

CHAPTER 2

THE ORIGINS OF AMERICAN ORTHOPAEDICS

Early Nineteenth Century Medicine in America and the Emergence of Orthopaedics

In the early decades of the 19th century, orthopaedics lacked an identity in America. Most people in that era would not have known what Nicolas Andry's invented word really meant. People did not live very long, and their health concerns centered on surviving the epidemics that periodically swept the country. Generally, only those who had orthopaedic conditions focused on orthopaedic problems. Yellow fever killed thousands during hot, mosquito-infested summers in places like New Orleans, Charleston, Baltimore, and Philadelphia. Smallpox and cholera also made dramatic, deadly appearances regularly. Infants and young children faced a multitude of diseases such as diphtheria, dysentery, measles, and tuberculosis, for which no truly effective therapies existed.

Doctors and patients paid little attention to chronic disorders of the musculoskeletal system. These were typically afflictions of older individuals who, in the early and mid-19th century, made up a much smaller percentage of the population than they do today. In 1800, only 18 percent of white men lived beyond 45 years of age, and the median age was 16. In 1998, the average life expectancy for white men at birth was 76.7 years; whoever reached 75 years could expect, actuarially at least, to survive for another 13 years.¹

The system for educating and certifying physicians in the 19th century could not keep up with the demand. There were not enough men and women educated in the best medical science of the day to care for a population that soared sixfold, from 5.3 million in 1800 to 31.4 million in 1860.¹ The common illnesses (i.e., the infectious diseases) spread doctors too thin for them to develop much interest in the so-called orthopaedic disorders except, of course, for the treatment of musculoskeletal trauma. In addition, the knowledge that physicians possessed in that era did not equip them to deal effectively with many of the conditions they encountered. As a result, numerous diversions developed outside the mainstream of medical progress, such as herbalism, hydropathic therapy, and homeopathy. The top doctors—educated at places like Harvard, Columbia, and the colleges of Pennsylvania, Maryland, South Carolina, and elsewhere—employed useless and often harmful therapeutic measures until midcentury; no one really knew any better. Thus the fear of pain, illness, and even death made people accept almost anything. Doctors administered bleedings, purgings, blisterings, clysters

(enemas performed with large volumes of various kinds of liquids), and harsh medications that actually sickened their patients. In a standard medical text published in 1855 that was used by medical students at the University of Pennsylvania, for example, an author recommended for the treatment of typhoid fever “bleeding in the early stages,” followed by oral turpentine. If that did not suffice, “in cases of obstinate delirium or coma, great advantage is often derived from shaving the head and applying a blister over the whole scalp.”² Oliver Wendell Holmes, reacting to the practice of this obviously futile therapy, wrote in 1860: “I firmly believe that if the whole materia medica, as now used, could be sent to the bottom of the sea, it would be all the better for mankind—and all the worse for the fishes.”³

The public thus often sought out practitioners who would not hurt them, even if they did not help. Hydropathic therapy had considerable appeal for this reason. Hydropathic therapists claimed that patients could expect relief from almost any complaint by immersion in allegedly special waters. These waters came out of the Earth from places like Saratoga Springs in New York, White Sulfur Springs in Virginia, or Warm Springs in Georgia. Because they were bitter, tasted of sulfur, or were warm, the waters were perceived to be curative. Hydropathic therapy proved very profitable for operators of the hotels and spas that developed in such places.⁴ Homeopathy, the system of therapeutics devised by Samuel Hahnemann in the early 19th century, also had appeal because it was completely harmless. Hahnemann concocted the theory that “like cures like,” that is, a pharmacologic agent that would cause a symptom should be given in a very small dose to counteract that symptom. He held that the homeopathic physician should dilute a given drug serially so that a patient would receive only a minute amount of it. The advantage of this system lay in its failure to harm, thereby allowing the patient to improve on his or her own.⁵

Orthopaedics as practiced in the 1830s and 1840s may have been attractive for the same reasons; it didn’t hurt and it might help. In fact, anyone could see that it provided some tangible benefits. Light exercise, rest, massage, and external supports for stiff, painful, and deformed trunks and limbs often did help patients feel better and recover from their illnesses. The practitioners of orthopaedics offered their art without the pompous quackery of the purgers, bleeders, serial diluters, and spa operators, which was also appealing.

For these reasons, the relatively small percentage of the population in the early decades of the 19th century with chronic musculoskeletal diseases sought orthopaedic treatment. The term “orthopaedics” actually appeared in the medical literature in America in the late 1830s, about 100 years after Andry coined it. In Great Britain and in Europe, however, some confusion arose regarding a suitable term to identify the practice of musculoskeletal medicine and surgery. In 1741, Andry’s word “L’orthopédie” survived challenges from Scaevole de Sainte-Marthe’s “Paedotrophia” and Abbé Claude Quillet’s “Callipaedia.” In the 19th century, J. M. Delpech used “l’orthomorphie” (1828) and Bricheteau coined “Orthosomatie” (1833) in France, while H. H. Brigg invented “Orthopraxy” (1865) in Great Britain.⁶ The people who

coined these terms all practiced musculoskeletal medicine and surgery, but none of their designations gained wide use. Curiously, Andry's term won out.

As the efficacy of orthopaedic treatment became more apparent and as Andry's term became more fixed in people's minds, the idea took hold that such treatment could be provided most effectively in one place. This led to the concept of the orthopaedic hospital. Jean André Venel of Geneva opened the first such institution in Orbe, Switzerland, in 1790. He provided manipulation and bracing for clubfeet, recumbency for spinal caries (tuberculosis), calisthenics and bracing for scoliosis, and prolonged treatment with traction for fracture care.⁶ In his 1968 book on the history of orthopaedics, Edgar Bick describes the numerous other British, German, French, and Italian orthopaedic hospitals that opened in subsequent decades after Venel's successful venture.⁶ The proprietors of these institutions tended to treat their patients with rest or exercise, depending on the modality the institution officially endorsed. Two camps of thought had developed in the profession in Europe in those years: the patients received one or the other (rest versus exercise) based on the prejudices of their orthopaedic (orthopraxic, orthomorphic, or orthosomatic) physician. Venel's hospital in Orbe seemed to offer a rational mixture of therapies.

