



PROJECT MUSE®

Migraine

Foxhall, Katherine

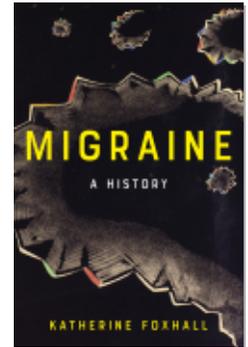
Published by Johns Hopkins University Press

Foxhall, Katherine.

Migraine: A History.

Baltimore: Johns Hopkins University Press, 2019.

Project MUSE., <https://muse.jhu.edu/>.



➔ For additional information about this book

<https://muse.jhu.edu/book/66229>

“As Sharp as If Drawn with Compasses”

Victorian Vision, Men of Science, and the Making of Modern Migraine



Mr. Beck's Aura, 1895

In June 1895, Dr. William Gowers presented a portrait of a bearded older man, sitting underneath a strange zigzag arc that looked almost like a halo, to the audience of the British Ophthalmological Society's prestigious annual Bowman Lecture (fig. 6.1). At the bottom of the picture, the artist, Mr. Beck, had explained that this was his migraine aura: “The phenomenon shows itself in the butiful colours of the rainbow circuling round the head in the zig-zag form as appeared before me siting in my room.” The self-portrait was one of many he had produced during his five years as an outpatient at the National Hospital for the Paralysed and Epileptic in London. Beck had first been treated in the hospital at the age of sixty, and he had presented the collection of drawings to Gowers in the form of a book. Gowers recounted Beck's explanation of another aura that occurred when he sat down to dinner with two friends: “The zig-zag spectrum, coloured red and blue, suddenly appeared, surrounding the edge of the plate before him.” Beck had hesitated, and then continued, “As I looked curious and nervous, Mrs. B—— said, ‘Why do you not carve?’ On taking my eyes off the plate I said to them, ‘The zigzag rainbow colours are gone out of the window.’ This was the first time my wife and friends believed I saw something very extraordinary.”¹

Gowers confessed that he did not quite know what to do with Mr. Beck's drawings. Beck, Gowers explained, was possessed “with the idea that these spectra were objective things, and he delighted in depicting them in the fashion of an engineering draughtsman.” Yet the visions were not real, and Mr. Beck posed a conundrum. By trade, he was a mechanical engineer and an inventor. Thus Gowers considered him “a member of our own profession.”

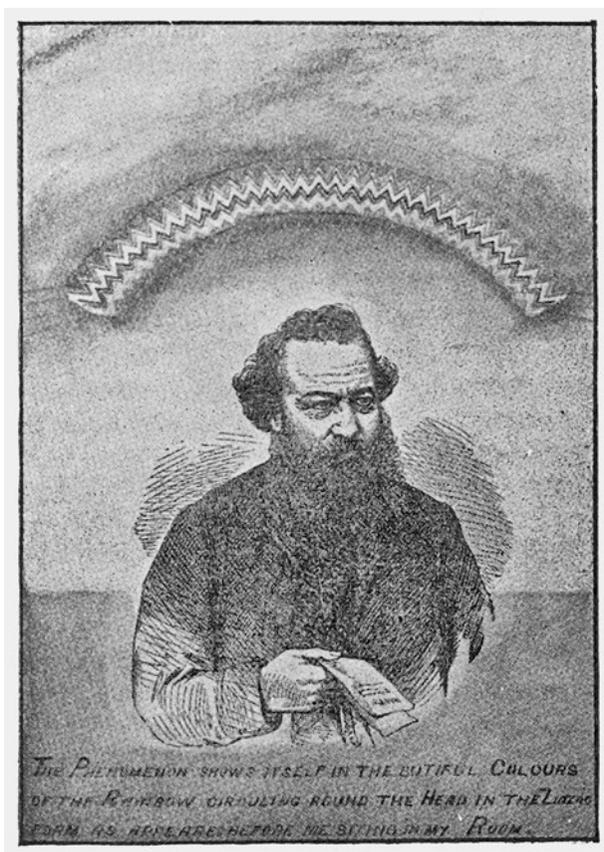


Fig. 6.1. Mr. Beck's "Arched Spectrum," figure 8 from W. R. Gowers, "Subjective Visual Sensations," 1895. Courtesy of the Wellcome Library, London, licensed under CC-BY

Their precise execution rendered Beck's illustrations "in some points trustworthy," but the "rather quaint descriptions" of his perception of the aura as a real thing—not to mention his desire for the drawings to be brought to the notice of Queen Victoria (we can well imagine the laughs that would have rippled through the gentlemanly audience of the Ophthalmological Society at this statement)—meant that his drawings could only be seen as a "curious" record, rather than an authoritative one.

As he continued his lecture, Gowers turned to another set of sketches, also of migraine aura, that were the work of a physician named Hubert Airy. He emphasized the reliability of these elaborate and precise illustrations, their accuracy supported by notes that Airy had made at the time. Airy's observa-

tions, Gowers believed, had “very great weight” as scientific records that could help show how vision worked, because they gave rare evidence of visual activity, rather than loss. As he concluded his lecture, Gowers reminded his audience once again of Hubert Airy’s entirely “trustworthy” diagrams. Gowers donated both Beck’s book and Airy’s images to the Ophthalmological Society as a “unique collection of facts,” which he hoped might attract others to add similar items.² A few months later, the secretaries of the society used the letters pages of the *British Medical Journal* in an appeal to members of the profession to contribute written accounts, drawings, and diagrams of the visual symptoms of migraine to the nascent collection, so “valuable information might be obtained.”³

The first half of this chapter traces the discussions about transiently defective vision that elite men of science and medicine, such as Sir John Herschel, David Brewster, Hubert Airy, and Edward Liveing, engaged in during the second half of the nineteenth century. In doing so, it examines how one image of a single symptom—Hubert Airy’s diagram of his aura—came to define an accurate, authentic, authoritative migraine experience. The dominance of Airy’s image is significant, because it eclipsed other drawings (such as Beck’s) and, hence, other ways of representing migraine, which were largely forgotten. This chapter argues that Airy’s depiction of aura needs to be understood as a scientific “working object.”⁴ A working object, as historians Lorraine Daston and Peter Galison have argued in their important study of the history of the idea of scientific objectivity, is an “image of record” (often published in large format, on expensive paper, in color) that makes collective empiricism possible. Working objects teach scientists “what is worth looking at, how it looks, and perhaps most important of all, how it should be looked at.” Airy’s knowledge was objective in the sense that he insisted human frailties and foibles (in his case, the distraction of pain and nausea) had not contaminated the production of the aura.⁵ Airy’s image, and those drawn by other men of science, helped create the idea that a particular type of migraine was a characteristic of a scientific person. Understanding how this came about, at the same time as physicians talked in general of migraine being a problem of young women, helps reveal how certain notions of gender, class, and intellect became central to understandings of migraine into the twentieth century.

