wide
 By mount & stream & sea.
 The same fond toothbrush went at night
 O'er each fair pearly row,
 It had each perfect one in sight;
 Where are those *toothies* now?
 One sleeps in the forests of the West,
 For in old Concord's shade,
 It was the first that openly confest
 The ruin *Calomel* had made.⁷⁶ [emphasis in original]

This poem is meant to be satiric, but it depicts the lifelong woes of mercury poisoning, as the speaker remains uncertain when its symptoms will resurface and cause permanent disfigurement.

Alcott received calomel during the Civil War while under the care of Union Army physicians, whose excessive prescription of mercury prompted Hammond's censure. Alcott's experience was by no means unusual, for

both Union and Confederate physicians relied on calomel to treat dysentery, which ran rampant because of poor sanitary conditions and afflicted well over a million American Civil War soldiers.⁷⁷ Civil War medical records bear abundant witness to both mercury poisoning as well as the telltale symptoms associated with hysteria. One nineteenth-century account of Civil War medicine noted that many dysentery patients manifested some unusual symptoms, which physicians were unable to explain. In particular, doctors noticed that soldiers recovering from dysentery often suffered mysterious episodes of limb paralysis. The account noted, "Paralysis of one or more limbs is an occasional sequel to dysentery, which was several times observed during the civil war, although it was far from attracting the attention it deserved." The report further observed that nearly 3,000 Union soldiers were discharged from service because of mysterious limb paralysis and included several case studies in which dysentery patients—who had presumably been treated with massive doses of calomel—developed problems using their limbs. For instance, the report noted, "In case 569 the patient died of a subacute flux of about three months' duration. While under treatment for this disease, and about a month before his death, 'he had an attack of paraplegia, which, after several days, confined itself to the right lower extremity'.... In case 819 the right arm became paralyzed about a week before death, and the right lower extremity a few days later.... In case 884 the paralysis followed acute dysentery."⁷⁸

The medical records of one patient, twenty-year-old Private Charles Eastman of the 99th Illinois infantry, chronicled his worsening symptoms: "slight stiffness of the lower jaw and difficulty of opening his mouth... coldness and a prickling sensation in the lower extremities... difficulty guiding [limbs] now supervene... Numbness and prickling sensation continue; speech is difficult, and the voice sounds as though it were full of food.... He continued to improve till... the paralytic symptoms became worse again."⁷⁹ Afflicted by mouth pain followed by limb numbness and paralysis, Private Eastman clearly suffered from mercury poisoning as a result of calomel treatment, but his physicians did not recognize that their prescribed treatment had caused these problems. Eastman's symptoms were identical to those of Freud's hysterical patients, who so often complained of problems speaking and controlling limbs and who, Freud noted, often had extensive family histories of mercury treatment. Unlike these women, however, Civil War veterans evaded the diagnosis of hysteria because any lingering struggles with health or mental illness would likely have been attributed to war injuries. Nonetheless, Ilza Veith noted that the Civil War prompted growing medical interest in hysteria, as physicians contended with what we might today recognize as post-traumatic stress disorder, a condition that was likely exacerbated by the consequences of mercury poisoning.⁸⁰

Despite the countless numbers of men who suffered from hysteria, it has been remembered as a malady largely afflicting elite women. For

