

## *Chapter One*

# Palatines, Pietists, and Medicine

**O**n June 8, 1838, a small house three-quarters of a mile south of the Hartwick Lutheran Seminary in Otsego County, New York, reverberated with the wailing of a newborn infant. It was the home of Reverend Levi Sternberg. His wife, Margaret, with the assistance of her mother and sisters, had delivered a healthy boy whom they christened George Miller in honor of his maternal grandfather. George Miller Sternberg was born and raised in a stable, well-ordered society directed by academic endeavors and the church bell. His early education, both religious and secular, prepared him to enter the evangelical Lutheran ministry, but his passion for science led him to medicine, and two failed civilian practices led him into the Army Medical Department in the spring of 1861. It was an inauspicious beginning for a man who would become an internationally recognized bacteriologist, medical researcher, sanitarian, social reformer, and author; a combat-proven medical officer respected by his peers and line officers alike; and the Army Surgeon General. Sternberg's contributions to medical science and military medicine made a profound impact not only during his lifetime, but they also established a valuable legacy for the Army Medical Department of the 20th century.

Sternberg's ancestors were German Palatines who came to the New World in 1709 searching for peace and economic stability not to be found in Europe. They settled in the Schoharie Valley in upstate New York, raised large families, and became valued members of the Otsego County community and the Lutheran Church. Sternberg's father was named Levi, for the Hebrew tribe charged with the service of the sanctuary, by his mother and she consecrated him at his baptism to the work of the Lord.<sup>1</sup>

That work began for 14-year-old Levi in the spring of 1828 when he moved into the George B. Miller home at Hartwick Seminary just south of Cooperstown, New York. Reverend Miller, an assistant professor at the seminary, would become principal of the Classical and Theological Schools in 1830. Through Miller's mentorship and guidance, Levi developed academically and spiritually. He graduated

from Union College in Schenectady in 1835 and returned to Hartwick in the fall of that year to resume theological studies under Miller. In early 1837, Levi looked forward to becoming a licensed minister, and, with a secure position and salary at the seminary as assistant professor, he had purchased a small cottage three-quarters of a mile south of the seminary. He was now in a strong position to press his matrimonial ambitions with Miller's eldest daughter. Margaret Levering Miller was 19; well educated; read German, French, Italian, and Spanish; and was an accomplished organist. Levi had known her since she was 10-years-old, and he had watched her mature into a charming, talented woman of extraordinary character. On September 7, 1837, Reverend Miller joined the couple in marriage. Nine months later, on June 8, 1838, Levi's ordination by the Hartwick Synod was eclipsed by the birth of his first son.<sup>2</sup>

George Miller Sternberg was born into a society based on peace, charity, and Christian brotherhood, and tempered with patience and moderation. This small, utopian world in which he resided was a tranquil island, created largely by the Moravian-influenced Lutheran religious philosophy of Ernest Hazelius and grandfather Miller that floated in a sea of Lutheran Pietist radicalism. This radicalism grew from dissatisfaction with the New York Lutheran Synod concerning essential church doctrine and its implementation. For almost a generation, fervent Pietist congregations of upstate New York had watched the New York Synod slip into an acceptance of rationalist thought while simultaneously rejecting the "New Measures" of revivalism, extended prayer meetings, public conversion, and moral reform. This was anathema to the Lutheran Pietists, particularly those in Schoharie and Montgomery counties, where a millennialist philosophy was fervently embraced, and Hartwick became caught up in the religious turmoil.<sup>3</sup>

Fortunately for Levi and Margaret, the Hartwick Synod had a vacant pastoral position in Danville, New York. In the fall of 1839, Levi took charge of the Lutheran churches in these communities. Levi was a powerful and successful evangelist with a strong desire to bring people into the bonds of Christ. While Levi's position in the community and the synod grew, so did the Sternberg family. Theodore was born September 15, 1840, followed by John Frederick on March 12, 1843, and Rosina on March 8, 1845.<sup>4</sup> By the time Rosina was born, her father had developed a chronic hoarseness and sore throat, commonly known as "minister's sore throat," after a severe cold in the winter of 1844–1845.<sup>5</sup> Although the cold did not help, Levi's condition—more correctly termed granular pharyngitis—resulted from his extended and forceful dissertations from the pulpit. Pronounced incurable by physicians, his condition compelled him to resign his position in Danville in favor of recruiting duties. Over the next few months, Levi traveled through Pennsylvania and Maryland, visited the Gettysburg Seminary, and received an education in church politics while his throat healed. He also thought a great deal about his future in the church and where he could perform valuable service now that his throat would no longer allow him to preach to large congregations. Levi focused on the city of Buffalo, with its increasing

German population and only one German Lutheran Church of the New York Synod, in the summer of 1845, and the hope of establishing an English-speaking Lutheran congregation among Buffalo's German population.<sup>6</sup>

