History of Surgery

Excerpt from the Illustrated History of Surgery: United States

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Henry Jacob Bigelow (1818–1890) was born in Boston, Massachusetts. He received his medical degree from Harvard University in 1841 and subsequently pursued advanced medical studies in Europe for three years, primarily in Paris. In 1845, he was appointed Lecturer in Surgery at the Tremont Street Medical School in Boston. The following year, he was appointed surgeon at Massachusetts General Hospital. In 1849, the chairs of Surgery and Clinical Surgery at Harvard Medical School, previously held by Warren and Hayward, were consolidated, and Bigelow was appointed Professor of Surgery. Bigelow made significant contributions to the advancement of American medicine, particularly in the field of orthopedic surgery.

In 1845, he published *Manual of Orthopedic Surgery*, which is regarded as the first comprehensive treatise on orthopedic surgery published in the United States. Seven years later, he became the first American surgeon to perform a resection of the femoral head. In his landmark work, *The Mechanism of Dislocation and Fracture of the Hip with the Reduction of the Dislocation by the Flexion Method* (1869), Bigelow provided a detailed account of the anatomy and function of the Y-shaped iliofemoral ligament, which reinforces the anterior aspect of the hip joint. His observations contributed to a better understanding of the mechanisms underlying hip dislocation and its reduction.

In a paper published in 1875, Bigelow described the calcar femorale, a bony structure situated along the posteromedial aspect of the proximal femur, beneath the femoral neck and extending toward the region of the lesser trochanter. This structure contributes to the mechanical strength of the proximal femur.

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Bigelow also made important contributions to the development and understanding of anesthesia. In 1846, he published an account of the insensibility produced by ether inhalation during surgical procedures, helping establish the scientific and clinical significance of ether anesthesia. In subsequent publications, including papers published in 1848, he discussed the discovery and use of ether and chloroform, as well as their physiological effects. Another significant contribution was his improvement of lithotriptic instruments used to fragment bladder stones. In 1878, he advanced the technique by developing and introducing large-caliber evacuation tubes that facilitated the removal of stone fragments during surgery. These innovations represented an important advance in urological surgery.

David Prince (1816–1889) completed his medical education at Ohio Medical College in 1838, where Reuben Mussey was among his instructors. From 1840 to 1843, he practiced medicine in Illinois before leaving clinical practice to accept a professorship in Anatomy and Surgery at the newly established medical school of Illinois College. Five years later, Prince accepted the chair of Surgery at St. Louis Medical College in Missouri. In 1852, he resigned from this position and settled in Jacksonville, Illinois, where he continued to practice general medicine and surgery for the remainder of his life. Prince's principal publications included the following works:

- **Orthopedics: A Systematic Treatise Upon the Prevention and Correction of Deformities (1866).**
- **Plastics and Orthopedics (1871).**

These publications reflected his interest in the prevention and correction of musculoskeletal deformities and the development of reconstructive surgical techniques.

William Byford (1817–1890) was a prominent American physician and surgeon known primarily for his contributions to gynecology. He was a founder of the American Gynecological Society and received his medical degree from Ohio Medical College in 1845. From 1859 to 1879, Byford served on the faculty of Chicago Medical College as Professor of Diseases of Women and Obstetrics. He also held a faculty appointment in gynecology at Rush Medical College from 1870 until 1890. His principal publications included:

- **A Treatise on the Chronic Inflammation and Displacement of the Unimpregnated Uterus (1864).**
- **The Practice of Medicine and Surgery, Applied to the Diseases and Accidents Incident to Women (1865).**

These works addressed the diagnosis and treatment of gynecological disorders and contributed to the development of gynecology as a distinct medical specialty in the United States.

John Carnochan (1817–1887) studied under the distinguished surgeon Valentine Mott and graduated from the College of Physicians and Surgeons in New York City in 1836. He spent most of his professional career in New York, where he served as chief surgeon at the State Emigrant Hospital on Ward's Island, then one of the largest hospitals in the United States. He also served as Professor of Surgery at New York Medical College. Carnochan was recognized for his innovative and often bold approach to surgery. In 1852, he performed a total mandibulectomy, involving the removal of the entire mandible. In 1858, he reported the sectioning of the superior maxillary nerve as a surgical treatment for facial neuralgia. His principal publications included:

- **A Treatise on the Etiology, Pathology and Treatment of Congenital Dislocation of the Head of the Femur (1850).**
- **Contribution to Operative Surgery and Surgical Pathology (1877).**

His work reflected the expanding scope of nineteenth-century operative surgery and the growing role of surgical intervention in the treatment of complex musculoskeletal and neurological conditions.

