

Skill, Judgement and Conduct for the First Generation of Neurosurgeons, 1900–1930

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Abstract: Historical contingency complicates a reading of skill as a self-explanatory and always positive attribute. By focusing on the attempts of the first generation of neurosurgeons to build a community and fashion a collective neurosurgical self, this article highlights the extent to which the relationship between surgical skill and professional judgement is reflected in broader concerns that shape the landscape of medicine at a given time. Some early twentieth-century surgeons expressed concern about the spectacularisation of surgery and the skilful but problematic work of ‘brilliant operators’. The neurosurgeons’ policies of inclusion and exclusion show that in the process of fashioning a neurosurgical persona, this first generation sanctioned specific norms of conduct underwritten by similar moral imperatives, such as self-control. These norms governed the doctors’ work both in the operating room and on the public stage (in their engagement with the press). The meetings of the first neurosurgical society staged a critical encounter between the host neurosurgeon and the members who watched him perform surgery. These technical performances in the operating theatre, followed by discussions, were designed to encourage particular norms, to negotiate surgical knowledge, and to demonstrate the skills and character of the neurosurgeon. The performances acted as a technology of the self that aligned the operator to a community and helped that community refine its norms of surgical conduct. The awkward surgeon with inferior technical ability was preferable to the brilliant but vain operator who lacked the capacity to judge when he should not deploy his spectacular skills.

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Between the spring of 1914 and the winter of the following year, the New York surgeon William Sharpe presented a new surgical procedure for spastic paralysis and exhibited his patients on three occasions to different medical societies meeting at the New York Academy of Medicine. Lantern slides, moving pictures, a display of glass jars exposing the brains of children who had died on the operating table, as well as a noisy parade of a dozen children who had survived the procedure made these medical presentations more carnivalesque than the typical Academy talk: the little patients ‘trotted proudly’ down the length of the room, laughing and talking, while the doctors in the audience ‘stood on chairs in order to get a better view’ of the unfolding medical spectacle.¹ Sharpe had published a preliminary report in the *Journal of the American Medical Association* claiming that many children diagnosed with spastic paralysis suffered from increased intracranial tension and were therefore good candidates for a subtemporal decompression – a surgical procedure in which a portion of the skull was permanently removed to alleviate the pressure within.² Surgery, Sharpe contended, relieved the paralysis or spasticity in the children’s limbs, allowing them to move more freely, and led as well to a marked improvement in their mental abilities.

Although the presentation was followed each time by contentious discussions in which some doctors, including the prominent neurologist Bernard Sachs, lauded Sharpe’s work³ while others expressed scepticism,⁴ what got Sharpe into actual trouble was not an indictment of the surgeon’s skill, or doubt over the permanence of the children’s improvement, or the question of whether surgical intervention was justified. Rather, one of these meetings – on 16 March 1914 – became a scandalous event when in its immediate aftermath local newspapers recounted Sharpe’s presentation in great detail, under dramatic headlines implying that the surgeon had cured the children’s paralysis. Sharpe was immediately called before the Comitia Minora of the Medical Association of the Greater City of New York to answer to the accusation that he had engineered his own publicity by sneaking a reporter into the lecture hall.⁵ Although not all local medical societies were concerned about being the subject of newspaper coverage, the newly revised American Medical Association (AMA) principles of ethics did uphold the impropriety of claiming radical cures and more generally of advertising, however indirect, including by

¹ ‘Brain Surgery Cures Twelve’, *Bryan Democrat*, 30 November 1915, 6; William Sharpe, *Brain Surgeon: The Autobiography of William Sharpe* (New York: Viking Press, 1952); ‘Cures Paralysis by Knife’, *Clinton Mirror*, 18 April 1914, 3; ‘Brain Operation as Paralysis Cure’, *New York Times*, 17 March 1914, 2.

² William Sharpe and Benjamin Farrell, ‘A New Operative Treatment for Spastic Paralysis’, *Journal of the American Medical Association*, 61, 22 (1913), 1982.

³ ‘Society Proceedings: New York Neurological Society. Observations Regarding the Condition of Spastic Paralysis Due to Intracranial Hemorrhage, by William Sharpe’, *Journal of Nervous and Mental Disease*, 43, 4 (1916): 356.

⁴ The neurologist William Leszynsky saw these operations as similar to ones that had been performed at the turn of the century on children diagnosed with microcephaly and that had engendered controversy in relation to their efficacy, but Sharpe argued that his procedure was different because he had operated only in those cases exhibiting objective signs of increased intracranial tension. P. Brynberg Porter (ed.), *A New Operative Treatment for Spastic Paralysis. Discussion*, Year Book of the Medical Association of the Greater City of New York (1914). On the procedure for microcephaly, see Moshe Feinsod and Neil L. Davis, ‘Unlocking the Brain: Attempts to Improve Mental Function of Microcephalic Retarded Children by “Craniotomy”’, *Neurosurgery* 53, 3 (2003).

