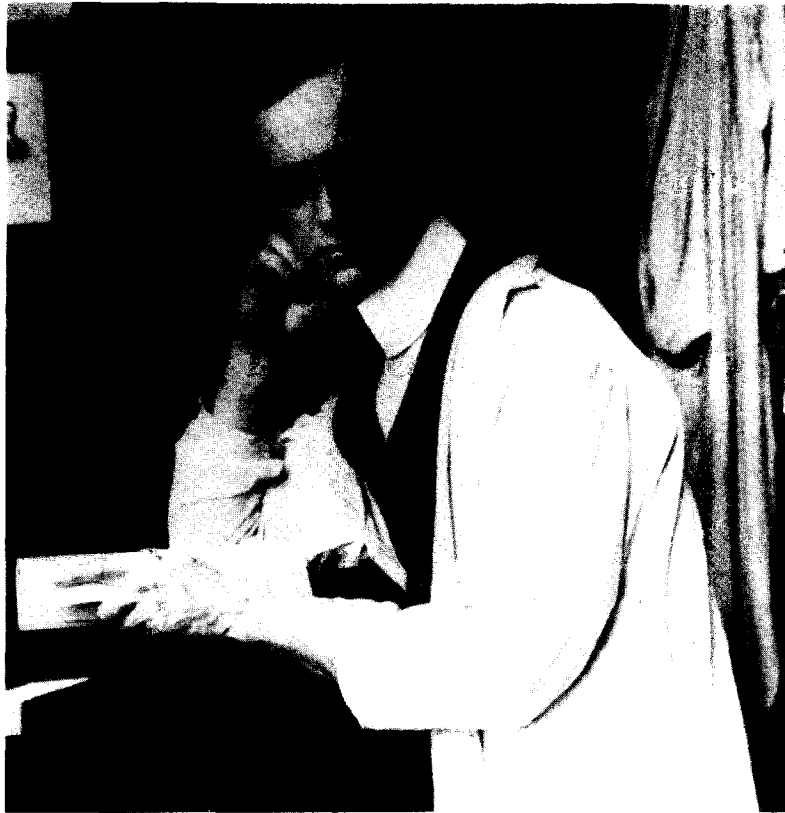


## About the cover illustration



### **HARVEY W. CUSHING, MD (1869-1939)**

Harvey Cushing came from the Middle West to become not only a world-famous neurosurgeon but also a thoughtful and charismatic figure in academic medicine.

Harvey Williams Cushing was born to a long line of physicians in 1869 in Cleveland. His forebears had come to the Massachusetts Bay Colony in 1638. David Cushing, Jr. (1768-1814), Harvey Cushing's great grandfather, was the first physician in the family. David Cushing's son, Erastus Cushing (1802-1893) also became a physician and practiced in the Berkshire Hills of Massachusetts. Seeking more temperate climes, Erastus Cushing moved to the village of Cleveland, Ohio, in the Western Reserve of Connecticut. His son, Henry Kirk Cushing (1827-1910), Harvey Cushing's father, attended Cleveland Medical College, and after a stint in general practice, specialized in obstetrics and gynecology.<sup>1</sup>

Harvey Cushing graduated from high school 11th out of 83. He performed best in math and Latin and poorest in English (ironic for a future Pulitzer Prize-winning author). Most important, he was influenced by Newton Anderson, his physics teacher. Anderson, who later established a forerunner of vocational high schools, believed that the development of manual dexterity played a pivotal role in the development of the intellect. Cushing attended Yale College from 1887 through 1891. He then went to Harvard Medical School and received the degrees of MD and AM cum laude in 1895. While a medical student, he and a classmate, E. A. Codman, devised a chart system for the continuous monitoring of pulse, temperature, and respiration during anesthesia. After a year as House Pupil at the Massachusetts General Hospital, he went to the Medical School of Johns Hopkins University in Baltimore as William S. Halsted's assistant resident in surgery. During a year abroad, he became acquainted with the Riva-Rocci device for the measurement of blood

pressure. His initial efforts to introduce routine intraoperative monitoring of blood pressure were met with resistance. Having achieved the rank of associate professor at Johns Hopkins, in 1910 he was elected University Professor (later Moseley Professor) of Surgery at Harvard Medical School and played an instrumental role in the organization of the new Peter Bent Brigham Hospital. He remained at Harvard until his retirement in 1932 and then held the Sterling Professorship of Neurology at Yale until 1937. He continued at Yale until his death in 1939.<sup>1,2</sup>