David Hayes Agnew (1818–1892) graduated from the University of Pennsylvania in 1838. Following a period of practice in medicine and general surgery, he became Professor of Anatomy at the University of Pennsylvania in 1852. In 1863, he relinquished this position to teach anatomy at his alma mater. Eight years later, he was appointed Professor of Surgery. Agnew was an accomplished anatomist and highly skilled surgeon, renowned for the speed and efficiency of his operative technique. Throughout his career, he acquired extensive practical experience in the

diagnosis and surgical management of a broad range of diseases. His clinical experience and operative methods were documented in his comprehensive three-volume work, The Principles and Practice of Surgery (1878–1883). The work was subsequently translated into Japanese in 1888. Another important publication was Lacerations of the Female Perineum; and Vesico-Vaginal Fistula; Their History and Treatment (1873), which addressed the nature and management of injuries to the female perineum and vesicovaginal fistulae. Agnew also documented the history of Philadelphia's almshouse and hospital in History and Reminiscences of the Philadelphia Alms House and Philadelphia Hospital (1890).

Charles Pope (1818–1870) graduated from the University of Pennsylvania in 1839. He subsequently served as Professor of Surgery at St. Louis Medical College and as President of the American Medical Association. Although Pope occupied prominent positions in American medical education and professional leadership, relatively few publications are attributed to him.

George Blackman (1819–1871) received his medical degree from the College of Physicians and Surgeons in New York City in 1840. He subsequently pursued further medical studies in London and Paris before returning to the United States, where he was appointed Professor of Surgery at Ohio Medical College. Blackman published numerous articles in medical periodicals and professional journals. His principal book, co-authored with Charles Tripler (1806–1866), was Handbook for the Military Surgeon (1861). This work reflected the importance of surgical knowledge and practical guidance in military medicine during the nineteenth century.

Buckminster Brown (1819–1891) was the son of John Brown and the grandson of John Collins Warren. Following his father's professional example, he participated in orthopedic surgical procedures at the Boston Orthopedic Institution, where he assisted in the treatment of patients with musculoskeletal disorders. Brown also provided substantial financial support for the establishment of the first professorship of orthopedics at Harvard Medical School. His contribution helped promote the institutional development of orthopedic surgery as a distinct medical specialty. Although his published output was limited, Brown authored a short monograph entitled Cases of Orthopedic Surgery (1868). The work is notable for being described as the first American publication on orthopedics illustrated with actual photographs rather than exclusively with drawings or engravings.

William Van Buren (1819–1883) graduated from the University of Pennsylvania in 1840. While pursuing further medical studies in Paris, he met Valentine Mott, who was temporarily residing in Europe. In 1845, after serving as an assistant surgeon in the United States Army, Van Buren joined Mott in New York City as a Lecturer in Practical Anatomy. Under Mott's mentorship, Van Buren further developed his surgical expertise. Mott subsequently became his father-in-law. Van Buren was later appointed Professor of Anatomy at the University of New York. In 1866, he became Professor of Surgery in the newly established Department of Genitourinary Diseases at Bellevue Hospital Medical College. Van Buren was recognized for his broad expertise across several branches of surgery. His principal publications included:

- **Lectures upon Diseases of the Rectum (1865).**
- **Contribution to Practical Surgery.**
- **A Practical Treatise on the Surgical Diseases of the Genito-Urinary Organs (1870).**
- **Lectures on the Principles of Surgery (1874).**

His name is also associated with fibrous cavernositis of the penis, a condition characterized by inflammation and fibrosis of the erectile tissues.

Lewis Albert Sayre (1820–1900) graduated from the College of Physicians and Surgeons in New York City in 1842. In the same year, he was appointed Lecturer in Practical Anatomy in the institution's Department of Surgery, a position he held until 1852. In 1853, Sayre was appointed one of the consulting surgeons at Bellevue Hospital. In 1861, he joined his colleagues in establishing Bellevue Hospital Medical College. At his suggestion, a chair of orthopedic surgery was created, and he was subsequently appointed to the professorship.

Sayre remained in this position until 1897, when illness reportedly compelled him to retire. Sayre is particularly remembered for reporting the first successful resection of the hip joint in the United States, performed in 1855 on a patient with ankylosis. One of his most significant

