

hymn books and bibles lost in their flight. She also sent two missionaries, who, lacking proper ordination, were not allowed to preach in the principal church at St. John. In defense of these men and after spreading some slander, Calef came in conflict with the Bishop of Nova Scotia, who described him as a man who would “alternately pray and whims with Methodists, get drunk, and blaspheme like an atheist.”² Calef did belong to a social and drinking club, but he was instrumental in changing the meeting night from Saturday to Friday so that the members could prepare for Sunday¹⁰; thus he could continue to participate in these two diverse activities. The bishop in his anger also spoke of Calef as a “weak, enthusiastical man.” Dr. Calef did seem to approach all his interests with enthusiasm and often remained enthusiastic long after wisdom suggested a different course. His several failures could be considered a sign of weakness, but he more than once devoted himself to hopeless causes. Still one wonders why one of his peers considered him weak.

John Calef finally came to St. Andrews about 1790. He still kept his hand in commerce, obtaining waterfront property and wharfage.³ Unlike some physi-

cians who have gone “afield,” Dr. Calef always practiced a little medicine here and there. From St. Andrews, in 1800, he reported caring for 500 patients with “natural or inoculated” smallpox in a single epidemic.¹¹ He was still practicing at the age of 86 in 1812, the year of his death.

REFERENCES

1. Boardman AC. Robert Calef and some of his descendants. Salem, Mass.: Newcomb and Gauss, 1940.
2. Jones EA. The Loyalists of Massachusetts. London: St Catherine Press, 1930.
3. Jack DR. The Calef family. *Acadiensis*. 1907; 7:261-73.
4. Collections of the Maine Historical Society. Vol. 7, Series 1. Bath, Maine: Maine Historical Society, 1876:185.
5. Waters TF. Ipswich. In: Ipswich in the Massachusetts Bay Colony, Vol. 2. Ipswich, Mass.: The Ipswich Historical Society, 1905.
6. Wheeler GA. History of Castine. Cornwall, N.Y.: Cornwall Press, 1923.
7. Armory TC. Life of James Sullivan. Boston: Phillips, Sampson, 1859: 376.
8. Collections of the Maine Historical Society. Vol. 7, Series 1. Bath, Maine: Maine Historical Society, 1876:201.
9. Vroom J. The Penobscot Loyalists. *Acadiensis*. 1903; 3:172-82.
10. Mowat GH. Diverting history of a Loyalist town. St Andrews, N.B. Charlotte County Cottage Craft, 1932.
11. Cockburn MN. The town of St. Andrews: some of its early history. *Acadiensis*. 1907; 7:203-49.

LENGTHENING SHADOWS*

JOHN J. BYRNE, M.D.

TWO hundred years ago the Massachusetts Medical Society was founded by a distinguished group of physicians. It was at the close of the Revolution, and the need for medical organization was so great that the founders overlooked the recent passions and hardships to include Patriots and Tories. The Patriots included John Warren, Thomas Welch, Isaac Rand, and Cotton Tufts, and the Tories included James Lloyd and John Jeffries. The Tories were well educated in London medical schools, and the Patriots were apprentice-trained. Yet they worked together to start the society so sorely needed in the new republic.

In 1881, the physicians of the Massachusetts Medical Society held their centennial celebration. During this celebration they emphasized the founders and the founding of their Society and modestly made little mention of their own contributions. It is the purpose of this bicentennial oration to bring into focus the centennial year, as well as the centennialists themselves, as a memorial to their dedicated work.

THE GENERAL SCENE

The centennial year, 1881, was probably the zenith of the laissez faire system of the unfolding American

industrial revolution. Big business was growing bigger, trusts were becoming supertrusts, and monopolies were placing unparalleled power in the hands of the few. The Great Plains was rapidly becoming developed, and the frontier was soon to disappear. Indians were being annihilated or penned in reservations. Mining empires were developing; cattle ranchers and sheepherders were giving way to fencing with barbed wire and scientific farming with windmill irrigation. All were being pushed by the expanding migration from northern Europe and by an expanding railroad system.

It was the age of invention: the de Laval steam turbine, the electric dynamo, the internal-combustion engine, electric railways, the transatlantic cable, the telephone, the harvester, the thresher, and the electric light bulb. There was nothing that the modern American scientist or inventor could not accomplish.

It was not a great time for laboring men and women. Unemployment was in double figures. Men's wages ranged from \$10 to \$20 weekly, and women's were from \$3 to \$6. Many industries had 12-hour day shifts and a seven-day week. Bakers worked 84 hours a week. As a consequence, numerous trade unions were developing to organize labor to improve its conditions. By 1881, Gompers was developing a plan for the American Federation of Labor. In the next 25 years there would be 38,000 strikes, some of them bloody,

*Based on the Annual Oration delivered before the Massachusetts Medical Society at its annual dinner, May 20, 1981.

which would change drastically the time-honored business-labor relationship.

The real national leaders were the political bosses and the special-interest senators. Business ran politics, and politics was a branch of business. Government corruption was probably at its peak. The scene was well described by Henry Adams in his novel *Democracy* about Mrs. Lee's adventures in Washington, when she scathingly denounced the leaders of all our cities, "You grow six inches high and then stop. When will not somebody grow to be a tree and cast a shadow?"¹

Republicans won the 1880 election, with General James A. Garfield as president and Chester A. Arthur as vice president. The latter was a sop to the New York boss Conkling, a so-called "Stalwart Republican," who had wanted General Grant for a third time so as to continue the spoils system.