instance, Ann Douglas described hysteria as “fashionable” and suggested that nineteenth-century women deliberately presented themselves as hysterics to broadcast their feminine delicacy.⁸¹ This gendered perception found significant support in Freud’s case histories of hysteria, which included profiles of only women. Doctors pondered the paralysis of soldiers recovering from dysentery, but Freud concluded that nothing was medically wrong with hysterical women. He instead surmised that women’s symptoms derived from the “conversion” of traumatic memories and feelings into bodily symptoms that imitated the original trauma.⁸² Freud nonetheless preserved longstanding medical convention and treated hysterics by adapting the conventional practice of purgation. Instead of administering a potent cathartic to eject the infection, Freud devised talk therapy—a term coined by patient Anna O.—to dislodge and expel traumatic memories and feelings. In *Studies in Hysteria* (1895), Freud and Breuer elaborated on the powers of speech to effect a kind of psychological detoxification. This “method,” they wrote, “removes the effectiveness of the idea that had not originally been abreacted by allowing its trapped affect to drain away through speech.” They continued, “The patient is, as it were, clearing it away by converting it into words” [emphasis in original].⁸³ It is only through talking, Freud insisted, that the hysteric may purge the source of her unhappiness and find relief from her bodily symptoms. Freud did not recognize mercury’s role in causing his patients’ symptoms; nonetheless, he used purgation as a model for psychotherapy. Commenting on hysteria’s importance to the creation of modern talk therapy, one critic has observed, “Psychoanalysis can historically be called the child of the hysterical woman.”⁸⁴

In the first decades of the twentieth century, diagnoses of hysteria declined precipitously, with even physicians marveling at this sudden drop.⁸⁵ Historians have proposed numerous explanations for the sharp decrease, for instance, attributing it to the loosening of sexual and gender norms, which one historian termed the “de-Victorianization” of American culture.⁸⁶ Others have attributed this decline to improvements in physicians’ diagnostic ability, which allowed them to distinguish hysteria from such maladies as syphilis, epilepsy, and panic attacks.⁸⁷ Lois Rudnick, Alison Heru, and Mark Micale argued that hysteria may have been a misdiagnosis of syphilis, which may have affected up to ten percent of the American population in the late nineteenth century, and they noted that the development of new treatments, such as arsphenamine (Salvarsan) in 1908, corresponded with the sudden decline of hysteria.⁸⁸ Hysteria and syphilis did share some common symptoms, such as mobility problems and loss of vision or hearing, but this claim overlooks the many marked differences between the two: for instance, hysterics did not report the skin rash that typically identified secondary syphilis or exhibit the chancres, warts, and nose damage characteristic of syphilis. Most important, hysteria

did not commonly result in death, as did untreated tertiary syphilis. The introduction of Salvarsan did coincide with the steep decline in hysteria, but that may be because this new medication caused a sharp reduction in mercury prescription, not because of its treatment of an underlying infection.

Numerous other major events contributed to the reduction of mercury consumption in the early twentieth century. In 1906, the American Medical Association began to collect data about medicines and their side effects.⁸⁹ That same year, the Pure Food and Drugs Act enacted federal regulation of medications, foods, and beverages and made it a crime to sell harmful or mislabeled goods to the American public. To enforce this new law, the Department of Agriculture and its Bureau of Chemistry began testing goods to ensure their quality and efficacy.⁹⁰ Federal legislation also prohibited the sale of meat and milk from sick livestock, which likely also reduced consumers' exposure to mercury. Finally, Louis Pasteur's groundbreaking research showing the role of pathogens and microorganisms in illness caused the humoral model of disease to fall decisively from grace and led to the introduction of more effective antibiotics, such as sulfa and penicillin.

Its use significantly curtailed, mercury nonetheless continued to cast a shadow in the twentieth century. For instance, generations of American children were diagnosed with acrodynia or "pink disease," as it was widely known, which included an unusual pink discoloration of the skin, pain in the hands and feet, peeling skin, and weight loss. Acrodynia remained a medical mystery until the 1940s, when it was recognized as a result of mercury poisoning, caused by the use of calomel for teething pains.⁹¹ Mercury also figured in the infamous Tuskegee Syphilis Study conducted by the federal government between 1932 and 1972, in which about 600 Black men in Tuskegee, Alabama, enrolled in a program advertised as providing free health care but which served as a cover for a study tracking the long-term consequences of syphilis infection. The U.S. Public Health Service withheld Salvarsan from the hundreds of participants who were found to be infected with syphilis and instead treated these men with mercury, vitamins, and even arsenic. In addition to suffering the consequences of advancing syphilis infection, many of these men endured the side effects of acute mercury poisoning, which included tooth loss and mouth problems.⁹²