Scientific Vision

As we have already seen, there is occasional evidence, though little that is definitive, of disordered vision being associated with migraine for centuries.

The banns of a fifteenth-century itinerant leech described "mygreyn" as taking "half a man's head and causing him to lose the sight of his eye." In 1627, Francis Bacon's use of the word "obtenebration" to imply a darkening or shadowing is also suggestive, if ambiguous. Eighteenth-century physicians from continental Europe were the first to discuss visual symptoms as part of the migraine experience in any great detail. In 1780, famous Swiss physician Samuel Auguste David Tissot devoted a long chapter to the study of migraine in *Traité des nerfs et leurs maladies*. He identified migraine as occupying only one side of the head, principally the front, in the eye and the temple, and also as being distinguished by the violence of the pain and its frequent recurrence. Tissot described the case of a thirty-two-year-old Austrian military officer, who had experienced migraine since the age of nine:

It starts in the eyes; when I least expect it, I see all of a sudden, more on one side than the other, like a person who has looked at the sun. This lasts about ten minutes; followed by an arm and a leg of the same side, one day on one side and one day on the other, they fall asleep. I feel shivers as if there were ants; I have the same feeling in the mouth and tongue, and during this time, I have a lot of trouble speaking. This lasts about half an hour; then the pains in my head begin, but only in the temples, where they persist with great strength for seven or eight hours. When I can vomit, this relieves me.⁶

London physician John Fothergill's account of sick headache, dating from December 1778, is commonly seen as the first clear English-language account of migraine being associated with visual disturbance. In his treatise on sick headache, Fothergill recounted "a singular kind of glimmering in the sight; objects change their apparent position, surrounded with luminous angles, like those of a fortification. Giddiness comes on, headache, and sickness."⁷ In 1802, William Heberden portrayed hemicrania as "what follows that mist before the eyes which makes a part of every object invisible."⁸ More than two decades later, Caleb Hillier Parry described how he often experienced a "sudden failure of sight," particularly when he was tired, with a semiopaque cloud "on one side of the direct line of vision," lasting from twenty to thirty minutes. Its upper part "appeared bounded by an edging of light of a zig-zag shape, and coruscating nearly at right angles to its length." This was still perceptible with both eyes shut. Although Parry never experienced headache, these clouds seemed to be connected to the state of his stomach.⁹ In the 1830s, French physician Gabriel Andral noted that patients often experienced a troubled sense of vision: "Dazzling lights are very commonly seen, and sometimes the

sight is even lost for a time before the migraine commences.”¹⁰ Andral’s theories were reprinted in England’s medical press, but, apart from these few oft-quoted examples, British physicians seem to have taken little notice of visual symptoms and did not assert a clear relationship between migraine and distortions of vision until much later in the century. They seemed much more interested in making assumptions about migraine in relation to women’s reproductive problems. To understand how, when, and why visual disturbances became an integral part of the common language of migraine in English—not until the 1870s—we must look beyond the medical sphere, to the science of light.

On 30 September 1858, the day after the close of that year’s annual meeting of the British Association for the Advancement of Science, Sir John Herschel, renowned British mathematician, astronomer, chemist, and inventor of the term photograph, gave a lecture on “Sensorial Vision” to the Philosophical and Literary Society of Leeds. It was a very personal talk, following a difficult decade for him. Herschel’s health had declined, and he increasingly turned to opium and laudanum to try and reduce his pains.¹¹ In his lecture, Herschel spoke of “ocular spectra,” which he explained as temporary disturbances to sight, including the impressions produced by strong light on the retina of the eye. Herschel also talked about the images of faces that he saw, “sometimes ten or a dozen appear in succession,” as well as the landscapes he visualized more rarely, but much more distinctly, when his eyes were closed.¹²

There was another class of ocular spectra for which Herschel did not have an explanation, but for which the meaning of “spectra”—as something ghostly, unsubstantial, or unreal—seems fitting. One morning, while he sat at his breakfast table, he had been startled by a “singular shadowy appearance” that appeared at the outside corner of his left field of vision. As it advanced into his full field of view, it “appeared to be a pattern in straight-lined angular forms, very much in general aspect like the drawing of a fortification, with salient and re-entering angles, bastions and ravelins, with some suspicion of faint lines of colour between the dark lines.” These visual impressions appeared to be geometric and regular; sometimes the forms were perfectly symmetrical, in a lattice pattern. Very occasionally, Herschel saw “complex and coloured patterns like those of a carpet.” He spoke of the “Turkschap pattern” he had witnessed in 1855, when under the influence of chloroform, as two surgeons operated on an abscess in his leg. Herschel told his audience that although he had mentioned these visions to several people, he had only ever met one other person to whom the phenomenon had occurred, although she

always found that a violent headache followed, which Herschel did not experience.¹³ He speculated on what these effects might be. They were evidently neither dreams nor memories, nor could they be fleeting impressions on the retina. Perhaps, he mused, the sensorium—the part of the brain that responded to and interpreted stimuli—possessed a kaleidoscopic power to form regular patterns. Herschel apologized for saying so much about himself and his personal experiences, but he believed that the nature of these things would only be discovered if individuals put their personal experiences on record.¹⁴

Herschel's private diary, now held at the Royal Society of London, contains more evidence of the visual disturbances that he discussed in Leeds. In June 1846, he had woken in the morning, and as he lay trying to remember his dream, a large, well-defined, ivory-colored circular spectrum "began to appear and grew every instant more vivid till at length it grew so bright I became alarmed & opened my eyes." Since the sun was not shining into the room, and there was no other object that would explain the impression, Herschel closed his eyes to watch it: "It faded rapidly after one or two alternations of colour to bluish & purple as a natural spectrum would have done."¹⁵ In the margin of his diary, he drew the shape he had seen. Herschel seems to have experienced a range of different effects, including a double halo, one that was entirely black, and the "perfect Turkshead pattern" he mentioned in the lecture, "as sharp as if drawn with compasses."¹⁶ In 1865, during a "feverish night," Herschel described "visual impression of a most beautiful landscape," complete with trees and boats on the water. In the decade after his lecture in Leeds, as he continued his work on sunspots, Herschel's visual disturbances became more frequent and were an uncomfortable reminder of his aging senses. In July 1866, the fortification pattern appeared two days in a row. "I suppose I shall go blind," he concluded.¹⁷

