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FULTON'S *HARVEY CUSHING*

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FULTON'S *HARVEY CUSHING*

MEDICINE in general has been unusually fortunate in the biographers of her worthies. *The Life of Sir William Osler*, by Harvey Cushing, a full two-volume estimate of Osler and his influence on Canadian, American and English medicine, published in 1925, set a standard never before reached in medical biography in this country and indeed seldom equaled in all the history of physic. One can only compare it with Stephen Paget's discriminating study of Victor Horsley or with Humphry Rolleston's thoughtful biography of Clifford Allbutt, to mention only two outstanding modern examples. As the Cushing volume is so richly autobiographical, there comes to mind also those more personal reminiscences of contemporary physicians, such as Hans Zinsser's appealing *As I Remember Him: The biography of R. S.*, Ramón y Cajal's penetrating *Recollections of My Life*, Bland-Sutton's sprightly *The Story of a Surgeon*, August Forel's *Out of My Life and Work* and, in a lighter vein, *The Horse and Buggy Doctor* by Hertzler and *Sands of Time* by Purves-Stewart. To these of recent date should be added the fine tribute to Théodore Tronchin by Henry Tronchin and the memorable account of William Henry Welch by Simon Flexner and his gifted son James Thomas Flexner.

To this brief list, fully recognized as incomplete, must now be added the biography of Harvey Cushing by John F. Fulton. Few biographies are

more satisfying than this competent life. Much was told by Cushing himself, and a mosaic, based on such original sources, has been judiciously fitted into a full portrait by his skilful biographer.

A review of the book appears elsewhere in this issue of the *Journal.* The volume is a worthy contribution to medical biography, and physicians, medical students and indeed the lay public should find inspiration and a stimulus to greater things in reading the life of the outstanding surgeon of his age and a medical pioneer of no mean ability.

H.R.V.

Harvey Cushing: A biography. By John F. Fulton, M.D. 754 pp. Springfield, Illinois: Charles C Thomas, 1946. $5.00.

Harvey Cushing, neurosurgeon, author, diarist, bibliophile and scholar, whose name ranks with those of William Osler, William H. Welch and others, stands out as one of the great physicians of our time. He was quite possibly the most distinguished graduate of the Harvard Medical School, certainly one of the greatest of American surgeons and, without question, a man whose influences in more than one field of medicine will have enduring recognition. To have virtually developed a new department of surgery, to have written the foremost biography of a contemporary medical figure, — a book widely proclaimed both in and out of his profession, — and to have greatly enriched the fields of medical history and science are accomplishments of no mean order. Harvey Cushing did each of these and, in addition, molded the lives of countless young men who later, in turn, have made no inconsiderable advancements in the progress of medicine. Not the least of those he trained is his talented pupil and friend of his later years, a distinguished professor of physiology and the author of his biography. Harvey Cushing, long anticipating that an account of his eventful life might be of use to future students of medicine, kept voluminous notes and diaries, almost writing his own biography by the daily activity of his pen. Few men have left a larger accumulation of pertinent material for a competent biographer to sift, or more remarkable papers and drawings on which the latter could base the reactions of his subject to the events of his time.

Harvey Cushing was born in Cleveland, Ohio, on April 8, 1869, the descendant of an English family that came to New England in 1638. His grandfather, Erastus Cushing, M.D., the son of a country doctor, emigrated by the Erie Canal to the Western Reserve of Connecticut in 1835, and there, in Cleveland, his father, Henry Kirke Cushing, M.D., was brought up. The latter was a shy, somewhat austere and puritanical person, although highly regarded as a practitioner of gynecology and obstetrics. With the heavy responsibilities of a large family, Dr. Cushing was frugal to the point of penuriousness. Often silent and secretive for days, speaking to no one in his family, he led at times a somewhat somber life. Harvey Cushing's mother, on the other hand, was even-tempered, forceful and kindly, with humor, grace and an inner gaiety of spirit. Some of these qualities, as well as some from his father, Harvey Cushing inherited in full measure. He was the youngest in a family of ten children; only seven lived to maturity. One brother also became a physician, and the others were supplied by their thrifty father with splendid educations. The eldest graduated from the Harvard Law School and practiced his profession in Cleveland for many years; another graduated from Cornell University and became a geologist of note; the older brother who became a physician went to Cornell and then to the Harvard Medical School; and Harvey was sent to Yale and then to the Harvard Medical School. Surely few fathers have given their sons better educational opportunities than did the penurious Cleveland practitioner.

