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The Metamorphosis of American Medicine in the Nineteenth Century

When people's ill, they comes to I,
I physics, bleeds, and sweats 'em;
Sometimes they live, sometimes they die
What's that to I? I lets 'em.
—Dr. J. C. Lettsom[1]

THE PROFESSION OF MEDICINE in America got off to a bad start. Early doctors were marooned in beliefs and techniques centered around the humors of the body—blood, phlegm, yellow bile, and black bile—and whether the illness was "cold" or "hot." There were no curative drugs or methods. If purging, blistering, sweating, or bleeding didn't work, there were no alternatives. Sporadically, epidemics wiped out thousands, and no one knew why some survived and others didn't. Solving this question led to the science of medicine.

Until after the Civil War, medical practice in America was in the dark ages. But the latter part of the nineteenth century brought progress. The discovery of bacteria as a cause of infection in the 1880s literally revolutionized public health. Antisepsis and the emergence of anesthetic agents opened broad vistas to the surgeon. By the 1900s medical advances had relieved society of some of its burden of disease and suffering. In the meantime, however, certain dogmas, whose roots arrived with the colonists, prevailed.

"Heroic" Medicine: Treatments in Early America

From the 1790s to about the middle of the 1800s was essentially the age of "heroic" medicine (allopathy), and a few allopathic physicians in

the United States dominated medical philosophy and education. One famous physician of the era, Benjamin Rush, told his students that there was only one disease, which he called "morbid excitement induced by capillary tension."[2] Whatever he meant by this claim, which cannot be translated into modern terms, he asserted that this sole disease had a sole remedy: bloodletting and the purging of the stomach and bowels. Doctors who were taught to follow these rigid prescripts became known as "sanguinary physicians," or more derisively as "leeches."[3]

The harsh treatments punished sick people and could even shorten life. To practice allopathic medicine, a doctor needed only a sharp lancet to slice into a vein or leeches to suck blood from his patient, suction cups to enhance blood flow from small incisions or to withdraw "toxins" from an inflamed part of the body, ipecac to produce vomiting, calomel to empty the bowels, and mustard to make a plaster to burn blisters on the skin. These ancient therapies were based on the premise that toxins could

Bleeding patients was an ancient form of treatment for many ailments. Employing leeches to draw blood was just one of many methods. The leech is still used, though rarely, in certain kinds of injuries to reduce hematoma formation. —Courtesy National Library of Medicine, History of Medicine Division

be extracted from a sick body via bodily fluids. Even after allopathy began to lose its luster, many frontier doctors still insisted that clysters (enemas), cathartics, and sometimes cupping were the answer to most complaints.

Despite the fact that these "heroic" methods of treatment date back to antiquity, some medical historians blame Dr. Rush for their popularity in American medicine.[4] When someone as politically important as Dr. Benjamin Rush, patriot and close friend of President Thomas Jefferson and other leaders, spoke, people listened. Though some of his contemporaries differed with him, theirs was like a voice in the wilderness.

Rush perfected his theories during the yellow fever epidemic of 1793 in Philadelphia. During that period of pestilence, he kept his lancet busy draining blood from one and all, sometimes in massive amounts.[5] Many of the sick he treated and "cured" probably didn't have yellow fever at all, and he ascribed his failures to belated treatment.

One of Rush's most effective critics wasn't a doctor, but a vitriolic journalist named William Cobbett, who attacked Rush viciously in the press. He wrote, "The times are ominous indeed, when quack to quack cries, 'Purge and bleed! . . . Blood, blood, still they cry, more blood!'"[6] The writer launched abuse daily until the good doctor's lawyers shut him up with court action.

It is very easy to look back and see Rush's flaws, but there are other things about him that deserve to be remembered as well. He believed in the education of women. He also urged his contemporaries to follow his example and treat the "virtuous poor" with respect. A vocal medical reformer, Rush criticized the military and the colonial government for the terrible conditions of soldiers' hospitals during the Revolutionary War. He saw the "putrid fever" that spread rapidly in the hospitals for what it was, a poisoning directly related to crowding and filth. As an early proponent for public health, he deplored the condition of Philadelphia's Dock Creek, which was used as a dump for "animal and vegetable offal matters," and urged the city assembly to stop the dumping.[7]

Nevertheless, as part of Rush's mixed legacy, his tenets extended the use of therapeutic bleeding, purging, and blistering. These harsh and often harmful methods of treatment were not based on any science but were as ancient as Hippocrates. The death of George Washington in 1799 shows how heroic methods were applied to the detriment of the patient. Washington was dying of a throat infection that obstructed his airway (most medical historians believe he suffered from a form of severe tonsillitis with abscess formation). Washington began the bleeding process

himself before the doctors arrived by having a servant open a vein in his arm. When the doctors came, they continued the process, and he was bled four more times. On the fourth bloodletting, one of the doctors noted that "the blood ran very slowly—appeared very thick."[8] Probably this was an indication of anoxia and dehydration and perhaps beginning shock.