Formal education for seven-year-old George began in the fall of 1845 in Buffalo's English-speaking public schools. The three years he spent in Buffalo left happy memories, but in mid-1848 Grandmother Miller took him back to Hartwick. This was no small change for a boy of 10 years; however, George did not give it much attention in a biographical sketch written years later. Apparently, Mrs. Miller thought his health was suffering in the harsh Buffalo climate. This may have been true, but the Sternbergs had been thriving in the long, hard winters of upstate New York for generations. A more plausible explanation for George's return to the academy was for the educational opportunities it offered under the guidance of Grandfather Miller. The fact that Theodore joined his older brother at Hartwick the following year adds credence to this theory. Although George could not appreciate it at the time, he was more fortunate than most of his peers in that his parents and maternal grandparents were extremely well educated. They placed a high premium upon secular and religious education and—apparently—would not deny these to their children merely because it demanded family separation. But for 10-year-old George, who was particularly attached to his mother, it was the separation that loomed large as he said farewell to parents and siblings.<sup>7</sup>

George's new home was the principal's house at the seminary. It was a large, two-story, T-shaped structure, and, in the words of Alfred Hiller who later married George's Aunt Henrietta, "a model Christian home with its air of unselfish love and devotion and intellectual culture."<sup>8</sup> If George thought his home in Buffalo was crowded since the birth of his sister Emily in February, he would find his grandparent's home even more so. In addition to his grandparents; his aunts Charlotte, Susan, Anna, Henrietta, and Mary; Uncle Henry Miller; and half-a-dozen or more Hartwick students were boarded there at any given moment. Despite being crowded, the Miller home was most assuredly endowed with love, devotion, and culture.<sup>9</sup>

At 53, George Miller was wiser and more patient than when he first came to the seminary, but he continued to exhibit the same unbounded energy and enthusiasm for intellectual and religious pursuits that he had shown a dozen years before. The ebullience that emanated from his diminutive frame was complemented by mental faculties that were simultaneously perceptive and intuitive, comprehensive, and perpetually active. He taught, tutored, and conducted recitations for the greater part of each day and then tutored those who boarded with him in the evenings. Afterwards, he attended to his own educational and spiritual needs into the early morning hours. He preached on Sunday mornings and led prayer meetings on Sunday evenings. Miller never lacked for companions during work or leisure time and endeavored never to squander a minute. Should a free moment present itself, such as between classes, he would read whatever he could find. Even during his daily walks across the neighboring hills or while tending to his garden, he instructed and mentored those who always gathered around him. This man, for the next two years, was teacher, minister, disciplinarian, and loving father to his oldest grandson, and he would

continue to heavily influence the boy's daily life and education for another seven years. By nature and nurture, Miller contributed—significantly and positively—to George Sternberg's intellectual, religious, and personal development.<sup>10</sup>

Life in the Miller home was undoubtedly structured. If it were not, its very size and daily obligations would cause it to grind to a halt. Young George rose early, performed ablutions, recited prayers, ate breakfast, and had lessons with his grandfather before the sun had climbed very high. Although reading, writing, and arithmetic were enjoyable, and church history had to be learned, the study of Latin and German were a bane to him. George admitted he “detested languages,” an attitude he only overcame later in life with the help of his second wife, Martha.<sup>11</sup> The frustration this must have caused his grandfather—who was proficient in the ancient and modern languages—and his multilingual parents can only be imagined. George's education, however, was not derived solely from the classroom. Grandfather Miller was a wellspring of knowledge and experience that encompassed gardening, fishing, sailing, swimming, and various interesting activities to a young boy. With his neighborhood friends, George played among and explored the beautiful, wooded hills and valleys of Otsego County, where he developed a profound appreciation for nature and natural history.<sup>12</sup>

Although it is difficult to accurately follow George's adolescent development, it is fair to conclude that delicate family issues began to occupy his mind and complicate his life by 1851. The Buffalo mission had collapsed through lack of funding in 1849. Levi and Margaret accepted the first vacant pastoral position they could find in Middleburgh, New York. Three more children had been added to the family: Emily, on February 29, 1848; and twin boys, Charles Hazelius and Edward Endress, on June 15, 1850. At the same time, growing discontent emerged among the seminary trustees in regard to Miller's administration of the academy, and they called Levi to replace his father-in-law as principal. Although Miller encouraged Levi to accept the offer and the Sternbergs were happy to return to Hartwick, Levi was acutely aware of Miller's hurt feelings and very sensitive to the fact that the father would now be working for the son. Levi gave him control of the Theological School, and he and Margaret let the Millers remain in the principal's house.<sup>13</sup> What impact these events had on George is unknown, but he admits to being “restless” at 13.<sup>14</sup> Whether this represents difficulties adjusting to changes at home, at school, or an acceptable adolescent wanderlust is unclear, but a change of venue was apparently an appropriate treatment. In any event, Levi found a job for George at Elihu Phinney's Bookstore in Cooperstown.<sup>15</sup>