J. M. Delpech changed the landscape completely in 1828 when he opened his own orthopaedic hospital in Montpellier, France. Delpech had coined the term "l'orthomorphie"; he believed in treating musculoskeletal disorders with exercise and muscle strengthening. He then developed the concept of tenotomy for the rebalancing of the forces across joints caused by "tight muscles." A German surgeon, G. F. Strohmeyer, adopted Delpech's tenotomy operation a few years later, exploiting its dramatic correction of equinus foot deformities at his own Orthopaedic Institute in Hanover in 1831. Done without anesthesia and before Lister's antiseptic surgery, tenotomy carried tremendous risks. Those who have read Gustave Flaubert's *Madame Bovary* will remember how Flaubert described his heroine's feckless husband's attempts to perform this procedure. Dr. Bovary's patient became infected, and his leg had to be amputated. The Bovarys' lives fell apart further as a result. Delpech himself suffered an untimely end as a result of a surgical disaster he inflicted on a patient. Delpech's radical treatment of the man's varicocele ended badly. The patient shot and killed Delpech in revenge.⁷

In the United States, the entrepreneurs, physicians, and concerned citizens who usually joined forces to open hospitals did not begin to show interest in orthopaedics until the 1860s. In 1861, Buckminster Brown opened the House of the Good Samaritan Hospital, a small private hospital in Boston, and Lewis A. Sayre (Figure 7) opened an orthopaedic dispensary at Bellevue Hospital in New York. Brown is regarded as the first physician to devote himself exclusively to orthopaedics during his entire career, and Sayre is known as the first Professor of Orthopaedic Surgery in America at New York University, then called the Bellevue Medical College.⁶

Valentine Mott (1785-1865), a New York surgeon, took six years off in midcareer from his "exhausting labors" to recover his health. During most of those years, he traveled through Europe visiting famous doctors and sur-

geons. While in Paris, he developed an interest in orthopaedics. In 1841, when he returned home permanently, he wanted to open an orthopaedic hospital in the Bloomingdale section of Manhattan on New York's Upper West Side. His friends dissuaded him, but thanks to Mott, the idea of an orthopaedic hospital had arrived in New York.

Buckminster Brown's father, John Ball Brown, practiced medicine and surgery in Boston during the early decades of the 19th century. He had developed a profound interest in Pott's disease (tuberculous spondylitis) because it caused the death of one of his sons. Buckminster Brown himself contracted the disease but recovered. The elder Dr. Brown had opened an outpatient clinic called the Orthopedique Infirmary in Boston early in his career (1838); Buckminster Brown joined his father's practice there after studying orthopaedics with Strohmeyer, Little, and other leading orthopaedists and tenotomists of the time. Together the Browns opened the House of the Good Samaritan Hospital in 1861 after the younger Dr. Brown returned from abroad. Buckminster Brown donated \$40,000 to Harvard in 1883 to establish the John Ball and Buckminster Brown Professorship of Orthopaedics at that institution.

Strohmeyer had two other disciples who came to America during the first half of the 19th century. William Detmold arrived in New York in 1837, performing tenotomies and other orthopaedic procedures at the Bellevue Hospital soon thereafter. He served in the Union army during the Civil War and returned to New York after the war where he died in 1894.

Louis Bauer, who had also studied with Strohmeyer, emigrated to New York in 1853. The following year, he helped found the German General Dispensary in Brooklyn, where he established an orthopaedic hospital based on Strohmeyer's plan (the Dispensary eventually became the Downstate Medical Center of the State University of New York). Bauer, who left Germany to avoid a prison term for unlawful political activities, did not integrate smoothly with his orthopaedic colleagues in New York. In 1869, he left the city and settled in St. Louis, where he remained until he died in 1898. Bauer published a lengthy text on orthopaedics in 1858, revising it in 1864 and 1868. The 1858 book was probably the first orthopaedic text published in the United States.⁸

The Hospital for the Ruptured and Crippled

In 1863, the Society for the Relief of the Ruptured and Crippled opened the first major orthopaedic hospital in the United States (Figure 8).⁹ The certificate of incorporation included the following:

That the particular business and object of such a Society shall be to supply skillfully constructed surgico-mechanical appliances and the treatment of in- and out-door patients requiring trusses and spring supports, also bandages, laced stockings, and other suitable apparatus

for the relief and cure of cripples, both adult and children and, so far as possible, to make these benefits available to the poorest in the community.

The society, in its original charter of incorporation, thus emphasized bracing and external support of the limbs and trunks of individuals with chronic musculoskeletal or abdominal wall defects. The original document does not emphasize the words orthopaedics or orthopaedist, and the men who founded the Hospital for the Ruptured and Crippled certainly did not intend to make their institution a center for surgical treatment of musculoskeletal abnormalities. They appointed James Knight to the position of surgeon-in-chief. Knight had earned his reputation by devising a distinctive truss “for containment of hernias.” He applied his skills and experience to the design of braces and supports for the treatment of congenital and acquired crippling conditions of bones and joints. Knight held the position for 24 years.