One of Washington's doctors, Elisha Cullen Dick, argued against further bleeding, saying, "He needs all his strength—bleeding will diminish it."[9] Dr. Dick pleaded with the other two physicians to operate to open an airway into the general's larynx (a tracheotomy) to bypass the point of obstruction. His sensible arguments suggest that some physicians were challenging the formulaic practices of the time. That the challenge was ignored suggests how entrenched the orthodoxy was. During the hours before Washington died, the doctors applied blistering poultices and gave him doses of calomel and other purges. Years later, one of Washington's physicians, Dr. Gustavus Richard Brown, admitted that they should have heeded Dr. Dick, and that had they "taken no more blood from him, our good friend might have been alive now. But we were governed by the best light we had, we thought we were right, and so we are justified."[10]

A powerful critic of medical practice and education during this period was Thomas Jefferson, who wrote, "the inexperienced and presumptuous band of medical tyros let loose on the world, destroys more of human life in one year, than all the Robinhoods, Cartouches, and Macheaths do in a century."[11] To aspiring medical students, Jefferson advised, "His mind must be strong indeed if . . . it can maintain a wise infidelity against the authority of his instructors."[12] The increasing pressure of such intellectual critics and high-profile failures like Washington's case contributed to a loss of respect for doctors. Physicians would have to make changes.

What kind of changes should be made, however, was a subject of great debate among doctors, and reforms were not uniform. Bitter disputes developed among physicians and within medical school faculties. For example, Dr. Benjamin Dudley, a medical instructor in the early decades of the 1800s, long before germs were discovered, implored his colleagues to boil their surgical instruments to prevent infection, a practice he followed. As often happened, the new idea was greeted with derision and hostility by his colleagues, in part because Dudley had a cantankerous personality.[13] One can only speculate how many lives might have been saved during the Civil War if physicians had followed the grouchy Dr. Dudley's advice.

Another physician of the era, Dr. J. Crawford of Baltimore, wrote several articles pronouncing that mosquitoes were the source of malaria and yellow fever. Unfortunately, it was a viewpoint that contradicted the theories of the time, and he was rewarded by ridicule and nearly lost his practice. But Crawford's hypothesis inspired Dr. Walter Reed and the others who, years later, finally proved the transmission of yellow fever by mosquitoes. The heroic work of Dr. Stubbins Ffirth also contributed to the finding. In 1804 this young physician proved that yellow fever was not contagious from person to person. He verified his theory by exposing himself to direct and intimate contact with those suffering from the disease. In one experiment, he cut the skin of his arm and introduced fresh black vomit from infected people into the wounds, repeating the procedure twenty times. He also vaporized the liquid vomit and breathed the steam, and he even swallowed fresh vomit. Still the intrepid doctor did not develop yellow fever.[14] Although this kind of scientific study appears foolhardy, it is only one of hundreds of such stories. Physicians throughout the history of the profession, and especially during the nineteenth century, proved their points with self-experimentation.

"Irregular" Doctors: Homeopathy and Other Alternatives

By the 1830s "regular" doctors, or allopaths, and their "heroic" therapies of bloodletting, purging, and blistering faced significant competition by practitioners known as homeopaths. No love was lost between them. From the modern viewpoint, it is hard to understand why people ever tolerated the harsh methods of the early allopaths, but apparently some sufferers believed that "the more bitter the taste, the better the medicine." After paying for a professional call, some patients expected more than "time and nature" to heal them.

