Harvey Cushing and the New England Surgical Society

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Harvey W. Cushing, MD, is the most renowned surgeon in American history. Every aspect of his career including his many accomplishments—articles, essays, and vast correspondence—has been documented and analyzed and is the subject of at least 4 biographies and numerous articles and reminisces. Despite this scrutiny, and given his active involvement in national and international surgical and scientific organizations, his relationship with the New England Surgical Society was tenuous at best and has not been examined.

One of the first members of the New England Surgical Society (NESS) in 1916, Harvey W. Cushing, MD, resigned 10 years later. His involvement in the affairs of the Society was minimal. He never presented a paper at a meeting; his extensive curriculum vitae does not mention the NESS. This, however, does not detract from the fact that one of his seminal contributions to surgery occurred at the 1926 Annual Meeting of the NESS. That it was a surgical procedure and not a formal paper before the assemblage still entitles us as a society to rightly take pride in it.

His surgical prescience and clinical acumen, combined with the innovative scientific genius of William T. Bovie, PhD, founder of the discipline of biophysics, resulted in the development of an electrosurgical unit that transformed all of surgery. In 1929, one year after publication, it was the subject of a best-selling novel and, later, a popular movie. This device and the clinical events surrounding its first chaotic use in the operating room are the subjects of this article. An evaluation of Dr Cushing and his unique and peculiar relationship with the Society will also be addressed.

In the history of American surgery, there has been no man who has been more written about and reminisced over or whose accomplishments have been as extensively documented as those of Dr Cushing. His many and seminal accomplishments in a variety of disciplines from neurophysiology to surgery to the world of literature are certainly unmatched. He has been the subject of at least 6 books and numerous articles and essays and is remembered to this day, almost 70 years after his death. His relationships and vast correspondence with the elite of the medical, scientific, academic, and political communities of his day have been and continue to be published.

Dr Cushing was the author of 14 books, 9 related to neurologic surgery and diseases and 5 pertaining to history and war, including his Pulitzer Prize–winning 2-volume biography of William Osler, MD. He published 330 articles from 1898 to 1939; this does not include many of his lectures and addresses. The prodigious output of his pen is astounding, and is estimated by his biographer, friend, and executor of his papers, John Fulton, to have averaged 5000 to 10,000 words per day.1

A career so illustrious and well studied needs no elaboration. Most aspects of his personality and life as a physician, neuroscientist, endocrinologist, author, bibliophile, artist, philosopher, and scholar have been subjected to extensive study, analysis, and speculation. The development of the first anesthesia record with Codman in 1895,2 his introduction of an

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apparatus from Italy to monitor blood pressure during surgery in 1903, and his early forays into cardiac surgery in 1908 are but 3 of the many manifestations of his young scientific mind, always clinically oriented, at work, and presaging a remarkable career.

Dr Cushing established the specialty of neurosurgery in this country based on his neurophysiologic research. His investigations relating to the anatomy, physiology, and pathology of the nervous system are legendary. The clinical application of these studies gave birth to the discipline of neurosurgery, first recognized as a distinct specialty by the American College of Surgeons in 1920. His influence on fellows and trainees was felt throughout the world for decades. It has been noted that all of neurosurgery consists of 2 epochs—before Cushing and after Cushing.

Dr Cushing's original research and clinical studies of the pituitary gland not only established him as the world's authority on this gland, its diseases, and its surgery, but also established him as one of the first endocrinologists in this country.

In addition to clinical work, laboratory research, and teaching, Dr Cushing's writing, lecturing, honorary degrees, and society memberships both here and abroad are too numerous to list and most impressive. He served as president of several societies including the American Surgical Association (1927), American College of Surgeons (1922), Boston Surgical Society (BSS) (1919), American Neurological Association (1923), American Society of Clinical Surgery (1921), and the American Association of Neurological Surgeons (1920), of which he was the founder. He was also a recipient of the prestigious Bigelow Medal in 1933, the highest honor of the BSS, and the first New England surgeon so honored. With the exception of the NESS and the BSS, he was an active participant in a variety of national and international surgical, neurological, ophthalmological, otolaryngological, and physiological organizations, all related to his neurosurgical interests and contributions.