The Americans of this period were surveyed by Henry James, an American living in London, who returned to visit his homeland.² He admired the gregarious nature of American society and its genius for organization.

He was appalled at the huge American rattle of gold and its quest for pecuniary gains — to "make so much money that you didn't mind anything." It reached its peak in New York society's manifesting its wealth in ostentatious, wasteful buildings, and it was epitomized in the distressful, inevitable waste at Newport, with its white elephants — a colossal reminder of witlessness and lack of discretion and proportion.

He had much to say about the other great phenomenon of this period as he visited "horrible" Ellis Island and watched for a few hours some of the year's "ingurgitation" of a million or so immigrants. He watched the "herding, dividing, sifting, searching, and fumigating processes and felt that a person who observed these scenes would forever be chilled by the degree with which the American fate was to be shared with the alien." Yet he thought we must go more than halfway to meet them. The massive scale of the alien influx would need colossal machinery (politics, common schools, and newspapers) to form an American character from the melting pot.

HEALTH

The general health of the country was improving. The life expectancy at the founding of the Massachusetts Medical Society was about 29 years in Portsmouth, New Hampshire, "the healthiest city in America," and was about 47 years near the centennial. This varied with the county, since in Suffolk, with the high percentage of indigent immigrants, the average age was 23 years, whereas in Dukes and Nantucket counties it was 46 years. This improvement in life expectancy was chiefly due to decreased neonatal mortality and better treatment of infections through sanitation and vaccination.

The diseases treated by our centennialists were somewhat different from those we face today. Infec-

tion was rampant, save for the amelioration of smallpox through vaccination and a beginning drop in surgical-wound infections that was due to Lister's work. Thanks to Pasteur, the causes of diseases were being discovered.

In Massachusetts, with a population of 1,783,812 and a death rate of 18.5 per thousand, the common causes of death were consumption, pneumonia, diphtheria, heart disease, old age, cholera infantum, paralysis, cancer, scarlet fever, encephalitis, bronchitis, apoplexy, and typhoid fever. Smallpox was still seen in immigrants. Malaria was beginning to enter the western part of the state from Connecticut, where it was "indigenous in the limestone regions of the lower Housatonic River."³ It was occasionally seen in Newton and around Fresh Pond in Cambridge. Yellow fever was seen in Baltimore and other southern cities.

Typhus fever was detected at the Boston City Hospital in a patient who had recently visited New York, leading to an editorial pointing out New York City as a serious menace to the welfare of surrounding states. "Typhus, which has been banished from Germany, Ireland, and Scotland, may soon be epidemic in New York and raise serious doubts about plague and cholera." The death rate in New York City at that time was 29.36 per thousand.

MEDICAL THEORY

The scientific method, which was to solve all problems, certainly in medicine, appeared to be bearing fruit. Pasteur was showing that inoculation with modified virus could protect sheep against charbon [anthrax] and was matching the results obtained with chicken cholera.

Virchow's *Cellular Pathology* was revolutionizing our knowledge of disease. In 1881 he became director of the institute named after him. However, something had happened to him in recent years, and an editorial in *The Boston Medical and Surgical Journal* stated, "The Americans were studying elsewhere, since his multifarious duties were preventing his devoting so much time to students. Nor has he given to the world the results of medical investigation as freely as before."

Other evidence of the scientific age had to do with the many new uses of electricity: cauterization by faradic current and use of the electromagnet for removing foreign bodies from the eye and for the treatment of numerous neurologic disorders.

Heart action was being studied by sphygmography, adding newer knowledge to its function as physiological and quantitative studies were being applied.

H. C. Haven was describing the advantages of the weighing of children as a scientific aid for proper nutrition as well as for monitoring the progress of disease.

The conversion from the duodecimal system to the decimal metric system was being debated.

The centennial probably marked the death knell of the heroic practice of bloodletting. The most important reason for its decline was the application of

Louis' numerical method, showing that in general very little was accomplished by the process. James Jackson in Boston made a duplicate study, and although his results differed slightly from those of Louis, the study emphasized that the benefits of bloodletting were not so great and striking as had been thought.⁴ Probably its only champion was Samuel Gross, a highly honored guest at the centennial.

The rise of the scientific method was to result in the demise of many nonscientific medical cults such as homeopathy.

This medical therapy, based on the theory that "like cures like," was established by Hahnemann in Germany and was flourishing in Boston at the time of the centennial.

The Massachusetts Homeopathic Hospital had been chartered in 1855 by Otis Clapp, John Jewett, Jacob Sleeper, William Claffin, and Drs. Conrad and William P. Wesselhoeft. They started a dispensary at Tremont Temple on Washington and Boylston streets. Since many of these gentlemen were distinguished Bostonians, the Massachusetts Medical Society was not as vehemently opposed to them as were their colleagues throughout the country. As of 1850, the society did little more than avoid giving a positive sanction to this unorthodox theory.

It was with great reluctance that the Massachusetts Medical Society, at the urging of the American Medical Association, took steps to purge itself of its homeopathic members.

The notorious trial was held in 1871 to 1873, and Dr. Tisdale Talbot and David Thayer (a staff member of the Massachusetts Homeopathic Hospital) were among those expelled from the Massachusetts Medical Society shortly thereafter.