Harvey Cushing's career at Yale was that of an undistinguished but creditable scholar, a superb athlete, particularly brilliant in baseball and adept at gymnastics, and a popular boy who was elected to the proper clubs in spite of his father's disapproval of both intercollegiate athletics and college societies. Cushing's ability to make sketches and his powers of description were already discernible in his college years. Preserved are the diagrams of his first quarters in New Haven and a striking description, in a letter to his mother, of the blizzard of 1888.

Turning to medicine, Cushing entered the Harvard Medical School in 1891. The high stone steps of the building (now part of Boston University) on Boylston Street in Boston tempted him to repeat his performance off the steps of the Yale gymnasium, and with a lighted cigarette in his mouth he turned a back somersault, landing upright on the bare sidewalk with the cigarette still going. This no doubt made the transition from New Haven to Boston less difficult than he had expected, but Cushing soon developed an uneasiness about Harvard that he never quite overcame. He soon became heavily involved in his studies, however, and by the second half of his second year he was etherizing for Dr. Warren. One of his first patients died under the anesthetic, a profound shock to the sensitive young medical student. Later, he became depressed, with frustrations and a feeling of inadequacy, but these he overcame by dint of hard work, which won for

him a surgical internship at the Massachusetts General Hospital. He was regarded by his friends as the ablest man in his class. While a student he, with Amory Codman, devised a chart for recording the temperature and pulse of a patient during etherization. When serving as an intern, he and Codman again collaborated, this time on x-ray photographs. In the spring of 1896 they purchased a crude machine and took some pictures, activating their x-ray tube by a hand-driven static machine and using exposures up to twenty minutes to get a clear plate. Cushing, even in those days, was a perfectionist, difficult to work with and ambitious almost to a point of intolerance, arousing many animosities among his fellow workers. He was also critical of his surgical teachers, writing that "these men operate about the way a commercial traveler grabs breakfast at a lunch counter."

In 1896 Cushing went to the Johns Hopkins Hospital to serve as an assistant resident in surgery under Dr. William S. Halsted. There he remained for thirteen years. Bringing down his x-ray apparatus from Boston, in 1896 Cushing made the first x-ray films taken at Hopkins. A patient with a bullet in the cervical spinal cord interested him and, using photographs of x-ray films as illustrations, he published his first formal piece of writing in 1897. Cushing soon became a great favorite with the patients in the wards — but not always with the nurses or his fellow members of the staff. Dr. Halsted was often sick, and Cushing saw little of him during his three years as resident. He thus had more responsibility than most house surgeons and more opportunity for developing his own technics. Following Halsted's work on cocaine infiltration, Cushing began a series of studies on block anesthesia in 1898. Then came a pioneer development in the handling of patients with typhoid perforations and a paper on gonococcal peritonitis.

Going abroad in 1900, Cushing went to Berne, where he did experimental work in Kronecker's laboratory and attended Theodor Kocher's clinic. He carried his experiences with animals in Kocher's laboratory, where he observed the brain through a small window in the skull, to Mosso in Turin. There, using the same technic, he studied a man with a cranial defect. Seeing a model of Riva-Rocci's blood-pressure device in Pavia, Cushing promptly sketched it and brought a model back to Baltimore when he returned home. Most of his investigations at various centers were followed by papers, published in current journals. In some instances these had a bluntness and lack of diplomacy that caused considerable disconcertion among his senior men, who were accustomed to write papers in their own names that were based on the work of their pupils. Later came a productive month with Sherrington in Liverpool before returning to America.

