

Poison Murder and Expert Testimony: Doubting the Physician in Late Nineteenth-Century America

Mark Essig*

By most historical accounts, the years around 1900 witnessed the triumph of the expert, as the Jacksonian era's egalitarian suspicion of specialized knowledge was replaced by a respect bordering upon awe. "[T]he last third of the nineteenth century saw the virtual overthrow of effective resistance to specialization," John Higham has written. "By 1920 . . . America had embraced the specialist and sanctified the expert with an enthusiasm unmatched elsewhere."¹ Physicians often occupy a starring role in this narrative of triumphant expertise. After half a century of professional disarray, doctors at the turn of the twentieth century built a remarkably powerful and prestigious professional organization and won control over education, licensing, drug distribution, and other aspects of medical practice.² An older school of medical history attributed the profession's new social power to scientific advances: as the effectiveness of medicine increased, so did its social authority. More recent histories have pointed out that medicine's advances in cultural authority preceded and outstripped therapeutic advances. By this account, a few notable medical and scientific breakthroughs—including a vaccine for rabies and a drug for syphilis—convinced the public that medicine was worthy of respect even when its claims to therapeutic

* This Article is adapted from my doctoral thesis, *Science and Sensation: Poison Murder and Forensic Medicine in Nineteenth-Century America* (2000) (Ph.D. dissertation, Cornell University). For their generous assistance with earlier drafts of this project, my thanks to R. Laurence Moore, Joan Jacobs Brumberg, Peter Dear, and Michael Kammen.

1. John Higham, *The Matrix of Specialization*, in *THE ORGANIZATION OF KNOWLEDGE IN MODERN AMERICA, 1860-1920*, at 5 (Alexandra Oleson & John Voss eds., 1979); see also BURTON J. BLEDSTEIN, *THE CULTURE OF PROFESSIONALISM: THE MIDDLE CLASS AND THE DEVELOPMENT OF HIGHER EDUCATION IN AMERICA* (1976).

2. See PAUL STARR, *THE SOCIAL TRANSFORMATION OF AMERICAN MEDICINE* (1982); WILLIAM G. ROTHSTEIN, *AMERICAN PHYSICIANS IN THE NINETEENTH CENTURY: FROM SECTS TO SCIENCE* 79-144 (1972).

authority were suspect. "Bolstered by genuine advances in science and technology," Paul Starr writes, "the claims of the professions to competent authority became more plausible, even when they were not yet objectively true; for science worked even greater changes on the imagination than it worked on the processes of disease."³ Medical authority, in other words, depended largely on good public relations.

Historians who have studied press coverage of science and medicine during this period have found that scientists and physicians were portrayed as heroes. These images, some claim, boosted the public standing of the profession.⁴ I would like to suggest that this interpretation reflects a bias in the topics chosen for study. It is not surprising that press accounts of a medical success such as the rabies cure should provoke enthusiasm for science and medicine. But there was also another type of news story in which medicine played a prominent role: the sensational criminal trial. Doctors and scientists were called upon to testify about the mental health of defendants, various types of wounds, and—with surprising frequency—the chemical or physiological signs of criminal poisoning. In calling upon expert witnesses to try to resolve criminal disputes, the courts played an important role in shaping what science and medicine meant for the general public.⁵ The adversarial nature of the criminal trial guaranteed contradictory expert testimony, and these highly publicized spectacles of scientific disagreement presented an unflattering image of science and medicine.⁶

Most previous historical studies of medical expert testimony have focused on the insanity defense.⁷ But from the nineteenth century

3. STARR, *supra* note 2, at 18. Other advances included new bacteriological tests, vaccines for typhoid and tetanus, antiseptic surgery, and technological advances such as x-rays and stethoscopes. *Id.* at 134-37. See also John Harley Warner, *Ideals of Science and Their Discontents in Late Nineteenth-Century Medicine*, 82 *ISIS* 454 (1991).

4. See Bert Hansen, *America's First Medical Breakthrough: How Popular Excitement About a French Rabies Cure in 1885 Raised New Expectations for Medical Progress*, 103 *AM. HIST. REV.* 373 (1998); see also JUDITH WALZER LEAVITT, *TYPHOID MARY: CAPTIVE TO THE PUBLIC'S HEALTH* (1996); MARCEL C. LA FOLLETTE, *MAKING SCIENCE OUR OWN: PUBLIC IMAGES OF SCIENCE, 1910-1955* (1990); Matthew D. Wahlen & Mary F. Tobin, *Periodicals and the Popularization of Science in America, 1860-1910*, 3 *J. AM. CULTURE* 195 (1980); TERRA ZIPORYN, *DISEASE IN THE POPULAR AMERICAN PRESS: THE CASE OF DIPHTHERIA, TYPHOID FEVER, AND SYPHILIS, 1870-1920* (1988).

5. See SHEILA JASANOFF, *SCIENCE AT THE BAR: LAW, SCIENCE, AND TECHNOLOGY IN AMERICA*, at xvi (1995).

6. This Article blurs the distinctions between science and medicine. This is justified because the medical specialty under consideration, toxicology, was closely allied with analytical chemistry. In addition, my topic is the place of science and medicine in popular culture, and newspapers and popular journals rarely made a distinction between the two in their coverage of poisoning trials.

7. *E.g.*, CHARLES E. ROSENBERG, *THE TRIAL OF THE ASSASSIN GUILTEAU: PSYCHIATRY AND LAW IN THE GILDED AGE* (1968); ROGER SMITH, *TRIAL BY MEDICINE: INSANITY AND*

through the first few decades of the twentieth, some of the most celebrated cases involving expert testimony were poison murder trials.⁸ The problems of expert testimony in poisoning trials seemed more troubling to the medical profession than did those involving insanity. A public long scornful of the “insanity dodge” did not expect alienists to agree on the mental state of a defendant. But because toxicology, closely related to chemistry, was considered an “objective” science, a failure of toxicologists to agree seemed to call into question the certainty of scientific knowledge. These disagreements had important implications for the public image of scientific and medical experts at the end of the nineteenth century.

After briefly outlining the nineteenth-century obsession with poisoning crimes, this Article discusses attempts by physicians, scientists, and lawyers to reform the system of taking expert testimony at the turn of the century. It then examines the expert testimony at the 1893 poison murder trial of Robert Buchanan in Manhattan. I treat the conflict of expert testimony in this trial as a battle over scientific knowledge and credibility, and I analyze the ways in which the stresses of the adversarial legal system tended to deconstruct apparently secure scientific knowledge. The well-publicized problems of expert testimony damaged the popular image of science and medicine, a fact that warrants a reconsideration of received historiographical truths concerning the public embrace of scientific and medical expertise at the turn of the twentieth century.

THE POWER OF POISON

In 1893 the New York toxicologist R. Ogden Doremus observed, in the opinion journal *The Forum*, that “we seem to be passing

RESPONSIBILITY IN VICTORIAN TRIALS (1981); Janet Ann Tighe, ‘*Be It Ever So Little: Reforming the Insanity Defense in the Progressive Era*, 57 BULL. HIST. MED. 397 (1983); Janet Ann Tighe, *The Legal Art of Psychiatric Diagnosis: Searching for Reliability*, in FRAMING DISEASE: STUDIES IN CULTURAL HISTORY (Charles E. Rosenberg & Janet Golden eds., 1992); Janet Ann Tighe, A Question of Responsibility: The Development of American Forensic Psychiatry, 1838-1930 (1983) (Ph.D. dissertation, University of Pennsylvania). The notable exception is JAMES MOHR, DOCTORS AND THE LAW: MEDICAL JURISPRUDENCE IN NINETEENTH-CENTURY AMERICA (1993) (examining toxicology and poison cases).

8. See, e.g., Alphonso T. Clearwater, *Medical Expert Testimony*, 189 N. AM. REV. 821 (1909); A.W. Henckell, *The Value of Expert Testimony in Medico-Legal Cases from a Medical Standpoint*, 67 N.Y. MED. J. 101 (1898); John Sterling, *The Medical Expert Witness*, 22 JAMA 377 (1894); Henry Smith Williams, *Medical Experts and Homicide*, 164 N. AM. REV. 160 (1897). For the more important American poisoning trials in the first two-thirds of the century, see MOHR, *supra* note 7. For British cases, see Michael Harris, *Social Diseases? Crime and Medicine in the Victorian Press*, in MEDICAL JOURNALS AND MEDICAL KNOWLEDGE: HISTORICAL ESSAYS (W.F. Bynum, Stephen Lock & Roy Porter eds., 1992); Tal Golan, *Scientific Expert Testimony in Anglo-American Courts, 1782-1923* (1997) (Ph.D. dissertation, University of California, Berkeley).

through an epidemic of poisoning.”⁹ What Doremus could not have known in 1893 was that New York’s poisoning epidemic had only just begun. Between 1860 and 1891, there were only two trials for murder by poison in Manhattan.¹⁰ In the next ten years there were at least six more trials. Several involved notable citizens, and all commanded the attention of the city and, in some cases, the country.¹¹ These six cases were part of a larger phenomenon. There were many other prominent trials elsewhere in the United States and in Europe, not to mention countless accusations and investigations that never made it to trial.¹² Under the headline *Poison Epidemic Sweeps the Land*, the *New York World* in 1899 reported on confirmed or suspected poisoning cases in Kentucky, Ohio, Indiana, Michigan, Illinois, Kansas, and Maryland.¹³

The 1890s poisoning “epidemic” served as a fitting climax to a century obsessed with poison murder. Available statistics suggest that poison murder might not have deserved so much attention, because it accounted for a tiny fraction of the total number of murder cases.¹⁴ In his recent historical survey of murder in the United States, Roger Lane claims that “poison has . . . always remained out of style everywhere but in the pages of mystery novels.”¹⁵ But statistics do not tell

9. R. Ogden Doremus, *Can Chemical Analysis Convict Poisoners?*, 16 FORUM 229 (1893).

10. In 1873 Frederick Heggi was acquitted in his second trial for murdering his wife. In 1888 Wilhemina Lebkuchner was acquitted by reason of insanity in the poisoning deaths of her three children. See Rudolph A. Witthaus, *Some Toxicological Points in a Case of Homicide by Morphine*, 2 RESEARCHES LOOMIS LAB. 1-14 (1892); Tracy C. Becker, R.A. Witthaus & Maurice January Lewi, Arguments Before the [New York State] Assembly Committee on Codes In regard to Embalming Dead Bodies (April 23, 1890) (transcript on file in the Pamphlet Collection, New York Academy of Medicine).