⁵ ‘Ask Surgeon to Explain’, *New York Times*, 28 March 1914, 7. In his autobiography, Sharpe recalled, incorrectly I believe, that this event took place a year later and that it involved the New York Academy of Medicine’s Board of Censors. My research at the Academy uncovered no such board, and it is likely that he was misremembering the earlier incident, which had been reported in the press. Alternatively, it is possible that he was twice accused of advertising. Sharpe, *Brain Surgeon: The Autobiography of William Sharpe*, 110–11.

means of ‘furnishing or inspiring newspaper or magazine comments concerning cases in which the physician has been or is concerned’.⁶ Whether or not this was true in Sharpe’s case – and he certainly defended himself successfully at the time⁷ – his flair for the dramatic, his excessive therapeutic optimism, and the appearance that he was courting the press did carry a steep professional price: Sharpe was excluded from an emerging and exclusive community of surgeons seeking to build the foundations of a new surgical specialty – neurosurgery.

When the founding members established the first neurosurgical society a few years later, their aim was not to open the door to all surgeons interested or skilled enough in performing surgery on the nervous system, but rather to bring together a select group of men whose professional and moral qualities were deemed to be distinctly superior and who were held to a much higher standard than the rank-and-file of the more ‘democratic’ medical associations, such as the local medical societies, the AMA, and even the more selective American College of Surgeons. This ethos meant, in part, that academic surgeons whose surgical epistemology was rooted in the experimental laboratory were generally privileged over those who merely practised surgery. It also meant that in the process of fashioning a neurosurgical persona, this first generation sanctioned specific norms of conduct both in the operating room and on the public stage, as the latter might be reflected in a doctor’s engagement with the press. These norms of conduct were underwritten by similar moral imperatives, self-control chiefly among them. In an age dominated by anxieties over ‘the spectacularization of surgery’⁸ – both in and out of the operating theatre – surgical skill had to be tempered by judgement and restraint. Indeed, the most celebrated neurosurgical figure of this period, Harvey Cushing, argued that the most dangerous surgeons were not those with mediocre skill – the ‘somewhat awkward craftsmen’ – but rather those ‘whose operative technic exceeds their judgment as to when it should be put to use’.⁹ In the first decades of the twentieth century, the surgeon’s skill was pitted against his judgement as reflected in both surgical and public conduct, and the latter was deemed of critical importance for an aspiring neurosurgeon.

Historical contingency complicates a simplistic reading of skill as a self-explanatory and evidently positive attribute. This article highlights the extent to which the relationship between surgical skill and professional judgement is reflected in broader concerns that shape the landscape of medicine at a given time and serves certain social goals. To this end, the article draws attention to the space where skill was performed in the presence of a select audience: the specialist society.¹⁰ One of the functions of such societies, and

⁶ ‘Principles of Medical Ethics,’ (American Medical Association, 1912). The Medical Association of the Greater City of New York (MAGCNY), which was founded in 1899 with Austin Flint Jr. as its first president, prohibited reporters from their meetings, unlike other societies, such as the New York County Medical Society. ‘Ask Surgeon to Explain’, 7.

⁷ He was exonerated and continued to be a member of the MAGCNY and to give papers at various other society meetings held at the Academy (eg. on 7 March 1916, 2 June 1925), including the Academy’s own section of Neurology and Psychiatry (eg. 13 April 1915, 11 May 1915). Records of the New York Neurological Society, 1874–35, Box 1, New York Academy of Medicine (NYAM) Archives and Manuscripts; New York Academy of Medicine vol. 1, Section on Neurology and Psychiatry, NYAM Archives and Manuscripts. He was elected a Fellow of the NYAM in May 1914. NYAM Minutes of Meetings 2 January 1902–19 December 1918, 469.

⁸ Harvey Cushing, ‘Surgical End-Results in General with a Case of Cavernous Haemangioma of the Skull in Particular’, *Surgery, Gynecology and Obstetrics*, 36, 3 (1923), 304.

⁹ Harvey Cushing, ‘The Special Field of Neurological Surgery after Another Interval’, *Archives of Neurology and Psychiatry*, 4, 6 (1920), 612.

¹⁰ On the social goals served by attributions of skill see Warwick Anderson, ‘The Reasoning of the Strongest: The Polemics of Skill and Science in Medical Diagnosis’, *Social Studies of Science* 22, 4 (1992).

one that historians have lamented has not been adequately explored, was to negotiate new surgical knowledge and techniques.¹¹ Another function was to create a moral economy¹² of the specialty and to enforce technical, moral, and professional standards at a time when these standards were not yet codified in any other way, such as through standardised training or specialist boards, which were founded decades later.¹³ A related function was to articulate a common identity for an emerging group of specialists. Historians have emphasised the impact of broader cultural values on medicine and the identity of its practitioners,¹⁴ but less explored has been the role of these specialist medical clubs, which constituted a privileged space in the creation and maintenance of identity.¹⁵ In founding the Society of Neurological Surgeons (SNS), a few surgeons made choices in including and excluding others, in sanctioning technical and moral values that dictated conduct, and in emphasising self-control in both the public sphere and the operating theatre. These choices reflected wider concerns of early twentieth-century medicine and laid the foundations for the moral economy of a new specialty.