The decline of hysteria led to its removal in 1980 from the third edition of the *Diagnostic and Statistical Manual of Mental Disorders*, the diagnostic cornerstone of modern psychiatry. It was replaced with a new condition termed conversion disorder, an ailment that similarly manifests in tremors, mobility problems, and sensory disturbances. Unlike hysteria, conversion disorder often emerges in response to stress or interpersonal conflicts, and it typically affects uneducated, low-income women from rural

backgrounds.⁹³ The demographics of conversion disorder sufferers invite us to recall the work of Elaine Showalter and others in arguing that hysteria may be understood as a bodily form of protest against unjust social constraints. In this particular instance, we might understand conversion disorder as a somatic response to the limited agency and frustration of women on the economic periphery.

Amid hysteria's decline, Freud ceased to write about it and turned his attention to the story of Oedipus, which he regarded as a distillation of the family's inherent sexual conflicts as well as the child's shifting parental allegiances during early development. At the heart of the Oedipus myth is a story about the efforts to determine the cause of a mysterious epidemic. At the beginning of Sophocles's play *Oedipus the King* (ca. 429 BCE), the city of Thebes has been overrun by a terrible plague, and its king, Oedipus, seeks to ascertain the source of this illness, eventually learning that he himself has polluted the city and caused the plague. Oedipus's determination to learn the source of the epidemic and expel it from the city has been interpreted as a metaphorical figuration of talk therapy, which similarly seeks to expunge toxic material through their articulation and expulsion.⁹⁴ However, this story also evokes the nineteenth-century epidemic of hysteria, which may have been similarly caused by men in positions of power, in this case by the many physicians who prescribed mercury. Freud himself prescribed mercury to his patients, and in this respect, he and his fellow physicians occupied the role of Oedipus in causing the mysterious epidemic they aimed to cure. Unfortunately, Freud's analysis of the Oedipus story ignored the play's suggestion that the authoritative healer consider his own responsibility in triggering illness and causing widespread public harm.

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Notes

1. Andrew Scull, *Hysteria: The Biography* (Oxford: Oxford University Press, 2009), 7.
2. Mark S. Micale, "On the 'Disappearance' of Hysteria: A Study in the Clinical Deconstruction of a Diagnosis," *Isis* 84, no. 3 (Sept. 1993): 501.
3. Gilman further explained her motives in the brief essay, "Why I Wrote the Yellow Wallpaper," *The Forerunner* 4 (1913): 271. Charlotte Perkins Gilman, "The Yellow Wallpaper," *The Yellow Wallpaper*, ed. Thomas L. Erskine and Connie L. Richards (1892; New Brunswick: Rutgers University Press, 1993), 29-50; Charlotte Perkins Gilman, *Women and Economics*:

A Study of the Economic Relation between Men and Women as a Factor in Social Evolution (1898; Boston: Small, Maynard, 1910).

4. Elaine Showalter, *Hystories: Hysterical Epidemics and Modern Media* (New York: Columbia University Press, 1997), 7.

5. Diane Price Herndl, "The Writing Cure: Charlotte Perkins Gilman, Anna O., and 'Hysterical' Writing," *NWSA Journal* 1 (Autumn 1988): 53.

6. The vast body of literature on this topic includes Elisabeth Bronfen, *The Knotted Subject: Hysteria and Its Discontents* (Princeton: Princeton University Press, 1998); Barbara Ehrenreich and Barbara English, *For Her Own Good: Two Centuries of Experts' Advice to Women*, rev. ed. (1978; New York: Anchor, 2005); Evelyne Ender, *Sexing the Mind: Nineteenth-Century Fictions of Hysteria* (Ithaca: Cornell University Press, 1995); Claire Kahane, *Passions of the Voice: Hysteria, Narrative, and the Figure of the Speaking Woman, 1850–1915* (Baltimore: Johns Hopkins University Press, 1995); Juliet Mitchell, *Mad Men and Medusas: Reclaiming Hysteria* (New York: Basic Books, 2000); Elaine Showalter, *The Female Malady: Women, Madness, and English Culture, 1830–1980* (New York: Pantheon, 1985); and Carroll Smith-Rosenberg, *Disorderly Conduct: Visions of Gender in Victorian America* (New York: Knopf, 1985).