Cooperstown lies five miles north of Hartwick Seminary. It was a prosperous village in 1851 as businesses grew with the population. A telegraph linked Cooperstown with Fort Plain in November of that year, and soon after the first steam power press was installed for the local newspaper, *The Freeman's Journal*. The novels of James Fenimore Cooper, the town founder's son, had glorified the beauty of the area and captured the imagination of every schoolboy with adventures of its history. Cooper's works and almost any other book one could want had been sold in the establishment of Elihu and Henry Phinney since 1820. George

lived with his employer for a year, and this gave him plenty of leisure time to investigate the community at large. One of his greatest pleasures was reading the fictional works of Cooper or any other writer he could find.<sup>16</sup> Accordingly, George spent an inordinate amount of time lost in these adventures, the more perilous of which were his favorites.<sup>17</sup> His mother worried about how her son spent his free time. Although American society still considered an overindulgence in fictional literature a waste for a young and impressionable mind, greater vices and dangers existed in Cooperstown for an adolescent with too much unstructured time and the freedom to decide how to use it. George was 14, and his mother thought that he should return to his studies. Margaret asked him to come home, and George—never rebellious with his mother—returned to the seminary.<sup>18</sup>

George attended the academy in the summer of 1852 with his Uncle Henry Miller, aunts Henrietta and Mary Miller, younger brothers Theodore and Frederick, and cousins Charlotte and Mary Bray. Admitting women to the Classical School had been Reverend Hazelius' idea some 34 years earlier, but had not been acted on until October 1851 when Levi hired his sister-in-law, Charlotte Miller, as an assistant teacher and admitted 27 female students.<sup>19</sup> Levi instituted the "Science of Common School Teaching" that prepared students to instruct at district public schools, and he also expanded the science curriculum. The elder Sternberg's attitude toward science was a reflection of the new era of American science in which he was educated. American interest in the study of science beyond its practical usefulness began after 1815 and was largely in the purview of physicians. However, in a young, expanding nation with few resources and little leisure time for such endeavors, the new scientists had to demonstrate some practicality of science for society in general. Although this popular acceptance was achieved by declaring that the study of natural history and natural philosophy—the study of God's works—was enlightening from a moral and religious standpoint, the proposition cast scientists in the role of moral teachers, and thus placed them in competition with the clergy. As natural laws and phenomena were recognized, described, and defined by scientists, theologians feared that God would soon be calculated out of the life equation. The potential conflict created by this situation was averted as clergymen were encouraged to pursue the study of science, and scientists used their discoveries to illustrate the power, plans, and moral governance of God. As a theologian and academician, nothing pleased Levi more than to demonstrate the interrelationship of science and religion at his institution. To his current science curriculum of chemistry, physiology, astronomy, botany, and geology, he added lectures on electricity, hydrostatics, navigation, optics, and some civil engineering.<sup>20</sup>

George found his classes interesting and rewarding, particularly those in the natural sciences—chemistry, geology, botany, astronomy, and physiology—and mathematics. Under the tutelage of his father and grandfather, George's inclination toward and aptitude for scientific study were cultivated; the foundation for his future endeavors was firmly established.<sup>21</sup> As George matured academically, he also matured spiritually. In a letter to daughter Henrietta on December 27, 1853, George Miller noted that George had communed with the church for the first time

on Christmas Day. Miller also stated that, "George had been in town in Mr. Phinney's bookstore, and Margaret was anxious he should attend the meetings."<sup>22</sup> Obviously, the bookstore or something else in Cooperstown had a great attraction for the 15-year-old. Margaret's anxiety may have sprung from a fear that her son's religious awakening was being delayed by secular interests and that exposure to more revival meetings was needed to induce the required public conversion. If so, her worries were unfounded. George gladly attended the meeting. As Grandfather Miller told Henrietta, "...it was not long before he [young George] expressed a hope."<sup>23</sup>

George completed Hartwick's three-year classical curriculum in 1854. What he wanted to do with his life at this age is not altogether clear. Although he stated, "...I might have continued to attend school at Hartwick & live under the paternal roof...", this is the only definite reference found that George ever contemplated entering the ministry.<sup>24</sup> He felt obligated to get a job to assist in supporting the continually growing Sternberg clan. Margaret had given birth to William Augustus on March 14, 1853, for a total of eight children ranging in ages from 1 to 16. As George later recalled, "My father's small income & large family kept him poor & in debt. He confided in me...& I began to feel that I ought to do something for myself...I accordingly, at 16 years of age, took off my 'round about,' & put on a coat with tails and started out to find a school for the winter."<sup>25</sup> The school he found was "in an out-of-the-way place in the hills some ten or twelve miles from home."<sup>26</sup> It was undoubtedly one of the numerous common schools that provided rural children with the rudiments of reading, writing, and arithmetic in a highly disciplined environment. Although these basics satisfied parents of the era, the academic and moral qualities of the teachers were often highly questionable. Educational reformers in the state of New York attempted to establish standards for teachers and schools at this time. In George, even with his inexperience, they found an academic gem with character for \$10 per month plus board. George stated he "went home every Saturday, but the separation from my mother for a whole week was a great trial."<sup>27</sup>