The materia medica was still a combination of herbs, chemicals, various morphine combinations, and digitalis. It was about this materia medica that O. W. Holmes stated, "I firmly believe that if the whole materia medica as now used could be sunk to the bottom of the sea, it would be all the better for mankind — and all the worse for the fishes."⁵

Many alkaloids (aconite, pilocarpine, atropine, and hyoscyamine) and some enzymes (papain and pepsin) were being discovered. Newer methods of coating medicine with capsules of gelatin and glycerin were making medications so comfortable that "they go down as easily as oysters."

The age was seeing a proliferation of unsupervised retail drug stores, with an attendant rise in fatalities from mistakes by apothecaries. Patent and proprietary medicines were rampant, with no knowledge of their contents ever supplied by their manufacturers. Our medical society was working hand in glove with the American Pharmaceutical Association to formulate legislation to supervise the qualifications of druggists and to force manufacturers to disclose the nature of their secret nostrums.

As pharmacology was becoming more scientific, so was our knowledge of body chemistry, mostly having

to do with forensic medicine, such as lead, arsenic, hydrogen cyanide, morphine, and phosphorus poisonings. The urine was being examined for urea, indican, and chlorides. Dr. Reginald Fitz was reporting on the relationship of fatal diabetic coma to acetoneuria.

SURGERY

The chief surgical topic of the year was the rapidly developing field of abdominal surgery. The two greatest boons to surgery were Listerism and anesthesia. Ovariectomy, which was introduced by McDowell in 1809, made painless by the development of anesthesia in 1846, and certainly made safer by antiseptic principles, was now an accustomed operation. John Homans, in the centennial year, could report his results with 25 successive cases. One of his patients incidentally had massive left pleural effusion, requiring aspiration of 1200 ml of fluid, and may well have been the first documented case of the later well-known Meigs' syndrome. Mortality was only 8 per cent in his patients, and the results compared well with those of the world's leading ovariectomists.

Dr. Burnham of Lowell had operated on 250 patients, with a mortality of 22 per cent. He is also credited with the first hysterectomy and reported this in the transactions of the American Medical Association. This brought from the editor of our *Journal*, G. B. Shattuck, the suggestion that the "above mentioned transactions may be better worth reading than we had hitherto imagined."

A paper in the *Journal* that year on the perforated ulcer of the duodenum by A. P. Clarke suggested the eventual role of the surgeon in the treatment of this condition.

The big news, however, was coming from Vienna, with S. J. Mixer reporting on Billroth's first gastrectomies (the second and third of these patients both died after surgery), as well as Wolfler's operation on the fourth case, in which the patient survived. He talked and visited with Billroth's first patient, thanks to the kindness of Mikulicz.

Billroth's clinic was also visited by Dudley Allen, who did not share Mixer's enthusiasm.

I think the resection of the stomach occupies more attention, kills more patients, and does less good than any other operation at present. Only one patient is living out of all these operated upon. Some have survived the primary but have died of secondary growths. The fact that the patients die has the advantage that the operators are able to show the specimen and demonstrate how nicely the parts are stitched together.

In the American Medical Association in Richmond that year, Hunter McGuire was favoring laparotomy or wound exploration for abdominal wounds: "Hemorrhage can be arrested, intestinal wounds closed with animal ligatures with drainage by a drainage tube of some sort" — otherwise, "90 per cent will die in 48 hours."

Surgery was now so far advanced that the time was at hand for discussing unnecessary surgical opera-

tions. C. E. Wing was opposing certain gynecological procedures, such as the incision of the perineum at childbirth and the division of the cervix to render the uterine canal patulous for painful menses, as well as Emmet's repair of the lacerated cervix. Operations were divided, he thought, "between splitting of the cervices in those women who yet possess them entire or uniting with horsehair or silver wire those which by nature were cracked or fissured."

HOSPITALS

The hospitals in Boston during the centennial were the Massachusetts General, Boston City, the Carney, Children's, the Lying-In, and the Boston Dispensary, as well as the Homeopathic Hospital, the New England Hospital, and the Marine Hospital in Chelsea. These hospitals and dispensaries were dedicated to the care of the sick poor in Boston. By 1880, the patients were overcrowding the hospital resources. Thirty-seven thousand were seen in the out-patient department of the Massachusetts General Hospital in 1880, and a rise to 100,000 in a few years was anticipated.

The Boston City Hospital was under the supervision of Dr. G. H. M. Rowe, one of our great hospital superintendents. The average cost to the patient was \$8 per week. It was the only hospital in the city admitting patients with contagious and infectious diseases, and the large numbers of such patients were taxing the existing buildings, so he advised the speedy construction of larger and better accommodations. We were soon to see the rise of the great South Department of the Boston City Hospital, the first infectious-disease hospital in the United States.

The increasing urbanization of the country and the influx of immigrants provided an unending supply of patients, which demanded major increases in hospital size. Since costs were fixed, the trustees began to look to private patients to balance their budgets. In addition, improved technology was forcing patients of all financial types to enter hospitals. Yet many of the older institutions forbade the physicians to accept fees for inpatient services. It set the stage for a classic confrontation at the Massachusetts General Hospital between the older Brahmin attending physicians and the young Turks, so well described by Churchill.⁶

The time was also at hand for the wedding of the medical school and the hospital for teaching purposes. In 1874, the University of Pennsylvania was the first university-controlled hospital. Johns Hopkins would soon follow suit. Peter Bent Brigham willed a sum of money in 1877 to establish a hospital for the sick poor of Boston, which would lead to the new Harvard Medical School–Peter Bent Brigham complex.

