

The surgeon as role model



The surgeon as educator



The surgeon as student and lifelong learner

Presidential Address:

HARVEY CUSHING and the unity of surgery



The surgeon as scientist



The surgeon as humanist



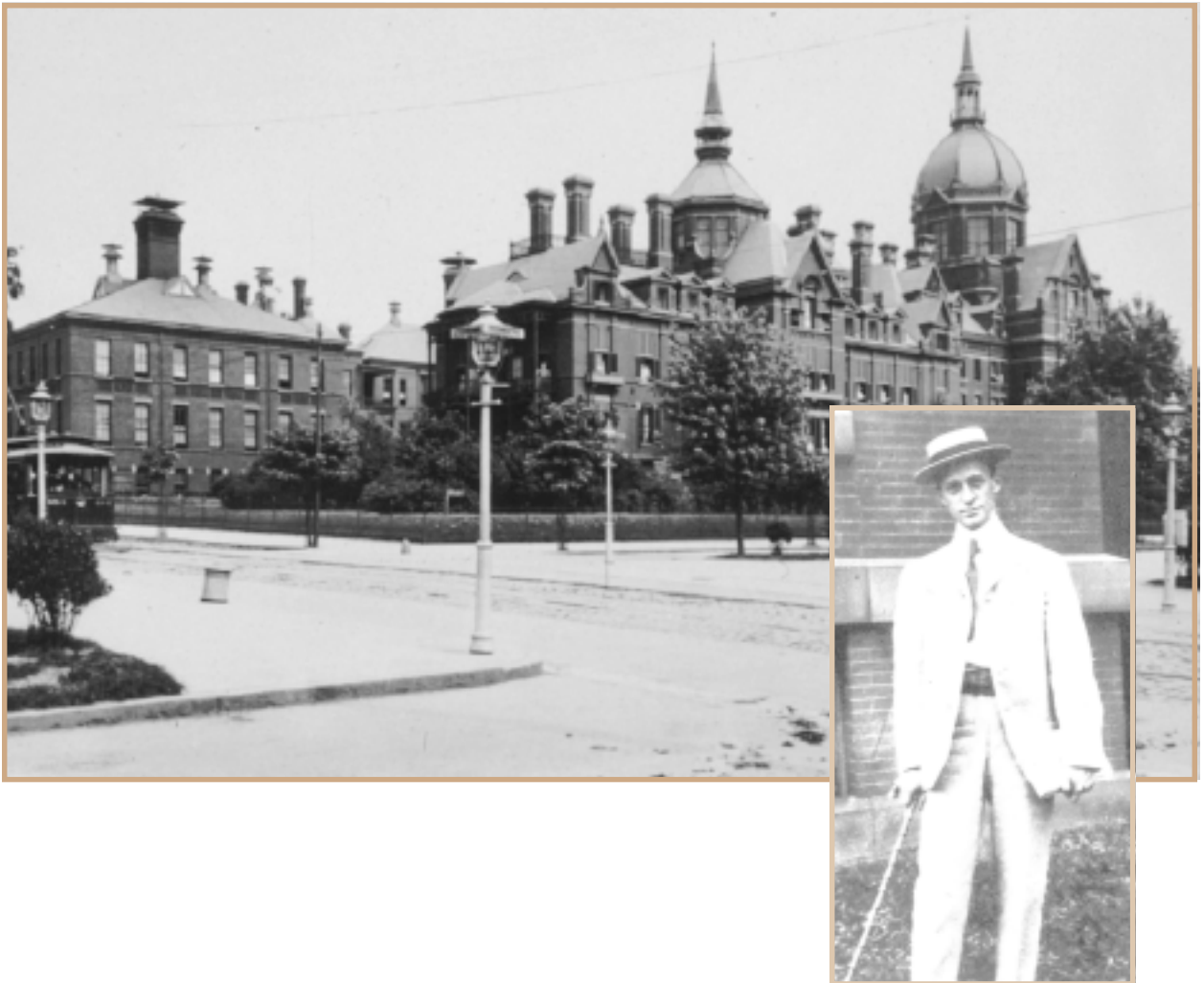
The surgeon as innovator



The surgeon as philosopher

by

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Editor's note: *Dr. Laws delivered this Presidential Address on October 10 at the Convocation in New Orleans, LA*

It is a pleasure and a privilege to be able to address you today. As young surgeons—superbly educated, armed with the best technical support that has ever existed, and bolstered by the Fellowship of the American College of Surgeons—you represent the future not only of surgery, but of our entire approach to health care for America.