The separation anxiety George endured had dissipated enough by the following winter, 1855–1856, for him to secure a teaching position—through the influence of friends—in New Jersey at \$20 per month. No Sternberg references state who these friends were or in which school George taught. Most likely they were acquaintances of his grandfather's or Ernest Hazelius, and he may have taught at the New Germantown academy established by Hazelius. George was capable and competent both in the classroom and as an administrator. He received praise from his supervisors and a raise in salary to \$100 per quarter. Regrettably for the school board, his sojourn in New Jersey was short-lived. George returned to Hartwick after his teaching obligations were fulfilled following his second term in the summer of 1856.<sup>28</sup>

George stated that he "saved money and returned to Hartwick to continue my studies & to teach in the Seminary."<sup>29</sup> He was hired at a salary of \$210 per year, almost a 50 percent reduction in salary from his New Jersey position if George's memory was correct. His father allowed him to teach the subjects he

liked, which included mathematics, chemistry, and natural philosophy. What George had saved for and was preparing to study, however, was not theology.<sup>30</sup>

Sternberg stated, “At this time [summer 1856] I decided to study medicine and commenced the study of Anatomy and Physiology under the direction of an excellent preceptor – Dr. Horace Lathrop, A.M., M.D., of Cooperstown.”<sup>31</sup> An alumnus of Hartwick Seminary (1844) and Hamilton College (1846) in Clinton, New York, the 32-year-old Lathrop established his practice in Cooperstown after graduation from Jefferson Medical College in Philadelphia in 1852. Lathrop was soon recognized as an inspiring leader in the community in regard to academic and religious matters. George’s interest in medicine may have originated with Lathrop, as he worked and lived just down the street from the physician’s office in 1852, and Lathrop was probably a well-known customer at Phinney’s.<sup>32</sup>

Why George chose to pursue a medical career, how long he pondered the idea, or what thoughts and comments his parents offered on the subject have not been preserved. At mid-century, the medical profession offered few prospects of prestige or financial security. It was considered by many to be an inferior profession, a waste of an intelligent man’s talents. It was not a decision to be made expeditiously by a young man of his limited financial resources. Preceptor fees were at least \$100 per year, and medical college tuition for two terms ranged from \$200 to \$400. If George took advantage of available pre-term sessions and other extracurricular medical opportunities, total costs could have reached \$1,000. In addition to these expenditures, he would have to pay for books, room, and board.<sup>33</sup> But, George was adamant on the issue. Theology, as a profession, held no interest for him, and a minister’s position and salary were tentative at best. Although Levi could not provide his son financial support, an enigmatic maternal uncle, Grandon Bray, who resided in San Francisco, California, would not allow his nephew’s dreams to be so easily destroyed. He offered to pay for George’s entire medical education. It was an offer that was accepted as a loan and repaid in full.<sup>34</sup>

When George Sternberg decided to become a physician in the mid-1850s, American medical education and practice were experiencing a period of reform and transition in the midst of the still prevalent Jacksonian democratic ideology. Practicality was the benchmark by which all pursuits were measured. Knowledge that had no obvious utility to the man on the street—or required special education to understand—was regarded with suspicion, as were those who had acquired it. Professionalism—with its flavor of class privilege—was an affront to the egalitarian ethos of the masses and became the antithesis of this cultural philosophy. Great confidence was placed in the skills of apprentice-trained physicians, the products of the burgeoning country medical schools, and the increasing number of irregular practitioners. Standards for degrees and licensing became almost nonexistent, the definition of a qualified medical practitioner became obscure, and quackery proliferated.

Academic leaders in the medical profession attempted to reform the structure and content of medical education, but the old apprenticeship system, whereby a student was apprenticed to a physician–preceptor for two to three years, remained the primary path by which a young man became a physician. Originally, American



medical schools had supplemented apprentice training, but after 1840, by their sheer weight of numbers and not educational quality, they were beginning to replace the older system. The two methods of instruction developed an agreeable symbiosis by mid-century, in which preceptors taught their charges various subjects from the clinical perspective and then referred them to a medical school where the faculty provided the scientific basis for these subjects. In general, a formal medical education consisted of two four-month courses of lectures, evidence of a three-year apprenticeship, and a final private oral examination by the faculty. Some schools also required a graduation thesis. The curriculum covered three broad fields: (1) basic sciences consisting of anatomy, physiology, chemistry, botany, physics, mineralogy, and zoology; (2) theory and diagnosis of disease consisting of pathology and the theory of medicine; and (3) treatment of disease. However, the second four-month session was identical to the first; a graded curriculum of increasing difficulty was unknown. Hospitals and dispensaries were not routinely associated with medical schools and, therefore, clinical instruction beyond apprenticeship was relatively uncommon. Major deficiencies of the apprenticeship system were the questionable quality of instructors; low entrance requirements; absence of a standardized, systematic, and progressive course of instruction; and absence of hospital training. The American Medical Association recognized these flaws and worked to establish two six-month terms, three courses of study, a minimum of seven professors at each school, compulsory dissection, proof of apprenticeship, and attendance at a clinic or hospital as minimal graduation requirements.<sup>35</sup> This call for reform was met with lukewarm support or outright opposition at local, state, and federal levels. The medical profession at large defined a capable physician as a man of experience with a large practical knowledge base, sound judgment, and high moral character who interacted regularly with his patients. It was not imperative that the physician's knowledge of basic sciences was comprehensive, but rather that he was able to act decisively at the proper time. For many in the profession, the education and experience gained through an apprenticeship was considered sufficient for this purpose.