MEDICAL EDUCATION

At the centennial, medical education was in ferment and was a keen subject for discussion by members of the society. A prime mover for the change at Harvard Medical School, which had been founded in 1782, was J. Collins Warren, who recognized that

European schools were far superior to schools in America. Our students still had poor educational background, and there were no entrance requirements. The teaching consisted of a series of daily lectures, which were repeated year after year. Usually, two or three years of lecture attendance were required after studying with a regular practitioner. The examinations were oral, since most of the students could not read, and they were hastily given by the teachers, who had collected fees for the lectures. A student had only to pass the majority of the examinations to get a degree.

The time was obviously at hand for Harvard's President Eliot to put through his reforms at that medical school.

There were other medical schools in Massachusetts. The second to be founded was the Berkshire Medical Institution, organized in 1822 at the suggestion and instigation of Henry Childs. It arose because of the isolation of Berkshire County, where a "range of mountains stretching a distance of 30 miles between the Connecticut and Housatonic Rivers mutely proclaimed that nature had not intended this western region to be part of Massachusetts."

In those days the trip to Boston took five days, according to Nathaniel Hawthorne, on a "terribly bare bleak road." Opposed by Harvard Medical School, this school was granted a charter in 1822 by the Massachusetts Legislature, and under the guidance of Williams College it could grant degrees. Most members of the student body were from upper New York State or western Massachusetts. With the development of railroads, however, Berkshire County was no longer isolated and self-contained, and the school could not compete with those of the larger cities. It finally closed its doors in 1867, after a total of 1138 doctors of medicine had passed through the institution.

The New England Female Medical College began in 1846, but by the time of the centennial, because of economic disasters such as the great fire in Boston in 1873, it came under the aegis of Boston University and became the Boston University Homeopathic School of Medicine.⁸

Tufts University did not have a medical school but was already in the process of forming one. Restricted by a legislative charter in 1852 that forbade conferring medical degrees, Tufts began an effort in 1867 to get the legislature to remove this restriction. The Harvard position before the legislature, as represented by Prof. E. H. Clarke, was that a new institution was not needed and would produce harm. He thought the school should have assets comparable to Harvard's \$180,000, and he cited the high cost of educating a student (\$111.00 per year). There were already more medical schools in New England than were needed, with one physician per one thousand population. Only 150 new physicians a year were needed, and the New England schools were already turning out 196. Eventually, in 1893, Tufts began its medical school; most of its original faculty were members of the Mas-

sachusetts Medical Society in the centennial year or shortly thereafter. These included Drs. William R. Chapman, Henry Watson Dudley, Walter Langdon Hall, John Waldo Johnson, Albert Nott, Charles Paine Thayer, and Frank George Wheatley.⁹

Besides the graduates of these medical schools, there were many physicians who were trained only as apprentices. The preceptors were not always of high quality, and this led W. W. Green to write, "All medical education should be in well-organized medical schools, and private preceptorials should be abolished."

There were also numerous bogus medical schools in the United States and Europe, which were selling over 20,000 diplomas a year. These factors produced an excess of physicians, which led to meager incomes, bad practice, unnecessary medications, uncalled-for visits, dishonesty, crime, quackery, and deceptive specialization.

The time for national medical-educational reform was ripe and would await the work of the Carnegie Foundation and the Flexner report.

WOMEN IN MEDICINE

The council meeting of 1881 was a rather quiet one until Dr. S. L. Abbott, on behalf of H. I. Bowditch, proposed that women be admitted to examination as candidates on equal terms with men. This was a reconsideration of a vote taken from a prior meeting and was almost the finale of the debate begun in 1872, when Susan Dimock, a native of North Carolina, a medical graduate of the University of Zurich, and the recently appointed director of the New England Hospital for Women and Children, made application to our Society. She was turned down and unfortunately died in a shipwreck off the coast of England before there was a final response to her request.

Dr. Shattuck thought that the matter was a pernicious one and stated that admitting women had destroyed the Chicago Medical Society. Dr. Lyman quoted similar problems with the New York Society. The motion was tabled for the sake of harmony at the centennial meeting, although Bowditch said that he did not know that the Society met for the mere purpose of harmony.

Bowditch was not to be put off, and in the May meeting of the Suffolk District Medical Society he read resolutions that the censors of the Massachusetts Medical Society examine and give licenses to women and that Harvard University give medical instructions to women. A hundred women were already practicing in the city of Boston. Drs. Marcy and Chadwick spoke in the affirmative. Shattuck said that

God did not give them an organization adapted to the practice of medicine; it was not consistent with good morals for young women and men to dissect naked bodies together; women were not fit mentally, morally or physically to practice medicine and the idea that they were was a dishonor connected with harm and mischief to the society.

The resolution was defeated.

The next year, 1882, saw women finally admitted to the Massachusetts Medical Society for the first time, and we can only agree with Burrage, "We marvel that there could be so much and so long sustained opposition to what today we regard as the obvious."¹⁰

COMMUNICATIONS

Our centennialists did not want for education through medical journals. The number of such journals created between 1679 and 1881 was estimated at 2500, with an average birth rate of 12.5 per year. *The Boston Medical and Surgical Journal* kept them up to date with original papers, quotations, and articles from other journals, as well as communications from the national and local societies and hospitals.