Despite being invited to be one of the first group of surgeons to join the NESS (1916) and BSS (1915), the groups with the most proximity to his hospital and surgical life, his involvement in each was perfunctory at best. As David Cheever, MD, his Brigham Hospital surgical colleague, noted in his unpublished memorial statement to the BSS in 1939, "In our Society . . . he was an honored but not frequent participant . . . When the society met at the Brigham Hospital for a clinical session his demonstration of neurosurgical patients was usually the outstanding event . . . otherwise he rarely attended meetings, except for the conscientious discharge of his duties as president in 1918-1919, nor did he ever present a formal paper." Only on rare occasions did he discuss a paper, such as that of W. J. Mixter, MD, on spinal cord tumors at the initial meeting in 1916. This level of involvement also characterized his membership in the NESS. It was pretty amazing for the nation's preeminent surgeon, based in Boston for 20 years, to be so minimally involved.

There are hints of diffidence from the beginning of Cushing's career. In response to his acceptance of membership into the NESS in 1916, the secretary, P. E. Truesdale, MD, assured him, "it is obvious that your work at the hospital and school should take precedence over all other interests that are less intimate and relatively less important," adding, "as secretary of this new society I can assure you, insofar as the functions of my office permit in program constitution, due consideration will exercised for the demands already made upon your time."

This letter and others like it over the ensuing years urging, almost pleading with him to present a paper, were in vain. Truesdale once wrote asking Cushing for a presentation on trigeminal neuralgia, of which he was the world's authority, noting that it was a subject of "great interest to the membership; or on any other subject about which you might be willing to speak." After initially accepting, he eventually declined, citing other commitments. This pattern was repeated over the years.

In a letter dated May 5, 1926, supporting the application for membership in the NESS of John Homans, MD, Cushing stated, "The Brigham Hospital is hardly doing its duty by a prominent New England organization." He than added, "P.S. In view of the limited membership of the society I rather feel that such an inactive member as myself had much better go on the retired list [there was no such category] so as to clear the slate for younger men. Won't you please ask the committee to act accordingly." He was 57 years old at the time, 3 years younger than the age limit for the category of "honorary list." He had been a member of the society for 10 years and was at the height of his career. Membership was limited to 100 men in 1926 and increased to 110 in 1929. There is nothing in the files to indicate whether his request was acted on. Homans was accepted after a previous rejection and became president of this Society in 1939, the year of Cushing's death.

Three months later in August 1926, Cheever, in planning the program for the annual fall NESS meeting wrote to Cushing, "I hope you will not be too busy to take a prominent part in it yourself." Cushing replied that he "would be glad to take part. But I hope you will set your ownself to arranging one of our usual programs so as to spare me as much as possible." This was after he tendered his resignation from the society 3 months earlier.

Thus it was that on Oct 1, 1926, the first day of the meeting at the Brigham Hospital that Cushing made what is probably his greatest contribution to the Society. Rather than a formal paper, it was a unique and transformative operation, and probably coincidental with the timing of the meeting rather than as a planned presentation. His contribution that day was a demonstration of the use of a new electrosurgical device, now known as the Bovie, for the first time in an operating room. This was the result of collaboration between Cushing's unique surgical prescience and the scientific genius of the eccentric Dr Bovie, the founder of what has become known as the discipline of biophysics. This resulted in a revolution in neurosurgery, indeed for all surgery. The sad story of Dr Bovie, his apparatus, its development, and his life has been well chronicled by Goldwyn.