The Hospital for the Ruptured and Crippled opened at 97 Second Avenue, New York, New York, in Dr. Knight’s home. He turned the conservatory of the house into a workshop where he made braces and other orthopaedic appliances for his patients, converting most of the rest of the building into a hospital for up to 28 inpatients. The society paid him an annual rent of \$1,200 for the first three years and then purchased the building for \$15,000. Knight served as superintendent. Valentine Mott, William Van Buren, Willard Parker, and John Carnochan, all prominent surgeons, served as consultants. In their first year together, they treated 828 patients, 50 of whom were pediatric inpatients. They performed no surgery; instead, every patient received some sort of appliance. The patients included several women with uterine prolapse, which Knight managed with a brace-like pessary. Very quickly, the institution outgrew its quarters. Knight and his colleagues tried house calls to ease the burden, but the board decided to build a new structure at Lexington Avenue and 42nd Street. Knight designed the facility, making it light, airy, and comfortable, with excellent views of the East River and views to the west extending all the way into New Jersey. He did not provide for an operating room, however. In 1871, he recruited an assistant, Virgil Gibney, who had received his medical degree from Bellevue Medical College in New York (Figure 9). At Bellevue, Gibney came under the influence of Lewis A. Sayre. By Knight’s standards, Sayre improperly inculcated Gibney with the idea that musculoskeletal conditions might respond more quickly and successfully to surgery than they would to prolonged rest and bracing. Knight and Sayre thus drew up the battle lines between conservatism and surgery, with Gibney initially between them. Knight called Sayre mendacious, greedy, and arrogant; he refused to permit surgical treatment at the Hospital for the Ruptured and Crippled. He noted in his 1875 report that he had assumed the care of numerous surgical failures, presumably Sayre’s, and he would not allow this kind of thing at his own institution.

The situation changed when Gibney became surgeon-in-chief of the hospital upon Knight’s death in 1887. Gibney was forced to resign from the hospital’s staff in 1884 over Knight’s refusal to permit operations, but with

Knight now gone, Gibney had free rein. During travels abroad after his resignation, Gibney developed an appreciation for the possibilities of antiseptic surgery. This prompted him to recruit William Tillinghast Bull, a surgeon trained in antisepsis and the surgical treatment of hernias. Gibney and Bull developed a productive professional relationship that led to the performance of orthopaedic surgery at the hospital. Gibney acknowledged his lack of surgical training and skill, but with Bull's help he could correct these deficits and change the Hospital for the Ruptured and Crippled (also known as "Dr. Knight's hospital") from a "home for incurables" into an institution where the most up-to-date surgical and rehabilitative techniques could be used to dramatically improve quality of life for its patients. When circumstances warranted, hospital staff would need to be able to perform an operation rather than depend on an "apparatus." In 1894, Gibney expressed this policy as follows:

The orthopaedic surgeon is prepared to conduct a case from its incipiency to its close; that, if apparatus fails to meet the indications, he is able to conduct an operation, which operation ought to be done as well as any general surgeon can do it, and which operation can be supplemented by the judicious use of mechanical appliances, to bring about the best possible result.

I have no wish whatever to deny to any of my fellows a special predilection for an apparatus alone, or for apparatus combined with minor operations, or for operations alone; but I do feel that if our specialty is to make any advance, and is to maintain its position in the medical and surgical world, an orthopaedic surgeon must be prepared to meet any emergency that may arise.⁹

Under Gibney's direction, the Hospital for the Ruptured and Crippled in 1888 reported 237 operations, 46 of which were for the treatment of abscesses or osteomyelitis. That year, the surgeons there also performed 162 tenotomies, 19 osteotomies, and one hip joint resection. The remaining were miscellaneous procedures such as dressing changes and amputations of supernumerary digits. According to Gibney, the surgeons used nitrous oxide anesthesia and observed the precautions of Listerism, but they still approached surgical treatment with "fear and caution."⁹

After the Civil War, another orthopaedic hospital opened in New York—the New York Orthopaedic Hospital and Dispensary—with Charles Fayette Taylor serving as director. In the mid-1850s, Taylor audited lectures at New

York College and qualified for a medical degree after only a year of study at the University of Vermont. With this relatively brief education behind him, he went to London to study motion and exercise therapy. His faith in these therapeutic modalities did not lead to a successful practice when he returned, so he sought a new way to earn a living. He settled on orthopaedics—designing, fabricating, and fitting braces primarily to patients with spinal deformities. Taylor did well in this endeavor and developed a practice that included such families as Theodore Roosevelt's, fitting a brace for the future president's sister. She recovered with Taylor's treatment, and when Theodore Roosevelt's father participated in the founding of the New York Orthopaedic Hospital, Taylor was put in charge of it. He did not enjoy his position of responsibility, however, and soon resigned. He strongly opposed orthopaedic surgery and did not even use drugs in treatment. Even though he was one of the founders of orthopaedics in America, he really had a limited role in its development.

Taylor had a rancorous relationship with his contemporaries. The Rare Book Library of the New York Academy of Medicine has an extensive collection of material relating to a dispute between Taylor and Sayre. In June 1873, Taylor brought charges of unethical conduct against Sayre, demanding that the academy investigate the matter and censure him.

According to the documents at the Rare Book Library, Dr. Sayre's treatment of a child named Fannie Foote had not proved successful. Fannie had developed hip pain that was so severe, she screamed with apprehension even when she was approached by her parents. At bedtime, she would sit on the side of the bed and refuse to lie down because of the intense pain. After a while, the parents decided to change doctors. They discharged Sayre and asked Taylor to take over the case. Taylor must have had some success with his braces as opposed to Sayre. Fannie began to have less pain, but she developed progressively worse stiffness in the hip.

Sayre stayed in touch with Mrs. Foote, however, writing letters and visiting her and her daughter Fannie. He even suggested to Mrs. Foote that he might bring a patient of his to her residence so that Mrs. Foote could compare Fannie's progress with another child who had a similar problem. When Sayre arrived unannounced with the child and her mother, Mrs. Foote was not at home, but Fannie was there with an aunt who invited him in. Sayre suggested that Fannie should take a look at the other child, and Fannie agreed. Sayre then examined Fannie, lifting up her dress to palpate her hip and check on her range of motion. When Sayre told Fannie that she had no hip motion, Fannie became extremely frightened and could not be consoled. Mrs. Foote arrived home at that point and Sayre departed with the other child, her mother, and his assistant, Dr. Yale. Before he departed, Sayre may have made disparaging remarks about Taylor's course of treatment of Fannie. The next day, Fannie's father went to Sayre's office demanding that Sayre never return to his house unless invited. Foote also informed Sayre that he should not examine Fannie again unless requested by Taylor, and even then only if accompanied by Taylor.