11. The wide interest is reflected in the District Attorney Scrapbooks (on file with the Municipal Archives of the City of New York) [hereinafter D.A. Scrapbooks], which contain clippings from newspapers across the country. The overall murder rate for New York City was slightly lower in the 1890s than in the previous and succeeding decades. See ENCYCLOPEDIA OF NEW YORK CITY 297-99 (Kenneth T. Jackson ed., 1995).

12. Three separate suspected poisoning cases in New York were reported in just one month: N.Y. WORLD, Apr. 5, 1893; N.Y. WORLD, Apr. 16, 1893; and N.Y. WORLD, Apr. 22, 1893. For other cases, see N.Y. WORLD, Apr. 18, 1895; N.Y. WORLD, Apr. 19, 1895; N.Y. WORLD, May 28, 1896; N.Y. TIMES, May 1, 1895. There were even a couple of dog poisoners on the loose: N.Y. WORLD, Apr. 16, 1895; N.Y. WORLD, Apr. 23, 1895. For cases elsewhere, see ALICE RAVEN, PREJUDICIAL ASSUMPTIONS IN POISON CASES (1937); EDWARD H. SMITH, FAMOUS POISON MYSTERIES (1927); N.Y. TIMES, Aug. 12, 1886; N.Y. TIMES, Feb. 7, 1888.

13. N.Y. WORLD, Jan. 15, 1899. A bit of alarmism is evident in this article. Some of the cases—like those of the people who got sick after eating canned tongue—probably resulted from bacterial food poisoning or other accidental poisoning.

14. See R.A. WITTHAUS, MANUAL OF TOXICOLOGY 413 (1911); Charles T. Jackson, M.D., *Statistics of Poisoning in New England*, 63 BOSTON MED. & SURGICAL J. 389 (1860). Statistics for England are more complete. At the central criminal court in London, there were eighty-three poisoning trials between 1739 and 1878. THOMAS ROGERS FORBES, SURGEONS AT THE BAILEY: ENGLISH FORENSIC MEDICINE TO 1878, at 127-30 (1985).

15. ROGER LANE, MURDER IN AMERICA: A HISTORY 320 (1997). See *id.* at 202.

the whole story. However rare, poison murder was very much in style in nineteenth-century America. Legal treatises devoted much attention to the difficulties of prosecuting poison murder cases. Medical jurisprudence, one of the liveliest areas of American medicine at this time, devoted more attention to poisoning than to any other topic but insanity. Poison also figured significantly in popular literature. Over a hundred book-length accounts of individual poisoning trials were published, and newspapers covered poison murders with particular interest. Writers of sensation novels, detective stories, and other popular fiction frequently turned to poisoning as a plot device.¹⁶

Why did a relatively rare crime attract so much interest and fear? Nineteenth-century Americans suspected that many cases of poisoning escaped detection altogether. "We do not know how many persons who were buried as having died of disease, may have died of poison," one physician explained.¹⁷ Every poison murder case that made it to trial raised the fear that scores more had gone undetected. This fear of undiscovered crime lay at the heart of the nineteenth-century obsession with poison murder. Poisoning involved a double secrecy. It was carried out secretly, within the home, behind closed doors, and usually by a person on intimate terms with the victim. This quality, though, was shared with other sorts of murder—one could, after all, bludgeon and shoot and stab in private. But there was another aspect to the secretness of poison: unlike other weapons, poison did its work on the interior of the body, leaving no visible signs of violence. Because the symptoms of some poisons resembled those of disease, it was often difficult to tell whether a person had died from poison or from natural causes. Most forms of murder were easy to identify, one author explained, "while poison would only leave a doubt as to the true nature of death."¹⁸ It was this uncertainty that made poisoning such a dreaded crime.

To dispel these fears, what was needed was an effective way to detect and deter poisoning crimes. For centuries this had been an almost impossible task, but in the nineteenth century the situation changed. By the 1840s, toxicology had emerged as the first modern forensic science. Aided by advances in chemistry and medical diagnosis, physicians and scientists learned to distinguish the symptoms of poisoning from those of disease. By the middle of the century,

16. Mark Essig, *Science and Sensation: Poison Murder and Forensic Medicine in Nineteenth-Century America* 4-7 (2000) (Ph.D. dissertation, Cornell University) (on file with author).

17. Jackson, *supra* note 14, at 389.

18. Charles Greene Cumston, *The Medico-Legal Aspect and Criminal Procedure in the Poison Cases of the XVI Century*, 23 *MEDICO-LEGAL J.* 173 (1905-06).

scientists could isolate the tiniest traces of some poisons from the corpses of murder victims and produce them for all to see in court. The most reliable tests were those for the metallic poison arsenic, which also happened to be the poison most frequently used for murder. These tests offered hope that the terrible doubt surrounding poisoning crimes might be replaced with greater certainty.

But these technical accomplishments by themselves were not enough. Physicians and toxicologists also needed to deploy their knowledge within the troublesome context of criminal trials, which often turned into battles between rival experts. Such battles provoked calls from the medical profession for reforms in the legal system's method of taking expert testimony.

REFORMING EXPERT TESTIMONY

Physicians, midwives, sea captains, and others had served as experts in the English courtroom since the medieval era, providing instruction in cases where the facts in dispute were such that the judge and jury did not have the knowledge necessary to render a decision. But the expert's specific role in the courtroom has changed over time. Before the eighteenth century, judges and juries took an active role in the gathering and presentation of evidence. In this traditional system, experts appeared either as part of the jury or as official advisors to the court. During the eighteenth century, the legal system underwent what is known as the "adversarial revolution," in which judge and jury assumed passive, neutral positions and litigants gained control over the production of evidence. After this revolution (and continuing down to the present), experts appeared most frequently not as jurors or court advisors but as partisan witnesses. As science and technology began to permeate every aspect of social life in the nineteenth century, there was a constantly increasing demand for scientific and technical knowledge in the courtroom, and experts appeared in every sort of legal proceeding, from insurance litigation to patent disputes to criminal trials.¹⁹

Scientists who appeared as witnesses quickly learned that the transfer of knowledge from the laboratory to the courtroom was fraught with difficulties. The adversarial structure of legal proceedings assured that all expert testimony would be contradicted, and the experts worried that battles of expert testimony damaged the image of their professions. Tal Golan has shown that throughout the Victorian era, "[t]he constant spectacle of eminent doctors, chemists, geologists, engineers, and other men of science contradicting each

19. See Golan, *supra* note 8, at chs. 1-2.

other on the witness stand . . . cast serious doubts on their integrity and on their science in the eyes of the public.”²⁰ In his study of medical jurisprudence in the nineteenth-century United States, James Mohr has argued that in the latter half of the century, “the process of eliciting medical evidence continued to make physicians look scientifically weak, internally divided, and dangerously unprofessional.”²¹ Given these difficulties, physicians, scientists, and lawyers devoted considerable attention to reforming the American system of taking expert testimony. By one estimate, in the year 1898 alone there were 238 articles on expert testimony published in U.S. medical journals.²² The articles reveal a great deal about contemporary conceptions of medicine, science, and expertise.

At the very beginning of his long and distinguished career, Learned Hand published an important article that captured the central dilemma of expert testimony.²³ The system allowed experts for the opposing sides to provide contradictory testimony and then commanded “the jury to decide, where doctors disagree.” But, Hand observed, “It is just because they are incompetent for such a task that the expert is necessary at all.”²⁴ Most writers on the topic of expert testimony agreed with Hand’s diagnosis of the problem. Prescribing a remedy proved a more contentious issue.

Only a hardy few defended the current adversarial system. Some claimed that the American system, while imperfect, was the best available. At the International Congress of Forensic Medicine, held in Paris in 1889, French scientists expressed dissatisfaction with the French system of neutral expert commissions, because they believed it weighed unfairly against the accused. When proposals for other systems were put to a vote, the most popular proved to be an adversarial system much like that in the U.S. “In view of the conflicting testimony from countries in which the commission plan has been thoroughly tried,” a *Medical Record* editorialist concluded, “we certainly ought to approach any contemplated change in our methods with great care.”²⁵

20. *Id.* at 150.

21. MOHR, *supra* note 7, at 198.

22. 34 JAMA 655 (1900).

23. Learned Hand, *Historical and Practical Considerations Regarding Expert Testimony*, 21 ALBANY MED. ANNALS 599 (1900). The article was so well received that it was reprinted at Learned Hand, *Historical and Practical Considerations Regarding Expert Testimony*, 15 HARV. L. REV. 40 (1901) [hereinafter Hand, *Historical and Practical Considerations*]. According to Hand’s most recent biographer, this early article “shows the distinctive voice of the mature Hand for the first time.” GERALD GUNTHER, LEARNED HAND: THE MAN AND THE JUDGE 60 (1994).

24. Hand, *Historical and Practical Considerations*, *supra* note 23, at 54.

25. *How Expert Testimony Could Be Made More Valuable*, 48 MED. REC. 915 (1895). For

Most commentators, however, continued to push for change. According to one line of thought, the problem could be laid at the feet of incompetent or corrupt experts. Some argued that the medical profession itself should establish the standards of expertise, by having county or state medical societies certify certain physicians as experts.²⁶ Others suggested that it was the legal system that needed to perform this task. In this view, courts did not sufficiently exercise a function that today is called “gatekeeping”: deciding who qualifies as an expert. As one critic of the system put it, courts “should at least make the effort to discriminate between the real and the pseudo-expert.”²⁷ The editors of the *Journal of the American Medical Association (JAMA)* published many editorials stressing the importance of gatekeeping by the courts,²⁸ and they were echoed in the pages of the influential *North American Review*. Were judges to exclude incompetent experts, a writer for the latter journal claimed, the courts “will be rid of corrupt and worthless so-called experts.”²⁹

In fact, there were only a few trials in which the problems of expert testimony could be blamed on incompetent or corrupt experts. One of the most infamous instances occurred during the 1896 poison murder trial of Mary Fleming in New York. Fleming’s lawyers did not dispute that there was arsenic in the body of the deceased, but they did deny that Fleming put it there. The defense claimed that Walter Scheele, a German chemist who was serving as an expert for the prosecution, introduced arsenic into the body after death in order to secure a conviction and enhance his reputation. Defense lawyers produced a number of witnesses who claimed to have heard Scheele admit, “My reputation rests on this case. I have fixed matters so that she will be found guilty whether she is guilty or not.”³⁰ The charges against Scheele, true or not, sufficed to produce reasonable doubt, and Fleming was acquitted.³¹ (They also were enough to ruin Scheele’s reputation and his career as an expert witness. The

another editorial supporting the current system, see Sterling, *supra* note 8.

26. Henry Wollman, *Physicians—Expert Witnesses*, 32 JAMA 571 (1899); see also Carlos F. MacDonald, *Expert Evidence in Criminal Trials*, 1 PROC. ACAD. POL. SCI. 641 (1911). One writer proposed establishing a civil service board that would administer examinations and qualify experts in certain fields. Williams, *supra* note 8.