The accomplishments of Harvey Williams Cushing, MD, spanned a remarkably wide range. As a surgeon, he helped to establish the subspecialty of neurosurgery and made numerous technical contributions; as an endocrinologist, he pioneered advances in the physiology of the pituitary, described a disorder that bears his name, and served as the president of the Association for the Study of Internal Secretions (Endocrine Society); as a writer, he authored memoirs, numerous essays, and a Pulitzer Prize-winning biography of Sir William Osler; and as a teacher, he trained and inspired generations of students. The legacy of this remarkable polymath has recently been recognized by the U.S. government: a postage stamp in the Great Americans series bearing his portrait was issued on June 17, 1988.<sup>3</sup>

Cushing also played an active role in solidifying the links between experimental science and clinical practice. These efforts took place against a background of issues surprisingly relevant to contemporary developments. Addressing the dedication of the William H. Welch Medical Library of the Johns Hopkins University School of Medicine in 1929, he commented on the progressive decentralization of medical schools and the increasing specialization of both preclinical and clinical departments. He said:

More and more the preclinical chairs of most of our schools have come to be occupied by men whose scientific interests may be quite unrelated to anything that obviously has to do with Medicine, some of whom, indeed, confess to a feeling that by engaging in problems that have an evident bearing on the healing art they lose caste among their fellows. They have come to have their own societies, separate journals of publication, a scientific lingo foreign to other ears, and are rarely seen in meetings of medical practitioners, with whom they have wholly lost contact.<sup>4</sup>

Despite the heavy clinical demands of his training, Cushing took time for laboratory investigation. Having completed residency in 1900, he worked in the laboratory of the Swiss physiologist Hugo Kronecher and studied the effect of increased intracranial pressure on blood pressure in dogs—the Cushing reflex. When at Johns Hopkins, Cushing was responsible for expansion of the students' practical experience in dog surgery in "The Old Hunterian," an experimental surgical laboratory. At Harvard and the Peter Bent Brigham Hospital, he helped to revitalize the surgical research laboratory that John Collins Warren had established in 1903.

Although his responsibilities for administration, patient care, and teaching limited his time in the laboratory, he kept in close touch with all aspects of its work. He was a prodigious investigator, publishing 13 books and more than 300 scientific articles during his long career. He also was forced to spend much time obtaining financial support. These efforts brought him into heated conflict with medical school administrators. In a letter to Dean David Edsall (7 March 1925), Cushing wrote:

. . . I may take it for granted that the members of any major departments in the school, perhaps the Department of Surgery more than any other, need opportunities and encouragement to engage in laboratory investigations. . . .

The Surgical Laboratory, too, is a place where students should be taught surgical therapeutics, in other words, where they should have their first experience in the making and repairing of operative wounds. To my great disappointment this has been made practically impossible in the Harvard Medical School, particularly through lack of funds, partly through action of the curriculum committee—in short, for want of school support.

. . . When all emphasis today is laid upon scientific and laboratory work, for anyone to imply that the clinician and perhaps above all the surgeon most of whose energy and time is expended in labourous hours at the operating table, should receive discouragement from the school in regard to the pursuit of knowledge is to me amazing. One might well suggest that the physiologists carry out their researches in the laboratories of the Anatomical Department. If the pre-clinical departments succeed in driving the clinician out of the school entirely, instead of encouraging him to work there, it will be one more source of estrangement between those departments which deal with patients and those which do not.<sup>5</sup>

Harvey Cushing's efforts to further in practice the concept of the integration of clinical service

and research endeavor, both in the education of the individual physician and in the collective organization of the medical school, endure as part of his legacy.

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(Photograph courtesy of the Historical Division, Cleveland Medical Library Association.)