Sayre's actions outraged Taylor, who wrote a multipage complaint to the academy demanding Sayre's formal censure. This could be facilitated only by

an investigative hearing. The academy convened a panel of well-known New York physicians to look into the matter. The investigation generated several hundred pages of letters and documents. Later, as the investigation proceeded, Sayre averred that Mrs. Foote had invited him to bring the similarly afflicted child for her examination and that Fannie had asked him to examine her hip while he was in her room. Taylor did not believe it, nor did Mr. Foote, who then wrote a blistering letter to Sayre telling him to stay away. Mrs. Foote, on the other hand, wrote a tender, weepy note to Sayre expressing her devotion and gratitude to him for all that he had done for Fannie.

The panel formally interviewed all of the Footes, Mrs. Birdwell (the aunt), Taylor, Sayre, Sayre's assistant, Dr. Yale, the consultants who had examined Fannie on various occasions, and even the similarly afflicted child (Nellie) and her mother. The panel also dickered with Sayre, Taylor, and the academy about who would pay for the stenographer who took this all down.

In the end, the panel and the academy could not make a judgment. The evidence was contradictory, leading the academy to suggest to Taylor and Sayre that they should let their friends decide the matter.

Philadelphia Orthopaedic Hospital

Orthopaedic hospitals also opened outside of New York and Boston. The fate of an institution that opened in Philadelphia illustrates the way extreme conservatism limited development of the specialty. In 1867, four well-known Philadelphia surgeons collaborated in opening the Philadelphia Orthopaedic Hospital, even though none of them would have identified himself as an orthopaedist. Thomas Eakins, the Philadelphia artist, immortalized two of them in portraits—Samuel D. Gross in “The Gross Clinic” and D. Hayes Agnew in “The Agnew Clinic.” The other two men, Thomas Morton and Henry Goodman, did not achieve that level of recognition but were successful and well known in their day. Parenthetically, Agnew served on the medical team that cared for the wounded President James Garfield, but inexplicable rejection of antiseptics and probing for the assassin's bullet led to Garfield's subdiaphragmatic abscess and subsequent death.

None of these four surgeons actually originated the idea of an orthopaedic hospital. At the time, the operations in their surgical clinics gave these well known men and their medical schools strong reputations that attracted medical students and patients. After surgery, however, patients (especially the poor) had to fend for themselves. Many of these patients, often children, needed bracing, physical therapy, and prolonged nursing care to recover, but no one really knew or cared what happened to them. There was one man in Philadelphia, however, who realized the importance of follow-up for these patients.

Mr. Dietrich W. Kolbe had set up shop across the street from the Surgical Clinic of the University of Pennsylvania to serve patients who had undergone surgery there. Frequently, his application of devices he manufactured provided these people with the only aftercare they would receive. Kolbe felt great sympathy for them and mentioned their plight to Dr. Morton, who then discussed it with Gross, Agnew, and Goodman. Eventually, the four surgeons and a lay

board of managers they had recruited drew up a charter. They received court approval in October 1867 to establish the hospital and to provide services to patients with musculoskeletal diseases. Their objective was not to perform surgery in the Philadelphia Orthopaedic Hospital, but rather to provide care for those who required nonsurgical treatment of an orthopaedic disorder or who needed postoperative rehabilitation. The casebooks document a list of crippling deformities such as curvature of the spine, joint infections, clubfeet, knock knees, and various other contractures and disorders.

Because most of the clientele had few financial resources, the directors decided to expand their services and enlisted S. Weir Mitchell to establish a neurologic service. They subsequently changed the name from the Philadelphia Orthopaedic Hospital to the Philadelphia Orthopaedic Hospital and Neurologic Infirmary. Mitchell, a wealthy and socially prominent Philadelphia physician, specialized in what today might be called neuropsychiatry. He invented the “rest cure,” which he employed in the treatment of depressed affluent women, and spent his summers writing now-forgotten historical novels at his estate near Bar Harbor, Maine. In the winter, at the Philadelphia Orthopaedic Hospital and Neurologic Infirmary, he ran an outstanding service for 40 years and set the standards for the practice of neurology in the United States.

After Mitchell’s death, the hospital gradually sank into disrepair and mounting debt. It could no longer maintain itself. In 1937, during the Great Depression, the University of Pennsylvania absorbed its staff and assets. A group of local physicians purchased the building, which they called the “Doctor’s Hospital,” but this too failed and the structure was torn down. From the beginning, it had been apparent that the “belt-and-bracing” variety of orthopaedics could not sustain an institution. As the experience at the Hospital for the Ruptured and Crippled showed, doctors and patients wanted more; for orthopaedics to survive as a discipline, its practitioners would have to perform operations.

Organized Medicine and the Need For An Orthopaedic Association

Orthopaedics began to coalesce as a recognized medical and surgical specialty as its practitioners increased in number and gave patients more effective care in orthopaedic hospitals. This occurred in a meaningful way in the United States in the 1880s after anesthesia and Listerism were widely accepted and organized treatment centers were established in several major cities. Physicians who called themselves orthopaedists or orthopaedic surgeons lacked a commonality, however, and needed to come together to establish standards, discuss improvements in their treatment techniques, and advance their profession. This happened in 1887 with the founding of the American Orthopaedic Association (AOA).

The AOA, however, did not arise *de novo*. Rather, it evolved from other medical and surgical organizations that were formed in response to the need

of 19th century Americans involved in almost any trade, craft, or profession to meet collegially with their peers.