Other men of science besides Herschel had written of their visual defects, but his discussions were more than personal musings on visual fragility. Instead, they provided opportunities to theorize about the physics of light and optics and the physiology of vision. In 1824, William Hyde Wollaston described how, after taking some "violent" exercise, he "suddenly found that I could see but half the face of a man whom I met; and it was the same with respect to every object I looked at. In attempting to read the name JOHNSON over a door, I saw only SON. . . . This blindness was a shaded darkness . . . without definite outline." Wollaston thought these temporary episodes of half blindness were far more common than generally recognized and commented that he had recently heard of two more cases of the disease: a friend who had

regularly experienced it for sixteen or seventeen years, whenever his stomach was “deranged” through indigestion, and another man who suffered half blindness and a headache, always lasting about twenty minutes.¹⁸ For Wollaston, his incidences of “diseased vision” over a period of twenty years afforded him a chance to contribute to a long-running debate about the structure of the optic nerves within the human body.¹⁹

A few years after Herschel’s lecture in Leeds, the natural philosopher and inventor of the kaleidoscope, David Brewster, also thought that hemiopsia, or half blindness, might shed light on the workings of human vision by establishing the optical condition of the eye during such episodes. Because “there is neither darkness nor obscurity” during an ordinary case of hemiopsia, Brewster deduced that the retina must still be sensitive to light, but not to the lines and shades of the pictures it was receiving. Thus Brewster rejected any idea that hemiopsia was connected to cerebral disturbance and instead argued that it was a result of distended blood vessels in the retina: in his case, a result of straining to read the small print of the [London] *Times* newspaper.²⁰ Brewster’s comments on hemiopsia prompted the Astronomer Royal, George Biddell Airy, to write to the editors of the *Philosophical Magazine and Journal*. He, too, had been frequently attacked by hemiopsia—at least twenty times, and “probably much oftener.” As Wollaston and François Arago had done, Airy commented that he knew of other cases: an acquaintance had suffered from it over a hundred times, while another friend blamed mental anxiety or the pressure of business for his attacks. Airy drew a sketch to explain what his hemiopsia looked like: a series of zigzag arcs, radiating from a central point of origin, to show its expansion across the visual field for over twenty to thirty minutes. Airy likened the zigzags to “the ornaments of a Norman arch,” only somewhat sharper and becoming deeper over time. He couldn’t decide whether the disease affected both eyes, or whether the “tremor and boiling” on one side was simply so oppressive that it cancelled out the vision in the other.²¹

One way to see these discussions about ocular spectra is as part of a long association of physical frailty with genius, overwork, and the stimulation of reading and writing. In the eighteenth century, William Buchan had declared intense thinking to be “so destructive to health, that few instances can be produced of studious persons who are strong and healthy.” Even a few months of intense study might “ruin an excellent constitution” by inducing a train of permanent nervous complaints, including gout, stone, jaundice, indigestion, hypochondria, and consumption. Long bouts of thinking often induced “griev-

ous head-achs, which bring on vertigoes, apoplexies, palsies, and other fatal disorders." Buchan advised that those who found their eyes sore, particularly after working by candlelight, should bathe them in cold water with a little added brandy.²² There was better news for astronomers, however. In *The Infirmities of Genius*, physician Richard Robert Madden declared that natural philosophers, particularly astronomers, were the least likely to fall victim to an early death because of their passion. Looking at the stars, it seemed, quite literally elevated the mind of a great man above the trivial concerns of humanity when he contemplated the magnificence of space, invigorating both thoughts and body.²³

If the association of genius with physical infirmity was commonplace into the nineteenth century, these personal accounts of hemiopsy are striking in how carefully they denied any other kind of suffering apart from visual disturbances. David Brewster pointed out that his attacks "were never accompanied either with headache or gastric disturbance."²⁴ George Airy, too, observed that "in general, I feel no further inconvenience from it," although his friends often experienced "oppressive head-ache" after a visual disturbance.²⁵ Wilfred Airy's preface to his father's autobiography reaffirmed the Astronomer Royal's strong constitution and good health.²⁶ So what was hemiopsy to these men? It certainly wasn't a symptom of migraine or sick headache, as far as they were concerned. Rather, visual disturbance provided this generation of analytically minded men, often seen as the first modern scientists, with opportunities to gain insight into pressing questions about light, optics, vision, and the very workings of that most mysterious organ, the human brain. The strength of their attentive powers, the sensitivity of their vision, and the accuracy of their observations, unencumbered by the distracting effects of pain, was part of what made them authoritative as scientists.

Hubert Airy's Aura

In September 1866, two months after John Herschel confided to his diary his fear that he would lose his eyesight altogether, Hubert Airy, the Astronomer Royal's son, paid a four-day visit to Herschel at his home. Twenty-eight-year-old Hubert was a physician and, like both his father and John Herschel, often experienced visual disturbances. Airy and Herschel began to correspond on the subject. In February 1868, Airy visited the older man again. We can imagine them spending hours discussing and comparing their visual experiences, interspersed with excitement about the recent outbreak of spots on the surface of the sun. After Airy's departure, as Herschel returned to poring over his

figures of the Orion nebulae, another fortification pattern “suddenly came on”: an arc of red, blue and black. In May 1868, Hubert Airy sent his descriptions and pictures of the fortification spectrum he saw to Herschel. Herschel was impressed by the white pictures on a black background. Later in the day, as he read a book on the terrace, Herschel again realized he was witnessing a spectrum of his own. As usual, it obliterated his vision below and to the left of the visual field. “How strange!” Herschel commented in his diary entry, as he contemplated the apparently direct relation between the delivery of Airy’s drawings and his own attack later in the day.²⁷

Herschel’s discussions with Hubert Airy, and perhaps seeing the younger man’s own visual disturbances drawn in such detail, seem to have reassured the elderly astronomer that his symptoms did not mean inevitable blindness. Herschel continued to observe and study his own sensory experiences, recording the details in his diary, particularly the colors and shapes he saw (fig. 6.2). On 22 June 1869, the fortification pattern appeared twice:

Colours red & black or red & yellow & black with little blue & at moments only black and white. Also a sort of chequer worked filling in in rectangular? patches & a carpet-work pattern over the rest of the visual area. The second & far the brightest largest & most beautiful in colouring was turned to the right. . . . Colours very vivid—red, blue, yellow, black, not sure of any green.