Homeopaths, or "irregular" doctors, avoided all "heroic" measures. Calomel, a toxic mercurial purge to treat syphilis, and other severe purges were seen as poison, and homeopaths did not blister the skin or bleed the patient by use of scalpel, cup, or leech. The homeopath "stressed the need for sympathetic attention" and "provided an alternative to the . . . excesses of orthodox physicians."[15] Homeopathy, perhaps understandably, was more popular, and the practice attracted many well-to-do clients who didn't wish to be punished with abrasive methods. Furthermore, allopaths found it difficult to criticize homeopathic results because their

results were no better. The homeopathic discipline was certainly less agonizing to the sick, and most homeopaths were equivalent in education to allopaths. As an added bonus, homeopaths usually prescribed whiskey as a diluent for their medicine. The beneficial effects of drugs, they believed, were magnified when diluted with alcohol.

In competition with the homeopaths, "regular" doctors also began prescribing strong alcoholic "tonics." Here they found a "medicine" they knew would uplift their patients' spirits and improve the allopathic image. Undoubtedly, to a degree they were right. It is strange, however, that even though regular doctors were losing ground with their harsh methods, there continued to be more of them than homeopaths.[16]

A myriad of other kinds of "healers" also proclaimed their skill at treating any and all human illness, and the dominant groups judged all others as embracing "false" doctrines. With all the confusion and controversy, it was difficult if not impossible for a sick person to judge which method was superior.[17] Among the choices were hydropaths and botanic doctors who specialized in roots and herbs, as well as vendors of various and sundry nostrums. Midwives delivered most of the babies. Other healers claimed to be bonesetters and inoculators; cancer doctors advertised their cures in local newspapers; and even a few abortionists were available. There were some who pretended to be "Indian doctors" and practiced in a variety of styles meant to emulate what the public perceived as natural, or "Indian," healing. Ironically, even though the Native American culture was looked down on as paganistic by most white people, Indian "healers" were very popular. Various amalgamations of these different factions of medical conduct produced a bewildering array of choices for the sick.[18] As sectarianism and suspicion prevailed, it is no wonder medicine lagged behind other scientific fields.

Some of the theories and practices of the different schools of treatment had merit. Take the "water treatments" recommended by hydropaths, for instance. A considerable number of common medical problems such as rheumatism, arthritis, and skin disorders were relieved by soaking in water, especially if it was hot and smelled of sulphur. At a time when few people bathed regularly, water treatments accompanied by soap may have been even more therapeutic. Hydrotherapy is ancient. Plato in his *Dialogues* wrote, "Limbs of the rustic worn with toil will derive more benefit from warm water than from the prescriptions of a not overwise doctor."[19]

The medical practitioner of any persuasion had some useful drugs, among them laudanum (opium) to ease pain; foxglove (digitalis), used as a stimulant in heart failure; colchicine for gout; and cinchona bark (quinine) against the omnipresent fever, malaria (ague). Regardless of the type of application, medicine and herbs conveyed a certain mystique. Nevertheless, most nineteenth-century Americans seldom saw a physician and took little interest in the various sects. Doctors in general were not altogether trusted, and they were expensive. Much of the populace, living in remote backwoods locations, relied on "folk medicine" to restore their health.

Although few doctors would admit it, much medical knowledge was taken from folk wisdom. Drugs and treatments handed down over hundreds of years augmented the educated physician's know-how. Remedies that performed were kept and others discarded. Foxglove, or digitalis, came from English women of the late 1700s, who discovered the herb's use as a cardiac stimulant. The housewife had used foxglove for heart failure, or "dropsy," for many decades before it was accepted by the medical profession. Colchicine was another herb that "old wives" had used

Digitalis purpurea: *From this plant, also known as foxglove, is derived digitalis, a heart stimulant, still in use. Many of today's drugs come from plants.* —From *A Modern Herbal* by Maud Grieve, 1931

successfully for years in the treatment of gout before doctors adopted it. Both of these drugs are still kept in a modern physician's dispensary.