The local societies included the Society for Medical Improvement, the Boston Society for Medical Observation, the Obstetrical Society of Boston, the Gynecological Society of Boston, and the Boston Society for Medical Sciences. These societies were small and elite but touched the entire medical community by publishing reports of their activities. As a matter of fact, they were so elite that they were thought to monopolize the best and to close their doors against some who would benefit from such membership. The Suffolk District Medical Society reorganized to meet this problem and began a series of section meetings in surgery, clinical medicine, pathology, obstetrics, and gynecology, with the statement that "honest criticism is less dangerous than its repression."

Access to the world literature was enhanced by the publication of the *Index Medicus*. Its finances were in doubt, and an editorial in *The Boston Medical and Surgical Journal* suggested that the Massachusetts Medical Society join with the American Medical Association, the Philadelphia County Medical Society, the Philadelphia Pathological Society, and the Philadelphia Obstetrical Society to guarantee a fund for 1881. The *Philadelphia Medical Times* thought other cities were not carrying their load.

Boston in its own conceit, the Athens of America, with its perpetual smile of self-content and its lips dripping with the honey of self-congratulations, has been as responseless as Chicago in its rush and greed for material wealth.

The Boston Medical and Surgical Journal challenged this as tasteless and inimicable to the welfare of the *Index* and said that one individual physician in Boston alone contributed half the sum of all the Philadelphia societies. "Ancient grudges should not be fed at the expense of the *Index*."

THE CENTENNIALISTS

The cast of characters was large, since the Society had 1200 members during the centennial year, who ranged from the very young to the very old. Jacob Bigelow was still alive and noted as a medical botanist, having published the *American Medical Botany* in 1817 and being one of the original committee men who edited the *United States Pharmacopeia*. He was most famed for his discourse on self-limited diseases, deliv-

ered to this society in 1835, which was a major and effective attack on Benjamin Rush's theory of "one cause for all disease." According to Oliver Wendell Holmes, "This remarkable essay had more influence on medical practice in America than any other similar brief treatise." Bigelow conceived the idea, did the planning, and produced much of the design for the Mt. Auburn Cemetery.¹¹

His son, Henry Jacob Bigelow, was now an international figure. He had quickly championed anesthesia at the Massachusetts General Hospital and had made outstanding contributions to orthopedics and urology.¹² His method of lithotrity, with evacuation of all the bladder-stone fragments at one sitting, was being hailed as a major advance. He would soon be honored at the International World Congress.

Another great figure reaching the end of his career was Oliver Wendell Holmes, the most renowned literary figure of his time. The grandson of a doctor and the son of a minister, he first studied law at Harvard but found that the "intoxicating pleasure of authorship" kept him from reading Blackstone. He tried medicine, which proved to be compatible with the time needed for his writing. He attended two courses of instruction at the Tremont Medical School under Jacob Bigelow. This was located on 35 Tremont Road across from King's Chapel. He continued his studies in Europe and later described them in his farewell address to the Medical School of Harvard University in 1882.¹³ This was the lecture in which he first described the "passing of the torch" of medical eminence through Lydon, Edinburgh, London, Paris, Vienna, and Berlin and hinted that it "might soon be borne across the Atlantic and reach the bank of the Charles." His teachers were all described by him: Baron de Larrey, strong and sturdy; Dupuytren, dominating; Lisfranc, a great drawer of blood and hewer of limbs. Louis was his favorite, a man of lofty and scientific character who taught him the love of truth, of careful and searching observation, and of the accurate tabulation of results. This educational tour was to be repeated by many other Massachusetts physicians during the decades from 1830 to 1860, when French medical culture was at its height and Paris was the "medical mecca." Jones has identified 222 American physicians who studied in Paris in one decade, 1830 to 1840.¹⁴

Henry I. Bowditch was still active. The son of the great navigator and mathematician Nathaniel Bowditch, he graduated from Harvard Medical School in 1832 and was a student in Paris (along with Holmes and James Jackson) with Louis. After returning to the medical profession in Boston, he became an active abolitionist for 15 years, defending fugitive slaves and agitating against slavery. His fanaticism hurt his practice, but eventually his skill with a stethoscope and the scientific deductive method of Louis won him fame as a chest physician. His experience with tuberculosis taught him that social conditions were responsible for many diseases and he became an ardent champion of

"state medicine," wherein government would provide for the physical and moral well-being of the poor.¹⁵ He was the first chairman of the Board of Health in 1869 and was responsible for the Abattoir's development and the aborted attempt to improve tenement life in Boston with the Boston Cooperative Building Company, which failed in the panic of 1873. Shortly after the centennial, he was eager to join the political fray against corrupt Massachusetts politicians, particularly Benjamin Butler, and was ready to be an active Mugwump in support of Democrat Grover Cleveland against the Republican Blaine.

Numerous centennialists were members of families that stretch from the founding to our own bicentennial and add the warp to the variegated tapestry of this society. J. Collins Warren had recently returned from his European studies. He was a pioneer not only in medical-education reform but also in the reorganization of the Massachusetts General Hospital. Probably more than any other person, he pushed Listerism in surgery, along with George Gay at the Boston City Hospital and Henry Marcy, the pioneer herniotomist at his own hospital. Warren was trying to reform the hospital scene, but it was still steeped in seniority and divided service; many years would pass before an organization developed that permitted a continuity in development.¹⁶

A member of another such family was John Homans, who was just finishing his study on ovariectomy. His brother Charles was an equally distinguished surgeon at the Boston City Hospital.