Returning to Johns Hopkins Hospital in 1901, at the age of thirty-two, Cushing began practice, living next door to the Oslers, at 3 West Franklin Street. With Thomas B. Futcher and Henry Barton Jacobs, he became one of the "latch-

keyers" to the "man-next-door," William Osler, whose life he described many years later in the most successful medical biography of its time. He then developed a growing interest in surgery of the nervous system, spaced with experimental studies on blood pressure, courses in graduate instruction in general surgery and studies in the physiology of saline solution.

Cushing had long shown more than a casual interest in neurologic surgery, first at the Massachusetts General Hospital and later in his experimental researches abroad. At Hopkins his attention was directed to this special field of therapy through a simple operation for meralgia paresthetica on the astrophysicist Simon Newcomb, a long series of investigations on the Gasserian ganglion and a special assignment to this department of surgery under Dr. Halsted. By 1904 he was ready to make his first report as a "brain surgeon," and in 1908 he wrote the long chapter "Surgery of the Head" for Keen's *Surgery*. The operative mortality was so high in those days that Cushing at once turned to the problem of improvement in technic, devising the cranial tourniquet and new instruments. Also, he began his study of the pathology of brain tumors, noting their variation in recurrence and other features of their natural history.

From 1908 to 1912 came the period of the experimental work on the pituitary body, the development of suboccipital exposure for cerebellar tumors, trips to Europe, the first operation on General Leonard Wood in 1910 and the publication of the pituitary monograph in 1912. Cushing had a curious way of setting up a theory and then making every effort to prove it, even when accumulated evidence showed that his theory was based on unsound premises. He was led astray regarding the finding of pituitary extract in the spinal fluid and never admitted that he was wrong, a curious foible in a man who had so many obvious virtues as an investigator. This caused some of his junior associates to waste valuable time in attempting to establish Cushing's original contention. The pituitary monograph, however, was characterized by the remarkable case histories, the discussion on acromegaly, gigantism and hypopituitarism, the microscopic studies and the development of the surgical approach to pituitary tumors, all contributions of major importance. As Osler remarked, it opened "several new chapters in cerebral physiology, to say nothing of metabolism."

In 1912 Cushing removed to the newly established Peter Bent Brigham Hospital in Boston as surgeon-in-chief and at the same time became the Moseley Professor of Surgery at Harvard University. Here he continued and greatly expanded his brain-tumor clinic, developed a new series of research problems, trained a long list of young students, interns and residents and made Boston a center for neurosurgery. His special field of endeavor was twice interrupted by war — first in 1915 when he led the Harvard Surgical Unit to Paris and secondly by his command of Base Hospital No. 5, which went overseas in 1917. His voluminous diaries were partly published in the book "From a Surgeon's Journal" in 1936.

Back in Boston, his clinic ever expanding and the Society of Neurological Surgeons founded, Cushing turned to prepara tion of the Osler biography, his major literary work and possibly his greatest contribution to fame. The book, published in 1925, received wide acclaim and was awarded the Pulitzer Prize in 1926. Five more years brought his operations on brain tumor cases to over two thousand, and with the description of a new syndrome, pituitary basophilism, his active work in surgery drew to a close. His last operation occurred in August, 1932, at the age of sixty-three. Leaving Boston he settled happily in New Haven, near his old and cherished Yale University, where he remained, developing a brain-tumor registry, exploring his library and making plans to leave it to the University, writing his biobibliography of Vesalius and, except for periods of great pain and distress, enjoying life to the utmost with old and new friends until his death in 1939.

His biographer has wisely kept a restraining hand on the more turbulent moments, and with studied care he has etched a portrait of Cushing without giving offense. Harvey Cushing was too great a man for some of his nimble jumps into controversy not to be overlooked, as he did so frequently himself. But, as with his famous backward somersault, he usually came up aright, with cigarette glowing and much justified applause for his audacity. In the intenseness of his life much was sometimes ruthlessly pushed aside, but he not infrequently showed the warmer side of his nature with equal or even greater fervor. So many acts of kindness went untold — medical students helped both financially and spiritually, friends made unexpectedly happy by unannounced visits, gifts on appropriate occasions and messages to those in distress. Few men have had a "harder" practice, for patients with brain tumors bring many problems to the neurosurgeon, often of a tragic nature. Cushing felt deeply and was profoundly touched by misfortune, as many a patient and friend can testify. His brusqueness, too, hid an essentially shy, sensitive nature, for at heart he was a deeply lovable person, driving himself and being driven by the environment he created to heights not often attained. He flew high and straight, maintaining an altitude of greatness throughout his life. In reading his skillfully written biography one never glimpses Cushing as "grounded."