The first patient was a 64-year-old man with a large bulging tumor on the right side of his head. Three days earlier, Cushing had tried to remove the tumor, a vascular myeloma, and failed because of extensive bleed-
ing. That fall day in 1926, the scene in the operating room must have been chaotic. In Cushing's words:

This operation was a perfect circus—many ringed. The New England Surgical Association [sic] were here and almost every hand was occupied with them. I had persuaded Dr. Bovie to bring his thisthery apparatus over here to let me see what I could do with his cutting loop. This had necessitated re-electrifying the operating room. Dr. Greenough [Robert B. Greenough, a surgeon] appeared with four or five coughing Frenchmen with colds in their heads, the student who was acting as a possible donor [blood] fainted and fell off the seat. It was a little too much for Davidoff's [Leo M. Davidoff, assistant resident in surgery] successor who has been here only 2-3 days so that I finally had to call in Horrax [Gilbert Horrax, his assistant and former trainee]. In spite of all this, and more, things went surprisingly well. Then with Dr. Bovie's help I proceeded to take off most satisfactorily the remaining portion of tumor with practically none of the bleeding which was occasioned in the preceding operation. The loop acted perfectly and blood stilling was almost complete but whether we would venture to use anything of this kind in the brain tissue itself I am at a loss to know because almost certainly it would cause convulsions.

This case and 9 others, mostly intracranial tumors, were published with technical notes by Bovie 2 years after the initial operation in 1928. Cushing, prudent and cautious, obviously did not rush to publish. In fact he noted, "during the 2 years that have elapsed since we hesitatingly began to employ the currents in cranio-cerebral surgery, five hundred and forty seven [547] operations for tumor have been performed." He added, "the particular procedure in question, though an extremely prolonged and arduous performance, was one which without the electrosurgical adjunct would have been impossible to carry through to a safe conclusion."

He foresaw the great utility of this device, predicting:

"...cuts and cauterizes instantly, eh?...Humm!...Takes care of the hemorrhage as it goes, eh?...Humm!...Well—that means we're to have new brain surgery, doesn't it? I needn't tell you what you've done, Merrick!...Thank you for letting me be the first to congratulate you."

Oh, yes—about Bobby! He's made an electrical thing that's bringing head surgeons here from all over. I don't know exactly what it is—some sort of a charged knife...awfully complicated...They're doing operations with it at Brightwood that have never been done anywhere before...Something that prevents hemorrhages, or something.

Mr. Merrick has invented a device that will completely revolutionize brain surgery, and make a new science of it! Operations which have never yet been successfully performed will now be comparatively safe. Within the next 30 days, his name will be as familiar in the clinics of Europe..."

The book was popular, and it went through many printings and was followed, in 1935, by an equally popular movie of the same name starring Irene Dunne and Robert Taylor. The movie was remade in 1954 with Jane Wyman and Rock Hudson, to much acclaim. However, the electrical hemostatic device and its development are missing from the 1954 movie. I was unable to view the original made in 1935. And it all began with Cushing, Bovie, and the NESS meeting on a fall day in 1926.

Cushing's minimal involvement in the proceedings and affairs of the Society is difficult to explain; his involvement in multiple other activities such as teaching, societies, lectures, traveling, research, and administrative responsibilities at the hospital obviously engaged his time. In addition to his vast written output, Francis D. Moore, MD, a later Brigham Hospital surgical chief, noted that Cushing also had a large clinical surgical practice with neurosurgical patients accounting for up to 40% of the surgical beds. More than 540 operations between his seminal case with Bovie and his published report 2 years later in 1928 attest to his very substantial clinical practice.

There are, however, several examples of Cushing's dif-fidence and disinterest in the NESS (as well as the BSS) that appear to substantiate his noninvolvement. His impressive and extensive curriculum vitae was detailed by both Fulton and almost 60 years later by Bliss in their excellent biographies, they fail to note his membership in either society. In fact, the NESS is not mentioned at all in the 2 biographies or the other 4 books about Cushing. Only in noting his receipt of the Bigelow medal and his introductions of 3 prior medalists is the BSS mentioned.

Cushing's operative note of Oct 1, 1926, refers to the visiting surgeons as "The New England Surgical Association." For a man of such care and precision, who had been a member of this Society for 10 years at that point, to get the name wrong defies explanation. This is the man about whom Cheever wrote, "every stroke of his pen was studied with the same meticulous care as that of his scalpel, so that his written words perfectly and artistically conveyed his meaning."