James Jackson Putnam, a grandson of James Jackson by his daughter Elizabeth and Dr. Charles C. Putnam, was just returning from his second European tour. Probably stimulated by Brown-Séguard as a student at Harvard Medical School, he early developed an interest in the nervous system and reinforced this on two European study tours. Between 1870 and 1872 in Vienna, he sought after Benedict, who popularized electrotherapy, Meynert, the teacher of Wernicke and Freud, and also Oppolzer, the great diagnostician. The tour also included Virchow and Traube in Berlin and Charcot at the Salpêtrière in Paris. On his return to Boston, he established a practice of neurology and received an appointment as lecturer on the application of electricity to nervous diseases, and was soon to be one of the founders of the American Neurological Association. His brother C. Pickering Putnam was a pioneer pediatrician and became a leader in the American Pediatric Society.

Another grandson of James Jackson by his daughter Harriet and George P. Minot was James Jackson Minot, whose son G. R. Minot would be a Nobel Prize winner for his work on pernicious anemia, at the Boston City Hospital.

George Cheyne Shattuck, the son of George C. Shattuck and grandson of Benjamin Shattuck, after graduation from Harvard Medical School in 1835, went along with Bowditch to study under Louis and eventually became professor of theory and practice of

medicine at the Harvard Medical School. He was president of the Massachusetts Medical Society from 1872 to 1874, as was his father and one of his sons, G. B. Shattuck, the editor of *The Boston Medical and Surgical Journal* at the centennial.

Several other centennialists would have direct lineage to this bicentennial. Edward H. Bradford, after graduating from the Harvard Medical School in 1873, took the tour in Berlin, Paris, and London and brought antiseptics back to Boston. After a brief career in general surgery, during which he advocated early appendectomy for appendicitis and even operated on brain tumors, his interest focused on orthopedics at the Boston City Hospital and Children's Hospital. His textbook on orthopedic surgery, published with Dr. R. W. Lovett, became a classic. He realized early in his career the value of rehabilitation and was responsible for promoting the Industrial School for Crippled Children and the Massachusetts Hospital School. The Bradford frame was an important technical advance in caring for the bedridden patients.

David W. Cheever, the gifted Boston City Hospital surgeon, was shortly to become a full professor of surgery at Harvard Medical School (in 1882). Samuel J. Mixer was completing his European surgical tour and soon would return to Boston and begin his distinguished career, which included pioneer work on the esophagus, brain, and gasserian ganglion. He was a founder and the first president of the New England Surgical Society and president of the American Surgical Association.

Joseph Garland was practicing in Gloucester. His son would be a prominent Boston pediatrician and a highly successful and deeply esteemed editor of *The New England Journal of Medicine*.

Many of the centennialists had returned from Europe to pursue careers in the preclinical sciences. Charles S. Minot developed histology and embryology. Henry P. Bowditch, nephew of Henry I. Bowditch, developed the first physiology laboratory in the United States. Reginald Fitz brought cellular pathology to Boston and was soon to clarify appendicitis and pancreatitis. Thomas Dwight was innovating the teaching of anatomy and developing the anatomic portion of the Warren Museum. Henry C. Ernst, who taught J. Collins Warren how to sterilize cotton and keep it sterile, was soon to give the first course in bacteriology in the United States. Edward S. Wood was the leading chemist and expert in forensic medicine.

Some of the centennial figures had served in the Civil War, both as physicians and as soldiers and officers. Zabdiel Boylston Adams received four wounds and was confined in prison camps in Lynchburg and Libby.¹⁷ Samuel Green, the orator of the centennial, served at Bull Run and many other engagements. John Homans served in both the Army and Navy and became medical director of the Army at Shenandoah. Frank W. Draper saw service extending from Virginia to Vicksburg and was in the crater at Petersburg. His career went from private to assistant adju-

tant general. He became a pioneer medical examiner and teacher of forensic medicine. J. Collins Warren served as assistant surgeon at Cold Harbor. Many of the would-be centennialists died in the Civil War and were eulogized by Samuel Green as a part of the Centennial Oration.¹⁸

A few other centennialists were pursuing political careers. Samuel Green eventually became the mayor of Boston. E. Bayard Harvey of Westboro and the Worcester District Medical Society, was to become a member of the Massachusetts House of Representatives and was eventually elected to the Massachusetts Senate. He was influential in establishing the Massachusetts Board of Registration in Medicine and was its first secretary and executive officer.

The oncoming tide of immigration was adding new faces to the Society. A typical example was Michael Freebern Gavin, who came from Ireland and worked in his brother-in-law's drug store. He graduated from Harvard Medical School in 1864, where he began what was to become a lifelong friendship with Dr. Oliver Wendell Holmes. He became the first surgical intern at the Boston City Hospital at the ripe age of 20. He continued his education at the Royal College of Surgeons in Dublin and made trips to London and Paris. His successful practice was based on his attitude toward his patients: "Their comfort, their welfare, their convenience was to be considered above all." For over 50 years he was associated with the Boston City Hospital as staff surgeon and even trustee. He still had time to work for the Carney and St. Elizabeth's hospitals. His students at Boston City Hospital included Fred J. Cotton, L. G. R. Crandon, and David D. Scannell. His life was graced by a fondness for music and reading and a desire "to make my work not a mere work of gain, but a means of doing good."¹⁹

The specialties were developing rapidly, as attested to by progress notes in the *Journal* by numerous Massachusetts physicians. It is beyond the scope of this paper to review the origin and development of each specialty, but one should mention J. Orne Green in otology, O. F. Wadsworth in ophthalmology, and J. R. Chadwick in obstetrics. Chadwick, who is most famous for his well-known sign of pregnancy, is typical of most of the specialists. A graduate of Harvard Medical School, he continued his education in Berlin, Vienna, Paris, and London, and on his return to Boston was appointed to the Boston City Hospital in 1873. He was the first secretary and later president of the American Gynecological Society; he organized the Harvard Medical School Alumni Association and inspired the founding of the Boston Medical Library and the New England Cremation Society.²⁰

Morton Prince was abandoning his interest in general medicine and turning his attention to psychopathology; he subsequently founded *The Journal of Abnormal Psychology* and the American Psychopathological Association.