7. Lucinda Hawksley, *Bitten by the Witch Fever: Wallpaper and Arsenic in the Victorian Home* (London: Thames & Hudson, 2016), 37–38, 98–101; Jennifer Lunden, "'There Are Things in that Paper that Nobody Knows But Me': An Alternative Reading of Neurasthenia," in *Charlotte Perkins Gilman: New Texts, New Contexts*, ed. Jennifer S. Tuttle and Carol Farley Kessler (Columbus: Ohio State University Press, 2011), 168.

8. James C. Whorton, *The Arsenic Century: How Victorian Britain Was Poisoned at Home, Work, and Play* (Oxford: Oxford University Press, 2010), 12–13.

9. Gary Bigham, Betsy Henry, and Brad Bessinger, "Mercury—A Tale of Two Toxins," *Natural Resources & Environment* 19, no. 4 (Spring 2005): 31.

10. Michael A. Flannery, *Civil War Pharmacy: A History of Drugs, Drug Supply and Provision, and Therapeutics for the Union and Confederacy* (New York: Pharmaceutical Products Press, 2004), 147; Norbert Hirschhorn, Robert G. Feldman, and Ian Greaves, "Abraham Lincoln's Blue Pills: Did Our 16th President Suffer from Mercury Poisoning?" *Perspectives in Biology and Medicine* 44 (Summer 2001): 320.

11. P. Lesley Bidstrup, *Toxicity of Mercury and Its Compounds* (Amsterdam: Elsevier, 1964), 45; Bigham, Henry, and Bessinger, "Mercury," 29; M. Buckell et al. "Chronic Mercury Poisoning, 1946," *British Journal of Industrial Medicine* 50, no. 2 (1993): 97–106.

12. Bidstrup wrote, "The physical signs of neurological disturbance are bizarre and have led to an initial diagnosis of hysteria in some cases before the cause of the illness was recognized." Bidstrup, *Toxicity of Mercury*, 78.

13. Numerous scholars have challenged the enduring perception of hysteria as an ailment of elite white women. According to Smith-Rosenberg, nineteenth-century physicians observed hysteria among immigrants and urban working-class women. Lisa Appignanesi and John Forrester have likewise noted that patients at Charcot's clinic tended to be members of the lower class, and Micale has observed that forty percent of Charcot's patients were working-class men. Smith-Rosenberg, *Disorderly Conduct*, 200; Lisa Appignanesi and John Forrester, *Freud's Women* (New York: Basic Books, 1992), 69; Micale, "Disappearance," 509.

14. The portrayal of mercury as a curiosity of outdated medicine may be found in Lydia Kang and Nate Pedersen, *Quackery: A Brief History of the Worst Ways to Cure Everything* (New York: Workman, 2017), 4–12. Mel Y. Chen has offered a more illuminating analysis of mercury in *Animacies: Biopolitics, Racial Mattering, and Queer Affect* (Durham: Duke University Press, 2012), 189–221.

15. James Harvey Young, *Pure Food: Securing the Federal Food and Drugs Act of 1906* (Princeton: Princeton University Press, 1989), 21.

16. For a comprehensive history of hysteria from antiquity through the early modern period, see Ilza Veith, *Hysteria: The History of a Disease* (Chicago: University of Chicago Press, 1965).

17. Amy Koerber has examined the relationship between hysteria and modern medical diagnoses, specifically hormone disorders. Amy Koerber, *From Hysteria to Hormones: A Rhetorical History* (University Park: Pennsylvania State University Press, 2018).

18. Appignanesi and Forrester, *Freud's Women*, 64–65; Showalter, *Hystories*, 30–31.

19. Silas Weir Mitchell, *Fat and Blood: An Essay on the Treatment of Certain Forms of Neurasthenia and Hysteria*, 4th ed. (1877; Philadelphia: J. B. Lippincott, 1885), 9.