As the fifth neurosurgeon who has been elected President of the American College of Surgeons, it is appropriate for me to speak about the unity of surgery, emphasizing the powerful bonds of collegiality that all surgeons share and the need for us to be united as we try to preserve our principles and the welfare of our patients.

The life and surgical career of Harvey Cushing, MD, FACS, serve as examples of many of the posi-

tive and wonderful aspects of surgery as it evolved in the twentieth century. He benefitted enormously from collegial relationships within and outside of American surgery as it gained momentum in the early 1900s.

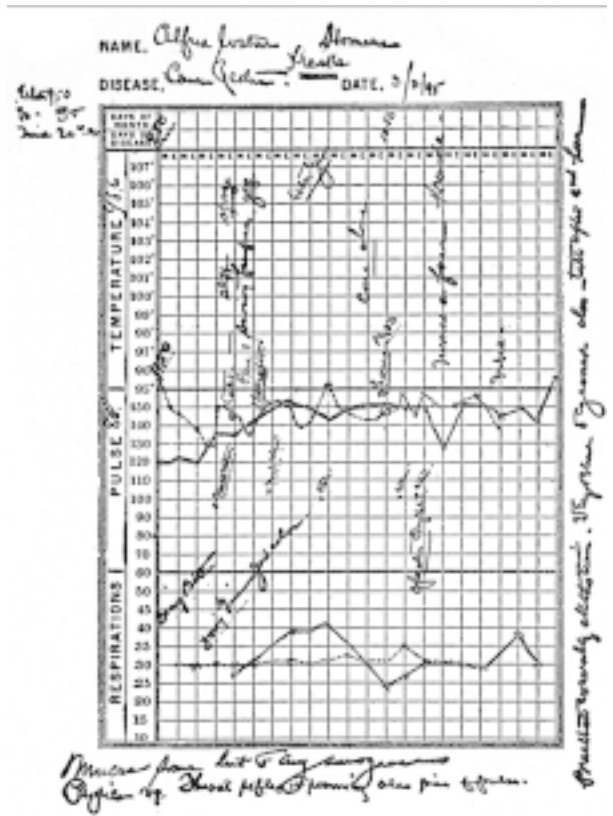
After a less than superlative undergraduate record at Yale (see foreground photo, above), Dr. Cushing became an excellent student at Harvard Medical School. His initial contributions to surgery began when he and a medical school classmate, Avery Codman, MD, were responsible for giving ether anesthesia to surgical patients. They devised the first anesthesia record (see photo, page 10), and this feat represented the first of a series of revolutionary advances in surgery. Dr. Cushing had some experience with X rays at Harvard, and took a Roentgen tube with him to Johns Hopkins University in 1898 (background photo, this page). He made his own plates and emulsions and published one of the early papers on the use of Roentgen images in surgery (see photo, page 10).

Dr. Cushing's early contributions to surgery reflected the major influences of the time. Remember that infectious disease was rampant at the turn of the twentieth century, and that a case of cancer was unusual enough to warrant the attention of all the faculty and students. Trauma, of course, was ever-present. Dr. Cushing's publications of 1898-1900 (early in his residency) focused on a variety of contemporary problems, including: intestinal perforation in typhoid, cholecystitis and cholelithiasis, gunshot wound of the spine, thoracic duct injury, splenectomy for splenic anemia, jejunal fistula, gonococcal peritonitis, anesthesia for hernia and thyroid surgery, amputation, and carotid thrombosis.

These publications reflect the basic principles set forth by William S. Halsted, MD: a keen sense of observation; attention to the details of history and physical diagnosis; and thorough and honest reporting of the outcomes. These principles remain the foundation of our current evidence-based approach to clinical and research problems in all of surgery. These concepts were embraced and perfected by a resident in surgery, and residency education as we know it began at Johns Hopkins. Cushing was one of the first young surgeons to benefit from this revolutionary concept in medical education.

Before returning to Johns Hopkins to complete his residency, Cushing spent the year 1900 abroad, visiting a number of European cities and performing experimental work in the laboratories of Kocher and Kronecker in Berne, Switzerland. There he demonstrated the physiological alterations that accompany increases in intracranial pressure (later known as the Cushing response).