The First Neurosurgical Society and the Exclusion of William Sharpe

On 30 December 1919, the American surgeon Harvey Cushing, who had limited his practice to brain surgery since the turn of the century, drafted a statement which he intended to send to a number of North American surgeons. He was formalising the suggestion ‘made by a number of persons whose primary interest lies in the surgery of

¹¹ S. Wilde and G. Hirst, ‘Learning from Mistakes: Early Twentieth-Century Surgical Practice’, *Journal of the History of Medicine and Allied Sciences*, 64, 1 (2009); A. Warwick, ‘X-Rays as Evidence in German Orthopedic Surgery, 1895–1900’, *Isis* 96, 1 (2005); Thomas Schlich, *Surgery, Science and Industry: A Revolution in Fracture Care, 1950s–90s* (New York: Palgrave Macmillan, 2002).

¹² Historians of science have used the phrase ‘moral economy’, if in somewhat different ways, to refer to a system of emotionally laden values and sensibilities that underwrite scientific practices and conduct. See Lorraine Daston, ‘The Moral Economy of Science’, *Osiris* 10 (1995); Steven Shapin, *A Social History of Truth: Civility and Science in Seventeenth-Century England* (Chicago: University of Chicago Press, 1994).

¹³ On medical specialisation see George Weisz, *Divide and Conquer: A Comparative History of Medical Specialization* (Oxford: Oxford University Press, 2006).

¹⁴ Christopher Lawrence, ‘Incommunicable Knowledge: Science, Technology and the Clinical Art in Britain 1850–1914’, *Journal of Contemporary History*, 20, 4 (1985); John Harley Warner and James M. Edmonson, *Dissection: Photographs of a Rite of Passage in American Medicine, 1880–1930* (New York: Blast Books, 2009). Michael Brown has shown how forms of sociability (such as belonging to an urban club), politeness, gentility, and civic engagement informed a particular culture of medicine in the second half of the eighteenth century, a culture which was displaced by one based on expertise and political engagement. Michael Brown, *Performing Medicine: Medical Culture and Identity in Provincial England, c. 1760–1850* (Manchester: Manchester University Press, 2011). Other historians have explored the role of different types of social performances, with their implicit cultural values, in the production of professional identity. Delia Gavrus, ‘Men of Dreams and Men of Action: Neurologists, Neurosurgeons, and the Performance of Professional Identity, 1920–50’, *Bulletin of the History of Medicine* 85, 1 (2011); Michael Sappol, ‘The Odd Case of Charles Knowlton: Anatomical Performance, Medical Narrative, and Identity in Antebellum America’, *ibid.*, 83, 3 (2009).

¹⁵ Jacqueline Jenkinson, ‘The Role of Medical Societies in the Rise of the Scottish Medical Profession 1730–1939’, *Social History of Medicine*, 4, 2 (1991); Owen H. Wangenstein, ‘Surgery and Surgical Travel Groups’, *Surgery, Gynecology and Obstetrics* 147, 2 (1978); Sally Wilde, ‘See One, Do One, Modify One: Prostate Surgery in the 1930s’, *Medical History* 48, 3 (2004). In the context of British neurology, Stephen Casper has shown the complexity of specialist identity and has argued that it is inadvisable to simply reduce specialist identity to membership in a specialist society; Stephen Casper, *The Neurologists: A History of a Medical Specialty in Modern Britain, 1789–2000* (Manchester: Manchester University Press, 2014), 162–76.

the nervous system, that a Neuro-Surgical Interurban Club be established'.¹⁶ Cushing expressed a hope 'that in this way those interested in this special field might be brought together for an exchange of opinion and with the hope of more rapidly advancing the subject,' a clear articulation of the belief that within such a social space specialist knowledge could be better articulated.

A first draft of this statement was sent to Ernest Sachs, who had occupied, since 1911, a position in surgery at Washington University in St. Louis.¹⁷ Cushing confessed that he was 'conscious of the fact that the general surgeon who is interested primarily in neuro-surgical technique *does not talk our language*, but it may be necessary to have him included'.¹⁸ Sachs responded that 'you and I, I think, are the only ones who are doing that exclusively,' and he quipped that a society made up of the two of them, as the only properly qualified members, might lack in excitement: 'though I should like your company, I don't know whether I would be too monotonous for you!'¹⁹ The allusion to a shared language was a nod towards the experimental work that formed the basis of the two surgeons' practice and that elevated them to an elite rank of the profession.

Especially as it was practised by the elites, the surgery of the turn of the century had strong ties to the laboratory, coinciding with the rise of experimental medicine and forging a strong relationship between surgical intervention and knowledge production.²⁰ The historian Thomas Schlich has shown that as surgery became 'a scientific research discipline at the university', elite surgeons such as Theodor Kocher emphasised repeatedly that 'only scientific respectability guaranteed the status of the field and its practitioners',²¹ thus anchoring surgical epistemology in experimental physiology and animal experimentation. Both Cushing and Sachs were part of this tradition. During his European *Wanderjahr* (1900–1901), Cushing trained with Kocher, in whose laboratory in Berne he studied experimentally the relationship between blood pressure and intracranial pressure. He continued this work in Turin with the physiologist Angelo Mosso, and he brought back from Italy the Riva-Rocci cuff – an instrument for measuring blood pressure quantitatively, which allowed him to chart blood pressure during surgery.²² Cushing viewed his ongoing experimental work on animals at the Hunterian laboratory at Johns Hopkins as very important, arguing that 'for the development of surgical technic no place is comparable to the experimental laboratory', and that 'every young surgeon should begin to acquire his operative training in a series of operations on the lower animals'.²³ While, especially later in his career, he did criticise the crude reduction of

¹⁶ Harvey Cushing, Statement, Collection Society of Neurological Surgeons (SNS), Box SNS 1920–35, folder 1919, Dorothy Carpenter Medical Archives, Wake Forest University, henceforth Carpenter Archives.