“Since I wrote to you,” Herschel explained to Airy in a letter later that year, “I have been very frequently visited with the phenomenon in a greater or less degree.” Although his visions no longer seemed to contain the vivid colors and distinct forms that he had earlier described, they now included some new features, such as “patches of a kind of coloured chequer work in some of the corners of the fortification forms.” The vision always began “with a small glimmer *near* the middle of the field of view, and spreads out.” Having carefully observed many of these events, Herschel was now confident that “it sometimes opens out from left to right, and sometimes from right to left.”²⁸ Hubert Airy was convinced that these visual experiences promised to reveal something new and exciting about the workings of the mind, as well as being ones that natural philosophers such as Brewster, Herschel, and his own father were uniquely well qualified to comment on. These were men trained “by their habits of accurate observation to contemplate attentively any strange apparition, without or within.” As men used to intense eye work, they were especially suited to the study of visual derangements, and they were an important

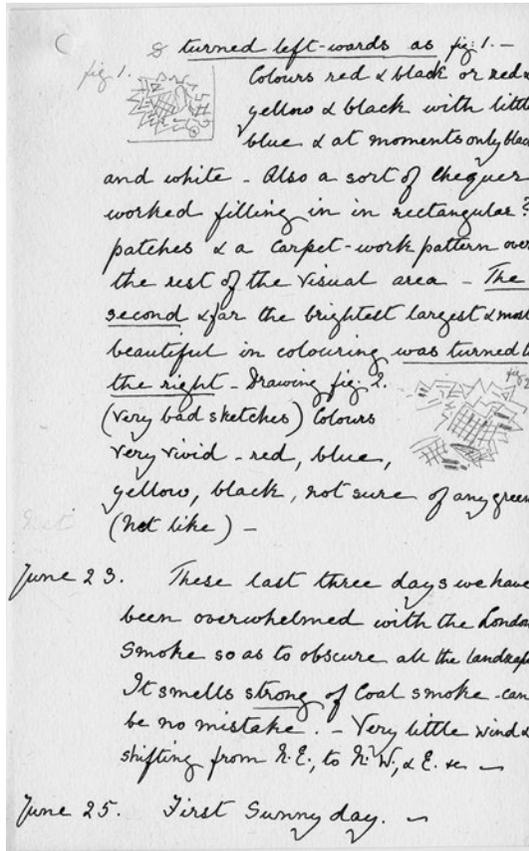


Fig. 6.2. John Herschel's diary, 22 June 1869, MS 583/4. © The Royal Society of London

source of evidence for the physician who, "unless personally subject to the malady, must depend, for his acquaintance with its phenomena, on the imperfect or exaggerated accounts of patients untrained to observe closely or record faithfully."²⁹ If natural philosophers were best placed to document such happenings, then, as a medical doctor, it was incumbent on Airy to assess their significance.

No doubt gaining confidence from Herschel's endorsement of and interest in the topic, on 17 February 1870, Hubert Airy presented his work on vision to a meeting of the Royal Society in Cambridge.³⁰ Rather than using the term ocular spectra, Airy preferred "transient hemiopia" and, more specifically, "teichopsia"—literally "town-wall vision"—to describe the visual effect of

angular bastions and fortifications. Airy devoted most of his paper to his personal experience of this visual phenomenon. He had first encountered it as a student in 1854, at the age of eighteen:

In its height it seemed like a fortified town with bastions all around it, these bastions being coloured most gorgeously. If I put my pen into the space where there was this dimness, I could not see it at all, I could not even distinguish the colour of the ink at the end. All the interior of the fortification, so to speak, was boiling and rolling about in a most wonderful manner as if it was some thick liquid all alive.

Airy blamed “toilsome reading” for his attacks, particularly if he had not taken enough exercise. He had experienced hemiopsy a hundred times, and possibly many more, at intervals from a month or two right down to twice in an hour. In great detail, Airy recounted the expansion of the shape, initially from a blind spot in the center of his vision, enlarging at first with a “slow rolling heaving swaying motion to and fro,” then with a rapid flickering tremor, until finally the edge of the cloud reached the edge of his vision and his sight was gradually restored from the center, twenty to twenty-five minutes after it began. Unusually, Hubert did admit to more than just visual weakness. As the boiling reached its height, he would feel the gradual onset of a headache, accompanied by nausea that would last for five or six hours. Nevertheless, Airy was careful to emphasize that in the early stages of the attacks, he felt no discomfort at all, and his mental faculties were free to observe the visual phenomenon “closely and carefully.”³¹

So why did Airy think that indulging in a recital of his personal experiences was worthy of presentation to the Royal Society? Because, he concluded, this teichopsia was more than “merely” a disease. It could be regarded as “a veritable ‘Photograph’ of a morbid process going on in the brain.”³² Airy’s use of the term photograph was sure to gain the attention of his audience, and it acknowledged the importance of his discussions with Sir John Herschel. These were people who understood scientifically objective photographs to be more than just pictures. They were a way to make invisible phenomena visible, such as ultraviolet light or the movement of birds in flight. Because photography was automatic and mechanical, it promised to break free from human interpretation, temptation, and will.³³ If the teichopsia itself was the photograph, then Airy saw himself as the camera. Our duty, he concluded in his paper, was to collect and record such facts, “in confidence that they will

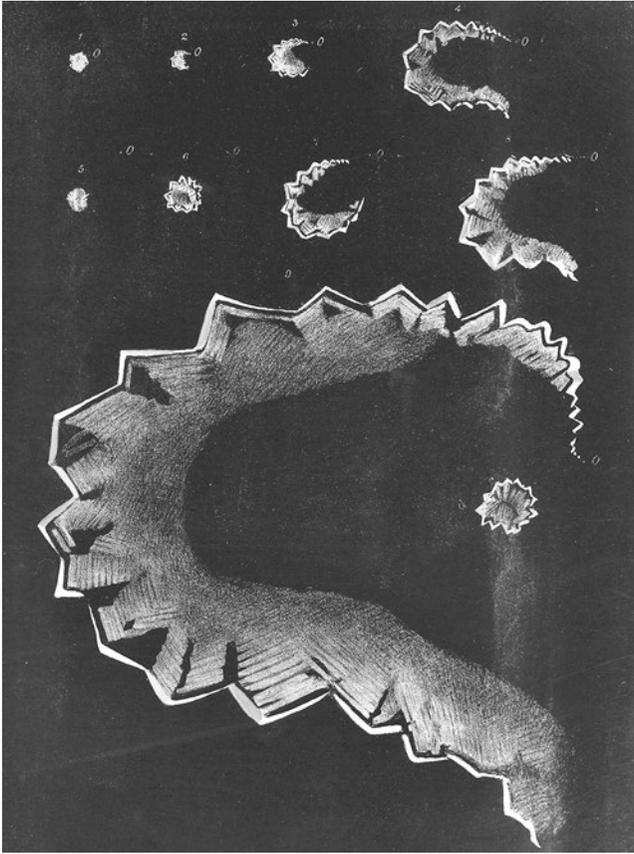


Fig. 6.3. “Diagram of Transient Teichopsia,” plate XXV, from Hubert Airy, “On a Distinct Form of Transient Hemiopsia,” 1870. © The Royal Society of London

arrange themselves into a theory sooner or later.” That theory was to arrive sooner than even Airy might have imagined.

Airy’s diagrams of his transient teichopsia were at the heart of his presentation in Cambridge (fig. 6.3), and they would also be dramatically reproduced when his lecture was published in the society’s *Philosophical Transactions*. The plates were printed by London lithographer G. West & Company, who often produced images for the Royal Society’s publications and specialized in large pullout plates.³⁴ That Airy’s striking black background in these drawings echoed the astronomical interests of his audience, particularly Herschel, is unlikely to have been a coincidence. At the cutting edge of mechanically

reproduced illustration, Airy's diagram took its place alongside some of the most famous scientific imagery of the time. From the moment of its publication, Airy's undeniably beautiful and instantly recognizable image embarked on a life as the standard bearer for judging authentic, accurate migraine experiences.

