

History of Surgery

United States

Excerpted from the Illustrated History of Surgery

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By the late 1870s, surgical practices on both sides of the Atlantic exhibited a remarkably similar success rate. However, a notable distinction persisted between Europe and America: advanced scientific research remained primarily concentrated in established and prestigious hospital centers and universities in Europe, while such institutions were still in developmental stages in the United States. In 1874, the esteemed London surgeon John Erichsen undertook an extensive journey across several major American cities. He was profoundly impressed by his observations, describing the standard of American surgery as exceptionally high. Erichsen noted that both British and American surgeons operated with a commendable scientific rigor. Furthermore, he expressed his perspectives on the status and social standing of the medical profession in America, asserting:

"In my opinion, the field of medicine in America holds a significantly higher social status compared to Britain. The reasons for this are relatively apparent. In the absence of an established hierarchy involving the church and other high-ranking legal authorities, these professions do not provide sufficient motivation for the most capable individuals to pursue them. Consequently, as the most educated and skilled individuals pursue careers in medicine within a country where education is both widely accessible and deeply respected, the medical profession is esteemed as one of the most honorable and prestigious fields. Furthermore, in the absence of established distinguished and titled classes, physicians are able to maintain their status in competition with merchants and affluent individuals, who occupy prominent positions within most American cities. A portion of the elevated status of medicine in America may be attributed to the greater practical uniformity observed among American physicians. Similar to the judicial system, which does not differentiate between defense attorneys and prosecutors, the medical field in America exhibits no significant distinctions between general practitioners, surgeons, and specialists."

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**TEXTBOOKS AND MONOGRAPHS
WRITTEN BY AMERICAN SURGEONS
DURING THE 1870s**



General Textbooks

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| <p>JOHN PACKARD (1832-1907)
<i>A Handbook of Operative Surgery</i> (1870)</p> <p>JOHN ASHFURST (1839-1900)
<i>The Principles and Practice of Surgery</i> (1871)</p> <p>FRANK HAMILTON (1813-1886)
<i>The Principles and Practice of Surgery</i> (1872)</p> <p>JAMES GILCHRIST (1842-1906)
<i>The Homeopathic Treatment of Surgical Diseases</i> (1873)</p> <p>DAVID HAYES AGNEW (1818-1892)
<i>Principles and Practice of Surgery</i>
(in three volumes) (1878-1883)</p> | <p>JAMES EWING MEARS (1838-1919)
<i>Practical Surgery</i> (1878)</p> <p>LEWIS STIMSON (1844-1917)
<i>A Manual of Operative Surgery</i> (1878)</p> <p>ANDREW HOWE (1825-1892)
<i>The Art and Science of Surgery</i> (1879)</p> <p>STEPHEN SMITH (1823-1922)
<i>Manual of the Principles and Practice of Operative Surgery</i> (1879)</p> |
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Specialty Monographs

- HENRY ANGELL (1829-1911)
A Treatise on Diseases of the Eye (1870)
- BENJAMIN JEFFRIES (1833-1915)
The Eye in Health and Disease (1871)
- JACOB DASILVA SOLIS-COHEN (1838-1927)
Diseases of the Throat (1872)
- LAURENCE TURNBULL (1821-1900)
A Clinical Manual of the Diseases of the Ear (1872)
- DANIEL ST. JOHN ROOSA (1838-1908)
A Practical Treatise on the Diseases of the Ear (1873)
- GURDON BUCK (1807-1877)
Contributions to Reparative Surgery (1876)
- CHARLES BURNETT (1842-1902)
The Ear (1877)
- LEWIS SAYRE (1820-1900)
Lectures on Orthopedic Surgery and Diseases of the Joints (1876)
- EDMUND PEASLEE (1814-1878)
Ovarian Tumors (1872)
- THOMAS ADDIS EMMET (1828-1917)
The Principles and Practice of Gynecology (1879)
- WILLIAM GOODELL (1829-1894)
Lessons in Gynecology (1879)
- JOHN GOLLEY (1812-1920)
Diseases of the Urinary Organs (1873)
- WILLIAM VAN BUREN (1819-1873)
A Practical Treatise on the Surgical Diseases of the Genito-Urinary Organs
(1874) and *Lectures upon Diseases of the Rectum* (1870)

The unique talents, qualifications, inclinations, interests, and opportunities of individuals can significantly enhance their standing within particular fields or specialties of surgery. However, the distinct classifications and diverse specialties prevalent in Europe were not as commonly observed in America during the 19th century.