¹⁷ 'Obituary: Ernest Sachs', *British Medical Journal* 1538 (1958); Robert L. Grubb, *Neurosurgery at Washington University: A Century of Excellence* (St. Louis, MO: Washington University, 2011).

¹⁸ Cushing to Sachs, 30 December 1919, Collection SNS 1920–35, folder 1919, Carpenter Archives, my emphasis.

¹⁹ Sachs to Cushing, 6 January 1920, Collection SNS, Box SNS 1920–35, folder 1919, Carpenter Archives.

²⁰ Thomas Schlich, *The Origins of Organ Transplantation: Surgery and Laboratory Science, 1880–1930* (Rochester, NY: University of Rochester Press, 2010) 17; Schlich, *Surgery, Science and Industry: A Revolution in Fracture Care, 1950s–90s*.

²¹ Schlich, *The Origins of Organ Transplantation: Surgery and Laboratory Science, 1880–1930*, 153.

²² Samuel H. Greenblatt, 'Harvey Cushing's Paradigmatic Contribution to Neurosurgery and the Evolution of His Thoughts about Specialization', *Bulletin of the History of Medicine*, 77, 4 (2003), Christopher W. Crenner, 'Introduction of the Blood Pressure Cuff into US Medical Practice: Technology and Skilled Practice', *Annals of Internal Medicine* 128, 6 (1998).

²³ Cushing, *op cit.* (note 9), 611–12.

medicine to laboratory science,²⁴ Cushing did believe that only an experimental setting allowed surgeons-in-training to safely practise their surgical technique, while also having ‘the double advantage of giving them a sufficient laboratory experience to enable them subsequently to pursue to the only place where they are likely to be solved some of the many problems which arise’.²⁵ Sachs had enjoyed a similar educational trajectory, having trained with the British surgeon Victor Horsley both in the operating room and the experimental laboratory, where he conducted numerous experiments to probe the structure and functions of the thalamus in monkeys and cats.²⁶

Ironically, despite the fact that the conversation had started from the premise that Cushing and Sachs spoke a unique language and were therefore fit only for each other’s company, it was evident that there were enough American surgeons with relevant education, interests and experience, because the conversation quickly turned to an issue that would become a perennial concern for the members of the society in the coming years – that of limiting membership.²⁷ After discussing a list of candidates with Sachs, Cushing decided that he ‘would go a step further and only take a very few men for the first meeting:

[the New York surgeon Charles] Elsberg, [the Philadelphia surgeon Charles] Frazier, [the Baltimore surgeon Charles] Bagley, [Walter] Dandy [from Johns Hopkins], Dean Lewis [from Chicago], and [the Rochester, MN surgeon Alfred] Adson with ourselves as a starter. That will make a sufficient number of pioneer members, and we can add the others more safely later on. I can invite [Jason] Mixer and [Gilbert] Horrax [both from Boston] to help out in the meeting here *though not as members*.²⁸

This exchange of letters shows the extent to which an ethos of selectivity and exclusion was an important aspect of the beginnings of neurosurgery as a medical specialty. The goal was not to seek the company of many of the surgeons who were interested in and skillful enough to perform operations on the nervous system; rather the idea was to put together a select group of surgeons with distinct profiles, with specific professional and moral qualities. Both Cushing and Sachs seemed aware of the historical weight of their role as ‘pioneer members’ of such a select club, Cushing going as far as suggesting that Mixer and Horrax were not yet senior enough to be worthy of the title, despite being good enough to ‘help out’ during the first meeting. This exclusionist ethos privileged academically oriented surgeons like Alfred Taylor, who was on the faculty of the Cornell Medical College and practised at the New York Neurological Institute,²⁹ or Dean Lewis, who was a well-respected surgeon and anatomist at the University of Chicago, and who resigned two years later probably because his interests were not confined to the narrow field of neurological surgery.³⁰

²⁴ On Cushing’s appeal to humanistic values in medicine, in the tradition of Osler, see Michael Bliss, *Harvey Cushing: A Life in Surgery* (New York: Oxford University Press, 2005); John Harley Warner, ‘The Fielding H. Garrison Lecture: The Aesthetic Grounding of Modern Medicine’, *Bulletin of the History of Medicine* 88, 1 (2014): 24–28.

²⁵ Cushing, *op cit.* (note 9), 611–12.

²⁶ Ernest Sachs, *Fifty Years of Neurosurgery: A Personal Story* (New York: Vantage Press, 1958); Ernest Sachs, ‘On the Structure and Functional Relations of the Optic Thalamus’, *Brain* 32 (1909).

²⁷ Delia Gavrus, *Men of Strong Opinions: Identity, Self-Representation, and the Performance of Neurosurgery, 1919–50* (University of Toronto, 2011).

²⁸ Cushing to Sachs, 17 January 1920, Collection SNS 1920–35, folder 1920–21, Carpenter Archives, my emphasis.