27. Williams, *supra* note 8, at 161.

28. *E.g.*, 40 JAMA 1149 (1903); *Medical Juries*, 41 JAMA 500 (1903); *Expert Witnesses Appointed by the Court*, 42 JAMA 960 (1904).

29. Clearwater, *supra* note 8, at 826.

30. N.Y. HERALD, June 6, 1896 (on file in DA. Scrapbooks, *supra* note 11); see also N.Y. WORLD, June 6, 1896; N.Y. WORLD, June 17, 1896. Scheele had testified more successfully in the Buchanan trial, which is discussed below.

31. After the trial, jurors claimed that the testimony against Scheele had been central to their verdict. N.Y. PRESS, June 26, 1896 (on file in D.A. Scrapbooks, *supra* note 11).

next time he appeared in the newspapers was during the Great War, when he was arrested for participating in a German plot to blow up a U.S. munitions ship in a New Jersey port.³²)

These sorts of problems were extremely rare. The most celebrated cases involving conflicting expert testimony—including the Buchanan trial discussed below, and several other poisoning trials around the turn of the century—featured not marginal experts but the most respected scientists and physicians of the day. Critics who focused on excluding the corrupt and incompetent missed the point: when even the elite disagreed with each other in court, it was clear that the source of the problem lay elsewhere.

Many commentators argued that experts disagreed because they were paid to disagree by the opposing sides in the case. One attempt to sidestep this problem was the “Leeds method,” named after the English city where it was used. In this system, the medical experts from both sides meet in conference before the trial and exchange views on the issues involved. As a result, according to one prominent textbook of legal medicine, “at Leeds the medical witnesses are hardly ever cross-examined at all,” the standards of testimony are raised, and the judge and jury have more faith in the testimony.³³ The Leeds method was an attempt to meliorate the mercenary aspects of expert witnessing. The courtroom, it was thought, was too steeped in an adversarial culture. The Leeds method would create a private space that could foster collegial discussion and, if not agreement, than at least more congenial disagreement.

The Leeds system, however, still preserved the role of the partisan expert that many saw as the root of the problem. Exasperated by the parade of contradictory experts in one trial, one *JAMA* editorialist offered the tongue-in-cheek suggestion that partisan experts, rather than actually testifying, should simply be “stood up in line and canceled in pairs so that by a sort of *reductio ad absurdum* it might be seen by the remainder which side to credit.”³⁴ This writer and many others sought alternative ways of dispensing credit in the courtroom. By far the most common proposals involved “neutral,” court-appointed experts. Such proposals came in a number of varieties. In the most moderate ones, defendants retained their right to call their own experts, and cross-examination was preserved. Learned Hand provided one of the more persuasive arguments for this position,

32. For his obituary, see N.Y. TIMES, Mar. 6, 1922.

33. Lawrence Godkin, *Introduction to A SYSTEM OF LEGAL MEDICINE* 23 (Allan McLane Hamilton & Lawrence Godkin eds., E.B. Treat 2d ed. 1900) (1894). A similar proposal can be found in Landon Carter Gray, *New Method of Taking Expert Testimony*, 57 N.Y. MED. J. 547 (1893).

34. Editorial, *The Medical Expert*, 48 JAMA 1355 (1907).

proposing "a board of experts or a single expert, not called by either side, who shall advise the jury of the general propositions applicable to the case." Hand's plan allowed that both sides "might call all the experts that money could procure," and that the "right of cross-examination could be exercised without limitation." Trials would proceed much as they currently did, but "the difference would be that the final statement of what was true would be from the assisting tribunal." The jury had every right to ignore the evidence of the official experts, but it probably wouldn't: "how great is the effect upon the jury, confused by the arguments of the two contestants, of some really impartial expression of an opinion upon which they can rely."³⁵

A number of states attempted to enact proposals closely resembling Hand's. Two were successful. In Michigan, Public Act 175 for the year 1905 stipulated that expert witnesses should receive fees no larger than ordinary witness fees (unless the court approved a higher fee); each side could call no more than three expert witnesses, except in homicide cases (unless the court approved more); in homicide cases, the court was to appoint from one to three "suitable disinterested persons" to serve as official experts, their fees fixed by the court and paid by the county; and both sides retained the right to call their own experts.³⁶ Rhode Island passed a similar law.³⁷ Attempts by other states to pass this sort of legislation failed. New York State put a great deal of effort into such measures but had little to show for it. In 1904 the president of the state medical society complained that a joint committee of the state medical and bar associations had been appointed, "but after dragging on for two or three years the committee reported its inability to accomplish anything."³⁸ The committee nonetheless dragged on for at least another ten years. In 1909 it proposed a measure similar to the Michigan and Rhode Island statutes, but the bill went nowhere.³⁹ Five years later the committee scaled back its expectations, wrote a more limited bill dealing only with the insanity defense, and managed to get it passed in both houses of the

35. Hand, *supra* note 23, at 56. Similar proposals include *A Bill for the Regulation of Expert Testimony*, 19 JAMA 113 (1892); William J. Herdman, *The Physician as a Witness in Court*, 34 JAMA 650 (1900); *How Expert Testimony Could Be Made More Valuable*, *supra* note 25; MacDonald, *supra* note 26; *Medical Expert Testimony*, 55 JAMA 1813 (1910); *Reform in Medical Expert Testimony*, 25 JAMA 444 (1895); Williams, *supra* note 8.

36. 1905 Mich. Pub. Acts 175. Michigan's law was later declared unconstitutional. 13 N.Y. ST. J. MED. 223, 268 (1913).

37. See Lee M. Friedman, *Expert Testimony, Its Abuse and Reformation*, 19 YALE L.J. 248 (1909); 55 JAMA 1912 (1910).

38. Algernon T. Bristow, *Address by President, 98th Session of the Medical Society of the State of New York*, 42 JAMA 632, 632 (1904).

39. 10 N.Y. ST. J. MED. 154 (1910).

state legislature. The governor promptly vetoed it.⁴⁰ The American Medical Association established its own “Special Committee on Expert Medical Testimony,” which followed a trajectory much like that of the New York State Committee: after a few years of sweeping proposals regarding all medical expert testimony, it eventually concentrated its efforts on the insanity defense alone.⁴¹

Despite the failure of most of these reform attempts, many writers continued to propose systems involving neutral experts that were even more radical, in that they eliminated or curtailed the power of the jury. An 1892 *JAMA* editorial suggested that an “expert judge” alone should try cases involving medical questions, because such cases “should never be given to a jury of non-experts.”⁴² In other proposals, the jury was retained, but the court-appointed experts were granted privileged roles. In the aftermath of a 1901 poisoning trial, one writer proposed that an official board of experts should hear the expert evidence from defense and prosecution without the jury present, make its decision, and then present that decision to the jury “as a ruling, parallel to that of a judge on a point of law.”⁴³ A number of other proposals varied slightly, but agreed that court-appointed experts should be exempted from cross-examination and granted judicial or quasi-judicial powers.⁴⁴ Frequently such articles approvingly noted the French or German systems of expert testimony, which were non-adversarial and not subject to lay review.⁴⁵

In all of these various proposals, the common element was that the physicians objected to operating within a system that was not under their control. Part of the anger was directed at the legal profession. An American Medical Association report argued that “modern economic and social development offers logical leadership to medicine,” and regretted that “other and less natural dictatorship” still prevailed.⁴⁶ An 1892 *JAMA* editorial criticized a system featuring “medical experts who are hired like horses to drive so far, and in

40. 14 N.Y. ST. J. MED. 267 (1914). On the New York state efforts, see also 67 N.Y. ST. J. MED. 192 (1898); 9 N.Y. ST. J. MED. 134 (1909); 11 N.Y. ST. J. MED. 232-33 (1911); 12 N.Y. ST. J. MED. 258 (1912); 13 N.Y. ST. J. MED. 223 (1913); 52 *JAMA* 1054 (1909).

41. 4 AM. MED. ASS'N BULL. 167-68, 191 (1909); 5 AM. MED. ASS'N BULL. 112-13, 117-18, 406-08 (1909-10); 8 AM. MED. ASS'N BULL. 163-66 (1913); Tighe, *'Be It Ever So Little,' supra* note 7.

42. *Expert Medical Testimony in Jury Trials*, 18 *JAMA* 304 (1892).

43. Kenneth W. Millican, *The Patrick Case and Its Lessons*, 75 N.Y. ST. MED. J. 593 (1902).

44. Gray, *supra* note 33; *How Expert Testimony Could Be Made More Valuable, supra* note 25; 67 N.Y. MED. J. 101 (1898); 78 N.Y. MED. J. 152 (1903).

45. *Medical Experts*, 22 *JAMA* 227 (1894); *Chicago Medico-Legal Society*, 18 *JAMA* 461 (1892).

46. *Report of the Sub-Committee on Hygiene, Medical Jurisprudence and Medical Economics*, 5 AM. MED. ASS'N BULL. 108 (1909).

such and such directions, with the proper harness and appointments for one purpose alone." Physicians, the writer thought, were the ones who should be in the driver's seat, cracking the whip.⁴⁷

Most doctors believed that medicine was a science, that science was the most certain of all forms of knowledge, and that only those with scientific training could evaluate scientific testimony. While it was bad enough that physicians were at the mercy of lawyers in the courtroom, it was simply outrageous that the ultimate decision rested with the jury. One physician complained that "our great questions of medical science" must be decided by "twelve men taken from the body of the people, often illiterate, invariably ignorant even of the elements of science."⁴⁸ Choosing even harsher words, a *JAMA* editorial averred that "the jury find themselves suddenly raised to an exalted position with no other qualification than that of profound ignorance of the case in court, coupled with general stupidity on all other questions."⁴⁹

LOSING FAITH IN THE JURY

At the end of the nineteenth century, such negative opinions about the jury system were not unique to members of the medical profession. The jury had held an exalted position from colonial times through the early nineteenth century, when it was celebrated as a check on elite manipulation of governmental and legal power. In *Federalist* No. 83, Alexander Hamilton called the jury "the very palladium of free government," a phrase much favored by subsequent defenders of the jury system. (Mark Twain was less impressed by the quotation. "I do not know what a palladium is, having never seen a palladium," he wrote, "but it is a good thing no doubt at any rate."⁵⁰) According to one historian, faith in the jury was one aspect of "the prevailing political philosophy of the constitution-framing era: that popular control over, and participation in, government should be maximized."⁵¹

47. *Expert Medical Testimony in Jury Trials*, 18 *JAMA* 304 (1892); see also *A Bill for the Regulation of Expert Testimony*, *supra* note 35.