Physicians' organizations appeared early in the United States. Several local and state societies convened in the 18th century: the Boston Medical Society met in 1735 and a New York society formed in 1749. The first state medical society was established in New Brunswick, New Jersey, in 1766. These and subsequent state and local societies set the standards of medical care by controlling the education and licensing of doctors as well as exposing fraudulent practitioners. (These noble aims often led to the suppression of competition and unfair favoritism, however.) In addition, the societies compared fees for various kinds of patient encounters and distributed lists of charges physicians might submit for their services. Local societies were criticized for pooling information about the reliability of patients in paying their physicians. Although it was obviously useful for doctors to have such a list, this practice gave physicians too much bad publicity for the medical societies to continue it. Lawmakers in various states had difficulty coming to grips with regulating physician licensing and certification, and controlling the profession in general.¹⁰

A real need for order and organization thus existed in American medicine in the early years of the 19th century. The word "chaotic" does not overstate the atmosphere in which aspirants to a medical career were trained. Medical schools such as those at the University of Pennsylvania, Columbia College of Physicians and Surgeons, Harvard College, the Medical Departments of the College of Maryland in Baltimore, Jefferson Medical College in Philadelphia and the colleges of South Carolina and Georgia offered courses in medicine and awarded degrees, but many students could acquire a medical degree by serving an apprenticeship with a licensed doctor and applying to the state or even the local medical society for the degree. Although the exact mechanism varied from place to place, essentially a committee of censors in the medical society had to approve an aspiring physician before a license would be granted.

Local and state medical societies served regional needs in setting educational and licensing standards as well as developing codes of ethics, but by the 1840s, some physicians felt the need for a national medical organization. In the past, the difficulty of traveling long distances would have precluded any valid effort to set such standards nationally, but an increasingly reliable postal service and better transportation made the concept viable. Railroads between cities and smaller towns first appeared in America in the 1830s. Twenty years later, people could travel much more quickly from city to city than they could have by horseback or stagecoach in earlier decades. The technological and industrial revolution brought people closer together, making person-to-person exchanges of ideas and information possible.

In 1846, the New York State Medical Society confronted a troubling issue. The state legislature had determined that the state society would no longer have the exclusive right to examine and certify applicants for a medical license.¹¹ The lawmakers had decided that any physician, professor, or college that taught medicine could license the individuals who had taken

their courses. Because the students had to pay for the instruction, the teachers and institutions had an incentive to entice as many as possible to their lectures. Simplifying the course material enabled even more students to practice; this meant more money for the instructors, but it produced license holders who were unqualified to practice medicine.

The American Medical Association

The New York State Medical Society could not control this situation. At its request, 28 state societies and several local medical societies sent representatives to the organizational meeting of what became the American Medical Association (AMA) in 1847. Despite the obvious need for concerted group action to correct abusive practices in medical education, the delegates could not agree on a course of action. That first meeting in New York broke up without formally convening an association. The following year, in Philadelphia, the members present found that they could agree on most issues, and founded the AMA.

The AMA initially made little progress in its campaign against dilution of the quality of instruction. Fly-by-night diploma mills proliferated in those decades, cranking out thousands of unqualified, indeed dangerous, practitioners who had merely paid a fee and received a diploma licensing them to practice. Eventually the abuses grew so dangerous to public health that even the state legislators had to recognize the results of their legislation. By the 1880s and 1890s, the states began to establish responsible state boards of medical examiners. By then the AMA had involved itself in writing a code of ethics for physicians and was lobbying for causes such as collection and reporting of vital statistics to study epidemics, causes of death, death rates, and so forth.^{12,13}

In those early years, the AMA brought physicians with disparate backgrounds and interests together, but inevitably doctors developed different ways of approaching their disciplines. Those who found surgery more interesting than therapeutics wanted to spend more time debating their own issues. Prior to 1880, the AMA tried to meet the need for surgeons by forming a Surgical Section. In that year, however, Samuel D. Gross convened a rump session of surgeons at an AMA meeting for the purpose of founding the American Surgical Association (ASA). Gross had the idea that a select few of America's best surgeons should form an association "designed to be an elite and exclusive surgical society which would separate the riffraff from its upper crust numbers." The only criterion for membership would be a "name as a surgeon."¹⁴ The leadership of the AMA protested Gross' action, justifiably noting that an ASA would detract from the common effort and siphon the members' prestige and allegiance from its own Surgical Section. Gross addressed this issue in his speech as ASA president at its second meeting in 1881:

If it be said we are striking a blow at the
AMA, we deny the soft impeachment. On
the contrary, we shall strengthen that

body by rousing it from its Rip van Winkle slumbers, and infusing new light into it. We can hurt no society now in existence, nor likely to come into existence. We can hurt only ourselves if we fail to do our duty . . . and show the world that we are earnest and zealous laborers in the interest of human progress and human suffering.

Gross' lofty remarks set the pattern for the ASA, which remains a small and quite exclusive organization of surgeons. Mark Ravitch collected and edited 100 years of the *Transactions of the ASA*¹⁵ and noted that despite its apparent exclusivity, the Association had a remarkable record of success, serving as a forum in which America's brightest and best surgeons discussed advances in their profession. The membership of the ASA in 1913 established a new, larger surgical association they called the American College of Surgeons (ACS). It in turn established the American Board of Surgery (ABS) in 1937. The ASA and the ACS also sponsored the premiere surgical journal, the *Annals of Surgery*.

