The challenge of chronicling the life of a medical giant was not unknown to Harvey Cushing. After the death of Sir William Osler in 1919, Cushing (who considered Osler a friend and mentor) was chosen by Osler’s widow to write the definitive biography of America’s greatest physician. Engaged in the task for roughly five years, while simultaneously serving as Chief Neurosurgeon at Peter Bent Brigham Hospital, a harried Cushing once declared, “The pen is more difficult than the scalpel.” Cushing would go on to remark that the project taught him more about life and medicine than anything his formal medical education ever did. His work won him the Pulitzer Prize in 1926.

Like Cushing, Michael Bliss has previously wrestled with Osler’s life and times in his well-received biography, *William Osler: A Life in American Medicine*. Bliss, a medical historian and professor at the University of Toronto, now turns his attention to Cushing himself, and his founding role in the development of modern neurosurgery. *Harvey Cushing: A Life in Surgery* is a thorough, thoughtful study that opens a window on Cushing’s personality and accomplishments without descending into the hagiography that weakened earlier biographies of Cushing, such as *Harvey Cushing: A Biography* (1946) by Cushing’s disciple and Yale physiologist, John Fulton.

As the first full-scale biography of Cushing since 1950, Bliss’s book is distinguished by its seamless integration of Cushing personal and surgical lives. Bliss lays out the motivations behind Cushing’s drive to become the country’s foremost neurosurgeon, while offering episodes from Cushing’s private world; transcripts of the correspondence between Cushing and his wife Kate reveal their most intimate sentiments. Bliss does an expert job of charting the progress of neurosurgery at the beginning of the twentieth century. The embrace of asepsis, the technical advances in the OR, and the struggle to reduce surgical mortality all find their places in Bliss’s 591 pages.

Born in Cleveland in 1869, Cushing was heir to a long line of physicians, none of whom were surgeons. Though medicine was an obvious career choice, neurosurgery was not; the field was still extremely primitive at the time Cushing was considering it. After attending Harvard Medical School in the 1890s and working under the legendary William Halsted in the newly minted Johns Hopkins Hospital, Cushing was drawn to surgical problems of the nervous system around 1899. These initial forays prompted Osler, then Chief of Medicine at Hopkins, to remark, “Harvey Cushing has opened the book of surgery in a new place.”

Cushing’s early ganglionectomies at Hopkins were successful in curing the notoriously difficult condition of tic douloureux (trigeminal neuralgia). A subsequent visit to observe the contemporary masters of surgery in Europe convinced Cushing that he had little to learn from the Old World. After a brief stay in Berne to study (under Theodor Kocher) the problem of cerebral circulation in the setting of elevated intracranial pressure, Cushing received an offer from Halsted to return to Hopkins as an associate surgeon who would specialize in “surgery of the nervous system.” This appointment, coupled with the growing buzz generated by the publication of his research results, catapulted Cushing to a position of eminence at the impossibly young age of thirty-three.

Cushing quickly established brain surgery as a significant and viable surgical specialty. As Bliss writes, “In the first decade of the twentieth century, Harvey Cushing became the father of effective neurosurgery. Ineffective neurosurgery had many fathers.” From his return to Hopkins in 1901, to his successful removal of a tumor from the cerebral cortex of a completely conscious patient in 1908, Cushing single-handedly brought the field of neurosurgery from the stone age to a praxis that closely resembles neurosurgery as performed today. Cushing achieved this through a combi-
nation of skill and hard-driving intellect. His emphasis on pre- and post-operative care, careful hemostasis, intra-operative blood pressure monitoring (he brought the first sphygmomanometer back to the US from Italy), and meticulous technique (most surgeons operated far too fast) allowed Cushing to operate on the brain regularly, successfully, and with an astoundingly low mortality rate. Over the course of his career, Cushing would achieve a mortality rate of just over 10%; in the pre-Cushing era of neurosurgery, mortality rates of 50–60% were the norm.

By 1912, Cushing had left Hopkins and taken up residence in Boston, where at the age of forty-two he was appointed Moseley Professor of Surgery at Harvard and the recently opened Brigham Hospital. The bulk of Cushing’s caseload was brain tumors. By the end of his career, Cushing had operated on 2000 of these, more than any living neurosurgeon. He also developed a more reliable trans-sphenoidal approach for lesions of the pituitary, and his study of that gland made him one of the pioneers of endocrinology.

Cushing’s fascination with the pituitary is often overshadowed by his neurosurgical successes. But he was an eager student of the pituitary, ultimately publishing a monograph in 1912 that would stand as an important early work in the history of endocrinology. Entitled The Pituitary Body and Its Disorders, Cushing hoped his book, which documented and discussed 48 case histories, would guide clinicians through the complicated set of disorders resulting from pituitary dysfunction. Leading up to the publication of this monograph, Cushing conducted research on dogs in the Hunterian Laboratory at Hopkins. Through that research Cushing identified the phenomena of hypopituitarism and hyperpituitarism, terms he coined himself.