48. Gray, *supra* note 33.

49. *Expert Medical Testimony in Jury Trials*, *supra* note 42. For further criticisms of juries, see ALLAN MCLANE HAMILTON, RECOLLECTIONS OF AN ALIENIST, PERSONAL AND PROFESSIONAL 293 (1916); Clark Gapen, *Legal Criticism of Expert Evidence*, 21 *JAMA* 447 (1893); 34 *JAMA* 654 (1900). When confronted with constitutional objections to doing away with the jury system, another *JAMA* editorial suggested the simple expedient of changing the constitution: "Surely our legal machinery is not rooted and fixed so irrevocably in constitutional regulations and precedents that adoption of some better system than the present . . . is wholly out of the question." Editorial, 46 *JAMA* 1700 (1906).

50. MARK TWAIN, ROUGHING IT 351 (Hartford, Conn., American Publishing Co. 1872).

51. *The Changing Role of the Jury in the Nineteenth Century*, 74 *YALE L.J.* 172 (1964);

Over the course of the century, however, the power and influence of the jury diminished markedly.⁵² By the late nineteenth century, calls for reform or even abolition of the jury system were not uncommon, and they were usually tied to complaints about the intelligence of jurors. In *Arena*, a writer complained that “the average jury is below the average of the general intelligence and integrity of the community.” He suggested establishing “some simple educational tests” that would “exclude incompetent or undesirable jurors.”⁵³ In the *Nation*, E.L. Godkin railed against the practice of excluding potential jurors simply because they had formed an opinion from reading newspapers. Excluding those who read newspapers, Godkin wrote, means excluding the intelligent, so that “the process of impaneling a New York jury, in a notorious case, is apt to consist in a search for twelve extremely illiterate or half-witted men.”⁵⁴ Mark Twain had preached the same sermon to a larger audience many years earlier. “The jury system puts a ban upon intelligence and honesty,” he wrote, and embraces “idiots, blacklegs, and people who do not read newspapers.”⁵⁵ In the *Albany Law Journal*, a writer complained that “the better qualified classes” evaded jury duty, leaving only those men from the lower classes, whose “misfortunes and unpleasant positions in life” render them “constitutionally discontented and pessimistic” and therefore unfit for jury service. He suggested that jury verdicts should require only a majority of eight or nine rather than unanimity. But advocating the outright abolishment of the jury system, the writer maintained, was simply unreasonable, and any person who did so was clearly “an imbecile.”⁵⁶

There were quite a few such imbeciles about, and they wrote for the most respected journals in the country. In the *North American Review*, a writer advocated substituting one or more judges for the jury and suggested that if such a reform were carried out “a less number of innocent men would be convicted, fewer guilty ones would escape, packing and manipulating juries would be done away

see also JEFFREY ABRAMSON, WE THE JURY: THE JURY SYSTEM AND THE IDEAL OF DEMOCRACY 36-37, 88-90 (1994).

52. *The Changing Role of the Jury*, *supra* note 51; see also ABRAMSON, *supra* note 51, at 17-95; LAWRENCE FRIEDMAN, CRIME AND PUNISHMENT IN AMERICAN HISTORY 250-52 (1993).

53. F.J. Cabot, *Is Trial by Jury, in Criminal Cases, a Failure?*, 33 *ARENA* 512 (1905).

54. E.L. Godkin, *Our Jury System*, 60 *NATION* 357 (1895).

55. TWAIN, *supra* note 50, at 343.

56. S. Stewart Whitehouse, *Trial By Jury, As It Is and As It Should Be*, 31 *ALB. L.J.* 504, 506, 504 (1885). For other arguments in favor of preserving the jury system in some form, see Oliver P. Shiras, *The Jury System*, 1 *YALE L.J.* 45 (1891); *The Jury System*, 5 *L. NOTES* 4 (1901); *Should Trials by Jury be Abolished?* 66 *ALB. L.J.* 307 (1904); *Trial by Jury Must be Preserved*, 69 *ALB. L.J.* 134 (1907).

with, crime would decrease, . . . pettifoggers, jury manipulators, and shysters would disappear from the courts.”⁵⁷ Another writer in the same journal also proposed replacing juries with a panel of judges. Deciding the legal issues that arose within “an advancing civilization” required “more than the training acquired by a man on the farm, in the coal mine, the store, or the workshop,” the author argued. He added, “You might as well call twelve men to the bedside of a sick man” and allow them to diagnose and prescribe.⁵⁸ The reference to medicine was not idle. The legal system, some thought, should follow the currents of the time and replace lay knowledge with specialized.

New York State adopted a milder reform in 1896 when it passed the Special Jury Law. The law was intended to speed the selection of juries, primarily in two sorts of cases: those that had received a great deal of newspaper publicity, and those that involved complex issues of circumstantial evidence.⁵⁹ The law allowed for the pre-selection of a pool of jurors who were “intelligent” enough to accept circumstantial evidence and “to lay aside opinions or impressions formed from newspaper reading or hearsay.” A special jury commissioner would select, from the regular jury lists, an elite group of jurors possessed of certain qualities: they were to be “of good character; of approved integrity; intelligent; of sound judgment; able to read and write the English language understandingly; and well informed.”⁶⁰ From this list, a jury could be secured quickly in even the most complicated or notorious cases.

Justice George C. Barrett of the state supreme court, who drafted the law, called it “an endeavor to retain the jury system in all its purity and efficiency, simply by adapting its execution to our modern environment,” and he pointed out that it was not a struck jury or a blue-ribbon panel because all of the special jurors were chosen from the regular lists.⁶¹ But it was clear that the law involved a change more radical than Barrett was admitting.⁶² In an editorial supporting the proposed law, the *New York Times* lamented:

57. Edward E. Thomas, *Trial By Jury*, 134 N. AM. REV. 247, 257-58 (1882).

58. Charles A. Thatcher, *The Failure of the Jury System*, 153 N. AM. REV. 247 (1891). Another argument in favor of abolishing juries can be found in George H. Williams, *Abolition of the Jury System*, 9 L. NOTES 150 (1905).

59. Capital murder cases were also mentioned in the law, since many potential jurors were excused because of their opposition to the death penalty. See *Laws of the State of New York*, 1896, Ch. 378, pp. 354-62. On the problem of circumstantial evidence, see Essig, *supra* note 16, at ch. 2.

60. *Laws of the State of New York*, *supra* note 59, at 357.

61. N.Y. TIMES, Jan. 10, 1896.

62. On the radicalism of the law, see N.Y. RECORDER, June 30, 1896 (on file in D.A. Scrapbooks, *supra* note 11).

the jury system thus far seemed almost impossible to reform. . . . In spite of its failure to meet the requirements of the complex conditions of modern society, it has been retained, with little variation, from the time when it was a bulwark against oppression by a ruling class. It is long since it was needed to serve that purpose.⁶³

On the contrary, the Special Jury Law seemed designed precisely to enforce the privileges of a ruling class. When periodicals reported that special jurors would be selected “primarily for intelligence”⁶⁴ and would comprise a “special intellectual panel,”⁶⁵ it was clear to which class the intelligent belonged. The law itself—requiring “character,” “integrity,” “intelligen[ce],” and English literacy—was laced with code words for class, while some newspaper reports of the law dispensed even with the codes. According to the *New York Times*, the new law would “winnow out the chaff that now blocks the wheels of the courts in important trials” and thereby avoid “the demoralizing spectacle of sifting a rabble in the courtroom.”⁶⁶ The prevalence of such views gave credence to those who feared that the Special Jury Law tipped the scales of justice in favor of the prosecution. One defense lawyer referred to the special jury pool as “the standing army of the gibbet.”⁶⁷

The Special Jury Law provided for the selection of elite panels because, it was thought, the average citizen was not intelligent enough to handle complicated cases. This doubt in the abilities of the public—the flip side of the growing trust in experts—was characteristic of the late nineteenth and early twentieth centuries. But as experts began to distrust the public, the public returned the favor.⁶⁸

63. N.Y. TIMES, Jan. 11, 1896.

64. 4 AM. LAW. 198 (1896).

65. N.Y. PRESS, Nov. 14, 1899 (on file in D.A. Scrapbooks, *supra* note 11).

66. N.Y. TIMES, *supra* note 61. The New York Court of Appeals declared the Special Jury Law constitutional early in 1899. See 52 NE. REP. 572-76 (1899); N.Y. TIMES, Jan. 11, 1899 (on file in D.A. Scrapbooks, *supra* note 11). One of the earliest trials to feature a special jury was that of Albert T. Patrick, accused of the 1901 poison murder of millionaire William Marsh Rice. The use of the special jury in this trial and in a few others apparently aroused little controversy, and the law attracted very little attention from the national legal press. For other early trials involving the special jury, see N.Y. TIMES, Mar. 7, 1899; N.Y. HERALD, Dec. 20, 1899; N.Y. WORLD, Dec. 2, 1899. The constitutionality of the special jury law was upheld by the U.S. Supreme Court in 1945. *Fay v. New York*, 332 U.S. 261 (1947); see ABRAMSON, *supra* note 51, at 116-17.

67. ARTHUR TRAIN, *THE PRISONER AT THE BAR: SIDELIGHTS ON THE ADMINISTRATION OF CRIMINAL JUSTICE*, at ix (1906).

68. Like many historians, I use newspaper coverage as a rough gauge of public opinion. Although this practice is problematic—because different newspapers had different publics, because readers can not be counted on to agree with what they read, because some members of the public did not read newspapers at all—in the days before Gallup polls it is often the best option available.

Problems of expert testimony in criminal trials revealed to a wide audience that experts might not be as infallible as they claimed to be. In an article on the Special Jury Law, the *New York Times* cited four cases that were thought to demonstrate the need for the law. Two of them were poisoning cases from 1890s Manhattan, those of Carlyle Harris and Robert Buchanan.⁶⁹ Upon closer inspection, however, the *Times's* judgment on this issue appears open to question. As the following examination of Buchanan's trial indicates, the problems seemed to lie not with the jurors but with the experts.

