BOOK REVIEWS

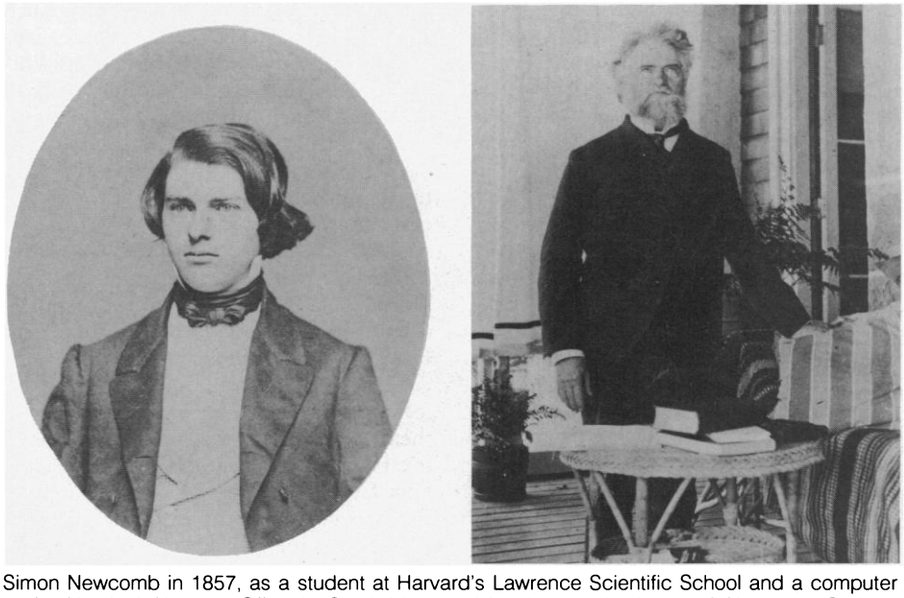
A Publicist for Pragmatism

A Scientist's Voice in American Culture. Simon Newcomb and the Rhetoric of Scientific Method. ALBERT E. MOYER. University of California Press, Berkeley, 1992. xviii, 302 pp. + plates. $40.

Albert Einstein eulogized him as the "last of the great masters" of classical astronomy. Lord Kelvin, upon meeting him in 1876, called him a "first rate man—full of go." He was the sort of man people ask to be president of their scientific societies. Simon Newcomb, whose skills at mapping the heavens were surpassed only by his talents at selling science to the late-19th-century American public, has been long overdue for the sort of serious biographical treatment he receives from Albert Moyer in *A Scientist's Voice in American Culture*. As Moyer correctly observes, the story of Newcomb's life and writings serves perfectly as a window onto the crucial methodological, philosophical, and social debates surrounding the transformation of American science between the middle and the end of the last century. From 1857, when he began work at the Nautical Almanac Office in Cambridge, to his presidency at the famed Saint Louis Congress of Arts and Science in 1904, Newcomb's personal scientific ascent paralleled the increasing legitimacy of American science in general. After earning a degree from the Lawrence Scientific School, Newcomb settled into a lifelong position charting planetary motion at the U.S. Naval Observatory, with sidelines teaching mathematics at Johns Hopkins and serving on an influential commission on national education. His astronomical work culminated in the compilation of a new series of stellar and planetary constants at the turn of the century, in the course of which he located an anomaly in Mercury's orbit that would disappear only with Einstein's general theory of relativity. But an even more significant aspect of his career, according to Moyer, was his constant outpouring of popular articles, speeches, and textbooks, through which he played a leading role in shaping the public perception and institutional makeup of science in America.