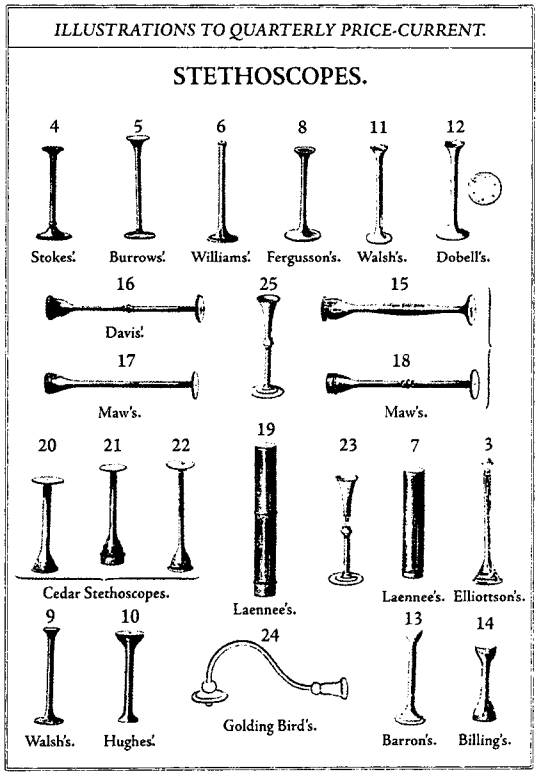
Folklore about disease and treatments accompanied immigrants to America from Europe and other points of origin. As the pioneers homesteaded in the West, their kitchen shelves were replete with "cures" passed on by word of mouth from mother to daughter and father to son. Though much "old wives" knowledge was sound, some popular therapies were founded in superstition or religious dogma. Seldom, however, were these old remedies harmful. Sometimes soot and cobwebs in a fresh cut or a poultice of fresh manure to stop bleeding may have led to an infection, but in general "old time" treatments were at least innocuous. And families with a grandmother who understood the value of rest, medicinal herbs, and good nutrition were fortunate.

For a long time, the medical profession refused to admit that the body had healing powers of its own and that nature was an ally, not an enemy. Somehow they were able to ignore the fact that many sick people got well on their own. As an example, during an epidemic of diphtheria in the mid-1800s in New York, two out of three patients treated by physicians died, in contrast to only two of nine patients treated only with "ice packs and prayer."[20] In time, even the most stubborn doctors learned what many "old wives" had known for years: that rest, fluids, and tender loving care cured a majority of illnesses.

New Ideas in "Doctoring"

Disagreements among doctors over the theory of medicine and how it should be taught continued to rage through midcentury. Some of these conflicts resulted in lawsuits and even physical battles. In 1856 at a medical school in Cincinnati, a dispute among the faculty became so intense that actual warfare ensued with "knives, pistols, bludgeons and blunderbusses." When one of the opposing factions brought out a loaded six-pound cannon, both sides sensibly dispersed.[21]

As the various factions bickered and battled, leading doctors in the East began to organize, and in 1846 the American Medical Association was formed. About 1858, prominent doctors began to speak out forcefully against "heroic" medicine, and soon many physicians had abandoned some of the deplorable methods of treatment. Within a few years, medical schools quit teaching bloodletting, and by the time of the Civil War, almost all physicians had quit exsanguinating their patients, though venesection (bleeding) still has a minor place in medicine.[22]



Early stethoscopes, which evolved into the binaural apparatus that is frequently seen dangling around the necks of today's doctors and nurses —Courtesy National Library of Medicine, History of Medicine Division

Meanwhile, science entered the picture. Some physiologic parameters like blood pressure and temperature could now be measured, and heart, lung, and abdominal sounds could be heard and classified with the stethoscope. Due to the work of Louis Pasteur and others (see Overview), there evolved an appreciation of bacteria as a cause of infections. Furthermore, and of great importance to the profession of medicine, it became apparent that many illnesses were self-limited regardless of treatment.

By 1880 allopaths had to face the fact that their conflict with the homeopaths had been fought to a draw. Regardless of a physician's sect, the practice of medicine became more scientific. Many homeopathic practitioners, forced to admit that science was changing the playing field, adopted some of the allopaths' technical practices.[23] Similarly, as science cast doubt on certain allopathic treatments, regular doctors began to abandon them.