20. Georges Didi-Huberman, *Invention of Hysteria: Charcot and the Photographic Iconography of the Salpêtrière*, trans. Alisa Hartz (Cambridge: MIT Press, 1982).

21. Anne Harrington, "Metals and Magnets in Medicine: Hysteria, Hypnosis and Medical Culture in Fin-de-Siècle Paris," *Psychological Medicine* 28 (1988): 21–38; Roy Porter, "The Body and the Mind, the Doctor and the Patient: Negotiating Hysteria," in *Hysteria Beyond Freud*, ed. Sander L. Gilman, Helen King, et al. (Berkeley: University of California Press, 1993), 258–59.

22. Porter, "Body and the Mind," 259.

23. Patricia A. D'Itri and Frank M. D'Itri, *Mercury Contamination: A Human Tragedy* (New York: John Wiley, 1977), 7.

24. Flannery, *Civil War Pharmacy*, 147.

25. John Parascandola, "From Mercury to Miracle Drugs: Syphilis Therapy over the Centuries," *Pharmacy in History* 51, no. 1 (2009): 14–15.

26. Lois P. Rudnick and Alison M. Heru, "The 'Secret' Source of 'Female Hysteria': The Role that Syphilis Played in the Construction of Female Sexuality and Psychoanalysis in the Late Nineteenth and Early Twentieth Centuries," *History of Psychiatry* 28 (2017): 198.

27. Rudnick and Heru, "Secret Source," 197.

28. Benjamin Rush, *An Account of the Bilious Remitting Yellow Fever, as It Appeared in the City of Philadelphia, in the Year 1793* (Philadelphia: Thomas Dobson, 1794), 256.

29. A grain in the traditional apothecary system of measurement is equivalent to 64.8 milligrams, with a seemingly modest dose of a single grain of calomel often prescribed to children. Hirschhorn, Feldman, and Greaves, "Abraham Lincoln," 324–25.

30. Benjamin Rush, *Medical Inquiries and Observations, Upon the Diseases of the Mind* (Philadelphia: Kimber and Richardson, 1812), 346.

31. "John S. Haller Jr., "Samson of the *Materia Medica*: Medical Theory and the Use and Abuse of Calomel in Nineteenth Century America," *Pharmacy in History* 13, no. 2 (1971): 67–68; Guenter B. Risse, "Calomel and the American Medical Sects During the Nineteenth Century," *Mayo Clinic Proceedings* 48 (1973): 59.

32. William G. Rothstein, *American Physicians in the Nineteenth Century: From Sects to Science* (Baltimore: Johns Hopkins, 1992), 50.

33. Flannery, *Civil War Pharmacy*, 154. Flannery cites the research of David Cowen and Donald Kent into nineteenth-century prescriptions.

34. Jane M. Hightower, *Diagnosis Mercury: Money, Politics, and Poison* (Washington, DC: Island Press/Shearwater Books, 2009), 54.

35. D'Itri and D'Itri, *Mercury Contamination*, 190–91.

36. Quoted in Flannery, *Civil War Pharmacy*, 149.

37. John S. Haller Jr., "Samson of the *Materia Medica*: Medical Theory and the Use and Abuse of Calomel in Nineteenth Century America," *Pharmacy in History* 13, no. 2 (1971): 67–68; Risse, "Calomel and the American Medical Sects," 59–60.

38. Francis Parkman Jr., *The Oregon Trail*, ed. David Levin (New York: Penguin, 1985), 386.

39. "Sprain or Strain," *Godey's Lady's Book and Magazine* 86 (April 1873): 376; "Some Hints on the Management of Children. Exercise for Invalids," *Godey's Lady's Book and Magazine* 92 (April 1876): 380.

40. "Chemistry for the Young: Lesson XI. Special Remarks Concerning Mercurial Combinations. Appliances and Materials Required," *Godey's Lady's Book and Magazine* 57 (Nov. 1858): 462.