Moyer argues throughout the book that Newcomb's central agenda in his role as science publicist was to stress the advantages of strictly adhering to "scientific method." His definition of this method, which Moyer connects to the pragmatic philosophical tradition of C. S. Peirce and William James, was that scientists should seek only to discover general relations among sense-observations and should avoid wasting their time musing about metaphysics. Newcomb put his method into practice by means of what Moyer calls "faultfinding forays into marginal sciences" (p. 14), including economics, natural theology, and spiritualism. In these forays, many of which appeared in early issues of *Science*, Newcomb's presentation of proper method served two purposes: it guarded the boundaries of the physical sciences from incursions by what he worried were overly "speculative" social and pseudo-sciences, and—since these marginal sciences were also among the more popular—it kept his own self-defined voice of reason constantly in public view. An amateur economist with a textbook to his credit, he helped shout down Richard Ely's socialist-leaning "new" school by calling into question its intellectual credentials; an interested onlooker in the heated late-century debate over spiritualism, he accepted William James's offer of the presidency over the newly founded American Society for Psychical Research, only to spend much of his time at the post severely doubting the empirical basis of what he called "very scientific children's ghost-stories" (p. 172).

Moyer locates Newcomb's methodological efforts in the changing circumstances of late-19th-century American science, which rested on what were then thought to be the firm conceptual foundations of classical physics but which was only beginning to build a strong institutional basis. In that context Newcomb tried to sell science directly to the American people, in hopes of generating a democratic mandate for increased state and university support. Hence he emphasized the "practical" features of his pragmatism, rhetorically aligning professional science with the hardheaded perspective of American business and against "speculative" philosophy. Although Moyer presents this strategy as successful overall (as attested by Newcomb's personal gains and those of his peers), it caused Newcomb some problems. His equation of "science" in general with democratic American know-how worked well for marshaling popular support but left him with the challenge of reserving space in the resulting democracy for a scientific elite, which was part of both Newcomb's vision and the eventual social structure of American science. Toward the end of his career, when government and the universities showed positive signs of funding scientific research, he was still complaining that "our public . . . has only the vaguest and most imperfect idea of the true spirit of science"—by which he had in mind proper regard for "the divinely inspired explorer of nature." On another occasion he felt compelled to remind his astronomical patrons that support for science did not stop at the



Simon Newcomb in 1857, as a student at Harvard's Lawrence Scientific School and a computer at the Nautical Almanac Office in Cambridge, and in 1901, at the home of Alexander Graham Bell in Nova Scotia, the province of his birth. [Courtesy of Albert E. Moyer; Library of Congress Manuscript Division and Smithsonian Institution Archives]

construction of fancy observatories, chiding them that "[a] great telescope is of no use without a man at the end of it" (p. 195). Using democratic rhetoric to achieve secure professional surroundings for himself and fellow scientists was, as Newcomb discovered, a tricky business. Moyer's focused, well-researched account of Newcomb's rhetorical tricks and intellectual accomplishments provides a welcome assessment of an important historical figure. It also suggests fruitful directions for investigating the problems and successes experienced when a scientific community presents its public face.

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Medicalizations

Framing Disease. Studies in Cultural History. CHARLES E. ROSENBERG and JANET GOLDEN, Eds. Rutgers University Press, New Brunswick, NJ, 1992. xxvi, 326 pp. $48; paper, $16. Health and Medicine in American Society. Based on a conference, Philadelphia, 1988.

Over the past two decades social scientists have liberated their analyses from the dominance of the medical paradigm in the understanding of disease. Now they consider disease as a social as well as biomedical phenomenon and investigate how conditions become identified and designated as diseases. Sociologists have called this the social construction of illness; in this volume medical historian Charles Rosenberg and the contributors eschew constructionist language and focus on how disease is "framed." The differences in terminology probably don't matter; the important idea is that disease designations have histories that reflect not only biological phenomena but the social and cultural context in which they are identified.

As Rosenberg notes in his fine introduction, "In our culture a disease does not exist as a social phenomenon until we agree that it does—until it is named." This view, which has been developed by such analysts as Gusfield, Freidson, and Foucault, has been more boldly stated by Peter Sedgwick: "Outside of the significances that man [*sic*] voluntarily attaches to certain conditions, *there are no illnesses or diseases in nature*." There are of course naturally occurring phenomena that affect biological functioning, including viruses, malignant growths, and unusual genetic constellations, but these are not *ipso facto* diseases. Illness and disease are human constructions; they do not exist without someone proposing, describing, and recognizing them as such.