²⁹ Bronson S. Ray, ‘The Development of Neurosurgery in New York City’, *Bulletin of the New York Academy of Medicine*, 55, 10 (1979), 924–5; Vernon C. David, ‘Obituaries: Dean Dewitt Lewis’, *Archives of Surgery* (1941).

³⁰ Minutes of the Fifth Meeting, Neurological Institute, New York City, 28 and 29 April 1922, box SNS 1920–35, folder Meeting 1922, Carpenter Archives.

Beyond the provisions of an epistemology anchored in experiment, along with factors such as seniority and academic standing, the exclusion of William Sharpe in particular reveals some of the moral values upon which the SNS and the persona of this new specialist were built. Sharpe's education had been, in principle, impeccable. One of the first men to train in neurosurgery with Cushing at the Hunterian Laboratory at Johns Hopkins, he had attended Harvard Medical School, where he attained notoriety – and financial success – by tutoring his fellow students. Sharpe developed an interest in neurological surgery after an initial six-month internship with Cushing, and in 1911 he returned to Hopkins as Cushing's assistant resident after a two-year surgical internship at the Roosevelt Hospital in New York. A year later, Harvard's President offered him an appointment as the first professor of surgery at the newly established Harvard Medical School of China in Shanghai. Sharpe wrote in his autobiography that Cushing had discouraged him from accepting this position because 'I would be "throwing myself away" as far as my development in neurosurgery was concerned. Besides, the lack of rigid asepsis, inadequate hospital facilities, and other unfavorable conditions in China would prove an insuperable barrier to competent surgical work, and as a result my *surgical discipline* would rapidly deteriorate.'³¹ For Cushing surgical practice and skill could only flourish under 'surgical discipline', which in turn only the most controlled and select environment would encourage.

Despite Cushing's explicit disapproval, Sharpe accepted the position and arrived in Shanghai at the beginning of 1912. He spent an adventurous year in China, gaining considerable fame by treating the head injury of the president's son. When Sharpe returned to New York, he obtained a job as night resident in a private hospital and an appointment as clinical assistant at the New York Neurological Institute. A year later he joined the New York Polyclinic Medical School and Hospital, running a neurosurgical clinic in the dispensary.³²

Sharpe considered himself a specialist in neurological surgery. His voluminous 1920 book *Diagnosis and Treatment of Brain Injuries* listed his professional title as 'professor of neurologic surgery' and 'consulting neurologic surgeon.' As a practical text, richly illustrated and detailing the hundreds of cases that Sharpe had treated between 1913 and 1918, the book's purpose was to 'be of service to the general practitioner and to the general surgeon, and in the cases of brain injuries in newborn babies and children to the obstetrician and to the pediatrician',³³ goals that Cushing himself had thought important.³⁴ Sharpe was particularly insistent on the need for checking intracranial pressure and alleviating it. Relief could be achieved through a temporal (or subtemporal) decompression, a procedure he had learnt from Cushing³⁵ and which consisted in the removal of an area of bone in the temporal or subtemporal region to give the brain room

³¹ Sharpe, *Brain Surgeon: The Autobiography of William Sharpe*, 57 (my emphasis).

³² *Ibid.*, 99.

³³ William Sharpe, *Diagnosis and Treatment of Brain Injuries, with and without a Fracture of the Skull* (Philadelphia: Lippincott, 1920) v.

³⁴ On this point see Samuel H. Greenblatt and Dale Smith, 'The Emergence of Cushing's Leadership: 1901–20', in T. Forcht Dagi, Mel H. Epstein, and Samuel H. Greenblatt (eds), *A History of Neurosurgery in Its Scientific and Professional Contexts* (Park Ridge, IL: American Association of Neurological Surgeons, 1997), 188.

³⁵ Cushing was not the first to devise this operation. He gives credit to others, including Alfred Sänger of Hamburg. Harvey Cushing, 'The Special Field of Neurological Surgery', *Bulletin of the Johns Hopkins Hospital*, 16 (1905), 79.

to swell. Cushing and other surgeons saw this procedure as a useful palliative measure for inoperable tumours, but Sharpe extended its use to spastic paralysis.³⁶

Sharpe – as well as other surgeons who restricted their practice to the nervous system but who were never considered for SNS membership, such as his brother Norman Sharpe and Karl Ney, another New York surgeon – worked in crowded city hospitals or private practice and did not engage in laboratory work. But apart from these differences, Sharpe was seen to have committed a serious professional sin when he appeared to court the press. His Academy presentation – in which he exhibited, paraded, and made the children perform their newly refined bodily and mental skills – ended up in the newspapers, his name indelibly linked to the promise of a radical and curative operation. The neurosurgeons who came together in the early 1920s for the purpose of creating a professional community did not sanction this kind of public spectacle. Nor was this the only such spectacle. Sharpe's name was all over the newspapers again when he operated on a wealthy young man on trial for stealing platinum from (and then burning down) the chemical laboratory at the University of Virginia at Charlottesville. Sharpe testified that his patient's criminal behaviour was due to a brain condition for which the surgeon performed a decompression and subsequently secured the man's acquittal.³⁷