To gain greater clinical experience, postgraduate physicians who could afford it supplemented their medical education in Europe by the 1850s, particularly in France. Patient observation and examination were emphasized in France. The practical and theoretical aspects of science were dissociated as the hospital took center stage as the only worthwhile school for systematic clinical instruction in physical diagnosis, pathologic anatomy, and the early quantification of diseases. Americans relished the practical experience gained at the bedside, in the dissection room, and in many private courses offered in Paris. The egalitarian nature of French empiricism with its skepticism, disdain of basic sciences, and distrust of laboratory-based, investigational medicine appealed mightily to the disposition of antebellum America and influenced the philosophy of American medical education and practice until after the Civil War.

Many of the medical professors who taught Sternberg received postgraduate training in European cities or were trained by professors who had experienced



the French clinics. Upon returning to the United States, these physicians became part of the medical elite and influenced the profession in both the clinical and academic arenas. The profound effect of the French experience became manifest in their classrooms and, when combined with their own originality and ingenuity, profoundly affected Sternberg and his peers.

The majority of medical students of this era only had an elementary education. In the words of Charles Eliot, president of Harvard University, “an American physician or surgeon may be, and often is, a coarse and uncultivated person, devoid of intellectual interests outside of his calling, and quite unable to either speak or write his mother tongue with accuracy.”<sup>36</sup> Obtaining a sound classical education in the mid-19th century was difficult. Although preceptors commonly required an apprentice to have a basic proficiency in mathematics, English grammar, and natural history, and to be knowledgeable in Latin, these requirements were often waived. In this atmosphere, Sternberg was significantly more prepared and accomplished than most of his contemporaries. He had been raised in a home where higher education and social cultivation were valued. Early working and teaching experiences had developed his maturity, poise, and confidence beyond his 18 years. All of these attributes contributed to a high recommendation to Dr. Lathrop.

Sternberg began the first phase of his apprenticeship, called “reading medicine with the doctor,” at Horace Lathrop’s office on the corner of First and Chestnut Streets in the summer of 1856.<sup>37</sup> This didactic phase included not only anatomy and physiology, but also chemistry, botany, materia medica (pharmacy), and clinical medicine. Lathrop was highly qualified academically, as well as by character, age, and disposition, to responsibly discharge his duties as preceptor and mentor. His ability to teach and inspire students came from an inherent ability and the influence of his own mentors at Jefferson Medical College. Two of Lathrop’s instructors had been Doctors Robley Dunglison and John K. Mitchell. One of America’s earliest experimental physiologists and microscopists, Dunglison gained some renown by assisting with experiments, preparing material for microscopic observations, and performing chemical analyses of gastric juice provided by Army Surgeon William Beaumont during his studies on digestion in 1833.<sup>38</sup> Dunglison continually preached to his students that physiology “is the real foundation of medical knowledge.”<sup>39</sup> Mitchell was also an avid microscopist and used microscopic evidence to construct a theory of epidemic disease based on fungal origin. He wrote on many diverse subjects such as infectious disease, osmosis, and liquefaction, and told his students “to improve their minds by going beyond the boundaries of the dissecting room and didactic education.”<sup>40</sup> Dunglison and Mitchell believed that to be a good physician one must also be a good naturalist, an idea that found fertile ground in Sternberg’s mind. Both professors thought beyond the limits of the accepted medical training and practice, and clearly discerned the relationship of science to medicine. Through Lathrop, Sternberg received Dunglison’s and Mitchell’s knowledge, wisdom, and philosophy.

Sternberg read with his preceptor for nearly 24 months. The standard time period for an apprentice to complete this portion of his work was 18 to 20 months, but teaching duties at Hartwick may have precluded him from full-time study, and

required him to extend this instruction an extra four to six months. In the fall of 1858, he traveled to Buffalo, New York, for his first formal medical lectures.<sup>41</sup>

He reported to the dean, Dr. Thomas F. Rochester, as directed by the annual announcement, to secure “good board, with room, fuel, and lights” for \$3 per week.<sup>42</sup> Where these accommodations were located is unknown, but it may be presumed that they were near the medical school building that stood on the corner of Main and Virginia Streets. This large stone structure was “constructed with express reference to medical instruction, containing airy and spacious apartments for dissection, museum, etc; and is exclusively devoted to the medical department...”<sup>43</sup> Adjacent to the college was the Sisters of Charity Hospital that accommodated approximately 1,000 patients a year. A quarter of a mile away, on the corner of High and Goodrich Streets, stood the completed west wing of the new Buffalo Hospital with a 150-bed capacity. According to the annual announcement for 1856–1857, in these facilities particular attention was “paid to the subject of physical exploration; and opportunities will be afforded for becoming acquainted practically with the important physical signs of pulmonary and cardiac diseases...pointed out at the bedside by the professor of clinical medicine or the clinical assistant. Patients...at the college are examined and prescribed for before the class; and surgical operations are frequently performed in the college amphitheater.”<sup>44</sup> Also close was a lying-in hospital where the students were “instructed and practiced in foetal auscultation,... in the conduct of labors, both natural and artificial, and in all the minutiae pertaining to the care of the parturient female.”<sup>45</sup> The annual announcement went on to proudly proclaim, “it is believed that few institutions, if any, in the country, afford better facilities for the acquisition of practical knowledge in the departments of surgery, medicine, and midwifery.”<sup>46</sup>