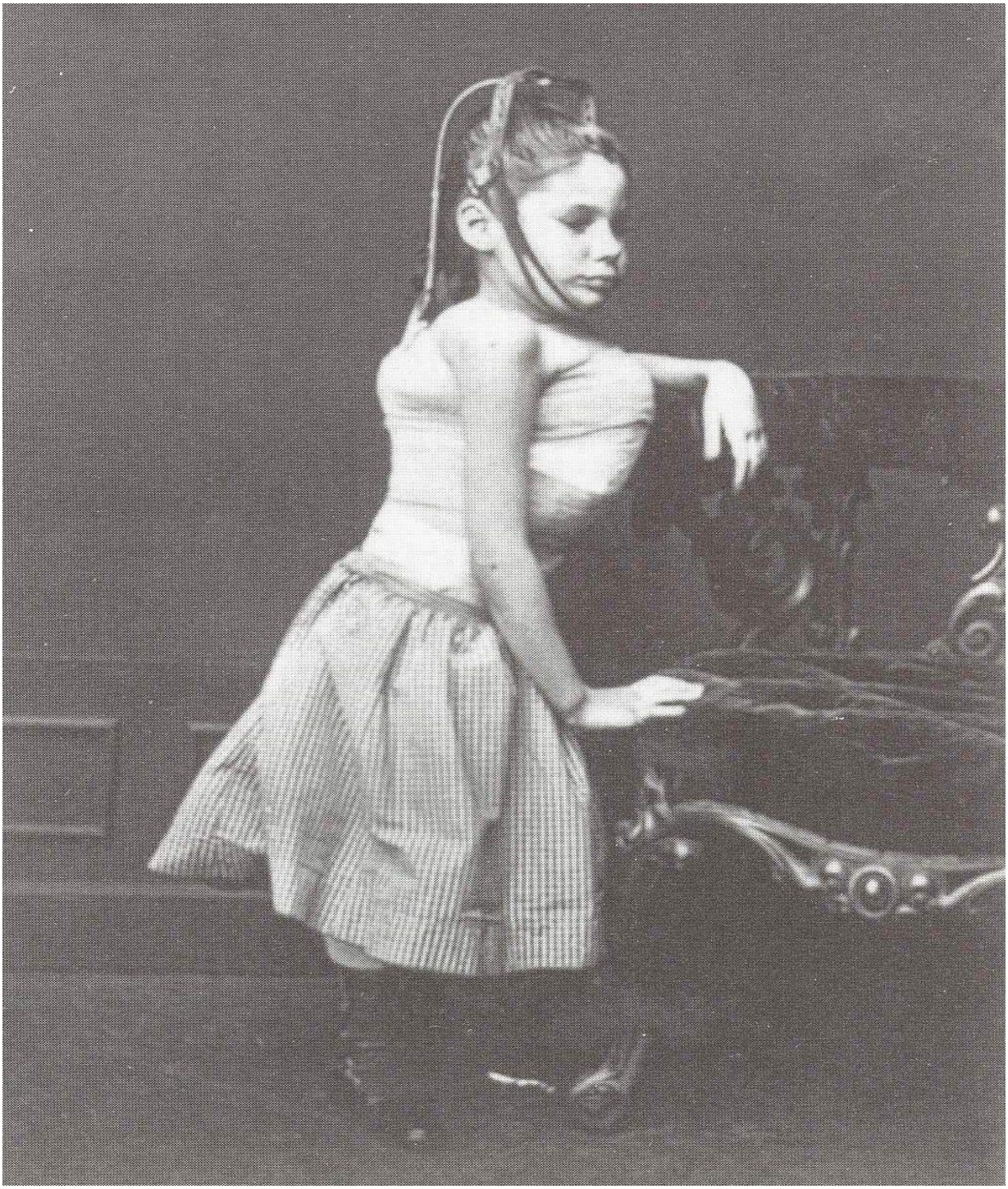
contributions to orthopedic surgery was the use of plaster-of-Paris casts to support and stabilize the spine in patients with scoliosis or spinal tuberculosis. He described this approach in 1877. Sayre also developed and popularized a method of applying a plaster jacket to treat spinal deformities. The procedure involved suspending the patient beneath a mast-like tripod, with the arms extended overhead and traction applied through supports attached to the head, neck, and axillary regions. This suspension technique helped elongate the trunk and facilitated the application of the plaster cast. Among the works attributed to Sayre are:

- **A Practical Manual of the Treatment of Club Spinal (1876).**
- **Lectures on Orthopedic Surgery and Diseases of the Joints (1864).**
- **Spinal Disease and Spinal Curvature: Their Treatment by Suspension and the Use of the Plaster Bandage (1877).**

The last of these works occupies an important place in the history of American medical photography. It has been described as the first American surgical book to incorporate actual photographs as illustrations, marking a significant development in the visual documentation of clinical conditions and surgical treatment.



Figure 1- A



Figures 1A and 1B - These images are among the early albumen photographic prints used to illustrate American surgical textbooks. They depict a ten-year-old girl with Pott's disease affecting the cervical spine and upper thoracic vertebrae. The photographs were published in Lewis Sayre's Spinal Disease and Spinal Curvature: Their Treatment by Suspension and the Use of the Plaster Bandage (1877). According to the accompanying historical account, when Sayre initially examined the girl at Guy's Hospital in London, she was reportedly unable to sit or stand without supporting her body weight on her hands. Following treatment and the application of a plaster cast, she regained the ability to move independently without assistance (Source: Author's personal collection).