Sharpe's tendency to place himself in the public sphere had disastrous consequences for his inclusion in the new society. Cushing's 1919 letter to Sachs, in which he had outlined a list of possible candidates for the neurosurgical club, included Sharpe's name followed by a question mark. Aware that Sharpe's practice was devoted exclusively to neurological surgery, Cushing had at least entertained the idea of including him. Sachs, however, summarily dismissed him: 'I question very much whether we ought to include Sharpe', he wrote to Cushing. 'I know he is only doing neuro-surgical work, but it seems to me he is "persona non grata" in most groups. I am taking the liberty of enclosing an item which appeared in Pierson's [sic] Magazine several years ago and which I have kept for just such an occasion.'³⁸ An article in *Hearst's* magazine published around the same time extols Sharpe's surgical method and describes at length 'the most remarkable feats of very recent surgery' which is transforming 'feeble-minded, crippled children into relatively normal individuals'.³⁹ The first page features pictures of children in before and after poses, and although the surgeon's name is not explicitly linked to the patients, it was likely Sharpe who provided the photographs.⁴⁰ As mentioned at the beginning of this article, in 1914 Sharpe had successfully defended himself against advertising charges. After a turbulent period in which the code of ethics had been under sustained attack (the advertising clause included), the 1910s were a period in which the AMA took a

³⁶ There was a great deal of enthusiasm for this procedure at the turn of the century, and many surgeons tried to employ it for a variety of conditions, including for criminality due to 'pressure on the brain' caused by trauma. Delia Gavrus, "'Making Bad Boys Good": Skull and Brain Surgery for Juvenile Delinquents during the Progressive Era', under review.

³⁷ Sharpe, *Brain Surgeon: The Autobiography of William Sharpe*, 124; 'S. Dabney Crenshaw in Serious Condition after an Operation', *The Daily Star*, 18 April 1917, 3; 'Experts for Crenshaw: Dr Sharpe Testifies Student's Brain Was Diseased', *The Sun*, 10 November 1917, 3; 'Crenshaw Experts Finish', *The Free Lance*, 31 May 1919, 2.

³⁸ Sachs to Cushing, 6 January 1920, Collection SNS, Box SNS 1920–35, folder 1919, Carpenter Archives. I have not been able to locate the article in the archives or elsewhere, but it was likely similar to the article in *Hearst's* described below.

³⁹ Henry Smith Williams, 'Surgery's Newest Wonder', *Hearst's* 1917, 32.

⁴⁰ In the article, patient John R. is photographed against exactly the same background (a brick wall with a distinct border) as patients in Sharpe's 1920 book (eg. figure 203), Sharpe, *Diagnosis and Treatment of Brain Injuries*, 675.

'laissez-faire approach to medical ethics',⁴¹ and Sharpe does not seem to have suffered from his conduct. But the surgeons who were laying the foundations for neurosurgery as a surgical specialty saw themselves beholden to a stricter moral code than the general profession as a whole. And thus, despite the fact that he practised well within mainstream medicine and achieved recognition both nationally and internationally,⁴² Sharpe was not seen as morally worthy of belonging to the SNS. He was not an academic surgeon with interests in laboratory experiments, he espoused values that were at odds with those of elite surgeons, and, most damningly, he appeared too eager to engage in flashy performances in the public arena. Sharpe was thus written out of the official history of neurosurgery. When, in 1988, the American neurosurgeon Eben Alexander came across Sharpe's 1952 autobiography (pointedly entitled *Brain Surgeon*) he marvelled: 'How can a neurosurgeon who trained at Harvard and Johns Hopkins and studied under Cushing and Elsberg, who practised in New York City during most of the first half of the twentieth century, and who was the author of three books be virtually unknown to the present generation of neurosurgeons?'⁴³ The answer lies in the deliberate marginalisation of Sharpe, and others like him, by the group of surgeons who in the 1920s sought to define the identity of the neurosurgeon and thereby overdetermined the history of the specialty.

Character and the Early Twentieth-Century Surgeon

The concern with the moral character of the neurosurgeon, which prompted the close scrutiny to which Sachs and Cushing had subjected Sharpe, occurred in a specific cultural milieu and can be explained by the particular challenges that surgery faced at the time. In the first decades of the twentieth century, some surgeons began to express an urgent desire to differentiate their practice from those of whom they disapproved. The establishment of the American College of Surgeons (ACS) in 1913, with its dual mission of standardising surgical practice and marginalising surgeons who were performing unnecessary procedures, was part of this endeavour.⁴⁴ In this context, an appeal to the importance of 'character' became ubiquitous. In 1919, William Mayo declared in his presidential address that

in the adoption of standards or requirements for admission into the American College of Surgeons, *character should be first considered*. The dishonest, conscienceless man *who has surgical skill* is most dangerous in any community. Unnecessary operations, *even when performed with a high order of technical ability*, are the bane of present-day surgery, but, owing largely to the American College of Surgeons, such practices are markedly on the wane.⁴⁵

The ACS saw itself from the beginning as fulfilling the important task of being a moral arbiter, formally requiring that its fellows not engage in practices such as fee-splitting.⁴⁶

⁴¹ Robert Baker, *Before Bioethics: A History of American Medical Ethics from the Colonial Period to the Bioethics Revolution* (Oxford: Oxford University Press, 2013), 278.

⁴² Sharpe eventually went on a tour of the Soviet Union, as well as South America, where he publicised his surgical procedures.