Many of the early papers presented at the ASA meetings concerned members' experiences and results with musculoskeletal injuries and diseases. They also debated much more general topics, such as Listerism and the roles of cupping and bleeding. Surgeons in the 1880s still had relatively little experience with abdominal or chest surgery; most of their papers covered subjects like joint excision for tuberculosis, astragalectomy for clubfeet, and various maneuvers for the reduction of difficult fractures and dislocations.¹⁵

The American Orthopaedic Association

Seven years after Gross convened the ASA, Lewis A. Sayre, an ASA member, permitted the organizational meeting of the American Orthopaedic Association (AOA) to take place at his office at 285 Fifth Avenue, New York City, on February 24, 1887.¹⁶ The record shows, after debate and discussion, "Ten votes for the foundation of such an association and two against it; two gentlemen did not vote on the question."

Sayre, then considered the leading orthopaedic surgeon in the world, did not believe that there was a need for an orthopaedic association and advised the members present to join the ASA, of which he was a member. Presumably, the orthopaedists would form a section on orthopaedics under the aegis of the ASA, but the record does not state whether Sayre had cleared this concept with his colleagues in that organization. Sayre would not join the AOA at the time it was founded, but two years later he accepted active membership and, in 1895, honorary membership.

The AOA conducted its first annual meeting at the New York Academy of Medicine on June 15 and 16, 1887, about four months after the organizational meeting in Sayre's office. The association conducted its second

annual meeting in Washington, D.C., in September 1888. In the ensuing year, the secretary of the AOA, Robert W. Lovett, compiled the papers that members had presented at the first and second annual meetings, publishing them as volume 1 of the *Transactions of the American Orthopaedic Association*, presumably at least partially at his own expense. A stringency in the money market in 1888 and 1889 resulted in financial stress for the AOA; the published account notes that Drs. John Ridlon and Judson “went after the delinquents (who had not paid their dues) with a bill or a letter every two weeks.” The result was “that all arrears and dues were paid,” and the debts of the association settled, so that by the fourth annual meeting the treasury contained a balance of \$103.70.¹⁶

In 1896, at the meeting in Buffalo, New York (with Royal Whitman as president and John Ridlon as secretary), the AOA discussed the publication of a journal to replace *Transactions*. Twenty-nine members voted yes and eleven voted no, but most of the no votes were from New Yorkers who were the more prominent members of the association. Without them, the journal would probably not have succeeded. At this time, the attempt to launch a journal was abandoned. Gradually, however, the opposition faded away, and 7 years later, in 1903, the special committee to investigate the possibilities of an orthopaedic journal reported its 16 recommendations. These included a title (the *American Journal of Orthopaedic Surgery*), financial support (\$1,000 per year “at the very least”), and sources of papers to be published (original work presented at the annual meeting, British and German contributions, and “odd papers and those of outsiders”). The committee’s final recommendation stated, “It is likely that an American orthopaedic journal will, in some form or other, soon be started,” suggesting that if the AOA did not publish it, someone else would. The recommendations also noted that subscribing to a journal published outside the AOA would cost members as much or more than if they offered financial support to their own publication and received it free as a benefit of membership.¹⁶

The minutes of the 1918 meeting recorded a resolution presented by Mark Rodgers, then editor of the *American Journal of Orthopaedic Surgery*. He noted that in Great Britain orthopaedic surgeons had recently convened the British Orthopaedic Association (BOA) and suggested that the membership of the AOA offer the use of the *American Journal of Orthopaedic Surgery* to the BOA as its official organ. The membership approved the action. The *American Journal of Orthopaedic Surgery* would now serve orthopaedists in two countries; thus the AOA would have to change the name it had used for the journal since 1896. Twenty-two years after its launch, the *American Journal of Orthopaedic Surgery* became the *Journal of Orthopaedic Surgery* and later, in 1922, the *Journal of Bone and Joint Surgery (JBJS)*, its name to this day.¹⁷

In 1948, the number of articles submitted for publication grew so large and came from so many different countries that the editorial board of the *JBJS* recommended changes to its sponsoring organization. In that year, it appeared as separate British and American issues, “four edited and published in Great

Britain and four edited and published in the United States of America.” In 1936, *JBJS* noted on its title page that in addition to the AOA and BOA, it had also become the official publication of the American Academy of Orthopaedic Surgeons (AAOS).

The AOA played a critical role in the development of American orthopaedics, especially through its participation in creating the *JBJS*. For many years, the journal was the only publication in which orthopaedic surgeons could publish their work. These peer-reviewed papers provide a definition of the specialty in the early years of its existence.

The American Board of Orthopaedic Surgery

The two major achievements that placed orthopaedics on its current trajectory, the creation of the American Board of Orthopaedic Surgery (ABOS) and the AAOS, both took place in the early 1930s and appear to have occurred because of initiatives that began with the AMA. In fact, the president of the AOA, Melvin Henderson, of Rochester, Minnesota, acknowledged this at the AOA Annual Meeting in 1932:

Some twenty odd years ago, when it became apparent that orthopaedic surgery was destined to become a lusty member of the family of medical specialties, the Orthopaedic Section of the American Medical Association was formed. Also in the East, Mid-West and West, orthopaedic clubs and societies were formed to facilitate the gathering together of those who were interested. . . . In the Mid-West and West was formed the Central States Orthopaedic Club which soon outgrew its club clothes and was forced to organize into the Clinical Orthopaedic Society. The Pacific Coast gave birth to similar organizations. . . .

The last year has seen the launching of the American Academy of Orthopaedic Surgeons, the common system which promises to link these various distinct groups into one . . . society.

The American Medical Association approves this and under the wing of that great organization, much good will be accomplished by this movement. The AOA, not by official action, but through its members and always with the tacit

consent of the Executive Committee, has fostered these various movements.¹⁸

Further evidence of the AMA's contribution to the founding of the ABOS and the AAOS can be found in the minutes of the AMA Orthopaedic Section of May 1932.^{19,20} At this meeting, Henry Meyerding moved that the AMA Orthopaedic Section appoint a special committee to consider the plan for establishing the ABOS. The National Board of Medical Examiners submitted the proposal to the AMA Orthopaedic Section; Meyerding suggested that the section "heartily approve" their plan. W. B. Owen of Louisville, chairman of the Orthopaedic Section, appointed a committee consisting of Meyerding, Philip Lewin of Chicago, and J. Archer O'Reilly of St. Louis. The ABOS was founded in 1934. Although Dr. Henderson's Presidential Oration and the AMA Orthopaedic Section minutes offer little evidence of the AOA role in generating the AAOS and the ABOS, a review of the program at the first AAOS meeting reveals that virtually all of the papers were presented by members of the AOA.