The 12-year-old Medical Department of Buffalo University was proud of the school’s physical plant, faculty, and quality of education. Undeniably, it was a leader among American medical schools in establishing clinical sciences based on the French model. Doctor Sanford Hunt, a professor at the college and editor of the *Buffalo Medical Journal* from 1852 to 1858, declared the institution “offered the best in clinical advantages of any school in the United States,”<sup>47</sup> and the close proximity of the clinics ensured that “no student can urge the excuse of inconvenience for absenting himself from them...”<sup>48</sup> The journal also praised the Sisters of Charity Hospital for providing these advantages. The Medical Department had a stable faculty composed of 13 professors, in an era when many faculties were considered large with six to eight members. Extremely capable, experienced, and—at times—controversial, these practitioners had an eye for educational reform. Austin Flint, Sr., although no longer professor of pathology and clinical medicine when Sternberg began his classes, left an enduring legacy as an excellent physical diagnostician and champion of conservative medicine in his son, Austin Flint, Jr. Auscultation and percussion were routinely performed on patients in the medical clinics and taught to the students just as when Flint senior had been on the faculty. Frank H. Hamilton, professor of surgery, became nationally known for his general and orthopaedic surgical skills, pioneering work in plastic surgery and

surgical instrument inventions and modifications, and for being a medical educator and author. Hamilton published the first of his well-known fracture tables in 1849 that summarized fracture treatment, methods, and results. James P. White, chairman of obstetrics and diseases of women and children, received a liberal European postgraduate education in London, Paris, and Vienna. He brought various teaching techniques to western New York that included the use of manikins to instruct students in forceps-assisted deliveries. In 1850, he established the first clinical course in demonstrative midwifery at Buffalo in an era when many physicians graduated without observing a live birth.<sup>49</sup> Sternberg also had his first introduction to an outstanding physiologist, John C. Dalton, Jr. at Buffalo. More accurately, he was introduced to Dalton's teaching methods. Dalton resigned his position as professor of physiology and anatomical microscopy at Buffalo in 1854 to teach at the College of Physicians and Surgeons in New York City, but his brilliant lecture style continued in the classroom of Dr. Austin W. Nichols. Dalton had studied with the eminent French physician and pioneer physiologist, Claude Bernard, who emphasized the role of experimentation in medical science and the independence of physiological science. Dalton became the first American to devote himself entirely to experimental physiology. He established the first physiology laboratory in the country at the Buffalo school, and he was also the first to use vivisectional demonstrations and practical demonstrations with the microscope as classroom teaching techniques.<sup>50</sup>

Sternberg began the regular 16-week school term at the beginning of November with an introductory lecture from Theophilus Mack, professor of materia medica and therapeutics. He had attended preliminary lectures in anatomy, given by Benjamin H. Lemon, and those in clinical medicine and surgery, given by Doctors Austin Flint, Jr. and Frank H. Hamilton, in October. Passage of the Anatomical Bill in 1854 had helped alleviate the difficulty in obtaining cadaveric specimens. The college catalog noted the "supply of anatomic material is ample," and anatomical dissections continued throughout the regular term.<sup>51</sup> Students also had the option of receiving instruction in practical and analytical chemistry, physiology, and microscopy. Lectures, clinics, dissections, and individual study easily consumed the daylight hours of any given day to include Saturdays. Whether Sternberg availed himself of the optional classes is unknown; however, his serious, studious nature would lead one to believe that he did.<sup>52</sup>

In the spring of 1859, Sternberg returned to Cooperstown to complete his second phase of apprenticeship, known as "riding with the doctor." Equipped with a sound foundation in the basic sciences and experience in medical, surgical, and obstetrical clinics, Sternberg accompanied Lathrop on house calls and assisted him with surgeries. With his preceptor's encouragement, Sternberg set his sights on the College of Physicians and Surgeons in New York City for his second lecture term. His application was accepted, and by summer's end Sternberg was settled in New York City anticipating his second medical school term.<sup>53</sup>

The College of Physicians and Surgeons was located at 23rd Street and 4th Avenue. Situated near Bellevue Hospital and two blocks from the Demilt Dispensary, the

four-story, brick and brownstone building was only three years old when Sternberg ascended its stone steps that fronted on 23rd Street. The ground floor contained shops and the upper three floors were devoted to the college. A large lecture room, chemistry laboratory, and private offices occupied the second floor; an anatomical amphitheater that accommodated 300, an anatomical museum and patient waiting and examination rooms filled the second floor; and the third floor contained a 25-table dissecting room.<sup>54</sup>