A Modern Megrin

Another young physician, Edward Liveing, was in the audience for Hubert Airy's presentation at the Cambridge meeting, and he was distinctly impressed by the young physician's careful observations, minute descriptions, and "excellent" drawings of the spectral appearances.³⁵ For several years, Liveing had been collecting material on a group of disorders he thought to be closely related, and he believed that the use of the word megrim in English had "cramped [rather] than extended our knowledge of a class of disorders" understood much more comprehensively in Europe. Liveing felt that in order to catch up with their continental colleagues, English physicians needed to better understand the natural and intimate alliance of a family of functional disorders that included sick, blind, and bilious headaches, epilepsy, asthma, and angina pectoris, all of which were characterized by paroxysms, or fits.³⁶ In this respect he disagreed with English physician John Addington Symonds, who, in his influential Gulstonian Lecture in 1858, had argued that sick headache was distinct from the hemicrania, or migraine, that had been "described so graphically and minutely by French authors." Migraine was characterized by the location of the pain and its intensity, recurrent nature, sense of anguish, "dimness of sight, or partial blindness," and noises in the ears (or even deafness).³⁷ Liveing did not believe it necessary to adopt a foreign term, however, so he proposed a revival of the vernacular English word megrim. In 1873, Liveing published *On Megrin*, a treatise that has come to be seen as a foundational moment in modern understandings of migraine.

Liveing was particularly struck by seventeenth-century English doctor Thomas Willis's description of a disease that could "pitch its tent very near the confines of the brain, and long besiege its Regal Tower yet not take it, leaving the faculties of the soul sound enough."³⁸ Rejecting the gastric and bilious theories of writers such as Fothergill and Tissot that had been so dominant in the late eighteenth and early nineteenth centuries, Liveing understood megrim as a nervous affliction, one of a group of disorders caused by the tendency of an unstable nervous system to gradually and irregularly accumulate

tension, and then explosively discharge this "nerve-force" in a "nerve-storm." For a time, equilibrium would be restored, but then the cycle would begin again.³⁹ Based on clinical observation, Liveing saw the paroxysms of migraine, epilepsy, or asthma as analogous to sneezing, coughing, or vomiting.⁴⁰ Liveing also drew on continental ideas about the importance of emotion as a causative factor in the timing of attacks. He quoted Tissot: "It does not seem in fact to matter much what the character of the emotion is, provided it be strongly felt."⁴¹ Liveing often provided examples from his patients' accounts, where they explained how fright, anxiety, mental distress, and anger preceded their attacks. Liveing also noticed that strong emotions—such as anxiety, dread, depression, ill humor, or "reckless despondency"—could either accompany or act as premonitory symptoms of an attack.⁴²

When working men suffered from megrim, Liveing blamed the exhaustion of "excessive hours of labour" or close confinement in "the unwholesome and ill-ventilated workshops and dwellings of our crowded towns." In these cases, the treatment was obvious, if difficult to administer: a nutritious diet, a check on the causes of exhaustion, and the prescription of tonic and restorative remedies. For men of "a somewhat higher social grade," excessive brain work was generally to blame. This included studying, literary composition, and work in legal chambers or the countinghouse, as well as the strain from prolonged anxiety and disappointments that accompanied ambition, competition, and the excitement of university, business, and professional life. For women, the emotional causes of megrim lay in "the narrower sphere of domestic life, in the anxious forecasting and much serving, which slowly undermine the nervous energies of many wives and mothers." Under the accumulating weight of family cares, the female nervous system was in danger of breaking down. In short, Liveing emphasized that nervous strain affected men and women differently, acting on the intellectual faculties in men and the affective faculties in women. Any medical treatment would be useless unless underlying errors in the "moral and material conditions of life" were corrected through rest, diet, exercise, and, ideally, a change of locality or climate. When women were affected, Liveing felt that medical men were duty bound to insist on a temporary absence from home. The implication was not just that these women did not have anyone around them who was competent to help, but, since they were so used to relying on their own resources and experience, even when there were people with "latent capabilities" who could assist, the women would rarely delegate tasks. Enforced separation left others

with no choice but to take on this responsibility.⁴³ By identifying women themselves as being at fault, Liveing's work opened the door for twentieth-century ideas about the migraine personality.

Yet it is the focus on the experiences of intellectual men that stands out from Liveing's account. Andrew Levy has suggested that Edward Liveing created a "cultural portfolio" for migraine.⁴⁴ In particular, his ideas about the kinds of people who were particularly at risk from megrim had both class and gender implications that would persist into the twentieth century. Throughout *On Megrim*, Liveing referred to Hubert Airy's paper, and he found plenty of opportunities to diagnose the men of science who had talked of their visual disturbances in previous decades. Liveing believed that John Herschel, who had recently died, suffered from the "purely visual" form of megrim. George Biddell Airy, he suggested, had "simple visual megrim without headache," while Hubert was "liable to the same affection together with nausea, headache, and perhaps other symptoms." The father-son relationship of George and Hubert Airy was particularly important, as the influence of heredity added weight to Liveing's argument about the close affinity of different forms of nerve-storm seizure.⁴⁵

In *The Lancet*, a review of Liveing's *On Megrim* noted the "excellent chromolithograph" of Airy's spectral images, which had been taken from the original publication of Airy's paper in *Philosophical Transactions*. Liveing reproduced one of Airy's images from the 1870 paper as a double-page pullout, in full color, placed at the end of the volume, between the index and the analytical table of cases. Airy's image was more than illustrative, since Liveing used it as a standard against which to judge other patients' accounts.

In the same year as Liveing's *On Megrim* appeared, another Cambridge physician, Peter W. Latham, published two lectures he had given at Addenbrooke's Hospital on the topic of "nervous or sick headache," and he later defended his ideas in the *British Medical Journal*.⁴⁶ Latham advanced a different theory from Liveing. He believed that migraine's visual aura could be explained by a contraction of the blood vessels of the brain, and the headache that followed was brought on by dilatation of the same vessels. Influenced by recent work on the sympathetic nervous system, Latham suggested that the cause of sick headache could be attributed to a range of problems resulting from "exhausted powers" and functional disharmony that could irritate the nerves. This could include violent emotions or gastric derangement; hence the apparent relationship of sick headache or bilious headache with the stomach or intestines.⁴⁷ "Perhaps in an University town," Latham commented, the

disorder “may be more prevalent among males than in other places.” As Liveing had done, Latham devoted substantial space to reprinting scientific discussions about visual disturbances. He, too, prominently reproduced one of Hubert Airy’s diagrams, including it as the frontispiece to his book. Liveing’s theory of nerve-storms and Latham’s vascular theory came to define two separate schools of thought about the causes of migraine during the late nineteenth century.⁴⁸ But in other respects, there were striking similarities in the way they foregrounded the visual disturbances affecting intellectual men. Whichever side of the theoretical fence you fell on—vascular or nervous—Airy’s personal experience was presented as a visual shorthand for the accurate representation of migraine, a disorder that had suddenly gained cultural and medical prestige through its association with genius, science, and the intellectual elite.