The major schools of medical thought went through the nineteenth century debating the merits of the various philosophies and unconsciously

borrowed from one another. While there were still doctors who were true cultists, narrowly focused and arbitrary, many others had open minds and judged on their own what was best for their patients. Gradually, a mainstream of "doctoring" developed in America. At the same time, the profession was gaining a new respect. "Doctoring" had not been viewed very highly up to the late 1800s. Little progress in health care having been made, cynicism prevailed. But publicized scientific discoveries changed the public attitude dramatically. In 1885, after it was reported that French scientist Dr. Louis Pasteur had discovered a treatment to prevent the rare but terribly feared disease called rabies, the public took notice. Previous discoveries had been more or less ignored, but a preventative for rabies was front-page stuff: "Hydrophobia Cured," read the headlines. Suddenly medicine became a popular topic, and enough scientific discoveries followed to keep writers busy for years. The medical profession had turned the corner.[24]

Dr. Joseph C. Hunter administering nitrous oxide in his office in Boulder Hot Springs, Montana, in 1884. By the time this picture was taken, doctors all over the country were using this gas as an anesthetic in addition to ether and chloroform. Nitrous oxide was popularized by dentist Horace Wells in 1844. —Courtesy Montana Historical Society, Helena

Toward the end of the nineteenth century, there was more scientific progress. An improved understanding of microbes encouraged physicians to accept Joseph Lister's technique of antiseptic surgery that he first described in 1867, and sterilization and aseptic methods took shape as well. In addition, anesthetics—ether, nitrous oxide, and chloroform—which had been available since 1831 but were used mainly as recreational drugs, came into use for surgery, replacing opium and other less effective substances. In 1842 Dr. Crawford W. Long of Georgia had used ether as anesthesia for minor operations, and a few years later Connecticut dentist Dr. Horace Wells used laughing gas (nitrous oxide) for the same purpose. By 1880 the practice had caught on, and surgeons could, with a new degree of assurance, open the abdomen to correct injuries, remove tumors, and perform appendectomies.

During the same period, doctors became expert at differential diagnosis. For example, the two major diarrheal diseases, cholera and typhoid, were differentiated. By careful observation, the rose patches of typhoid were distinguished from the rash of measles or the exanthem of scarlet fever. Now medicine could name many conditions with accuracy, though there wasn't any specific treatment.

New drugs were being developed, however. Medications such as chloral hydrate (a sedative) and salicylates and antipyrine (two analgesics) enlarged the pharmacopoeia of the practicing doctors. Still, as Richard Gordon wrote in *The Alarming History of Medicine*, "Physicians ventured into the twentieth century lightly armed. They bore mercury for syphilis . . . digitalis to strengthen the heart, iodine for goiter, colchicum for gout, chloral for the excitable, a pomegranate alkaloid for tape-worms. Since 1867, they had amyl nitrite for angina . . . iron for anemia."[25] Medical textbooks were thick with diagnoses, but they lacked the "happy endings" of successful treatments.

Nevertheless, doctors of the time were justifiably optimistic. In 1887 Dr. J. M. DaCosta, a leading physician of his time, summarized proudly, "A generation that has witnessed the introduction of the hypodermic syringe, of the bromides, of chloral, of nitro-glycerine, of cocaine, and antiseptics, need not despair of gaining more agents potent for control."[26]

Great strides in preventive medicine were also emerging. Gradually doctors developed a better understanding of sanitation and the transmission of infection. In 1880 the causes of cholera, typhoid, and diphtheria were identified. About 1895 diphtheria antitoxin became available. Another public health milestone was reached when pasteurization all

but eliminated milk as a carrier of typhoid, diphtheria, tuberculosis, and brucellosis. As citizens began to recognize and accept public health measures, laws were passed to isolate and quarantine transmissible diseases. It was agreed that outhouses should be placed downstream or away from the water supply, that rotting garbage must be buried at a certain distance from permanent camps, and that dead bodies could transmit disease and contaminate water.

Instruments, too, improved. Laennec's stethoscope, used by most doctors to listen to the beat of the heart and whisper of the lungs, was no longer the physician's only tool. Then came other "scopes." The ophthalmoscope had been improved since Helmholz discovered it in 1851, and the eye grounds (the inside of the eyeball) promised information never before imagined. Some "specialists" were looking into the larynx, and other orifices were being probed and explored. There was even strong support by many, but not all, physicians for the use of the sphygmomanometer for studying pulse pressure (later called blood pressure), and the standardized thermometer was touted as an aid to the diagnosis and prognosis of infectious diseases. Now the doctor could more carefully study the vagaries of the different fevers. "What's next?" doctors seemed to be asking, and they were only looking at the tip of the iceberg. Inexorably, new ideas replaced the old. Wilhelm Röentgen soon discovered the medical use of cathode ray radiation, and in 1888 Madame Marie Curie, studying the element radium, prepared the way for the X-ray, which revolutionized the diagnostic ability of physicians all over the world.