Upon Dr. Cushing's return to Baltimore, Dr. Halsted asked him to develop and head the Hunterian Research Laboratory (see photo, page 11), where fundamental problems with surgery were to be investigated and where the medical students were given surgical experience in the "dog lab." The experiments done in the Hunterian lab again reflected the evolving interests of the time and the contributions of the surgical mind-set to solving basic problems in medicine. Many medical students and resident surgeons worked on and elucidated such problems as: cerebrospinal fluid circulation; carbo-



AN ETHER CHART
 One of the charts introduced by Cushing and Codman in 1895 to increase safety in surgical procedures

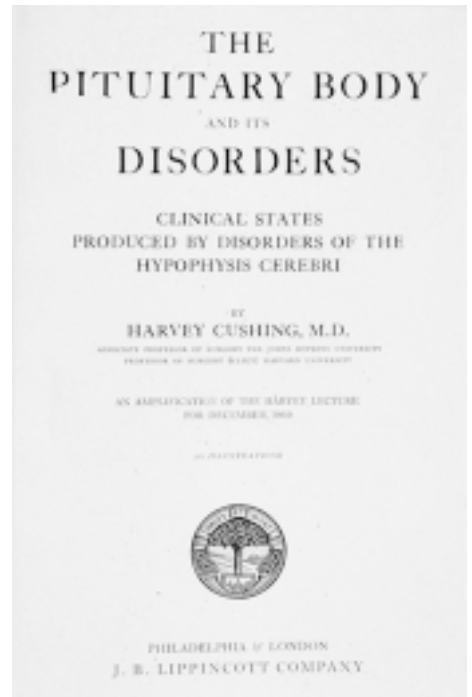
One of the charts introduced by Cushing and Codman in 1895 to increase safety in surgical procedures.



One of the first surgical Roentgenograms.



The Hunterian surgical research laboratory.



Dr. Cushing's monograph on the pituitary.

hydrate metabolism, saline irrigations, and infusions; the bacteriology of the upper gastrointestinal tract; pituitary and hypothalamic blood supply and physiology; neuro-ophthalmology; cardiac valvular surgery; neuromuscular physiology; and the transplantation of glands.

Dr. Cushing was a strong and uncompromising taskmaster in the laboratory. At times he became prematurely convinced about the outcomes of certain experiments and was unhappy when results were contradictory. This was one of the sources of controversy between Dr. Cushing and his brilliant pupil, Walter Dandy, MD.

By the time Dr. Cushing joined the faculty at Johns Hopkins in 1908, he had begun to concentrate on neurosurgical problems. He published articles about the treatment of trigeminal neuralgia, peripheral nerve surgery, and pediatric neurosurgery and, in 1912, produced a definitive monograph on the pituitary and its disorders (see figure, this page). The most in-

spiring aspect of this book, which contains the basic aspects of all we know about pituitary disease, is that it was derived from the careful clinical observation of only 47 patients!

In 1912, after rejecting several other offers, Dr. Cushing became surgeon-in-chief at the Peter Bent Brigham Hospital and professor of surgery at Harvard. There he was responsible for all of surgery, and superb progress in many areas of surgery flourished under his leadership. He went to France in 1915 and again in 1917-18 to assist the Allies in the war effort, and there he made many important and lasting contributions to modern military surgery.

The ability to adopt modern techniques and to apply them scientifically continues to characterize American surgery. These characteristics allowed Dr. Cushing and his students to develop the field of neuropathology, to apply the principles of blood transfusion to neurosurgical cases, to study and experiment with hormone replacement therapy and the control of hyper-



Dr. Cushing, embodying the surgeon as humanist.

The roles of the surgeon:


- The surgeon as humanist
- The surgeon as student and lifelong learner
- The surgeon as innovator
- The surgeon as educator
- The surgeon as scientist
- The surgeon as philosopher
- The surgeon as role model

tension, and to introduce electrosurgery (the “Bovie”).

The residents and students who worked with Dr. Cushing at Johns Hopkins, at the Brigham, and later at Yale, formed the nucleus of American surgeons who would carry on the traditions that Dr. Cushing exemplified.

And so, in an historical review of one individual we can find many aspects of surgery as we now know it, and note the many roles that we as surgeons may play: the surgeon as humanist; the surgeon as student and lifelong learner; the surgeon as innovator; the surgeon as educator; the surgeon as scientist; the surgeon as philosopher; the surgeon as role model. These facets of a brilliant surgeon reflect the collegial aspects of his evolution as a surgical leader and remain of vital importance to us today.

In closing, I would ask that you enjoy every confidence in your knowledge and skill as surgeons and that you constantly strive to increase these capacities. Use technology and innovation

wisely and well. Most of all, cherish your gifts: the gift of technical skill; the gift of cognitive excellence; the gifts of your colleagues; and, most of all, the gift of our surgical patients who depend on us in so many ways. 

Dr. Laws is W. Gayle Crutchfield Professor of Neurosurgery, University of Virginia, Charlottesville, and the 85th President of the American College of Surgeons.