As in Buffalo, Sternberg attended four weeks of preliminary lectures and then began the regular term of 18 weeks in late October. The longer term was an innovation of Alexander H. Stevens, president of the college from 1844 to 1857, which “resulted in increased efficiency and a material advance in the standard of professional education.”<sup>55</sup> Also under Stevens’ stewardship three clinics—in surgery, medicine, and obstetrics—were held weekly throughout the academic year rather than just during the regular term. By the time of Sternberg’s matriculation, the number of clinics each week had increased to four: surgical clinics on Mondays and Wednesdays; a medical clinic on Thursdays; and a clinic for females on Friday afternoons, which were conducted at the college, the Demilt, Northern, and New York dispensaries, and at Bellevue Hospital. In addition, clinics were also held at the eye and ear infirmary, and many physicians offered instruction at private dispensaries. However, student attendance at the clinics was not mandatory, and no practical examinations were conducted to test their clinical skills.<sup>56</sup>

The college faculty of 16 included three professors emeritus: Alexander H. Stevens, Edward Delafield, and John Torrey; seven professors: Joseph M. Smith, Robert Watts, Willard Parker, Chandler R. Gilman, Alonzo Clark, John C. Dalton, Jr., and Samuel St. John; and six adjunct lecturers and assistants. Although it is true that they presented essentially the same material, Sternberg heard more of it during the longer term, encountered more clinical cases, and benefited from the personal experiences, techniques, and philosophies of another accomplished group of physicians. Willard Parker, professor of surgery, made an enduring impact on Sternberg. Physically robust, enthusiastic, and energetic, Parker was the epitome of the competent diagnostician and surgeon. He inspired confidence in his students and patients alike. Whereas he trusted the healing powers of nature, he was also a pioneer in the performance of several surgical procedures, and Parker never let his students forget the value of disease prevention over the limited methods for cure available to practitioners. Doctors William L. Detmold and Henry B. Sands provided able assistance during surgical lectures and in clinic. Detmold, previously a surgeon in the Royal Hanoverian Guards, was an entertaining teacher who taught general and orthopaedic surgery and is given credit for introducing orthopaedics as a surgical specialty in the United States in 1841. Detmold also established the first public clinic for crippled children in New York. His military experience flavored his lectures and proved valuable to many of his students in the near future. Alonzo Clark, professor of practical medicine, was not only an able classroom instructor, but also a competent clinician and author who verified the principles of percussion through postmortem observations and wrote about the

management of typhoid and cholera. The highly conservative Chandler Gilman, professor of obstetrics, captivated his students with his lively style and humorous delivery in the lecture room and obstetrical clinic. The professor whose influence embraced both the Medical Department at Buffalo and the College of Physicians and Surgeons in New York City was John C. Dalton. Sternberg was familiar with Dalton's classroom techniques, but was now able to see them practiced by the master firsthand. These are the men who honed and polished the knowledge that Sternberg had acquired over the past three years.<sup>57</sup>

No sources survive to indicate the quality of work that Sternberg performed, his class ranking, or what impression he made on his instructors. He sat for, and passed, the required graduation examinations in early March 1860. A graduation thesis on some aspect of medical science was also required. Sternberg wrote a paper on cyanche trachealis, or what physicians today would diagnose as croup, which was accepted. With these last academic hurdles successfully negotiated, Sternberg anxiously awaited graduation. He received his medical degree with 50 other classmates in late March 1860.<sup>58</sup>

By sending Sternberg to lectures first at the Medical Department at Buffalo University and then to the College of Physicians and Surgeons, Lathrop conformed to a common late antebellum educational practice among preceptors. Students were encouraged to attend their first lectures at a smaller, less rigorous, and less expensive medical college, and then sit for their second term at a larger institution. This strategy provided experience and added some variety to the otherwise dull and repetitive second term. At Buffalo, Sternberg received an excellent educational experience. It prepared him intellectually for the challenges and opportunities of the lengthier, more intense, and rapid-paced curriculum found at the College of Physicians and Surgeons. The faculties at both schools comprised some of the most outstanding physicians in America during that era—men who were not only well trained and innovative in the clinical arts, but also who were progressive educators who appreciated the value and relationship of science to medicine. A diploma and the professional and social connections from the older, more prestigious College of Physicians and Surgeons, however, would potentially greatly benefit Sternberg when he began his own practice, presumably in his native New York.<sup>59</sup>

Considering the state of medical knowledge and practice in mid-19th century America, and assuming he truly attended classes and clinics as he indicated, Sternberg received a medical education that was as comprehensive and complete as could be obtained anywhere in the country. But what did that mean in 1860? What knowledge base and medical philosophy did Sternberg take with him as he departed the College of Physicians and Surgeons? He had benefited from the progressive clinical orientation of his professors—observed more disease, touched more patients, and learned more diagnostic techniques than students did a generation earlier. However, there was very little he could do to cure what he found. Although the concept of a distinct natural history for a disease was slowly being accepted, specific disease etiologies and symptomatology—as known today—for the most part did not exist. Some diseases—it was believed—could transform from one into

another, and illness was still considered to be dependent on the environment and a person's physical, emotional, and moral states. Diseases generated disequilibrium in the body, and the physician's role was to reestablish the usual balance by regulating secretions by bleeding and increasing perspiration, urination, or defecation. Such interventions, whether mechanical or drug induced, facilitated the body's natural healing processes cure itself. Sternberg understood this philosophy and these procedures very well.