The Social Profile of Megrim

In the decades after 1873, supporters of Liveing’s and Latham’s theories would fall into two camps. Proponents of Latham’s vasomotor theory, believing that migraine was caused by a contraction of the vessels of the head and anemia of the brain, tended to deny the resemblance between migraine and epilepsy, and they rejected the idea that the two disorders could pass into one another. On the other hand, Liveing’s epileptic hypothesis of migraine—that its cause lay in an as yet undiscovered lesion in the pons and medulla—was widely supported.⁴⁹ Notably, Liveing’s ideas about neurosis would influence Thomas Clouston and John Hughlings Jackson’s attempts to relate migraine to epilepsy. Jackson’s study of Thomas R. from London’s National Hospital for the Paralysed and Epileptic is a good example.⁵⁰ Jackson presented the case as an instructive example of hemiplegia, or one-sided paralysis, due to a lesion in the brain. He suspected that somewhere in Thomas’s head, there was a “grave” lesion, probably a clot. In particular, Jackson was looking for a lesion that might explain migraine.⁵¹ The case, he proposed, might help explain those “remarkable” cases of migraine which involved symptoms of temporary hemiopia and one-sided sensation disorders.

In an influential article considering the relationship between migraine, gout, and epilepsy, Clifford Allbutt hypothesized that all three of these disorders were characterized by a gradual increase in tension and a sudden release of energy. Allbutt praised physicians such as Edward Liveing, Francis Anstie, and German physiologist Emil du Bois-Reymond for reasserting migraine’s place among the neuroses and rescuing it from the humoral doctrine of bil-

iousness. Allbutt believed that the presence of migraine was a useful test for an inherited neurotic diathesis, or susceptibility, within families. "Migraines in such cases are like springs here and there in the land, which indicate the main direction of the subsoil water," he explained. Hemiopia, vertigo, vague dreads, yawning, sensations of bitterness or thirst, and constipation were all "shadows" of migraine, whether or not they were accompanied by hemicrania.⁵²

One of Liveing's theories was that the excessive generation or retention of uric acid in the body might be a possible culprit in migraine.⁵³ In the following decades, this idea that a toxic condition of the blood might poison nervous centers and cause megrim gained traction, and it helped account for migraine's apparent relation to gout. The main proponent of the uric acid theory was London physician Alexander Haig, a keen supporter of Liveing, who believed that a huge array of functional and organic diseases, including migraine headaches, were the result of excess uric acid in the body.⁵⁴ For Haig, a "uric acid headache" was the same thing as Liveing's megrim. The high blood pressure produced by uric acid obstructed the peripheral vessels and acted on the "unyielding membranes of the brain," which accounted for the pain. Haig suffered from migraine himself and described his own flickering fortification pattern: a "flashing of light on quickly rippling water." He believed he could produce migraine "at pleasure" by using drugs such as acids, opium, antipyrin, or mercury to produce a fluctuation in the body's excretion of uric acid, and, more importantly, quickly cure it (in around an hour) by raising the acidity of the urine to prevent excessive excretion of uric acid. Both Haig's children suffered from headache with aura until, he claimed, they had been cured by diet. Haig proposed that "poisoning" by eating meat and drinking tea produced headache, particularly in persons with large arteries supplying blood to the brain, which also explained the intellectual superiority of migraine sufferers.⁵⁵ Haig recommended taking calomel or morphine at the time of an attack to clear uric acid out of the blood and to prevent an accumulation of uric acid between attacks, particularly by avoiding animal foods, soups, and extracts.⁵⁶

During the late nineteenth century, migraine was discussed in relation to a whole range of nervous disorders. Perhaps the most significant of these was neurasthenia. The term had been coined by New York neurologist George Beard to describe an "American disease" of nerve weakness, or nerve exhaustion, that affected the "in-door classes" and "brain-working households," particularly in professional men, who were burned out by the pace and pressure of life in modern civilized countries.⁵⁷ Neurasthenia could manifest as an array

of symptoms, including dizziness, tiredness, insomnia, headaches, digestive disorders, tooth decay, and general illness. Beard was careful to distinguish the new, modern disease of neurasthenia from illnesses that had been around for centuries, such as epilepsy and hysteria. Importantly, Beard saw neurasthenia as a physiological, rather than a psychological disorder, an accompaniment to modernity that helped make it culturally acceptable, even respectable.⁵⁸

Sick headache played an important role in Beard's neurasthenic concept as both "a symptom and a safety valve." It allowed nervousness to manifest itself and, if not too severe, prevent the development of worse affections. Sick headache was often the most visible symptom of nervous exhaustion and, for Beard, was something of a red flag. Patients would come to him convinced they suffered no other symptom, before further examination revealed "an army of troubles which had annoyed and followed them for years." These symptoms would come and go, brought on by emotional disturbance, confinement in hot or airless rooms, or mental labor.⁵⁹ Because of the subjectivity of the symptoms, Beard observed that neurasthenic patients often had difficulty persuading others of the seriousness of their ailments. While the patient who experienced an attack of sick headache could be "without hope," friends "laugh at his fears and ridicule him for talking or thinking of his symptoms."⁶⁰ Noting that *Cannabis indica* had "revolutionalized" treatment of sick headache, he even went so far as to suggest it offered a permanent cure. Beard predicted that cannabis would soon become one of neurology's "major divinities," and he used it for a variety of neurasthenic and allied afflictions. While Beard recommended caffeine for temporary relief at the beginning of a sick headache attack, he warned that excessive drinking of tea or coffee could provoke a sick headache, to which he gave the name caffeinism.⁶¹ Beard argued that although neurasthenia was more frequent in women, it was to be found "in great abundance" in both sexes, "and in both men and women of intellect, education, and well-balanced mental organizations."⁶²