The book is published in a fitting manner, finely printed and illustrated. Only two devoted friends, his biographer and the publisher, could combine to make a volume so representative of the man who meant so much to both of them. Modestly priced to fit the pocket of the medical student of the day, the book should be compulsory reading for every man and woman entering medicine as a profession. Poor indeed is the student who cannot gain from reading the life of one of America's finest products, a man who inspired his contemporaries as few others have done and who will continue to enrich the lives of those that come after him, thanks to this worthy volume.

HARVEY CUSHING AT SEVENTY

On April 8, 1939, Harvey Cushing will be seventy years of age. His friends from America and from distant lands will meet in New Haven, under the auspices of a group of neurologists and neurosurgeons, many of them pupils of his, the Harvey Cushing Society. To them and other guests will fall the honor of personal greetings. But the world at large will also be thinking of this great figure in American medicine, perhaps the foremost physician produced by the United States. Without being unmindful of the preceding figures in American medical history, may we not, on this occasion, honor the acknowledged leader of modern medicine? What manner of man, however, do we congratulate on his threescore years and ten?

The writings proclaim the man! His scientific contributions run from the report of his first researches (1900-1901) in the Inselspital and Hallerianum at Berne under the guidance of Kocher, a physician for whom he always had the greatest admiration, to his latest and perhaps greatest work, the monograph, with Dr. Louise Eisenhardt, entitled *Meningiomas* (1938). The paper inspired by Kocher was on the subject of intracranial pressure, and the young physician, taking Kocher's advice "to see all round his subject," made a thorough

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investigation. A spark of interest in intracranial surgery was touched off, to grow and shine with such brilliancy for thirty-eight years that one may well say: a new field of surgical treatment was disclosed and thoroughly explored by Harvey Cushing.

The first monographic report, the result of researches at the Johns Hopkins Hospital and the Hunterian Laboratory, was *The Pituitary Body and its Disorders* (1912), now a classic in medicine and a rare bibliophilic item. At the Peter Bent Brigham Hospital in Boston, monographs followed in an astoundingly regular order: *Tumors of the Nervus Acusticus and the Syndrome of the Cerebellopontile Angle* (1917), with an edition in French, published in 1924; *A Classification of the Tumors of the Glioma Group on a Histogenetic Basis with a Correlated Study of Prognosis* (1926), written with Dr. Percival Bailey, with an edition in German, published at Jena in 1930; *Studies in Intracranial Physiology and Surgery* (1926); *Tumors Arising from the Blood-Vessels of the Brain* (1928), written with Dr. Bailey; *Papers Relating to the Pituitary Body, Hypothalamus and Parasympathetic Nervous System* (1932); *Intracranial Tumours* (1932), with an edition in German, published in 1935, and one in French, in 1937; and finally, *Meningiomas: Their classification, regional behaviour, life history and surgical end re-*

sults (1938). All these works represent correlated and integrated studies, for the last volume reports cases going back to the Johns Hopkins period, and each patient is followed to date or to the termination of the individual's life. There is a distinctive style in all these books: a broad approach, documented and illustrated case histories, special and general conclusions. Although each may be used separately, together they form a picture of neurosurgical practice as carried on in the leading clinic of its kind in the world. Truly Harvey Cushing, as only a few men have ever done, has looked "all round his subject," has profited by his mistakes of previous years and has kept the spirit of the studious investigator throughout his life.