That diseases are shaped, packaged, and sometimes transformed by the process of discovery can be exemplified by the case of renal failure. In his contribution to the volume Steven J. Peitzman traces how the transformation of the 19th-century symptoms of "dropsy" into Bright's disease and then, most recently, into end-stage renal disease (ESRD) represents changes in the medical conception of the disease and the experience of the illness. With the introduction of dialysis, "renal failure" has become a chronic disease (ESRD) whose main experience is that of dialysis. Kidney function fails in the same way today as a century ago, but the way we frame the failure and the manner in which we can treat it make it a markedly different disease from that depicted as dropsy.

Nowhere is the validity of Sedgwick's dictum and Rosenberg's insight more apparent than in examples of what has been called "the medicalization of deviance": the framing of certain human problems or conditions in medical terms. More than a third of the 14 essays in this volume reflect on this issue in some manner. Michael MacDonald shows how the categorization of suicide as a medical matter in England (1500–1870) resulted more from social changes and lay initiatives than from expansion of medical expertise. Social responses to suicide were secularized in the 18th century owing to a general loss of confidence in diabolical powers; physicians had little to do with this, and MacDonald suggests that suicide was more or less medicalized by default. Ordinary Englishmen preferred to label suicide as sick rather than as criminal according to the once-common definition, since an illness designation was more likely to protect a family's property inheritance. Bert Hansen focuses on a much narrower period (1880–1900) in his examination of an important set of medical writings on "sexual inversion." By examining all published case reports in the United States, he illustrates the "discovery" of the new disease of sexual inversion (later called homosexuality). As these medicalized designations of behavior entered the public discourse, they depicted people who engaged in sexual behavior with members of the same sex not only as sick but as fundamentally different from heterosexuals. According to Hansen, certain individuals found some comfort (and reduced sense of guilt) in seeing that their needs and actions were not their fault, but the designation framed same-sex behavior as a pathology that resulted from faulty heredity. The evidence for disease was for the most part no more than a frame, and the gay liberation movement challenged that frame and achieved a kind of official demedicalization in the 1970s. Recent medical reports again raise the specter of medicalizing homosexuality, again with a mixed response from the gay and lesbian activists who understand that the framing of homosexuality as a disease has significant social consequences.

Anorexia nervosa and "chronic fatigue syndrome" can be called diseases of the 1980s. Both disorders have emerged from relative obscurity to become subjects of common knowledge and, interestingly, seem to affect mostly middle-class individuals. In most ways, of course, they are quite different, with anorexia reaching nearly epidemic status in some quarters and chronic fatigue syndrome remaining controversial even in the medical world.

Eating disorders, from obesity to extreme fasting and self-starvation, have become increasingly medicalized. Joan Jacobs Brumberg, author of a recent enlightening history of anorexia, presents a provocative analysis suggesting that in two decades anorexia has shifted from being a psychiatric syndrome to being a "communicable disease." She shows how knowledge of the illness has permeated the culture and argues that this has had significant consequences. She relates the spread of anorexia to its cultural availability. This is of course a different kind of "communicability" from that which we are accustomed to thinking about, but Brumberg contends that anorexia has become a social option, conscious or not, available to predisposed individuals. If Brumberg is correct, the dispersion of knowledge about anorexia has contributed significantly to the spread of the disorder.

Robert A. Aronowitz chronicles the debates over chronic fatigue syndrome—is it a somatic entity or a medicalized label for some vague ills? Aronowitz highlights the tensions and contradictions between lay and medical views over who has the authority to define the disease. Sufferers claim the syndrome is a real disease; medical skeptics abound. This raises issues of the legitimacy of patient experience and provides an interesting comparison for other controversial diseases like hypoglycemia.

The consequences of particular framings of disease are seen in a number of chapters, but perhaps most clearly in Ellen Dwyer's presentation of how the physicians' views of epilepsy in the late 19th century medicalized the disorder but characterized epileptics as weak-willed, defective, and prone to crime and madness. Physicians so incorporated the generally negative societal view of epilepsy that medicalization did not appear to reduce the historic stigma. The medical frame of epilepsy as a disease of "moral and physical degenerates" led to social policies including limiting immigration, sterilization, and institutionalization in colonies. In the 1920s, with the introduction of new medications that made the condition more manageable, medical writings became less negative. But it has