THE TRIAL OF ROBERT BUCHANAN

Robert Buchanan was born in the early 1860s in Halifax, Nova Scotia. He worked at a drug store there for a time, then moved to Chicago, where he attended the College of Physicians and Surgeons. After graduating he returned to Nova Scotia, where he married his first wife, Annie Brice Patterson, in 1885. The couple soon left for Edinburgh, where Buchanan continued his medical studies. About two years later they moved to New York City, where Buchanan began to practice medicine. The Buchanans divorced in November of 1890. Earlier that year, Dr. Buchanan had made the acquaintance of Mrs. Anna B. Sutherland. Mrs. Sutherland, who was about twenty years older than Buchanan, operated a brothel in Newark and was said to possess a considerable fortune. On November 29, 1890, Buchanan and Sutherland were married. Before the wedding, Sutherland drew up a will leaving all of her possessions to her new husband. After the wedding, Sutherland closed up shop, and the newlyweds moved to a house on West 11th Street in Manhattan.⁷⁰

On the morning of April 23, 1892, Mrs. Buchanan became ill. A physician who saw her in the afternoon prescribed a medicine containing chloral to control her "hysterics." A nurse witnessed Dr. Buchanan administering two teaspoons of this medicine to his wife. Shortly thereafter she lapsed into a coma. Another physician was called. The two physicians agreed that Mrs. Buchanan's symptoms could be caused by either narcotic poisoning, kidney disease, or cerebral hemorrhage. After Buchanan volunteered the information that his wife's father had died from cerebral hemorrhage, the physicians decided that this was the likely cause of Mrs. Buchanan's coma as

69. N.Y. TIMES, *supra* note 61.

70. The information in this and the following paragraphs is taken primarily from the attorneys' opening and closing statements and from trial testimony: Trial Transcript, *State v. Buchanan*, 145 N.Y. 1 (N.Y. 1895). I have also relied on newspaper accounts of the case, especially N.Y. WORLD, Mar. 20, 28, Apr. 20, 1893, and July 2, 1895; N.Y. TIMES, Mar. 28, 1893.

well, and they prescribed accordingly. She died that night, and physicians filled out a death certificate listing the cause of death as cerebral hemorrhage.

The case might have ended there. But within a few weeks of Mrs. Buchanan's funeral, Dr. Buchanan traveled to Nova Scotia, remarried his first wife, and returned with her to New York. This quick remarriage seemed to confirm the suspicions of some of the Buchanans' acquaintances, who filed affidavits with the district attorney suggesting that Buchanan may have poisoned his wife. On the basis of those affidavits, Buchanan was arrested, and the body of his wife was exhumed for autopsy and toxicological analysis.⁷¹ Nine months later Buchanan stood trial for first degree murder.

The prosecution's case relied primarily on two types of evidence: the expert testimony of pathologists and toxicologists, and the testimony of people who had spoken with Buchanan shortly before and after the death of his wife. The portrait of Dr. Buchanan that emerged from the latter group of witnesses was not flattering: He admitted marrying his second wife only for her money; immediately after the marriage he "began running around with fresher and younger women;"⁷² he kept the marriage secret from most of his acquaintances, referring to his wife as his "housekeeper;"⁷³ he told a friend that his wife's "face was enough to drive a man to drink."⁷⁴ When Buchanan was in Nova Scotia, soon after his wife's death and just days before his remarriage to his first wife, he wrote to a male friend the following letter, which contains both damning character evidence and splendid 1890s sexual slang:

But O, mamma! there are, I am told, some fine country girls here, so I feel a wonted necessity to put Barney Fagan in the mail bag. My conscience tells me it will be a sin if I do not do something for the good of Nova Scotia. I am told there are to be a party in the village to-night, and an invitation is extended to me. Among the party there are [sic] a very pretty blonde lady, who has seen my photograph, and has got a mash on me. If such be the case, I must certainly introduce Barney Fagan to her. I think it would be an outrage if I did not. The grass is nice and dry, and the warm day sun will have the effect of warming the ground, thus saving the young lady's skirts and my light overcoat. . . . A young fellow told me on the train coming from New York that my gay diamond will give me all the tail, and more

71. For accounts of these events, see issues of N.Y. WORLD of June 1-3 and 7-10, 1892.

72. N.Y. WORLD, Mar. 28, 1893.

73. *Id.*

74. N.Y. WORLD, Mar. 29, 1893.

too, than [sic] I want. But I must promise to marry them all. That, of course, I will do. I shall marry as many as I can upon the European plan. I trust Gertie is a good girl. Kindly kiss her for me.⁷⁵

Gertie was Buchanan's daughter from his first marriage.⁷⁶

During the trial, an English drinking companion of Buchanan's reported that Buchanan had claimed, in reference to Mrs. Buchanan, that he would "'dump the old 'ag. . . ' I says to 'im, 'Doc,' says I, 'you've been a-drinkin' 'ard, old man,' and 'e says, says 'e, 'I'll dump the old 'ag, George,' 'e says."⁷⁷ "Dump" could mean simply "abandon" or "divorce," but some of Buchanan's statements implied that he intended a murderous variety of dumping. Buchanan had, according to one friend, invoked his medical knowledge, asserting, "It is an easy matter for a doctor to get rid of anybody he does not want."⁷⁸

Doctors presumably had access to the materials and knowledge necessary for secret murder. The symptoms of morphine poisoning—in particular, deep coma and very slow respiration—were thought to be very similar to a number of diseases, including uremic poisoning (caused by kidney disease) and cerebral hemorrhage. One symptom, however, appeared in cases of morphine poisoning but not in patients suffering from these other diseases: "pupils contracted to pin-points."⁷⁹

The physicians who treated Mrs. Buchanan testified that one of her pupils was normal, the other slightly dilated. Since pin-point pupils were considered an invariable symptom of morphine poisoning, the defense claimed that their absence exonerated Buchanan. The prosecution had a different theory. At the trial, a man named Macomber reported a conversation he had had with Buchanan shortly after his wife's death:

"Well," I said to him, "if she died by taking morphine, how is it that the pupils of her eyes were not contracted?" "Well," he says, "I will tell you. A little dose of belladonna obviates all that." I said, "Did she take belladonna?" . . . [H]e stated that belladonna counteracted the effects of morphine upon the

75. Trial Transcript at 22-23, *Buchanan*.

76. The letter was too scandalous to print in the newspapers. N.Y. MORNING J., Apr. 21, 1893, referred obliquely to the letter and noted that it was "a painfully embarrassing experience" for the women in courtroom listening to it being read.

77. N.Y. TIMES, Mar. 31, 1893.

78. N.Y. TIMES, Apr. 15, 1893.

79. WITTHAUS, *supra* note 14, at 971-72.

appearance of the eyes; that, as morphine would contract, belladonna would dilate the contraction.⁸⁰

The prosecution claimed that Buchanan had given his wife a dose of both morphine and belladonna (also referred to as atropine or atropin). The morphine had killed her, and the belladonna had dilated her pupils, masking the tell-tale symptom of the morphine. At the time of Mrs. Buchanan's death, Carlyle Harris was on trial in New York for the morphine murder of his own wife. Harris's victim, however, had exhibited the tell-tale pin-point pupils, a fact that helped convict him. Macomber testified that Buchanan had learned something from Harris's mistake. According to the friend, Buchanan had exclaimed, "Harris was a damned young fool; he didn't understand his business; if he poisoned his wife he didn't understand how to do it without leaving any trace behind him."⁸¹

The prosecution needed to discover the traces that Buchanan *had* left behind, a task that fell primarily to scientific and medical experts. More than three of the four weeks of the trial were consumed by expert testimony, primarily pathological and toxicological. The prosecution's pathological evidence was derived from an examination of Mrs. Buchanan's brain and internal organs. It was intended to establish that she had *not* died from kidney disease, cerebral hemorrhage, or any other natural cause. The toxicological evidence relied on the chemical analysis of Mrs. Buchanan's viscera. It was intended to establish that morphine was present in quantities sufficient to cause death, and that belladonna was present as well.

The duties of the experts for the defense were simpler. They did not need to make a positive case for anything; they needed merely to cast doubt upon the testimony of the prosecution witnesses. The defense attacked the prosecution toxicologists by suggesting that their methods were outmoded and unreliable. They attacked the prosecution pathologists by claiming that their autopsy methods were not thorough, and as a result that many possible causes of death could not be ruled out. The defense "suggested that Mrs. Buchanan might have died of any disease known to medical science," the *Times* reported, "except, perhaps, housemaid's knee or a combination of morphine and atropine poisons."⁸²

In the Buchanan case, as in all cases involving scientific testimony, expert witnesses were asked to convey complex technical information to a lay jury. But it is no easy task to make a jury understand

80. Trial Transcript at 601, *Buchanan*.

81. *Id.* at 709; see also Testimony of Augustus W. B. Garrison, Trial Transcript at 773, *Buchanan*.

82. N.Y. TIMES, Apr. 14, 1893.

in a few days or weeks what a scientist has spent years studying. For judge and jury, accepting expert testimony meant trusting certain bearers of scientific knowledge as much as it meant understanding the science involved. Each side in the trial employed a number of techniques to enhance its own credibility and to undermine that of the opposition. My analysis will focus primarily upon one such technique: the courtroom scientific demonstration. The demonstrations ostensibly were intended to lend transparency to science, to allow the members of the jury to “see for themselves” the truth of certain scientific claims. But exactly who was seeing what became a matter of contention.

The most obvious markers of credibility were the credentials of the expert. Often the first question put to an expert on direct examination asked him to state his education. Take, for example, the testimony of one of the pathologists for the prosecution: “Prof. T. Mitchell Prudden, who was then called, stated that he was graduated from the Yale Medical School in 1873, had continued his studies in Vienna, Berlin, Heidelberg, and London, and was now Professor of Pathology in the New York College of Physicians and Surgeons.”⁸³ The star witness for the defense, the toxicologist Victor C. Vaughan, Dean of the Faculty of the University of Michigan Medical School, possessed an even more impressive list, described effusively by the *New York Times*:

It took him more than fifteen minutes to tell of all the colleges from which he was graduated, of all the institutions and famous laboratories in this country and abroad in which he had studied, of all the titles he held, and of all the scientific societies in this country and abroad of which he was a member. It was ‘the Royal Society of’ this and ‘the National Society of’ that, until the jurors began to gaze in amazement at the modest, middle-aged man in the witness chair.⁸⁴

It is important to keep in mind that lawyers, jurors, and reporters would not always have been impressed by such a list. Forty years before, at a poisoning case in Albany, New York, an expert’s credentials were framed in a markedly different light. An attorney testified that his expert witness “was not put on the stand because he had a diploma in his pocket,” but because he was “an intelligent, scientific, and honest man” who had performed a great number of autopsies. He was, in the lawyer’s words, “learned and intelligent in spite of the

83. N.Y. TIMES, Apr. 18, 1893.

84. *Id.* For Vaughan’s testimony, see Trial Transcript at 1992ff, *Buchanan*.

colleges.”⁸⁵ The difference between that speech and the testimony at the Buchanan trial is one way of measuring the distance between the Jacksonian era and the end of the century. At the earlier trial, the lawyer bowed to the anti-elite bias of the day, apologizing for degrees and emphasizing hands-on experience. An attorney of the 1890s was free to take a different approach, since the professionally trained expert was now a figure of respect. As the cultural climate changed, so did the resources and tactics required for the establishment of credibility in the courtroom.