During the last few decades of the century, a few older doctors became concerned, perhaps threatened, by the intrusion of science into the art of medicine. In 1884 the president of the American Medical Association warned against "the innumerable instruments of precision, which promise to substitute mathematical accuracy for vague guesses and which are too often used, not to supplement but to supplant other and valuable methods of investigation." Furthermore he was distressed "by all the 'scopes,' all the 'graphs,' and all the 'meters,'" used by specialists.[27] Stanley Joel Reiser, Harvard physician and historian, wrote in 1978, "The historical experience of medicine thus reveals diagnostic technology to be a double-edged sword. Its use can enlarge the doctor's knowledge of disease, but it also can erode his confidence in his ability to make independent judgments. The doctor can rely too much upon machines and technical experts."[28]

In spite of the fears, the promise of science in the practice of medicine filled doctors with new hope just when they had become pessimistic and

discouraged. Most of them had learned that the "old" methods weren't effective, and they welcomed the growing power of experimental science.

By the 1890s doctors also had begun to recognize the value of the hospital as a place to treat people, not just to put them until they died. Many new hospitals were established, and laboratories and X-ray machines were installed. In hospital practice, physicians in America utilized autopsies to more accurately understand the pathogenesis of disease and to apply this information to living patients. Hence the Clinical Pathological Conference, or CPC, became a teaching tool of great value to the advancement of medical understanding of disease, as symptoms in a sick person were correlated with postmortem anatomical findings. Previously, many American doctors had to go to Europe to study cadavers; now pathologists could do so in their own hospitals.

In 1901 Dr. Emil Adolf von Behring received the Nobel Prize. In his acceptance speech he acknowledged a century of progress in medical science. He honored Edward Jenner, Louis Pasteur, and Robert Koch for their work in vaccines and microbiology. He himself was being honored for his work in developing specific serums with which to treat infectious disease, a method thought by many to be the final blow to infections. But it didn't work. Within ten years the euphoria about this new tool turned to frustration.[29] Such are the vagaries of scientific achievement. But overall it had been a great century.

The Evolution of Medical School

In 1889 William Osler, one of America's greatest physicians and teachers of medicine, complained, "It makes one's blood boil to think that there are sent out year by year scores of men called doctors, who have never attended a case of labor, and who are utterly ignorant of the ordinary everyday diseases which they may be called upon to treat. . . . Is it to be wondered . . . that there is a widespread distrust in the public of professional education, and that quacks, charlatans and impostors possess the land?"[30]

In nineteenth-century America, one could become a doctor in three ways: 1) attend a medical school; 2) apprentice himself (or herself) to a practicing physician; or 3) simply purchase a diploma. Diploma mills began a lucrative business sometime around 1853, when states began to issue licenses and require credentials for medical practice. Thousands of people were willing to pay for this "education." In spite of the dubious reputation of the profession, a medical career was unaccountably

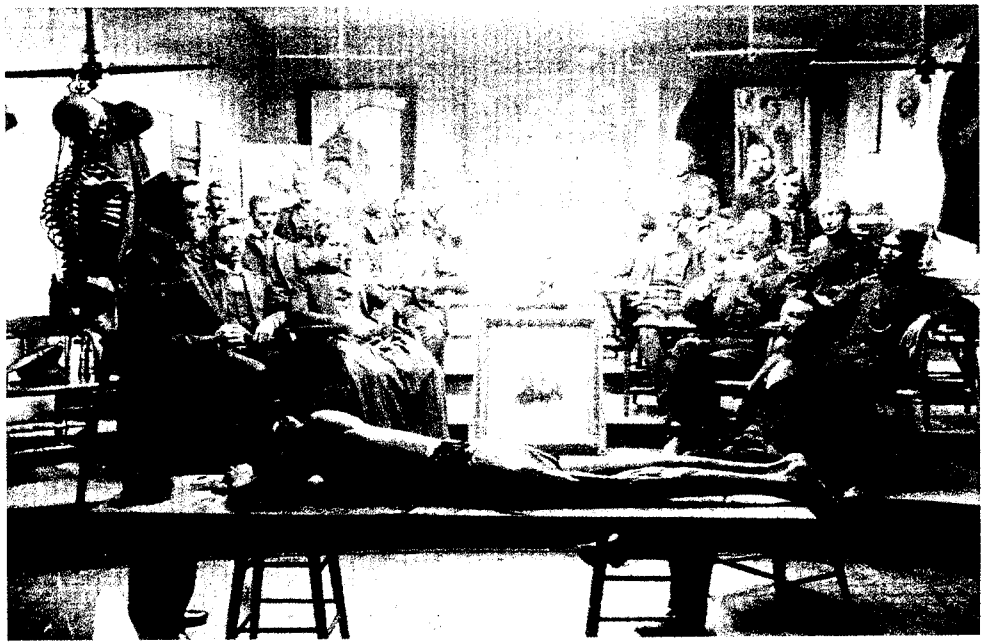
fashionable and popular. By 1850 there were forty-two medical schools in the United States, and by 1876 there were sixty-four.[31] Many of these were in the economically depressed West, where it was essential that education be inexpensive.