But Cushing’s laboratory findings did not translate into clinical success; as Bliss writes, “the stowaway gland, whose first answers had seemed relatively straightforward to Cushing, turned out to be maddeningly elusive, deceptive, complex.” Cushing’s research on the pituitary, Bliss goes on to note, “fell prey, as [Cushing] gradually realized, to misconceptions, simplifications, wishful thinking, and dead ends.” One such failed intervention was Cushing’s radical attempt to transplant a pituitary. In 1912, Cushing implanted a pituitary from a newly deceased baby into the temporal lobe of a patient whose pituitary had been obliterated by a cyst. After very early signs of improvement, the patient relapsed and died, and the operation was considered a failure. In spite of such inevitable early setbacks, Bliss recognizes that Cushing’s “genius was to have grasped the concept of the pituitary as the gland whose secretions control growth” years before the identification of human growth hormone as a pituitary product. Nonetheless, it would be decades before Cushing would re-engage the pituitary, which Madeline Stanton, Cushing’s secretary for many years and a diarist in her own right, would write was “the Chief’s first and only true love.”

During his final years at the Brigham in the early 1930s, Cushing developed a hypothesis that proved to be his enduring contribution to the field of endocrinology. In preparing a lecture on pituitary physiology in 1930, Cushing located a case in the literature that was reminiscent of a recent patient. The two patients had similar symptoms, and an autopsy of the case reported in the literature had revealed a basophil adenoma. Cushing proceeded to an exhaustive search within the literature and his own patient records. Based only on his findings, Cushing submitted a report in which he argued for the existence of a syndrome caused by basophil pituitary tumors. Such tumors, he maintained, stimulated the hypersecretion of hormones by the adrenal cortex. Hypersecretory adrenal gland tumors could bypass the pituitary and directly cause the syndrome. Recognized the world over as a major medical observation, the condition was immediately named Cushing’s Syndrome (In cases where basophil pituitary adenomas were the culprit, the condition later became known more specifically as Cushing’s Disease.) Cushing’s assertion that hypersecretion by the adrenal cortex resulted from pituitary basophil adenomas was, as Bliss notes, “a daring and controversial hypothesis on Cushing’s part, based on only a few cases.” Cushing’s concert-grade performance in the operating room had its counterpart in his contributions to human physiology.

As Bliss would have us realize, there was much more to Cushing than his pioneering work in neurosurgery and endocrinology. Cushing the professional gives way to Cushing the father, mentor, and man. Among other personal anecdotes, Bliss revisits the well documented rift between Cushing and his protégé Walter Dandy. This complicated father-son relationship is woven throughout the biography, with Bliss contrasting Cushing’s “temperamental and surgical caution” against Dandy’s “near-reckless impetuosity.” Adducing an anecdote as an apt metaphor of their hard-fought generational struggle, Bliss writes, “Dandy and Cushing ended their last day as colleagues with a set of tennis . . . The forty-three-year-old surgeon and his twenty-six-year-old assistant played evenly, game after game. Neither could get more than one game up and win the set. After twenty games, the score stood 10-10 and they declared their match a draw.”

A tour of duty as the commanding officer of US Army Base Hospital No. 5 in France during World War I drove Cushing to the brink of complete exhaustion. During this time, he was also likely afflicted with Guillain-Barre syndrome and worsening Buerger’s disease (Cushing was a chronic smoker); upon his return to America, he would never be the same physically. Perhaps the most touching moment in the biography is Bliss’s account of four famous American surgeons working on the wounded abdomen of Revere Osler, Sir William’s 21-year-old son. In the less familiar territory of the abdomen, Cushing could only track the boy’s pulse while the other surgeons operated to no avail.

Cushing’s legacy in neurosurgery extends beyond the technical innovations he brought to the field. His
impact is also measured by the number and prominence of his neurosurgical descendants, a group that Bliss happily refers to as Cushing’s “surgical sons.” The list is long: Gil Horrax, Percival Bailey, John Scarff, Wilder Penfield, and Eric Oldberg, to name a few. The Cushing genealogy forms the foundation of modern neurosurgery as it was and still is practiced in this country. His professional sons, grandsons, and now great-grandsons reflect the personality of their patriarch in their perfectionism, machismo, and obeisance to the notion of hard work. As Bliss describes, Cushing “wrought a revolution . . . He had created modern neurosurgery.”

Cushing was aware of the centrality of his contribution to neurosurgery, but shunned celebrity—he demurred press coverage of his operations and publicly downplayed his status and achievements. He took credit privately, however, for his part in creating the model of the modern neurosurgeon: “[It is] perhaps the most arduous and responsible of the many surgical specialties. We can have the great satisfaction of knowing that only men of a certain type will venture to make it their life work.” Cushing’s belief in the power of the individual is further revealed in his remarks on writing Osler’s biography, where he declared, “I have rather come to conclude that personality is the most important thing in the world.” Thanks to the epic effort of Michael Bliss, we now have a document of Cushing’s personality, and a volume that deserves a place alongside Cushing’s Osler on the shelf of great medical biographies. Bliss’s Cushing deserves to be read by successive generations of neurosurgeons, biologists, and the general public alike. Like its subject, it is a testament to faith, judgment, and above all, devotion.
Harvey Cushing: A Life in Surgery by Michael Bliss (2005), Oxford University Press

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