The experts from both sides possessed impressive credentials, so the recitation of a laundry list of degrees was unlikely to decide the issues at hand. The experts turned to models and demonstrations as a way of conveying complex scientific theories to the jury. Such courtroom displays usually had aims other than the scientific education of the jury. At one point in the trial, Dr. Prudden was under cross-examination by Charles Brooke, the lead attorney for the defense. As Prudden attempted to explain his pathological examination of Mrs. Buchanan’s brain, Brooke handed him a brain, asking him to illustrate his points with reference to the model. Prudden, however, objected to the quality of the model, and called it “a mere caricature” of a real human brain. “Well, hand us back our caricature,” Brooke said, a statement that led to “a titter from the experts of the defense.” The reason for the defense’s mirth was that the “model” was actually a real human brain, hardened by a preservative.⁸⁶

The defense immediately seized on the mistake as a way to impeach Prudden’s credibility. A few days after this episode, defense attorney William O’Sullivan was examining one of the defense’s own pathologists, Arthur J. Wolff, who illustrated his points using the same brain that Prudden had called a “caricature.” The *World* described the scene:

Mr. O’Sullivan gazed impressively at the jury and said: “What have you in your hand?” “A genuine human brain,” said the witness. “Genuine?” . . . “Yes, a real human brain—not a wax model, as your pathologist said it was,” retorted Mr. O’Sullivan [to prosecutor Nicoll]. “And not a caricature,” said Mr. Brooke.⁸⁷

The prosecution was not pleased with this mockery of their expert witness, and a few days later, during its cross-examination of Wolff, they retaliated:

85. MOHR, *supra* note 7, at 131.

86. N.Y. TIMES, Apr. 11, 1893.

87. N.Y. TIMES, *supra* note 77.

Mr. Wellman reached down under a table and brought to view a plate containing a pulpy, reddish mass that caused some of the jurors and the stenographers who sat near by to turn pale. Rushing toward the witness, he handed it to him, the witness involuntarily taking the plate in his hands, and shouted: "Tell me if you do not think that the brain which you have brought into this case is a caricature of that brain I have just handed you, which was taken out of a human head this morning?"

Wolff replied, "They are both brains made by God Almighty." Wellman, according to the *Times*, "was triumphantly surveying the jurors, whose eyes, however, were fixed on the gruesome contents of the plate in Prof. Wolff's hands."⁸⁸

About ten years after the Buchanan trial, Wellman published *The Art of Cross-Examination*, a book that would become a classic of legal literature. In a chapter entitled *Cross-Examination of Experts*, he offered this advice:

The whole effect of the testimony of an expert witness may sometimes effectually be destroyed by putting the witness to some unexpected and offhand test at the trial, as to his experience, his ability and discrimination as an expert, so that in case of his failure to meet the test he can be held up to ridicule before the jury, and thus the laughter at his expense will cause the jury to forget anything of weight that he has said against you.⁸⁹

Wellman clearly had learned some lessons from the Buchanan trial, in which one of his own experts had suffered from the technique he later recommended. He was troubled not in the least by the element of trickery involved. There was something undignified, even childish, about the exchanges concerning the brain. The supposed reason why the models were introduced in the first place—to illustrate a scientific point—became obscured by the squabble over who could recognize a "real" brain. However, the episode of the brain, as well as Wellman's frank discussion of such tactics, convey in particularly stark terms what the experts were battling over: credibility in the eyes of the jury. Laymen, the attorneys reasoned, might not be able to understand the technical content of the testimony, but they could understand an expert who couldn't tell a real brain from a model. If they could impeach the credibility of a witness on a simple point, then his credibility on the more technical issues would be undermined as well.

88. N.Y. TIMES, *supra* note 82.

89. FRANCIS L. WELLMAN, *THE ART OF CROSS-EXAMINATION* 87-88 (1904).

Another demonstration attempted to establish a particular version of the events under dispute. Dr. Buchanan testified that on the night of Mrs. Buchanan's death, he had given her only two teaspoons of the medicine, a chloral solution, which her doctors had prescribed. The prosecution contended that he had dissolved in the medicine the morphine that had killed her. To advance this narrative, the prosecution called to the stand a pharmacist, who was to demonstrate that a lethal dose of morphine could be dissolved in two teaspoons of Mrs. Buchanan's medicine. The pharmacist first passed around the jury box a spoon, some morphine, and some medicine like that given to Mrs. Buchanan. He asked the jurors to taste the medicine, and, according to the *Times*, "they did so with the apparent fear that it might be loaded with some one of the many poisons they have been hearing so much about lately." The pharmacist then filled a spoon with the medicine and "slowly poured in the poison. The drug instantly began to dissolve in the liquid. Then that spoonful was handed around again among the jurors."⁹⁰

The pharmacist in part had simply demonstrated a scientific matter of fact about solubility. But, as the reporter for the *World* noted, the display may have had a larger impact: "The clever manoeuvre [sic] of the Assistant District Attorney was apparent to the dullest understanding. He had adroitly pictured Buchanan standing by the bedside, and had set every one to wondering if the prisoner that afternoon had done just what the druggist had in those few minutes."⁹¹

The demonstration had a rhetorical impact greater than its scientific content. The prosecution was concerned about the difficulties of building a case based entirely on circumstantial evidence, with no eyewitness testimony. The pharmacist's demonstration compensated for that absence by serving as a sort of dramatic re-creation of the alleged crime, through which jurors were able to "witness" a witnessless crime. Defense attorney O'Sullivan derided the pharmacist's demonstration as "a theatrical display."⁹² He was right on that point, but he was wrong to imply that the demonstrations of his own experts were any less theatrical. All of the demonstrations served purposes that went well beyond the establishment of scientific fact.

The final and most important demonstrations of the trial addressed the issue of whether Mrs. Buchanan died of poisoning or of natural causes. The prosecution's star witness was Rudolph Witthaus, a Cornell Medical College professor and prominent toxicologist.⁹³

90. N.Y. WORLD, Apr. 15, 1893.

91. *Id.*

92. N.Y. WORLD, Apr. 19, 1893.

93. Witthaus was best known for his *MANUAL OF TOXICOLOGY*, *supra* note 14, a reprint of

Witthaus claimed success in the difficult task of detecting morphine, a vegetable alkaloid, in the organs of Mrs. Buchanan.⁹⁴ A year before the Buchanan trial, Witthaus had contributed the scientific testimony that helped convict Carlyle Harris of murder with morphine.⁹⁵ Witthaus's testimony had come under fire in Harris's trial, but at Buchanan's he found himself in an even stickier situation.⁹⁶

Under direct examination, Witthaus described the tests he conducted. First, he "hashed" the organs, then purified and reduced the hash as much as possible. The remaining substance was put through six different color reaction tests for morphine. These tests involved reagents that, when morphine was added to them, turned a characteristic color. All of the tests responded positively for the presence of morphine. Witthaus then conducted physiological tests upon—in the *New York World's* phrase—"five unhappy frogs."⁹⁷ The frog injected with substances from Mrs. Buchanan's viscera exhibited symptoms characteristic of morphine poisoning. From the color reaction and physiological tests, Witthaus concluded that "unquestionably there was" morphine present in Mrs. Buchanan's organs.⁹⁸

The defense's attack on Witthaus's testimony was aimed primarily at the color reaction tests. They argued that Witthaus was a "pseudo-expert," and that his methods were "obsolete and discredited."⁹⁹ The defense called Victor C. Vaughan, who had made his reputation through his research on ptomaines, compounds produced during the process of organic decomposition.¹⁰⁰ Their relevance to morphine poisoning cases was this: Morphine in a poison victim could never be isolated in its pure form; it was always mixed with residue from the

4 R.A. WITTHAUS & T.C. BECKER, *MEDICAL JURISPRUDENCE, FORENSIC MEDICINE AND TOXICOLOGY* (New York, William Wood 1893-96). For his biography, see his obituary, *N.Y. TIMES*, Dec. 21, 1915, and HOWARD A. KELLY & WALTER L. BURRAGE, *AMERICAN MEDICAL BIOGRAPHIES* 1251-52 (1920).

94. On vegetable alkaloids, see Essig, *supra* note 16, at ch. 3.

95. Rudolph A. Witthaus, *Some Toxicological Points in a Case of Homicide by Morphine*, in 2 *RESEARCHES LOOMIS LABORATORY* 1-14 (1892).

96. For Witthaus's testimony, see Trial Transcript at 1488, *Buchanan*.

97. *N.Y. WORLD*, Apr. 11, 1893.

98. Trial Transcript at 1513, *Buchanan*. Witthaus expressed less certainty about the amount of morphine present. From the intensity of the color reactions he estimated that he had recovered about one-tenth of a grain of morphine, which, he further estimated, indicated that Mrs. Buchanan had been given at least four or five grains (a grain is about 65 milligrams). Witthaus testified that since his tests for atropine were inconclusive, he was not prepared to swear to its presence in the viscera of Mrs. Buchanan. *Id.* at 1513-1514; *N.Y. WORLD*, *supra* note 97; *N.Y. TIMES*, *supra* note 86.

99. *N.Y. TIMES*, *supra* note 77.

100. VICTOR C. VAUGHAN & FREDERICK G. NOVY, *PTOMAINS, LEUCOMAINS, TOXINS AND ANTITOXINS: THE CHEMICAL FACTORS IN THE CAUSATION OF DISEASE* (Philadelphia, Lea Brothers 3d ed. 1896). For Vaughan's memoirs, see VICTOR C. VAUGHAN, *A DOCTOR'S MEMORIES* (1926). For his testimony, see Trial Transcript at 1992ff, *Buchanan*.

body, perhaps including ptomaines. Some scientists claimed that ptomaines could respond to the morphine tests in precisely the same way as morphine. In other words, if a substance from the viscera of a suspected poisoning victim were subjected to the morphine tests, a positive result might indicate morphine, or it might just indicate the presence of ptomaines produced by normal processes of decomposition. Two previous morphine poisoning trials, both in Europe, had publicized these alleged inadequacies in the morphine tests.¹⁰¹

The headline for the *Times* article covering Vaughan's testimony read, "Courtroom Made a Laboratory."¹⁰² A table was placed in front of Vaughan, and bottles of chemicals and chemical apparatus were placed on the table. Vaughan had two bottles, one containing ptomaines mixed with morphine, the other containing ptomaines alone. For the substance in each of those two bottles, Vaughan conducted the six tests that Witthaus had described performing on the extract from Mrs. Buchanan's viscera. After performing the tests, he invited the jurors to examine the colors and then told them, "The fact is that the color responses which I have produced here, and which Profs. Witthaus and Doremus produced with the residue from Mrs. Buchanan's body, are not characteristic of morphine, but are distinctively characteristic of ptomaines." According to newspaper accounts, he convinced the court that the colors produced in his tests on ptomaines were the same as those produced by Witthaus's tests on Mrs. Buchanan's organs.¹⁰³

Under cross-examination, however, Vaughan's demonstrations became much more ambiguous, as this exchange demonstrates:

District Attorney: . . . you said, I believe, that the authorities differed in this first test, the ferric-chloride test, some of them said it was green and some of them that it was blue, with the reaction, is that so?