One must not, however, base judgment on a series of monographs, important as they are. Innumerable scientific papers also appeared during his active life, some of the material never finding its way into the more durable monograph form. An example may be given in the series of papers issued during the War, which had such a marked effect in cutting down the mortality from penetrating wounds of the brain, first in the British army and later in the American forces. Under war conditions few clinical papers came fresh from the front line; "A Study of a Series of Wounds Involving the Brain and its Enveloping Structures" in the *British Journal of Surgery* (1918)

was exactly that and to find a duplicate in detail, illustrations and final importance would be nearly impossible. Other outstanding papers were: "The Chiasmal Syndrome"; papers on the posterior pituitary hormone and the parasympathetic nervous system; reports concerning trigeminal neuralgias; and, finally, his account of pituitary basophilism, now known as Cushing's syndrome. The list is long, but the few noted above show the trend of the lot, each in itself of importance for an occasion and many of them permanently valuable in the history of medicine. To these, moreover, should be added his contributions to the systems of surgery and medicine: "Surgery of the Head" in Keen's (1908); "Intracranial Tumors" in Osler's, 1910, revised as each edition subsequently came out. Important at the time, how many general surgeons and practitioners may have been helped by the solid, sane advice therein!

On the literary side, books and papers are also abundant. One easily recalls the charming prefatory note to the *Dedication Exercises of the Oscar C. Tugo Circle* (1921); *The Life of Sir William Osler* (1925); *An Account of the Dedicatory Ceremonies in Connection with the Base Hospital No. 5 Memorial* (1928); the collected essays, *Consecratio Medici and Other Papers* (1928); *The Medical Career: The ideals, opportunities and difficulties of the medical profession* (1929); *The Personality of*

a Hospital (1921); and the stirring *From a Surgeon's Journal* (1936). Among the papers, one rereads most often: "Realignments in Greater Medicine: Their effect upon surgery and the influence of surgery upon them" (1913); "The Physician and the Surgeon" (1922); "Neurological Surgeons: With the report of one case" (1923); "The Western Reserve and its Medical Traditions" (1924); "The Doctor and His Books" (1927); "The Binding Influence of a Library on a Subdividing Profession" (1930); "Medicine at the Cross-Roads" (1933); and "The Pioneer Medical Schools of Central New York" (1934). No one should overlook, however, the scholarly and provocative "Report of the Surgeon-in-Chief," published in the annual reports of the Peter Bent Brigham Hospital from 1913 to 1931 — those for 1916, 1917 and 1918 are by other hands. Here he "let go" in a manner not possible under other circumstances, and one reads his inner thoughts on medical education, full-time professors, hospital management and similar topics. Along formal lines these are perhaps his most important educational contributions to posterity. At least, if you wish to know the man, they must be read and slowly digested; as a picture of "our time" in medicine they are invaluable.

When we look at all these works, what manner of man do we see? Harvey Cushing has flown

higher and sustained his flight more consistently than any of his medical contemporaries. One never thinks of him as "grounded." That steady pull throughout the years in the clinic, here or abroad, is always evident, perhaps gracefully somewhat relaxed since his retirement from active neurosurgery a few years ago. And yet, books, both scientific and literary, pour forth even now, for "relaxation" does not mean quite the same to this man of genius as it does to the Saturday afternoon golfer or the evening bridge player. Like the Russian whose watch stopped in 1917 and to whom "all time is now tea time," to Cushing all time is work time; and because this is so today and has been so for the last four decades, the world is richer and medicine has made a major advance.

Hardly a day but that reverberations
Of your name will ring out like a clear bell
In times and lands now unpredictable
Here and over unborn foreign nations;

Speaking of the brain and of its surgery,
Workers will say: "Cushing said and Cushing did —
Thus and so when all this was more hid
Than now, our present, his futurity —"

Courage and genius, energy and will,
These were little enough for you to spill
Into the vortex that the chaos was;

Attacking the nervous system and its laws
Unknown to many till you made them known
Past barriers of muscle, meninx, bone!*

*Moore, M.: *M.* New York: Harcourt, Brace and Company, 1938. P 902.

H. R. V.

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