⁴³ Eben Alexander Jr., 'William Sharpe, MD Neurosurgeon/Entrepreneur', *Neurosurgery*, 22, 5 (1988), 961.

⁴⁴ Rosemary Stevens, *In Sickness and in Wealth: American Hospitals in the Twentieth Century* (New York: Basic Books, 1989), 90; Joel D. Howell, *Technology in the Hospital: Transforming Patient Care in the Early Twentieth Century* (Baltimore, MD: Johns Hopkins University Press, 1995), 66–7; Peter Kernahan, 'Franklin Martin and the Standardization of American Surgery 1890–1940' (PhD thesis: University of Minnesota, 2010).

⁴⁵ William Mayo, 'Presidential Address: American College of Surgeons 1919 Annual Meeting', *Surgery, Gynecology and Obstetrics*, 30 (1920), 97 (my emphasis).

⁴⁶ Rosemary Stevens, 'The challenge of specialism', in B. Robert Baker *et al.* (ed.), *The American Medical Ethics Revolution* (Baltimore, MD: The Johns Hopkins University Press, 1999), 86.

By 1924, Charles Mayo was able to note the decline of this practice, reaffirming in his presidential address that ‘one of the aims of the College is to smoke these offenders out into the open’.⁴⁷ The following year, president Rudolph Matas decried the surgeon who brought disrepute to surgery – no longer ‘the ordinary gross, vulgar, ignorant and grotesque quack who was so familiar in past generations . . . but rather a ‘more subtle type of quack . . . because they live in the fold and are not easy to recognize as they are disguised in our own garb’.⁴⁸ These surgeons, motivated by money or ‘insanely ambitious for reputation and prestige as marvelous operators, allow their vanity and their reason to out-strip their morals’ by performing unnecessary surgery. According to Matas, the College stimulated ‘the cultivation of a *surgical conscience*’,⁴⁹ a crucial attribute for a surgeon because:

When a man has neither conscience nor character he cannot be a good man, and if he is not a good man he cannot be a good surgeon. And no matter how skillfully he may take out appendices, gall bladders, resect stomachs, do hernias, and other fine jobs in surgery, *we don't want him*, and he need not apply for Fellowship in the American College of Surgeons.⁵⁰

This preoccupation with character, with the potentially problematic tension between surgical skill and surgical judgement which only character could arbitrate successfully, defined the mission of the ACS, and along with the question of formal examination, it led to disagreements about the stringency of admission criteria.⁵¹ A 1924 petition, for instance, demanded that ‘more rigid tests could be made as to the character, training and intelligence’ of candidates.⁵²

Although it took a particular form for the surgeons of the beginning of the twentieth century, a concern with character and integrity was evidently not novel in the medical community. As the historian Christopher Lawrence has shown, for an elite group of British physicians in the second half of the nineteenth century, ‘only the gentleman, broadly educated, and soundly read in the classics, could be equipped for the practice of medicine. The equation almost ran: perfect gentlemen alone made great clinicians.’⁵³ These physicians believed that ‘“character” might matter as much in medicine as it did in the Church’.⁵⁴ Character, in this instance, was linked to a particular kind of gentlemanly culture.⁵⁵ Across the Atlantic, as John Harley Warner has shown, an ideal of science in the medicine of the second half of the nineteenth century reordered the professional identity of doctors and ‘bound together questions of medical epistemology with those of integrity’.⁵⁶

⁴⁷ Charles Mayo, ‘Address of the President, American College of Surgeons’, *Surgery, Gynecology and Obstetrics*, 40 (1925), 447.

⁴⁸ Rudolph Matas, ‘1925 Presidential Address: The Mission and Ideals of the American College of Surgeons’, *Yearbook*, (1926), 73.

⁴⁹ *Ibid.*, 77.

⁵⁰ *Ibid.*, 78 (emphasis in original).

⁵¹ On debates surrounding admission criteria, see Kernahan, *op. cit.* (note 44), 76–115.

⁵² Loyal Davis, *Fellowship of Surgeons: A History of the American College of Surgeons* (Springfield, IL: Thomas, 1960), 492.

⁵³ Lawrence, *op. cit.* (note 14), 505.

⁵⁴ *Ibid.*, 507.

⁵⁵ On character and the self in medicine and science, see Lawrence, *op. cit.* (note 14), 507; Shapin, *op. cit.* (note 12); Lorraine Daston and Peter Galison, *Objectivity* (New York: Zone Books, 2007); Steven Shapin, *The Scientific Life: A Moral History of a Late Modern Vocation* (Chicago: University of Chicago Press, 2008); Gert H. Brieger, ‘Classics and Character: Medicine and Gentility, the Fielding H. Garrison Lecture’, *Bulletin of the History of Medicine* 65, 1 (1991).

⁵⁶ John Harley Warner, ‘Ideals of Science and Their Discontents in Late Nineteenth-Century American Medicine’, *Isis*, 82, 313 (1991), 456.