Vaughan: There is simply a difference on the eye, I suppose.

District Attorney: A difference in the way people look at color?

Vaughan: Difference in the eye, I suppose. . . .¹⁰⁴

101. See WITTHAUS, *supra* note 14, at 999. For a popular account of this issue, see JÜRGEN THORWALD, *THE CENTURY OF THE DETECTIVE* 330 (Richard Winston & Clara Winston trans., Harcourt, Brace & World 1965).

102. N.Y. TIMES, Apr. 19, 1893.

103. *Id.*

104. Trial Transcript at 2035, *Buchanan*.

After admitting that the authorities disagreed on their evaluations of color, Vaughan disagreed with the District Attorney about the color of one of the tests in the courtroom:

District Attorney: Your ptomaines give a yellow, don't [they]?

Vaughan: It gives a purple color, a violet color.

District Attorney: My eyes must be rather bad, I must be becoming color blind.

Vaughan: Well, it is a violet. . . .¹⁰⁵

Still later in his cross-examination, Vaughan was asked if he thought Professors Witthaus and Doremus, the prosecution experts, had falsely evaluated the results of their tests:

District Attorney: Do you believe they were mistaken in the colors they said they got which came from the residue that they found?

Vaughan: It is impossible to say that; I may look at it and say it was a different color; Prof. Witthaus might say it was green and I would say it was blue.

District Attorney: In this case there was not one pair of eyes but two; Dr. Witthaus and Dr. Doremus agreed on the color.

Vaughan: Both might say so and I might say it was green.¹⁰⁶

After Vaughan's testimony, Witthaus took to the stand again, this time with his own chemistry set. He performed his own demonstrations to support the validity of his tests. This led to more argument over the way the tests were performed, the cleanliness of the instruments, the quality of the reagents, and how to describe the colors produced.¹⁰⁷

105. *Id.* at 2037.

106. *Id.* at 2055.

107. The argument continued long after the trial. See VAUGHAN & NOVY, *supra* note 100, at 284-94. For an article supportive of Vaughan, see M.W. Clift, *The Effect of Putrefactive Bodies on the Chemical Tests for Morphin*, 42 JAMA 1074 (1904). Witthaus staked out his position in WITTHAUS & BECKER, *supra* note 93, at 760-68. Even twenty years after the trial, Witthaus still sounded angry about it. He referred to Clift's article as "mere incompetent hearsay by one who was not present at the time." WITTHAUS, *supra* note 14, at 1001n.1. Thirty-five years after the trial, Vaughan wrote in his memoir, "To me, and I have no doubt to the other

Ostensibly, courtroom scientific demonstrations were intended to help experts communicate complicated science to an audience of non-experts, by allowing the jury to “see for themselves” the truth of a particular claim. At work, however, was a form of surrogate seeing, as the experts attempted to substitute their own professional vision for the lay vision of the jury.¹⁰⁸ The demonstrations used the apparent immediacy and transparency of visual aids in order to support a particular version of events. In the color reaction demonstration, Vaughan at first successfully guided the sight of the jury: he told the jury what colors they should see, and they saw them. Skillful cross-examination, however, exposed the ambiguities of seeing for yourself and the dangers of seeing through the eyes of an expert.

It is hard to gauge just how Vaughan’s testimony affected the jury. It certainly did not help Buchanan: he was convicted, and a couple of years later he died in the newly invented electric chair. According to the *Times*, the verdict “dumbfounded the crowd,”¹⁰⁹ and it certainly dumbfounded the *Times*, which had enthusiastically supported the defense throughout the trial.¹¹⁰ The newspaper’s editorial insisted,

Buchanan surely could not have been convicted on the expert testimony, for it certainly did not prove beyond reasonable doubt that his victim died from the effects of morphine. . . . The verdict was evidently based upon the evidence of character, motive, and circumstances, and not in the least upon the medical testimony.¹¹¹

The one available scrap of evidence about the jury’s reasoning tends to support the *Times’s* conclusion. H.M. Paradise, a juror interviewed after the trial, emphasized the testimony of Buchanan’s acquaintances, who reported his speech and behavior before and after his wife’s death. Paradise did not mention the expert testimony.¹¹² It is hard to disagree with the *Times’s* judgment that “the expert evidence of the presence of morphine . . . was ‘used up’ by other evidence

experts, the trial became a most regrettable affair. It made a break in the friendship between Professor Witthaus and myself, which lasted for some years, but which, I am glad to say, was at least partially repaired before his death.” VAUGHAN, *supra* note 100, at 307.

108. See Charles Goodwin, *Professional Vision*, 96 AM. ANTHROPOLOGIST 606 (1994), which includes a fascinating discussion of expert testimony in the Rodney King police brutality trials.

109. N.Y. TIMES, Apr. 27, 1893.

110. The *N.Y. World* showed no surprise. Its editorial on the verdict said, “The defense has been unusually brilliant, capable and determined. . . . Yet the case has been so clearly made out that the twelve jurymen have unanimously agreed that guilt has been proved beyond any reasonable doubt.” Editorial, N.Y. WORLD, Apr. 28, 1893.

111. N.Y. TIMES, Apr. 28, 1893.

112. *Id.*

equally expert."¹¹³ The *Recorder* and the *Morning Journal* agreed.¹¹⁴ The expert testimony, in other words, simply canceled itself out, leaving the jury to make its decisions based on other factors.

DOUBTING THE EXPERT

The weeks of expert testimony, the elaborate scientific demonstrations, the bitter cross-examination—all of this, apparently, counted for nothing. In fact, as far as physicians and scientists were concerned, it counted for worse than nothing, because it publicized an unflattering image of their professions. The *Medical News* of Philadelphia claimed that the Buchanan trial “reawakened inquiry as to whether the methods of securing and presenting expert testimony may not be improved.”¹¹⁵ But, as we have seen, such inquiry had been going on for decades and hardly needed to be reawakened.

The Buchanan trial exemplified many of the problems that critics of the jury system and of the methods of taking expert testimony wished to correct: Elite scientists testified in exchange for lucrative fees and disagreed with each other publicly and acrimoniously; the testimony frequently descended into pettiness and absurdity; in attempting to sway the jury, both sides concentrated as much on theatrics, lists of credentials, and the demeanor of their experts as on the substantive scientific issues under debate; the jury grew confused and bored; and the trial became another occasion for the public excoriation of expert witnesses.

At the same time, the trial demonstrated why most of the proposed reforms of expert testimony were ill-conceived. If any of the proposed systems involving court-appointed experts had been in effect, Rudolph Witthaus, one of the most prominent toxicologists of the time, likely would have been named as a “neutral” expert. Using standard procedures outlined in his own and in most other toxicology textbooks, Witthaus discovered morphine in the body of Mrs. Buchanan. Had Witthaus been able to testify to that fact as a neutral expert representing the court, then his opinion would have carried a great deal more weight. But to have given his opinion the imprimatur of the court would have been a mistake. Victor Vaughan, representing the defense, raised legitimate reasons for concern about Witthaus’s findings. His testimony was not offered merely to confuse the jury; rather, it pointed out that the legitimacy of Witthaus’s tests

113. *Id.*

114. N.Y. RECORDER, Apr. 28, 1893 (on file in D.A. Scrapbooks, *supra* note 11); N.Y. MORNING J., Apr. 29, 1893 (on file in D.A. Scrapbooks, *supra* note 11).

115. *Expert Testimony*, 62 MED. NEWS 467 (1893).

was a matter of scientific controversy. Under a system of neutral experts, this controversy might have never come to light.

Some writers—but very few—recognized this aspect of expert testimony. In the wake of the Buchanan trial, the *Medical News* of Philadelphia argued that adversarial expert testimony was not only good for the defendant but also good for science:

Science is progressive, but scientists are not always equally so, and it is only by the open conflict of interested experts that the full light of truth can be thrown on the more obscure topics. The Buchanan trial, in fact, instead of leading us to doubt the correctness of the method in vogue, is a demonstration of the advantages of that method. . . . For there can be no doubt that much scientific matter of great value has been made known by the defence's witnesses, and that a revision of the analytic processes for the detection of organic poisons is needed.¹¹⁶

But most scientists and doctors believed that “open conflict” was precisely the problem. Until they had settled their differences and could present a unified front to the public, they preferred to keep their conflicts hidden within their own communities.¹¹⁷

Other writers, however, drew a conclusion from expert testimony that was even more controversial: a change in expert testimony was unwise because the state of medical science did not warrant it. A *Medical News* editorialist rejected calls for neutral experts as an “easy solution” that “ignores the real crux. The medical sciences are not yet exact.”¹¹⁸ Harold Moyer, a Rush Medical College professor, argued in *JAMA* that “medicine is not an exact science.” Medical questions, he claimed, “are to be largely measured by judgment and experience, and as long as such is the case, perhaps courts and the general public are justified in looking askance at our claims of infallibility.”¹¹⁹ Such statements cut against the grain of the dominant rhetoric of the medical profession, which staked its claim to cultural authority upon the scientific accuracy of medicine. But Moyer was simply acknowledging that the profession's scientific claims were exaggerated. Thanks to the publicity surrounding expert testimony in celebrated trials, the public was becoming aware of this fact.

116. *Id.* at 467-68. For a different view of the expert testimony in the Buchanan trial, see 43 *MED. REC.* 498 (1893).

117. See H.M. COLLINS, *CHANGING ORDER: REPLICATION AND INDUCTION IN SCIENTIFIC PRACTICE* 162-63 (1985); JASONOFF, *supra* note 5, at 55.

118. *Expert Testimony*, 60 *MED. NEWS* 273 (1892).

119. Moyer neglects the fact that even the allegedly “exact” sciences experienced difficulties in the courtroom. Harold N. Moyer, *Experts and Expert Testimony*, 18 *JAMA* 494 (1892); see also *How Expert Testimony Could Be Made More Valuable*, *supra* note 25. For a similar judgment in the popular press, see *AUBURN (NY) GAZETTE*, Feb. 2, 1892.