Living had emphasized that for men, ignoring the warning signs of sick headache risked more formidable attacks of apoplexy, epilepsy, and mania.⁶³ By the 1890s, physicians in Britain were falling over themselves to diagnose all manner of frightening social and hereditary ills arising from modern life. Thomas Clifford Allbutt, an influential supporter of the neurasthenia label, believed nervous disorders extended to wage earners throughout society, even to inmates of the workhouse.⁶⁴ James Crichton-Browne, who for ten years had been director of the West Riding Lunatic Asylum, believed that although men were more prone to organic diseases of the nervous system, women suffered

more from functional disorders, including “epilepsy, neuralgia, hysteria in all its protean shapes, chorea, migraine, [and] neurasthenia.”⁶⁵ W. Bolton Tomson articulated an evolutionary argument for the apparent correlation between the rise of neuroses—including megrim—and modernity. “Neurotic patients abound in all highly cultured communities,” he observed. “From the standpoint of the evolutionist, instability of the highest nerve centres is due to their being the most recently evolved, and is therefore a necessary evil accompanying an intellectual advancement.”⁶⁶

In 1888, in an article for *The Lancet*, Samuel Wilks wrote:

The migrainous patient frequently belongs to the most cultivated and intellectual class of society, and is of the temperament called neurasthenic, whilst the epileptic, in my experience, belongs to a lower grade, and is generally the stupid one of the family; if indeed, his fits are not associated with other grave defects of his nervous system. There is no lunatic or idiot asylum without its numerous epileptics, whereas some of the best descriptions of migraine are to be found in the *Philosophical Transactions*, given by the authors themselves. . . . I will not go as far as to absolutely endorse an opinion expressed by more than one observant medical man, that migraine is never met with amongst the lower orders, although it is difficult to conceive how such services as those of policemen or engine-drivers could go on were it at all common amongst the working community.⁶⁷

Samuel Wilks has been described as the grand old man of British medicine. He was a prolific author, originator of the term Hodgkin’s disease, president of the Royal College of Physicians of London, and physician extraordinary to Queen Victoria. He was also a great believer in the value of potassium bromide to treat his own migraine.⁶⁸ Here, however, he exploited the cultural cache that migraine had accumulated to denigrate the sufferers of epilepsy. In his comments, gender was invisible, but his assumptions about working people suggest a profound ignorance of and lack of care for the lives of the people on whose experiences advances in neurological understanding and pharmaceutical innovation relied in institutions such as London’s National Hospital. Wilks’s prejudice toward epilepsy, masquerading as medical insight, also ignored the observations and the critique of dangerous working conditions that had been an important part of Edward Liveing’s account of migraine.

If there was one point that physicians did agree on, it was that migraine was hereditary and usually appeared at a young age. Estimates of the preva-

lence of migraine within families had gradually increased over the preceding half century. In 1858, Symonds reported that 44 percent of the people with migraine stated that one or both parents had the disorder. In 1873, Liveing estimated 50 percent, and by 1912, one researcher suggested nearly 100 percent.⁶⁹ In childhood, the symptoms were often abdominal, with pain, vomiting, and constipation. Once the condition was established, it continued throughout adulthood before diminishing around the age of fifty, or with the ending of menstruation for women. It was not clear why this should be, but one theory held that as the arteries hardened with age, the patient would become protected from the vasomotor disturbances that seemed to provoke the symptoms.⁷⁰ This nervous inheritance was not necessarily direct; it might appear in one generation as migraine, and in another as asthma. The question of morbid heredity was made more complicated, prominent British psychiatrist Henry Maudsley explained, because of the tendency for nervous diseases to "blend, combine, or replace one another." Epilepsy in the parent might manifest as insanity in the child, or vice versa. A whole range of incarnations, including neuralgia, suicide, mania, melancholy, or remarkable artistic talent, might reveal a familial predisposition to insanity. So, too, "neuralgic headaches or migrains, various spasmodic movements or *tics*, asthma and allied spasmodic troubles of breathing will oftentimes be discovered to own a neurotic inheritance or to found one." Maudsley saw the neurotic diathesis as fundamental, but it had various outcomes. This was particularly the case with "functional" diseases that displayed no evidence of an organic pathological state.⁷¹ For children of a nervous disposition, school was a particularly dangerous place to be in such a formative period. While British children seemed to be less at risk from "over-exertion of the mind" than their counterparts in France and Germany, James Crichton-Browne railed against the "evil consequences" of educational pressure and brain fatigue, which could cause headaches, sleeplessness, night terrors, epilepsy, and hallucinations among the young. Indeed, he saw schools as veritable factories of stupidity.⁷² As we will see in chapter 8, these discussions about the relationship between health, intelligence, and nervous inheritance would take on new significance in the twentieth century, as concerns about national degeneracy became a powerful influence in medicine, policy, and public opinion under the guise of the eugenic movement.

The late nineteenth century witnessed a number of contributions on the importance of gender in determining a person's tendency to migraine, and

this discussion inherited a distinct stereotype. We find it first in the late eighteenth century, when William Buchan talked of wet nurses who suckled babies for too long as being particularly prone to hemicrania. In the 1850s, Patrick Murphy evoked the lower-class female martyr, her body “hourly drained by lactation.” In 1873, Edward Liveing identified seamstresses and “poor women exhausted from over-suckling” as the particular victims of megrim.⁷³ It is significant, therefore, to find precisely the same categories in George Beard’s discussion of neurasthenia. For Beard, it was overworked housewives who were most prone to neurasthenic melancholia, as well as “mothers, worn by repeated child-bearing and prolonged lactation.”⁷⁴

Edward Liveing criticized writers who assumed, with insufficient evidence, that women constitutionally had a greater predisposition to nervous affections than men, but he admitted that it did seem as if women were “slightly” more likely to have megrim than men. Helpfully, Liveing quantified “slightly” as a ratio of five to four, and he recognized that for many women, migraine recurred each month, with menstruation. While admitting a “distinct catamenial influence,” Liveing nevertheless considered this to only be a minor factor, compared with a nerve-storm.⁷⁵ For her Paris MD thesis, “Sur la migraine,” Elizabeth Garrett Anderson had observed the women who attended her medical practice in 20 Upper Berkeley Street, London, and St. Mary’s Dispensary for Women and Children, which she had opened in 1866. Although she found that migraine attacks often recurred during menstrual periods, Garrett Anderson did not venture an opinion on whether that made women inherently more susceptible. The main message was still that the disease often attacked “the most intelligent members of a neurotic family.” In 1872, Dr. Lawson, of St. Mary’s Hospital, curtly dismissed the need for any discussion, as “he does not think [sick headache] is more frequent in one sex than the other, and he is not aware that menstruation affects it in the slightest.” The main duty of the physician, Lawson seemed to suggest, was simply to not make any promises to the patient that their complaint would not occur again.⁷⁶ For Samuel Wilks, gender was important, primarily because he believed that men and women should be prescribed different treatments: potassium of bromide for men, and the milder guarana for women (quite possibly reflecting Latham’s recommendation that guarana was most useful for sick headache in persons “of a hysterical temperament”).⁷⁷ In *Neurotic Disorders of Childhood*, Benjamin Rachford went further than most writers in commenting on the intersections of gender and class. Among the “poor and uneducated,” he believed that migraine was four or five times as common among women as men. It was

particularly prevalent among factory girls and tenement dwellers, because of their "indoor life, [and] lack of fresh air and sunlight." Unwholesome food and general ill health also contributed to a tendency toward migraine. Among the "rich and refined," however, women only slightly predominated, perhaps due to the influence of menstruation as a precipitating factor. For Rachford, the explanation for this gender and class disparity was thus not primarily biological, but social. Since laboring men tended to lead physically demanding outdoor lives, they were unlikely to experience migraine.⁷⁸