Sternberg would comment years later that the surgical training he received from Doctors Parker and Sands had been outstanding. Although this is undeniable, the advent of ether and chloroform anesthesia in the 1840s had made surgical intervention more practicable. Furthermore, Sternberg put these surgical skills to use in combat a little more than a year after graduation, an experience that probably made these men and their lessons more prominent in his memory than those of Flint, White, Clark, or Gilman. Collectively, the deep and enduring impact made on him by Horace Lathrop and the professors in Buffalo and New York City can be more widely appreciated in Sternberg's approach to the developing science of medicine and in the realm of medical literature, education, and professional leadership.<sup>60</sup>

Sternberg had been raised in an atmosphere of selfless dedication, responsibility, and service to family, church, and community. He entered the medical profession with an inherent appreciation for science, in general, and a mind that had been trained to observe and study science and scientific progress not merely for its own sake, but as a duty to God and a means for understanding the Creator's plans and purposes. Intellectually, he was prepared to accept the challenges and advancements in medical science that confronted him during his college years and beyond. Moreover, Sternberg simply derived pure pleasure and enjoyment from scientific discovery and the technical, hands-on aspects of experimentation. Unfortunately, investigational research was considered impractical for a physician in private practice and was uncommon in the medical profession for at least another 15 years.

Laboratory instruction also continued to be resisted in the United States because it consumed time from a very busy schedule for no practical purpose. Although Sternberg wholeheartedly embraced the concept of laboratory-based scientific medicine that was of practical value to the profession later in his career, this idea was still in the embryonic stages of development in Germany when he was a student. He was exposed to American laboratory-based science at mid-century at both medical colleges; however, Dalton was a showman in the manner in which he used his experiments and demonstrations and never considered hands-on laboratory instruction a useful or practical pursuit for his students. The passion for microscopical endeavors that Sternberg exhibited throughout his career may have sprouted in Lathrop's office and under the Nichols' instruction in Buffalo, but probably took root through the training of Dalton, Clark, and Gilman at the College of Physicians and Surgeons. These men had used state-of-the-art microscopes in their classes routinely since 1848. Although Sternberg learned to use the microscope for examining anatomical and botanical preparations, it gave him an understanding for the potential of this instrument—for example, when combined

with photography—and prepared him for the role it would play in his later researches in bacteriology.<sup>61</sup>

Professors such as Flint, Hamilton, White, Dalton, Rochester, Clark, and Gilman demonstrated the value and necessity of putting new medical knowledge in print for the benefit of the medical profession. Sternberg began contributing to the medical literature with field reports during the Civil War.<sup>62</sup> Often judiciously critical as a medical author, Sternberg's pen would pick up speed in the late 1870s and continue into the 20th century. Finally, the majority of professors in Buffalo and New York demonstrated a responsibility to contribute to the education, growth, and development of their profession through participation in its organizations. Many were at least active members—if not leaders—in local and national medical organizations, such as county medical societies, the American Medical Association, and the New York Academy of Medicine, as well as in the government and economy of the communities within which they lived. Throughout his career, Sternberg was actively involved in the communities where he was posted, and he contributed—as an officer or general member—to a large number of medical, scientific, and social organizations.

Sternberg was an able student who—in retrospect—extracted the most from his four years of medical study. Regrettably, what he could not extract from the lecture rooms and clinics and what he was in greatest need of was maturity and experience. Time would mature him, but the experience that nurtured self-confidence and poise in the treatment room could only be derived from seeing patients in volume. In 1860, no paid internship or residency programs existed. To obtain clinical experience, a new physician in New York City had three options: (1) go to Europe, (2) apply for one of the postgraduate hospital appointments available in the city, or (3) attempt to establish one's own private practice. A European excursion was only a pipe dream for Sternberg—if he considered it at all—because the cost was prohibitive. House-officer positions also required a fee. By 1866, house-staff positions in New York City were awarded to immediate postgraduates on a competitive basis, but social standing rather than academic distinction often directed the selection process for these positions. It is doubtful that a minister's son from a rural community in upstate New York could realistically compete with classmates who were sons of New York City physicians or who had studied under such prominent local physicians as Gurdon Buck, Willard Parker, and Stephen Smith. If Sternberg applied for a postgraduate position, he was not selected. Therefore, he entered into the uncertain world of private practice, where he could not earn a living and from which he was rescued when shells fell on Fort Sumter in 1861.<sup>63</sup>