The sensational murder trial was a major institution in turn-of-the-century America, extensively covered in newspapers and other periodicals. Most of the trials prominently featured medical expert testimony that did no credit to the profession. Physicians and scientists devoted so much time and energy to the project of reforming expert testimony because it was considered to be extremely damaging to the profession. Expert testimony gave the lie to physicians' claims of scientific accuracy and professional disinterest. An expert, one writer claimed, was an "intellectual prostitute ready to sell his opinion and enlist in the services of the side that pays him."¹²⁰ Shifting the sexual metaphor, a writer in the *North American Review* charged the expert with "sacrific[ing] his mistress Science at the shrine of Mammon."¹²¹ In an opinion overturning the verdict in a personal injury case, a Wisconsin Supreme Court justice claimed that "there is no theory so preposterous but that men can be procured to support it under oath from the witness stand by expert evidence."¹²² A lower court judge in Nebraska told the jury that "expert evidence is of the very lowest order, and is the least satisfactory."¹²³ A law journal charged medical expert witnesses with "gaudy and unembarrassed lying,"¹²⁴ and another writer referred to the expert witness as "an unmitigated joke."¹²⁵ Expert testimony had suffered from such sustained invective that at the close of the 1901 poison murder trial of Albert T. Patrick, the judge felt compelled to mention that expert testimony is "permitted by the law as legal evidence." He added: "If it were of no value or use whatever the law would not sanction its use, because the law never sanctions useless or profitless things."¹²⁶ This, surely, was to damn with faint praise, for the judge offered no guidance as to what *was* useful or profitable about the testimony.

A writer in *JAMA* pointed out that expert testimony "is the subject of everybody's sneer, and the object of everybody's derision. It has become a newspaper jest. The public has no confidence in expert testimony."¹²⁷ He was certainly correct about the newspapers. The Manhattan district attorney's office preserved, in scrapbooks,

120. Friedman, *supra* note 37, at 247.

121. Williams, *supra* note 8, at 160.

122. 34 *JAMA* 316 (1900).

123. 33 *JAMA* 1632 (1899).

124. 21 *JAMA* 447 (1893) (quoting a contemporaneous law journal).

125. Williams, *supra* note 8, at 160.

126. THE PEOPLE OF THE STATE OF NEW YORK, RESPONDENTS, AGAINST ALBERT T. PATRICK, APPELLANT. CASE ON APPEAL FROM COURT OF GENERAL SESSIONS OF THE PEACE IN AND FOR THE CITY AND COUNTY OF NEW YORK. NEW YORK STATE COURT OF APPEALS 2681 (1905).

127. Wollman, *supra* note 26, at 571.

newspaper clippings concerning the cases with which it was involved.¹²⁸ The scrapbooks reveal that expert testimony was a hot topic in editorial pages throughout the country. At the close of the 1892 poison murder trial of Carlyle Harris, newspapers from Massachusetts to Georgia, from Missouri to Minnesota, published editorials about the verdict and the expert testimony, and their judgment was harsh.¹²⁹ A Chicago paper claimed that “‘Expert Testimony’ grows daily more absurd and iniquitous,”¹³⁰ while the *Utica Observer* asked, “Is expert evidence without value, then? Many sensible people will answer in the affirmative.”¹³¹

Much of the blame was directed at the legal system’s allegedly outdated system of expert testimony. But the problems of expert evidence also cast doubt upon the authority of scientific knowledge. During the expert evidence phase of the Buchanan trial, newspapers ran headlines such as “Experts, Eh?”¹³² and “Can Chemistry Lie?”¹³³ Under the headline “She’s a Lying Jade,” the *Recorder* printed this statement:

Dr. Victor C. Vaughan, the expert from the University of Michigan, proved at the trial of Dr. Robert W. Buchanan yesterday that chemistry is a lying jade. He proved that she is double-faced; that no man can swear by her. He proved, positively and convincingly, that her devotees have been deceived by her; that chemical experts believing in her have sworn to things she told them were false. Prof. Vaughan proved, in a word, that expert chemical testimony, as it has been known, is untrustworthy, and almost absolutely so when a human life hangs in the balance.¹³⁴

When he attacked opposition experts, Vaughan had not intended to undermine the validity of his own profession. But the newspapers were drawing their own conclusions from the unedifying spectacle of expert testimony, and those conclusions challenged the authority of science.

Historians have outlined ways in which physicians embraced the ideals of scientific knowledge even before it became useful in clinical practice, because it served as a useful tool in professional consolidation, discipline building, and the establishment of cultural author-

128. D.A. Scrapbooks, *supra* note 11.

129. See Delancey Nicoll Scrapbooks, Feb. 1892 (on file at Municipal Archives of the City of New York) [hereinafter Nicoll Scrapbooks].

130. CHI. EVENING NEWS, Feb. 6, 1892 (on file in Nicoll Scrapbooks, *supra* note 129).

131. UTICA OBSERVER, Feb. 6, 1892 (on file in Nicoll Scrapbooks, *supra* note 129).

132. N.Y. MORNING J., Apr. 11, 1893 (on file in D.A. Scrapbooks, *supra* note 11).

133. N.Y. RECORDER, Apr. 17, 1893 (on file in D.A. Scrapbooks, *supra* note 11).

134. N.Y. RECORDER, Apr. 19, 1893 (on file in D.A. Scrapbooks, *supra* note 11).

ity.¹³⁵ But historians have not noticed that the scientific ideal could backfire as well. When performance failed to match rhetoric, the public lost faith in scientific and medical expertise.

SCIENCE AND THE PUBLIC

The distinction between “the expert” and “the public” was not the natural or inevitable result of advances in knowledge. Rather, the distinction was laboriously constructed and served the interests of professional groups whose very existence depended upon distinguishing their knowledge and practices from those of the general population.¹³⁶ Expert testimony became such a troubling issue for the medical profession because it broke down this distinction: lay jurors evaluated medical testimony, and conflicting testimony revealed uncertainties within scientific and medical knowledge, thus undermining the authority that separated the expert from the public. Proposals to reform expert testimony were attempts to reconstruct the boundary between the public and expert, by eliminating lay oversight and adversarial testimony. But the proposals failed, and harsh public criticism of expert witnesses continued.

At the turn of the twentieth century, physicians and scientists were beginning to earn a significant degree of cultural authority: more people began to trust these experts to make decisions for them. Paul Starr entitles his analysis of this era of American medicine “the retreat of private judgment.”¹³⁷ He writes, “The less one could believe ‘one’s own eyes’—and the new world of science continually prompted that feeling—the more receptive one became to seeing the world through the eyes of those who claimed specialized, technical knowledge, validated by communities of their peers.”¹³⁸ But the jurors in the Buchanan trial—and those who read about the trial in the newspapers—learned that “communities of . . . peers” disagreed, that “specialized, technical knowledge” was as prone to error as any other type, and that they could not trust the eyes of experts even in apparently so simple a matter as recognizing colors.

Judith Walzer Leavitt, following Starr’s lead, has claimed that the “knowledge gap produced when medicine became increasingly technical put the uninformed in awe of medical science. . . . [T]hey came to accept the benefits of medicine without knowing how they worked.” This ever-growing gap in knowledge helped to produce the

135. See Warner, *supra* note 3, at 454-55.

136. See Steven Shapin, *Science and the Public*, in COMPANION TO THE HISTORY OF MODERN SCIENCE 990-1007 (R.C. Olby et al. eds., 1990).

137. STARR, *supra* note 2, at 127-44.

138. *Id.* at 19.

authority of medicine. According to Leavitt, "The distancing of scientific knowledge and technical expertise from the general population enhanced its appeal for millions of Americans."¹³⁹ Expert testimony removed this distance between the expert and the general population, and did not allow private judgment to retreat. The jury could not simply place its trust in medical authority, because medical authority was represented by two sides making diametrically opposed claims. The jury had to decide which of the experts was more credible. If Leavitt is correct in suggesting that the appeal of medicine rested upon its distance from the public, then expert testimony, by removing the distance, also removed the appeal. The more closely the public viewed technically advanced science and medicine, the less awe it inspired, and the more it came to resemble any other fallible human practice.

Trials involving forensic science were an important and under-recognized force in shaping the public face of scientific and medical expertise at the turn of the century. Fifty years earlier, physicians had entertained the hope that forensic science would enhance the reputation of their profession. In 1851 Theodric Beck, the great American scholar of medical jurisprudence, expressed high hopes for forensic toxicology:

It is such duties ably performed, that raise our profession to an exalted rank in the eyes of the world; that cause the vulgar, who are ever ready to exclaim against the inutility of medicine, to marvel at the mysterious power by which an atom of arsenic, mingled amidst a mass of confused ingesta, can still be detected.¹⁴⁰

By the end of the century, it was clear that forensic science more often had precisely the opposite effect, providing "the vulgar" with more evidence of the "inutility of medicine."

In 1904 the President of the Medical Society of the State of New York pointed out that "the public judges any class of men according to their appearance in public; and . . . the people continue to judge us

139. JUDITH WALZER LEAVITT, *BROUGHT TO BED: CHILDBEARING IN AMERICA, 1750-1950*, at 174 (1986). The same process seems to hold for more recent science. According to Harry Collins:

Recent studies of science have shown that there is a relationship between the extent to which science is seen as a producer of certainty and distance from the research front. The relationship that exists—*ceteris paribus*—can be expressed as 'distance lends enchantment'. . . . Distance from the scene of creation is the very source of the solidarity [sic; solidity?] of scientific facts.

H.M. Collins, *Certainty and the Public Understanding of Science: Science on Television*, 17 *SOC. STUD. SCI.* 692 (1987).

140. THEODRIC ROMEYN BECK & JOHN B. BECK, *ELEMENTS OF MEDICAL JURISPRUDENCE* 906 (10th ed. 1851).

according to our appearance when summoned to the courts to testify."¹⁴¹ It is unlikely that the public really did judge all doctors on the basis of the few who served as expert witnesses. Physicians practiced in homes and hospitals more frequently than in courtrooms, and the public probably learned to differentiate between these roles. But it is certainly significant that at the turn of the century, a period long touted as the heyday of popular enthusiasm for scientific and medical expertise, an extremely prominent type of medical expert had an extremely bad public image. The situation indicates fissures in the ideology of the expert and limitations to the cultural authority of science and medicine.

141. Algernon T. Bristow, *The Present Status of the Medical Expert*, 42 JAMA 627 (1904). A JAMA editorial made a very similar point:

Every act of [the expert] tends to raise or lower in the public estimation the prestige and influence of the body of scholars with whom he is associated. . . . We appeal for a higher standard in this important field in which science has an opportunity to interpret itself to the community by making evident its disinterestedness.

Editorial, *The Ethics of Expert Testimony*, 62 JAMA 1970, 1970-71 (1914).