William Gowers's two-volume *Manual of Diseases of the Nervous System*, published in 1888, has been called "the greatest large textbook on the subject ever written, and ever likely to be written."⁷⁹ Under the category of "General and Functional Diseases," Gowers devoted a chapter to migraine (he preferred the French term to the English word *megrim*), distilling state-of-the-art migraine knowledge at the end of the nineteenth century.⁸⁰ For Gowers, the "essential" and most distressing component of migraine was the headache. He described how the pain begins in a small spot and "often has a boring character, as if some instrument were being forced into the skull," before spreading across one side of the head and, often, both sides. Or it begins at the back of the head and extends forward to the temple, or in the middle of the head and then down one side, sometimes even to the neck and arm. To deal with migraine, increased rest, regular meals, and good diet were paramount. If drugs were required, Gowers recommended nitroglycerine, taken regularly during the intervals between attacks (similar to the way bromide was prescribed for epilepsy), rather than during the attack itself, when it was unlikely to be effective and might make the attack worse. During the migraine, "a good dose" of bromide could relieve pain, along with a tincture of Indian hemp. Other treatments included valerian and asafetida (as recommended by Latham). Strong tea and coffee, or a few drops of caffeine, might also provide relief. Gowers was dismissive of ergotin, since "all that a full dose . . . does is to lessen the throbbing intensification of the pain." Guarana had been generally disappointing, electricity "is not often of service," faradism was harmful, and the value of galvanization "doubtful."⁸¹

Gowers was pessimistic that migraine's pathology could be revealed. Reminding his readers of the two chief theories, he considered Liveing's nerve-storm proposal to be a "somewhat inapt metaphor," but he was even less convinced by Latham, as "the difficulties in accepting the vasomotor explanation of the sensory symptoms are so great that it could only be admitted as a tenable hypothesis if there were no other explanation of the coincidence of the

two phenomena.” As far as Gowers was concerned, the physiological cause of the headache remained obscure, but seeing migraine as a derangement of nerve cells of the brain better explained its relation to other neuroses. Gowers placed great importance on the connection of migraine to other “neurosals” diseases, because of the possibility of a transition from one disorder to another, including neuralgia, laryngeal spasm, angina seizures, and “paroxysmal insanity.” Epilepsy was of special interest, due to the common features it shared with migraine.⁸² At the end of his life, Gowers revised his ideas about the relationship between migraine and epilepsy in *The Border-Land of Epilepsy*, now considering it extremely rare for one to develop into the other. Any conjunction between them must be indirect. Although both diseases were characterized by premonitory symptoms, these varied so greatly in duration and character that Gowers now believed the two conditions could not be related.⁸³

Conclusion

For many modern neurologists, it is the 1870s—the combination of Liveing’s magisterial treatise and Airy’s beautiful depictions of aura—that marks the arrival of modern, neurological migraine. Mervyn Eadie argues that “Hubert Airy’s one original neurological publication resulted in migraine with a visual aura becoming transformed from an occasional and relatively unimportant curiosity into a significant clinical entity in the medicine of English-speaking countries.”⁸⁴ John R. Levene similarly describes Hubert Airy’s paper as “the first truly systematic and comprehensive account [of migraine] to appear in the literature.”⁸⁵ As we will see, Airy’s image did not just ensure that migraine aura would be included in modern ideas about this disorder. It came to define a very narrow model for what a reliable first-hand representation of migraine should look like, even though there are a wide variety of manifestations of visual aura, including dots, clouds, a corona, or a simple loss of vision.⁸⁶ The value accorded to Airy’s image came at the expense of other kinds of migraine experiences, including Mr. Beck’s, and continues to have a profound effect today on the way neurologists *see* migraine.

Liveing’s synthesis gave migraine a coherence and prominence in English-language medicine that it had not had before the 1870s. Yet, as neurologist and historian Mark Weatherall argues, Edward Liveing’s theories are much more than “an ancestor to neural concepts.” Claiming Liveing’s account as the birth of modern neurological migraine requires us to “divest it of all its

contemporary richness and depth."⁸⁷ One of the most overlooked aspects of Liveing's analysis has been his nuanced account of migraine's relationship to gender and class, which acknowledged the effects of poverty, overwork, and emotional strain in poorer communities. For Liveing, men of intellect were only one of several social groups that could be affected, but his prominent emphasis on Airy's aura, and other physicians' personal investment in the idea that migraine was a disorder of male intellectual superiority, minimized important insights that also had to compete with the social implications of a possible relationship between migraine and epilepsy, and the considerable influence of the concept of neurasthenia. While the diagnosis of neurasthenia largely disappeared by the 1920s, the idea persisted that a nervous disease might affect well-educated men under pressure at work, as well as women worn down by the anxieties of domestic responsibility. Twentieth-century ideas about migraineurs grew directly out of the cultural and social profile of migraine and the intellectual space that the demise of the concept of neurasthenia left vacant.

Throughout the late nineteenth century, observations about migraine's relationship to gender and class relied on stereotypes, anecdotal evidence, and assumptions gleaned from clinical experience. Victorian physicians, such as Hubert Airy and Alexander Haig, intermingled their personal experiences with their physiological and therapeutic observations. Migraine had to be a disease of intellect, drive, and ambition. Otherwise, how would they explain their own disposition (not to mention that of their children)? William Gowers's reluctance to admit Mr. Beck's images to the realm of trustworthy diagrams of aura showed how fervently some physicians believed that only a particular kind of person—a scientist or a physician—could be relied on to produce accurate accounts of lived experiences.

More than anything, the history of migraine in the second half of the nineteenth century, explored in this and the previous chapter, reveals how physicians shaped and then came to police the emergence of migraine's modern boundaries. Through their theories, discussions, and practices, these doctors defined which symptoms were in and which were out, as well as whose voices and subjective experiences were taken seriously, and whose were ignored. Ideas about migraine, and its relationship to other disorders, were shaped in large part by assumptions about class, gender, and education, as well as by the valorization of particular kinds of physiological experience. In his hugely influential treatise, William Gowers repeated Liveing's diagnosis of migraine's

causes, including excessive brain work, fatigue, labor carried out in hot and crowded rooms, anemia, and excess lactation. Thus, while Gowers's publications present an undeniably *modern* account of migraine, containing most of the features that we recognize today, his work nevertheless cemented a key set of ideas about gender and class that had been developing over the nineteenth century.⁸⁸