The sixth period in the historical development of surgery in the United States, occurring in the 1880s, marked a pivotal turning point characterized by the emergence of well-funded research institutions and adequately equipped hospitals. This decade witnessed the acceptance of germ theory in America, along with the gradual implementation of antiseptic and aseptic techniques in operating rooms nationwide.

While European surgeons widely and enthusiastically embraced the principles advocated by Joseph Lister for various reasons, American surgeons adopted these techniques with considerable delay and, in some cases, reluctance. It took nearly 25 years for the surgical profession in the United States to fully accept Lister's revolutionary discoveries from 1867 regarding the paramount importance of cleanliness and sterility during surgical procedures.

Prior to the 1880s, only a limited number of American surgeons recognized the importance of cleanliness or the broader implications of germ theory. Furthermore, the incidence of infections in large public hospitals in the United States was lower than in the overcrowded charitable hospitals found in Europe. Consequently, the clinical necessity for Lister's principles was not as acutely perceived in the United States. Discussions regarding methods of sterilization prominently featured in American surgical literature, with Samuel Gross emerging as one of the most notable critics. In 1876, he stated,

"The number of enlightened and experienced surgeons on this side of the Atlantic who believe in the method proposed by Professor Lister, which involves the use of so-called carbolic acid alongside regular wound care, cleaning clots, and protecting wounds from air, is very few, if any at all."

By the conclusion of the 1880s, several European researchers had built upon Robert Koch's studies concerning the relationship between specific microorganisms and particular diseases. They demonstrated that certain micrococci were responsible for the majority of postoperative infections, thereby facilitating a deeper understanding of infection control within surgical practices. The accomplishments of bacteriological laboratories gained increasing validation within clinical medicine during the 1880s and 1890s, marking a golden age of surgery in Germany. As it became increasingly evident that surgical procedures could be conducted with a substantially reduced risk of infection, the potential for surgical innovation appeared boundless. This transformative shift in perspective among European surgeons transpired approximately a decade earlier than in the United States. The primary catalyst for this change among American surgeons was the return of young American physicians who reintroduced the advanced techniques and insights acquired from their German counterparts.

By the late 1880s, the adoption of Lister's principles in the United States was documented in several surgical textbooks. A landmark publication in this regard was **The Rules of Aseptic and Antiseptic Surgery** (1888) authored by Arpad Gerster (1848–1923). This volume represented the first American surgical textbook grounded in Lister's principles, achieving remarkable popularity that warranted two reprints within a mere three years. The significance of Gerster's work extended beyond its substantive content; it was meticulously produced on high-quality paper and featured lithographic and roller printing, as well as engravings and chiaroscuro images that were notably uncommon in scientific literature of that era. Importantly, Gerster, possessing expertise in photography, personally captured

images for the publication—an impressive accomplishment in a time when amateur photography was relatively rare. With the assistance of his colleagues at the German Hospital in New York City, he brought his camera into the operating room, documenting actual surgical procedures and dressings that employed Lister's techniques for the first time.

In 1899, Nicholas Senn (1844–1908) published “Surgical Bacteriology”, which became the first American text addressing this pivotal subject. Senn had recently returned from Europe, where he had studied the intersection of bacteriology and surgery. His work underscored the fact that bacteriology was a field predominantly advanced in Europe, with American surgeons historically possessing limited knowledge in this area. Senn's publication served to acquaint American practitioners with the most recent advancements in bacteriology. In the same year, Henry Marcy (1837–1924) published a treatise on hernia surgery entitled “A Treatise on Hernia: The Radical Cure by the Use of the Buried-Antiseptic Animal Suture”. As the inaugural American student of Lister in 1870, Marcy played a pivotal role in introducing Lister's antiseptic techniques to American surgical practice upon his return. He devoted many years to the investigation of microorganisms within the surgical realm, ultimately culminating in the adoption of antiseptic ligatures in the definitive treatment of hernias.