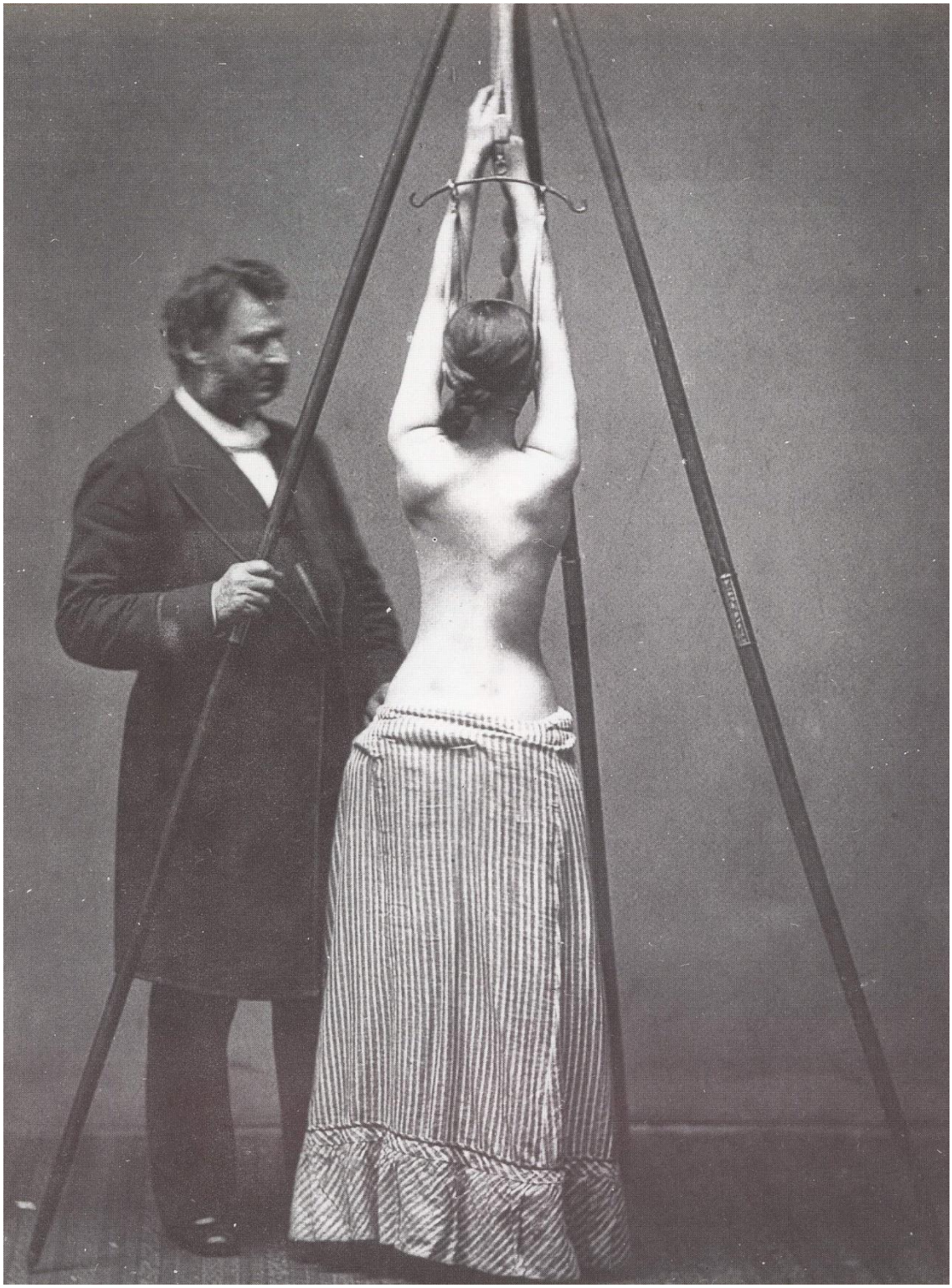


Figure 2 - This photograph depicts Lewis Sayre with one of his patients, a young woman with lateral curvature of the spine. She is shown undergoing treatment with an apparatus designed by Sayre to facilitate self-suspension and the application of traction. During the nineteenth century, physicians and surgeons frequently posed with their patients for photographs intended to illustrate their major publications. Such images served as visual records of clinical conditions, therapeutic techniques, and treatment outcomes. The photograph was reproduced from Sayre's Spinal Disease and Spinal Curvature: Their Treatment by Suspension and the Use of the Plaster Bandage (1877) (Source: Author's personal collection).

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