Professional Survival in the Great Depression

The Founding of the American Academy of Orthopaedic Surgeons
AAOS held its first meeting on January 19, 1933, in the auditorium of Northwestern University Medical School. American orthopaedic surgeons chose a bad year to launch a national professional organization. The stock market crashed in 1929, about three years before they had decided to organize, and the national—indeed, the international—economy showed little sign of recovery. President Herbert Hoover tried to protect American businesses by signing the Smoot-Hawley Act, which placed a tariff on imported goods. He also agreed to support a Federal Reserve initiative to inject money into the economy with a \$500 million buyback of federal securities. He then attempted to secure the solvency of the Treasury by enacting a large tax increase, but nothing seemed to work. Toward the end of 1932, starving World War I veterans rioted in Washington, D.C., desperate bank managers foreclosed on mortgages, and people started living in shanty towns called "Hoovervilles." By November 1932, nearly 1,500 bank failures stripped citizens of their life savings. To cap it off, Prohibition—based on a 1919 Constitutional amendment and implemented by the Volstead Act—resulted in widespread flouting of the law and gangster rule, particularly in the large cities. Public confidence in the future collapsed, and birth rates fell to the lowest ever recorded. The 1932 election of a new president, Franklin Delano Roosevelt, a man paralyzed from the waist down from an episode of poliomyelitis some years before, must have struck the voters who were aware of his condition as an ironically fitting selection for a new national leader (Figure 10).²¹

Despite this dreary outlook, the determined members of the newly formed AAOS convened their first meeting in Chicago in 1933. They had held a preliminary executive committee meeting the day before the formal opening, electing officers and appointing committees. The organization had a distinctly midwestern flavor, holding its first meeting at Northwestern Medical School in conjunction with the Clinical Orthopaedic Society (COS), an amalgam of Midwestern and Western Orthopaedic Clubs.²²

Edwin W. Ryerson of Chicago served as president at that first meeting, which he called to order on January 12, 1933. Not a single speaker listed in the program came from the East Coast (unless one considers W. E. Gallie of Toronto). Eighteen of the speakers practiced in Chicago; the rest came from Detroit, St. Louis, Memphis, Milwaukee, Minneapolis, Rochester, Minnesota, and Lincoln, Nebraska. One can imagine that a mid-January AAOS meeting in Chicago would have contrasted sharply with the May 1933 AOA meeting in Washington, DC.²³ In Chicago, the weather typically would have featured single-digit temperatures, snow, ice, and high winds, whereas Washington, DC, offered mild days and spring sunshine. Furthermore, a review of the program reveals that 30 of the 45 speakers at the AOA meeting came from East Coast cities such as Boston, New York, Philadelphia, and Baltimore. Only three speakers at the Washington AOA meeting in 1933 came from Chicago. (One of these speakers, Dr. Ryerson, had assumed the presidency of the newly created AAOS nine months earlier.) The format of the meetings also differed. At the AOA meeting, the speakers presented short papers on specific subjects; at the AAOS meeting, the meeting featured five symposia presented by multiple speakers addressing a single topic. This may have conveyed the impression that at the AOA meeting, physicians came to report on their research, whereas at the AAOS meeting they came to learn.

The historical context surrounding the AAOS meeting was significant; events that would have tremendous sociologic and political impact were about to take place. In January 1933, the New Deal had not yet been implemented; Hoover was still in office, and FDR was awaiting inauguration.

Ryerson's presidency at the 1933 AAOS meeting did not come out of the blue. He had worked previously to create a large, inclusive national organization of orthopaedic surgeons, beginning as early as 1912 when, as a founding member, he also helped launch the COS. That organization held regular meetings throughout the Midwest, featuring the live presentation of patients to the members in attendance. It must have appeared to Ryerson that orthopaedics could not satisfactorily serve those suffering with crippling musculoskeletal diseases and conditions unless those who practiced it worked to create a national, inclusive organization. At the October 29, 1931,²⁴ meeting of the COS, the members discussed this need and appointed Ryerson as chairman of a committee to consider the idea. Willis Campbell, Frank Dickson, Frederick Gaenslen, Ellis Jones, Philip Lewin, E. Bishop Mumford, and H. Winnett Orr served on the committee with Ryerson. The committee came back with a complete report the very next day, recommending that the COS invite practitioners from all over the United States

who considered themselves orthopaedic surgeons to attend its 1932 meeting for the purpose of founding a national society. In addition, the committee presented an outline for the organization of such a society. The completeness of the report, ready for presentation only 24 hours after the committee's first meeting, suggests that Ryerson and his committee members had long considered the matter and developed their recommendations. In fact, on October 11, 1931, Campbell initiated discussion of such a national academy of orthopaedists at the Chicago meeting of the AOA. This took place 18 days before the October 29 meeting of the COS. Thus, in 1932, when the COS met again, he was ready to recommend that a much larger organization, a national academy, should convene its own meeting in January 1933 with Ryerson acting as first president.²⁵⁻²⁸

At the 1932 meeting, Willis Campbell was the first president to be elected in an open meeting and would serve until the second annual meeting in December 1934. Campbell deserves special mention as a founder of the AAOS.²⁹ Energetic and intelligent, he was instrumental in creating a national academy of musculoskeletal surgeons that helped the members realize their best potential in healing the injured and straightening the crippled and lame. Campbell, born in Jackson, Mississippi, in 1880, attended Hampton-Sydney College, Roanoke College, and the medical school of the University of Virginia. He first practiced medicine in Memphis, Tennessee, but early on was determined to pursue orthopaedics. That decision took him to London, Vienna, New York, and Boston over a period of five years. He then returned to Memphis, where he stayed for the rest of his life. Virtually every modern orthopaedist has used *Campbell's Operative Orthopaedics*, which has been revised many times since it was first published in 1939; the 10th edition was published in 2003. Hundreds of practicing orthopaedic surgeons have received their training at the Campbell Clinic in Memphis since 1910, when Campbell organized the Department of Orthopaedic Surgery at the University of Tennessee School of Medicine. He held the position of Professor of Orthopaedics there until his death in 1941.