George H. Monks, who specialized in surgery at the

Boston City Hospital and in anatomy at the Harvard Medical School and Harvard Dental School and at the Boston Museum of Fine Arts, was a competent sculptor with an esthetic viewpoint that led him to be a pioneer in plastic and reconstructive surgery.

THE CENTENNIAL CELEBRATION

The Centennial Meeting was held on June 7, 1881. The first entertainment was a visit to the Abattoir. A special train started from the Albany Depot and carried nearly 100 men to the site. After this, a proper number of barges were sent to Brighton, and the visitors were transported to Harvard Square. The various collections of Harvard were thrown open to them and were visited by numerous members with an opportunity never before offered to the Society. They gladly availed themselves of the privilege.

The annual oration was delivered by Dr. Samuel Green in Sanders Theater. It was a prolonged account of the founding of the Massachusetts Medical Society. Green paid homage to the medical-society members who had died or been wounded in the Civil War.

A luncheon was served in Memorial Hall, and the welcoming remarks were given by President Eliot. After lunch, the visitors were brought by horsecar to Bowdoin Square, where by means of stages they were transferred to Rowe's Wharf to the steamer *Governor Andrew*. They passed by the Navy yards and steamed by the piers of East Boston, along Deer Island, by the forts and the lower lights, and several miles out toward Minot's. They turned back, took the inside route, and landed at Nantasket, where a standing lunch was served, which the sea air made doubly welcome. The music was furnished by the Cadet Band. There was much fun and singing on the trip. The enjoyment of the sail was greatly enhanced by the opportunity afforded for social enjoyment and the renewal of old friendships, which was evidently appreciated by over 700 doctors.

In the forenoon of the next day there were visits to the Massachusetts General Hospital, the newly founded City Hospital, the Carney Hospital, and Children's Hospital. In addition, there were tours of the Museum of Fine Arts, the Institute of Technology, the Museum of Natural History, the Warren Museum at the Medical College on North Grove Street, and the Warren Museum of Natural History on Chestnut Street. The lower Horticultural Hall was given over to a collection of surgical instruments and drugs, in addition to a large and brilliant collection of illustrated medical works.

The annual meeting was held at noon, when many visiting doctors were introduced, including Samuel Gross of Philadelphia. The annual discourse was given by J. Collins Warren, M.D., and was on the organization and nature of medical societies. At the close of this oration the members adjourned to the neighboring Music Hall. This was an ornate structure, well documented in Henry James' *The Bostonians*

during the climactic meeting of Basil Ransom, Olivia Chancellor, and his lover Verena Tarrant.

Its lofty vaults and rows of overhanging balconies made it immense and impressive. The place struck him with a kind of Roman vastness: the doors which opened out of the upper balconies high aloft and which were constantly swinging to and fro with the passage of spectators and ushers reminded him of descriptions of the Colosseum. The high organ, the background of the stage lifted to the dome its shining pipes and sculptured pinnacles.²¹

At this dinner Oliver Wendell Holmes read a long poem, created for the occasion, concerning the pleasures of medical life but strong in its condemnation of the legal profession.

The blessing was given by Rev. Philip Brooks, Boston's noted theologian. The president of the Society, Henry Williams, made the following note:

All of our opinions will be modified 100 years hence, yet the principles of our society and its conservative opinions will ever remain the same. . . . May it ever advance and as of old be cherished and defended.

President Eliot said, "This century completed will be looked back upon as the birth of medicine as a learned and liberal profession."

Dr. White gave the final toast: "May our children find our society as prosperous a hundred years hence."

SALUTATION

This account of the centennial year and celebration of the Massachusetts Medical Society is meant to be a memorial to the centennialists, who were the shapers of the current practice of medicine in this commonwealth. They were a unique group of men.

We are on the threshold of another century. The scientific explosion is coming face to face with the reality of finite resources and astronomical rises in the costs of personnel, equipment, and development. All patients cannot be cured, and some are turning to malpractice suits, reliance on nonscientific therapy, and the hope that all disease can be prevented by a change of life style. Government regulations are stifling practice.

These forces are producing substantial changes in the shape and conduct of our Society. Our council meetings are devoted to legal and legislative redress, social and economic problems, and negotiating tactics. I suppose our generation will be known as the defenders of our medical society.

We can wish the next generation a prosperous and healthy tricentennial celebration. If they continue to be guided by the twin lights of science and humanism, we are sure they will reach their goal.

We can only look back with gratefulness and inspiration to the centennialists. They did grow to be big trees, and they have cast long shadows that remind us continuously of our heritage and guide us in the sympathetic, skillful, and ethical conduct of our profession. Emerson said, "An institution is the lengthened shadow of one man." Surely our Society is the length-

ened shadow of a host of men, a host of dedicated physicians.