Among the many problems of early medical education were poorly prepared students, short sessions, insufficient compensation of teachers, and lack of adequate buildings and equipment. Most schools had to resort to grave robbing to acquire cadavers for anatomical dissection. At the 1869 convention of the American Medical Association, William O. Baldwin, the organization's president, complained that colleges admitted anyone willing to pay the fee. Standards were so low, he said, that it was "but a short step from the plough-handles to the diploma."[32]

Slowly and fitfully, medical education and practice improved. At most schools during the mid-nineteenth century, the student attended two four-month sessions, a year apart, with lectures in the basic sciences: anatomy, physiology, chemistry, surgery, and midwifery. If the student came back and finished the second year, he was given a diploma. Most aspiring physicians combined this education with an apprenticeship, and some enlightened schools required a preceptorship before issuing a certificate.[33]

The preceptorship was creatively American. An apprentice, or preceptor, "read" and "rode" with a qualified doctor for a variable period. Ideally the physician was a good teacher and the preceptorship lasted for several years. During this time, the trainee had the advantage of practical application of the available wisdom as he assisted and observed his physician instructor in his daily practice. Sometimes the neophyte doctor groomed the horses, kept the office clean, cut firewood, and did other chores to pay for his keep and his education. When the preceptor believed his student to be qualified, he gave the apprentice a document testifying that he or she was qualified to be called "doctor." This form of education was a practical and inexpensive way for even the most poverty-stricken candidates to learn medicine.[34] Still, it had obvious deficiencies and many critics, and education by apprenticeship began to lose support about 1870.

While the practice lasted, apprenticeships provided some very good physicians to rural America. Doctors like Ephraim McDowell, who performed the first abdominal operation in 1809, was a graduate of this informal schooling, as was Dr. Daniel Drake, who played a large part in paving the way to medical education and better health in the West. During his career Drake methodically studied the frontier and wrote



Anatomy class, 1890s. Note that there are only two women in the group.
—Courtesy Arizona Historical Society, Tucson

volumes describing western trails and settlements. In remote places, Drake met pioneer healers, talked with trappers and hunters, and stayed with adventurous families who had already penetrated the wilderness. He became expert in the diseases of the times, and he was the first to see that if malaria (ague) wasn't conquered, America could not expand. He advocated nature's healing processes in fevers and opposed the use of violent drugs such as calomel and other purges. Drake's contributions also included the establishment of a great medical school, which survives today as the University of Cincinnati.[35]

Near the turn of the century, medical schools increased their admission requirements. Courses were lengthened, and the whole system gradually improved. Student doctors witnessed autopsies, performed dissections, and learned more pathology and pathogenesis of disease. Young doctors attended conferences where cases of strange maladies were presented. The medical wards of hospitals became teaching laboratories. Medical journals that included up-to-date information increased in number and were circulated to medical libraries as well as some doctors' offices.

Students were taught to recognize different manifestations of illness, and the skills of physical diagnosis were honed.

Still, doctor training left much to be desired. Early in the twentieth century, educator Abraham Flexner, financed by the Carnegie Foundation, set out to analyze medical education in the United States. His in-depth, two-year analysis, published in 1910, uncovered many egregious practices.[36] The report launched a revolution. After a great public outcry, many schools closed their doors while others attempted to establish various improvements. Over a long period, educational quality waxed and waned, but many medical schools, especially those who added a preceptorship to their didactic courses, produced some excellent doctors. Physicians who had worked as apprentices entered practice in remote areas with practical experience. Many of those areas were in the West.

Part One

Old West Healers and Healing