41. Mrs. L. G. Abell, *Skillful Housewife's Book: Or Complete Guide to Domestic Cookery, Taste, Comfort, and Economy* (New York: R. T. Young, 1853), 54.

42. Henry B. Scammell, *Scammell's Universal Treasure-House of Useful Knowledge* (Salt Lake City: H. A. Hess, 1889).

43. Larry A. Broussard, Catherine A. Hammett-Stabler, and Ruth E. Winecker, "The Toxicology of Mercury," *Laboratory Medicine* 33, no. 8 (Aug. 2002): 622.
44. Bruna Fernandes Azevedo, et al. "Toxic Effects of Mercury on the Cardiovascular and Central Nervous Systems," *Journal of Biomedicine & Biotechnology* 2012 (2012): 949048.
45. Broussard and Hammett-Stabler, "Toxicology of Mercury," 619.
46. Jacques Derrida, "Plato's Pharmacy," *Dissemination*, trans. Barbara Johnson (Chicago: University of Chicago Press, 1981), 70.
47. Haller, "Samson of the *Materia Medica*," 67.
48. For a detailed account of calomel's role in spurring countermovements, see Risse, "Calomel and the American Medical Sects."
49. "A Few Words About Delicate Women," *Godey's Lady's Book* 48 (May 1854): 446.
50. Quoted in Flannery, *Civil War Pharmacy*, 257.
51. Mercury is also known to cause intense shyness and reclusive social anxiety, as well as a tendency to blush and sigh. We seldom perceive social dispositions as the consequence of medical side effects, but the capacity of mercury to cause blushing and sighing invites us to reconsider common nineteenth-century literary and visual tropes, which so often depict young women as prone to both blushes and sighs. We have often taken these expressions as literary indicators of young women's coquettish transparency, but they may instead simply evidence the period's chronic mercury use. Broussard and Hammett-Stabler, "Toxicology of Mercury," 622.
52. Bidstrup, *Toxicity of Mercury*, 99.
53. Bidstrup, *Toxicity of Mercury*, 105.
54. Bidstrup, *Toxicity of Mercury*, 105.
55. Bidstrup, *Toxicity of Mercury*, 101.
56. Bidstrup, *Toxicity of Mercury*, 91.
57. Bidstrup, *Toxicity of Mercury*, 43.
58. Sigmund Freud and Josef Breuer, *Studies in Hysteria*, trans. Nicola Luckhurst (1895; London: Penguin, 2004), 27.
59. Freud and Breuer, *Studies in Hysteria*, 53, 103, 139.
60. Sigmund Freud, "Fragment of an Analysis of a Case of Hysteria," in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, vol. VII, trans. James Strachey (London: Hogarth Press and the Institute of Psycho-Analysis, 1964), 19.
61. Freud, *Fragment*, 21–22n1.
62. M. J. Carvan III, T. A. Kalluvila, R. H. Klingler, J. K. Larson, M. Pickens, F. X. Mora-Zamorano, et al., "Mercury-Induced Epigenetic Transgenerational Inheritance of Abnormal Neurobehavior Is Correlated with Sperm Epimutations in Zebrafish," *PLoS ONE* 12, no. 5 (2017): e0176155. doi:10.1371/journal.pone.0176155. See also <https://news.wsu.edu/2017/05/03/>

toxic-effects-mercury-exposure-persists-multiple-generations-study-suggests/.