REFERENCES

1. Adams H. Democracy: an American novel. New York: Farrar, Straus & Young, 1879.
2. James H. The American scene. New York: Charles Scribner, 1946.
3. Boston Medical and Surgical Journal. 1881; Vols. 104 & 105. (specific citations available from the author on request.)
4. Bryan LS Jr. Blood-letting in American medicine, 1830-1892. Bull Hist Med. 1964; 38:516-29.
5. Holmes OW. Currents and counter-currents in medical science. Boston: Ticknor & Fields, 1861.
6. Churchill ED. To work in the vineyard of surgery: the reminiscences of J. Collins Warren (1842-1927). Cambridge, Mass.: Harvard University Press, 1958.
7. Gibbons PD. The Berkshire Medical Institution. Bull Hist Med. 1964; 38:45-64.
8. Waite FC. History of the New England Female Medical College 1848-1874. Boston: Boston University School of Medicine, 1950.
9. Spector B. A history of Tufts College Medical School. Boston: Boston Linotype Print, 1943.
10. Burrage WL. A history of the Massachusetts Medical Society. Norwood, Mass.: Plimpton Press, 1923.
11. Migliore JJ. Jacob Bigelow and his fable. Boston Med Q. 1966; 17:9-17.
12. Bigelow HJ. A memoir of Henry Jacob Bigelow. Boston: Little, Brown, 1900.
13. Holmes OW. Medical essays. Cambridge, Mass.: Riverside Press, 1891.
14. Jones RM. American doctors and the Parisian medical world, 1830-1840. Bull Hist Med. 1973; 47:40-65.
15. Bowditch VY. Life and correspondence of Henry Ingersoll Bowditch. Boston: Houghton Mifflin, 1902.
16. Truax R. The Doctors Warren of Boston: first family of surgery. Boston: Houghton Mifflin, 1968.
17. Peabody CW. Zabdial B. Adams. (in preparation).
18. Green SA. Centennial address. Groton, Massachusetts, 1881.
19. Gavin B, ed. Michael Freebern Gavin: a biography. Cambridge, Mass.: Riverside Press, 1915.
20. Speert H, Chadwick J. Obstet and gynecologic milestones: essays in eponymy. New York: Macmillan, 1958.
21. James H. The Bostonians. Toronto: Random House, 1956.

MEDICINE AND SURGERY IN 1881*

MORRILL WYMAN, M.D.

WITHIN the past few years great advances have been made in the arts and sciences. The study of electricity has given us the telegraph and the telephone with all their varied applications to the determination of questions in Astronomy as well as the wants of daily life. Advances in Physics have shown the management of heat in the almost unlimited power of steam, in light the art of Photography — the spectroscope and its application to the determination of the condition and structure of the heavenly bodies, and the microscope for the investigation of all bodies.

Medicine has not been idle in this age of *observation* and *experiment*; it has absorbed all that aids its progress — the thermometer, introduced into England a hundred years ago and then almost forgotten, is now in constant use for the study and diagnosis of disease. The ophthalmoscope has changed the whole theory of ocular disease; with other instruments we investigate the cavities of the body. The spectroscope determines

the presence of drugs, or elements of nutrition, during their progress through the animal and vegetable systems. The microscope shows the change taking place in the fluids and solids of the body which the photograph records. These fluids and solids can be subjected to chemical analysis which reveals the changes they have undergone and furnishes some of our most important indications for diagnosis and treatment. The laws of acoustics have given us, through the labors of Auenbrugger and Laennec, a knowledge of the internal organs never before possessed.

Pathological Anatomy, which contains all that is positive knowledge in medicine, has overthrown the merely symptomatic medicine which preceded it inasmuch as it has shown that many diseases, widely different in their ultimate results, have apparently similar symptoms; it has brought to a higher degree of certainty our so-called physical diagnosis. The microscope has carried much further our knowledge of disease structure and revealed the causes and consequences of inflammation, the formation of new structure, haemorrhage, thrombosis, embolism, and gangrene.

The belief is gaining ground among physicians that some diseases are caused by *germs*, animal or vegetable, floating in the air or in some way or other finding their way into the system. Although it has not been proved that fungi are the cause of disease, it is believed that much may be learned by the study of their disease-producing powers. Bacteria which produce changes in the blood by their increased numbers are believed to be the cause of gangrene of the spleen in the sheep, communicable from these animals to man.

Bovine vaccine matter is now used in the principal

— Ed.

*Dr. Morrill Wyman (1812-1903) was a distinguished member of the Massachusetts Medical Society (its Orator in 1863) who practiced for more than 60 years in Cambridge, Massachusetts. Among his contributions were a treatise on the ventilation of hospitals and other public buildings, the introduction of small-bore hollow needles for thoracocentesis, and the first recognition of hay fever as a seasonal and climatologic affliction.

This communication, never published before, was written by Dr. Wyman in December 1881 and, along with similar letters from other leading Massachusetts citizens, was sealed in a box in a ceremony at Faneuil Hall, Boston, on December 22, 1881, with instructions that it not be opened until September 17, 1980, when the city of Boston would be celebrating its 350th anniversary. The sealed "Century Box" was prepared, preserved, and finally opened according to instructions under the auspices of the Ancient and Honorable Artillery Company of Massachusetts. The latter was the first military company chartered in the Western Hemisphere (1638) and is now an honorary social organization devoted to preservation of the historical traditions of the Bay Colony. The *Journal* is grateful to the Company for permission to publish this unique document. We have abridged a few paragraphs but otherwise have allowed Dr. Wyman to speak to us across the century in his own style, untouched by our editorial pen.