Two significant developments in the 1880s markedly advanced the professionalization of surgery in the United States. In 1880, Samuel Gross established the American Surgical Association, and three years later, the inaugural issue of the journal “Annals of Surgery”, edited by Lewis Pilcher (1845–1934), was released. As confidence in American surgery increased, Gross recognized the necessity for a society that would unite surgeons with common interests and promote surgery as a legitimate and effective therapeutic modality. His vision encompassed several fundamental objectives:

Enhancing the education, knowledge and practice of surgery and Expanding medical literature and written resources, Fostering a positive perception of the surgical profession and Uniting distinguished surgeons from across the nation in a cohesive organization.

The American Surgical Association convened its inaugural meeting at the Brighton Hotel in Coney Island, New York, in 1881. The necessity for such an organization had already been acknowledged among American surgeons, many of whom aspired to establish professional societies within their respective specialties. Notable examples of these societies include the American Ophthalmological Society (1864), the American Otological Society (1868), the American Gynecological Society (1876), the American Urological Surgeons Society (1886), and the American Orthopedic Association (1887). For the field of surgery to flourish as an independent and self-sustaining profession within the broader medical landscape, it was imperative for American surgeons to unite within a singular assembly.

The journal “Annals of Surgery” emerged as the most influential medical publication for American surgeons during the 19th century. This pioneering journal was the first in the United States to be exclusively dedicated to surgical practice, providing more comprehensive and detailed reports on advancements and achievements in American surgery than any prior written sources. With the establishment of their own community and a dedicated publication, American surgeons ultimately achieved a level of social and political organization that European surgeons had experienced nearly a century earlier.

As the 1890s approached, it became evident that both European and American surgery had been profoundly influenced by advancements in medical sciences, more so than any other facet of 19th-century medicine. The discovery of effective anesthetics and the development of methods to prevent wound infections revolutionized surgical practice, transforming it from a rudimentary and perilous

endeavor into a recognized and effective specialized profession. By the conclusion of the 19th century, American surgery had firmly established itself as a distinct and independent medical specialty, thereby differentiating it from other domains of medicine.

The commencement of William Halsted's tenure at Johns Hopkins Hospital in Baltimore in May 1889 marked the initiation of the final evolutionary phase of surgery in America. Like many young American specialists in the aftermath of the Civil War, Halsted sought advanced training in prominent German cities, where he assimilated the educational traditions that had come to dominate medical education. During the 1870s, France's preeminence in this field waned, prompting American physicians to return home with a German-influenced approach to medical training.

The establishment of Johns Hopkins Hospital and its affiliated medical school in 1893 heralded a new era in American medicine, positioning American surgery at the forefront of global medical history as the 20th century approached. John Shaw Billings (1838–1913), a pivotal figure in this transformation, founded the Public Library of Surgeons and compiled its index in 1880, thereby laying the groundwork for what would ultimately become the Index Medicus. In 1893, Billings succinctly summarized the state of American surgery, noting that the most significant advancements in U.S.

medicine had predominantly occurred within the sphere of surgery and its various branches. He highlighted essential developments, including the ligation of major arteries, the excision of intra-abdominal tumors, the treatment of women's health issues, the management of spinal disorders, and the addressing of various anomalies. Notably, he emphasized that Americans were the first to demonstrate the application of anesthetic agents, a groundbreaking advancement in medical practice of that century. Billings further noted that, during the recent conflict, American surgeons had illustrated to European counterparts the construction, organization, and management of military field hospitals, establishing the most distinguished existing museum dedicated to modern military medicine and surgery. Additionally, he highlighted the significant contributions to medical literature and the establishment of the largest and most comprehensive medical library in the world by the U.S. government.

While other surgeons may have garnered greater international acclaim, it was Halsted who epitomized the spirit of this transformative era in American surgery at the close of the 19th century. His research and methodologies ushered in a new epoch of surgical practice grounded in physiology and anatomy.

Halsted revolutionized surgery, transitioning it from bold and heroic acts in the operating room to precise procedures conducted in sterile environments akin to research laboratories. This evolution elevated American surgery to a recognized science, leading to a profound understanding of the efficacy of surgical treatments and leaving an enduring impact on the field.