63. Freud, *Fragment*, 75.

64. Freud, *Fragment*, 16–17n2.

65. Hirschhorn, Feldman, and Greaves, "Abraham Lincoln."

66. Joan D. Hedrick, *Harriet Beecher Stowe: A Life* (New York: Oxford University Press, 1994), 174.

67. Hirschhorn, Feldman, and Greaves, "Abraham Lincoln," 324–35.

68. Freud and Breuer, *Studies in Hysteria*, 165–66.

69. Hedrick, *Harriet Beecher Stowe*, 174.

70. Hedrick, *Harriet Beecher Stowe*, 151.

71. Susan Cheever, *Louisa May Alcott: A Personal Biography* (New York: Simon and Schuster, 2010), 151–52.

72. Martha Saxton, *Louisa May Alcott: A Modern Biography of Louisa May Alcott* (Boston: Houghton Mifflin, 1977), 258.

73. John Matteson, *Eden's Outcasts: The Story of Louisa May Alcott and Her Father* (New York: W. W. Norton, 2007), 304.

74. Despite Alcott's conviction that she suffered the consequences of mercury poisoning, Hirschhorn and others have countered her claim, insisting that her handwriting showed no signs of tremors and that her genial letters conveyed an even temper that belied any suggestion that she suffered from a mood disorder. However, mercury poisoning symptoms vary so considerably from person to person that no one symptom functions as an essential indicator. Elsewhere, Hirschhorn detailed the great variety of mercury poisoning symptoms, noting that of more than fifty victims of a twentieth-century industrial accident, only about a quarter displayed tremors. Alcott's biographers have nonetheless noted her struggle with tremors, and in her letters she complained of particular problems with her writing hand. Hirschhorn's comments likewise presume that the tone of Alcott's letters may be taken as a measure of her entire emotional state, disregarding that Alcott may have modulated her voice or used her literary skill to craft an amiable literary persona, regardless of her emotional disposition at the time of writing. Hirschhorn also insisted that Alcott's body would have excreted all remaining mercury, but this observation overlooks the lifelong damage that such acute exposure may cause, as evidenced by the many recorded cases of industrial workers who never fully recovered from workplace poisoning.

75. Louisa May Alcott, *The Selected Letters of Louisa May Alcott*, ed. Joel Myerson, Daniel Shealy, and Madeleine B. Stern (Boston: Little, Brown, 1987), 137. This letter is dated 30 May 1870.

76. Alcott, *Selected Letters*, 163. She included this poem in a letter to Louisa Wells, estimated to date to 1871.

77. Flannery, *Civil War Pharmacy*, 22.

78. *The Medical and Surgical History of the War of the Rebellion (1861–1865)*, part II, vol. 1. *Medical History*, ed. Joseph K. Barnes and Joseph Janvier Woodward (Washington, DC: Government Printing Office, 1879), 410.
79. Barnes, *Medical and Surgical History*, 411.
80. Veith, *Hysteria*, 212.
81. Ann Douglas Wood, "'The Fashionable Diseases': Women's Complaints and Their Treatment in Nineteenth-Century America," *Journal of Interdisciplinary History* 4 (Summer 1973): 25–52.
82. Freud and Breuer, *Studies in Hysteria*, 81.
83. Freud and Breuer, *Studies in Hysteria*, 19, 282.
84. Smith-Rosenberg, *Disorderly Conduct*, 197.
85. Micale, "Disappearance," 501.
86. Micale, "Disappearance," 499.
87. Micale, "Disappearance," 508.
88. Rudnick and Heru, "The 'Secret' Source of 'Female Hysteria'"; Micale, "Disappearance," 508–9.
89. Philip J. Hilts, *Protecting America's Health: The FDA, Business and One Hundred Years of Regulation* (New York: Alfred A. Knopf, 2003), 48.
90. Hightower, *Diagnosis Mercury*, 47–48.
91. D'Itri and D'Itri, *Mercury Contamination*, 200.
92. Harriet A. Washington, *Medical Apartheid: The Dark History of Medical Experimentation on Black Americans from Colonial Times to the Present* (New York: Doubleday, 2006), 162, 438n13.
93. Shahid Ali et al. "Conversion Disorder—Mind Versus Body: A Review," *Innovations in Clinical Neuroscience* 12, no. 5–6 (2015): 27–33.
94. Rachel Bowlby, "Introduction," in *Studies in Hysteria*, Sigmund Freud and Josef Breuer, trans. Nicola Luckhurst (1895; London: Penguin, 2004), xii.