A 1934 issue of *JBJS* acknowledged the second annual meeting of the AAOS with two brief announcements: one nine lines long on page 214 and the other seven lines long on page 483. The second announcement indicated that "Seminars were held, conducted by men of wide experience." Again, the newly elected officers for the next yearly meeting were from the Midwest, with the notable exception of Philip D. Wilson of Boston and New York, who would serve as the third president at the meeting in New York.

Wilson came from a medical tradition that differed considerably from that which produced Campbell.³⁰ Born in Columbus, Ohio, Wilson graduated from Harvard College in 1904 and from Harvard Medical School in 1909, cum laude and class president. These achievements led to a surgical internship at Massachusetts General Hospital. This in turn led to a post with the "Harvard Unit" under the famous Harvey Cushing and military service in wartime in 1915 with fellow graduates of the Harvard Medical School, including Marius Smith-Petersen. After the war, Wilson and Smith-Petersen

both returned to Harvard. When the position of chief of the orthopaedic service opened up in the early 1930s at Harvard, Smith-Petersen was selected. Wilson, deeply disappointed, accepted the position of surgeon-in-chief of the Hospital for the Ruptured and Crippled in New York in 1934. His legendary achievements there included changing its name to the Hospital for Special Surgery and moving it to its present location on East 70th Street. Wilson's selection as third president of the academy and his willingness to accept the position gave it a heavy coating of East Coast patina. In fact, during Wilson's presidential year, the AAOS met at the Waldorf Astoria Hotel.

JBJS responded to all of this by devoting three pages to the meeting.³¹ By 1935, the national character of the academy was emerging, and presenters from Iowa City, Nashville, Seattle, and Pueblo, Colorado, joined those from Chicago, New York, Pittsburgh, and elsewhere. That year the editors of *JBJS* decided to publish DeForest Willard's AOA Presidential Address rather than Wilson's presidential remarks to the AAOS. Willard, however, made respectful reference to the newly formed academy and spoke of the "struggle" of the early years during which the "medical profession and the public were loathe to recognize orthopaedics as a surgical entity." He noted that at the beginning of the 20th century, orthopaedists were only "fitters of apparatus" and "buckle and strap men," not skilled enough to perform operations. World War I, however, produced a great number of youthful, energetic surgeons (such as, Wilson) with experience, interest, and skill in treating musculoskeletal injuries and diseases. Orthopaedics attracted these veterans, and Willard observed that "The number of men who practice [orthopaedics] has grown from a few score to many hundreds." He admitted that the AOA could not cope with these numbers, but he hoped that the "new American Academy of Orthopaedic Surgeons" would provide "an outlet for the clinical and scientific experience of the large number of people coming into the specialty."³²

The academy met in St. Louis the following year.³³ The brief description of the meeting published in *JBJS* did not impart the energy and intensity the members must have felt. Thirty-two scientific exhibits and thirty-eight technical exhibits were represented. The three best papers received gold, silver, and bronze medals. Four others won honorable mention.

The meeting also featured six "radio talks": (1) *Physically Handicapped Children and Adults*, Dr. J. Archer O'Reilly, St. Louis; (2) *Progress in Orthopaedic Surgery*, Dr. Melvin Henderson, Rochester, Minnesota; (3) *Infantile Paralysis*, Dr. Philip Lewin, Chicago; (4) *Modern Treatment of Bone and Joint Injuries*, Dr. Frank Dickson, Kansas City; (5) *Bone Tumors*, Dr. Henry Meyerding, Rochester, Minnesota; and (6) *Fractures*, Dr. J. Albert Key, St. Louis.

Frank Dickson gave the AAOS Presidential Oration that year, which *JBJS* published in its entirety.³⁴ Dickson's address proclaimed the academy as one of the preeminent medical societies in America. His 1935 remarks today seem prescient. He showed no self-consciousness in quoting English essayist and poet Joseph Addison: "Knowledge is, indeed, that which, next to virtue, truly and essentially raises one man above the other." He enu-

merated the aspirations of the organization, among which were “nation-wide representation . . . and influence in establishing orthopaedic surgery, the elevation of the standards of education in orthopaedic surgery, a systematic study of important orthopaedic problems, a freer exchange of information and ideas, and a source of advice and guidance” on public questions.

Dickson described orthopaedics as a “wide field and one that demands the broadest of medical training and deep, if not profound, knowledge,” noting as well that “orthopaedic surgery is probably the broadest and most comprehensive of the special branches of medicine.” He believed that an orthopaedist should have the knowledge to treat patients medically as well as surgically for musculoskeletal diseases and conditions. His influence on education and certification is still evident today.

In keeping with the times, Dickson also provided commentary on the Great Depression: “In these days of change, social upheaval, and very articulate demands for social security, there seems to be a growing demand for an altered relationship between the medical profession and its patients, the public.” His remarks on this subject did not sound as hopeful and optimistic as other parts of his address, but he did accept “the obligation” of the academy to the public in general economic planning. With the AAOS only in its third year, Dickson’s remarks sounded ambitious, perhaps even inappropriately so, but his pragmatism, goodwill, and confidence must have set just the right tone for his audience of physicians and surgeons in 1936.

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