That he did not present a paper to the Society during his 20 years at the Brigham Hospital is inexplicable. These same years he was presenting papers and talks on a va-
riety of subjects, not just those related to neurosurgery, throughout the United States and abroad.

The reason for his resignation from this Society in 1926 at the height of his career certainly suggests his disinterest. He had probably left the Society intellectually and emotionally well before then. Addressing neurosurgeons gathered for the first International Neurological Congress in 1931, he said, “...we did not grow wholly out of neurology, for our roots are in the fertile soil of general surgery.” General surgery was what the NESS was mostly about at that time, and his roots were indeed there as well.

Whether this was the result of his many and varied commitments or whether it was related to hubris (he was not a modest man) is not known. His personality has been analyzed by many, and it is not for us to speculate. In his years at the Johns Hopkins Hospital he had had difficulty with his fellow house officers, according to Finney. There are 2 letters in 1902 from Osler acting almost in loco parentis, gently suggesting to Cushing that he tone down his public criticism of others and his perceived arrogance. Dr Cheever observed, “Cushing never put down deep roots in Boston, in spite of the favors and advantages, professional and social, which were so warmly heaped upon him.” Over the years he had an often contentious relationship with the Dean of the medical school, the hospital administration, and even with the President of Harvard University regarding a variety of issues. One in particular was over full time/part time practice of surgeons. His less than cordial relationship with Walter Dandy, MD, his colleague and rival neurosurgeon at Johns Hopkins, is well documented. Battles over budget, personnel, and space for beds and laboratory research, with acrimonious letters from Dr Cushing to the Dean and the hospital administration, are recorded as well as follow-up letters offering partial conciliation, if not contrition.

At the 1946 meeting of the Harvey Cushing Society, Fulton noted, “The Chief was no plaster saint—he had an intense and at times a tempestuous nature which many of you know.” Bliss noted that Cushing “could never get over his frustration at learning he was not to be the head of surgery at the Harvard Medical School.” He speculated whether “Western-born men like Cushing and [Walter] Cannon can ever be more than outlanders in contented inbred Boston.” This biographer went on to quote a Cushing letter to George Crile, MD, about his “unhappiness with the Brigham and Harvard, and perhaps Kate’s [Mrs Cushing] unease about social life in Boston, sometimes translated into thoughts of another move.” He also cited Cushing’s diary that his “hooks were in too deep to leave the Brigham, though it is far from all one could wish.” He had many offers of surgery chairs throughout his career in Boston. Whether these issues reflecting dissatisfaction and unhappiness played a role in his disinterest in the NESS (and BSS) is worthy of consideration. However, in the final analysis and lacking appropriate documentation in his vast archives, the answer remains an enigma. Maybe he just had too much on his plate.

However, we of the NESS these many years later should be proud that such a seminal event in the history of surgery was presented at our 9th Annual Meeting. Although in retrospect the timing was probably coincidental, we can justly claim it as our own. If only he had given more of his great talents and interests to this Society.

He was certainly bigger than life, the premier surgeon of his time. In going where none had gone before he proceeded with bold caution, demonstrating a courage and prescience unique in the history of American surgery.

A complex, fascinating, and supremely gifted man, Harvey Cushing might well have been describing himself when he noted on the occasion of the bicentenary of the birth of the great John Hunter, “He did not travel by the ordinary road and it is impossible to measure him by the standards of other men.”

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REFERENCES

2. Beecher HK. The first anaesthesia records (Codman and Cushing): texts and
3. Cushing HC. On routine determination of arterial tension in operating room and
4. Cushing HC, Branch JRB. Experimental and clinical notes on chronic valvular
lesions in the dog and their possible relation to a future surgery of the cardiac
153.
6. Cushing HC, Bovie WT. Electrosurgery as an aid to the removal of intracranial
2005.
GP Putnam’s Sons; 1940.
13. Tilney NL. Harvey Cushing and the surgical research laboratory. Surg Gynecol