In the 1880s, some physicians challenged the AMA code of ethics because they believed science to be the ultimate arbiter of correct conduct – no codes of ethics were needed, in these doctors' opinion, to prohibit consultation with non-orthodox doctors such as homeopaths – while those who upheld the old code disagreed that science could fulfil this role.⁵⁷

Some early twentieth-century surgeons did not believe that education, surgical skill and science would necessarily guarantee proper surgical conduct; testimony from trustworthy peers was also necessary in order to assess the character of the surgeon. In fact, as the ACS presidents' speeches indicate, skill could actually be a liability. This belief was partly informed by the particular pitfalls that surgery was seen to engender: unnecessary operations and desire for fame and fortune. For this reason, the historically contingent relationship between character, professional identity, and medical practice found a particular expression among the first generation of neurosurgeons, some of whom were deeply involved with the ACS and who reflected and attempted to shape its organisational concerns. One of these concerns – which had a direct bearing on the moral pitfalls mentioned above – was the surgeon's relationship with the lay press.

Cushing was elected president of the ACS in 1922, and although he first rejected the appointment, he eventually relented.⁵⁸ As the historian Michael Bliss has noted, one of Cushing's objections had been precisely the fact that the press was allowed to cover the surgical clinics that were part of the Congress meetings.⁵⁹ Cushing wrote to the founder of the College that '[o]ne of the very great, if not the greatest, evil that I see in connection with the College is its publicity, and at the time of the meetings what I regard the exploitation of patients on the part of many members of the College as a part of this publicity. It was to me the greatest evil of the original Congress of Surgeons, as great an evil, indeed, as that of fee-splitting.'⁶⁰ Cushing's position reflected not only a concern for the patients. He noted that although the publications of the clinics were censored when the Congress had met in Boston, 'the papers were full . . . of reports which were damaging to the profession as a whole and to individual members of the profession. I was myself victimized . . . some years ago, after giving a simple clinic'.⁶¹

In his presidential address, Cushing argued that because 'surgery has become the chief therapeutic resource of the profession,' it lent itself to 'commercializing opportunities and temptations'.⁶² He declared that 'an objectionable degree of publicity has been a distinct evil of former meetings of the Congress', and he drew a direct parallel between the moral qualities of a surgeon, his surgical skill, and his desire for publicity: 'As a rule, the better the surgeon the more unassuming he is and the more he abhors seeing reference to his work in the lay press. Certainly the College cannot wish to foster the mere spectacularization of surgery, so prevalent in days gone by.'⁶³ A few years later, he told the *Boston Globe* that 'a doctor should keep his name out of the newspapers and remain unequivocally [*sic*] above any possible suggestion of lending himself to . . . publicity'.⁶⁴

⁵⁷ John Harley Warner, 'The 1880s Rebellion against the Ama Code of Ethics', in B. Robert Baker *et al.* (ed.), *The American Medical Ethics Revolution* (Baltimore, MD: Johns Hopkins University Press, 1999), 66.

⁵⁸ Davis, *op cit.* (note 52), 246–48.

⁵⁹ Bliss, *op cit.* (note 24), 384–5. For Cushing's dislike of publicity in general, see *ibid.*, 450–3.

⁶⁰ Cushing to Martin, November 1921, quoted in Davis, *op cit.* (note 52), 246–7.

⁶¹ *Ibid.*, 247.

⁶² Cushing, *op cit.* (note 8), 303.

⁶³ *Ibid.*, 304.

⁶⁴ Cushing to W.D. Sullivan, December 24, 1926, quoted in Bliss, *op cit.* (note 24), 451.

While the AMA had retained its prohibition of advertising in the wake of the late nineteenth-century contentious debates about its code of ethics, the ACS was in a more complicated position as far as the press was concerned, since public education was one of its mandates. The AMA actually attacked the College for its involvement with the public and sought to punish those who courted too much attention. Loyal Davis, a second-generation neurosurgeon, wrote in his history of the ACS that '[John B.] Murphy [1857–1916] of Chicago and [John B.] Deaver [1855–1931] of Philadelphia, both with strong, forceful personalities and a flair for the dramatic, were called “publicity seekers”’. They were stimulating, experienced teachers and their clinics were the most popular’.⁶⁵ Murphy, a past AMA president, was disciplined for advertising by the AMA’s Judicial Council in 1916.⁶⁶

The engagement of surgeons in public spectacles has a long history.⁶⁷ As late as the second half of the nineteenth century grand amphitheatres with ample seating for both students and visitors were still being built, but a change occurred in the early twentieth century when, gradually, surgical operating rooms became smaller and were not designed to accommodate a large number of spectators.⁶⁸ Along with the spaces, the performances changed. As Thomas Schlich shows, the ideals that defined the practice of surgery underwent a generational shift: if in the 1880s the spectacular individual performances of celebrated pioneers epitomised the best in surgery,⁶⁹ over the following decades surgery began to be conceived in a more communitarian way that emphasised standardised and teachable routines and techniques.⁷⁰

For Cushing, the engagement of surgeons with the press seemed to evoke the public spectacle of surgery’s past, the spectre of quackery, and the general moral failure of vanity. He was advocating a movement away from large audiences, not only public but also professional ones. In his presidential talk, apart from decrying the evils of engaging with the press, he highlighted the ‘temptations’ and ‘distractions’ that might cause a surgeon to make serious mistakes when he was in charge of ‘the entertainment of, and provision for, a large number of guests’.⁷¹ Surgical demonstrations during the well-attended Congress meetings were thus not profitable:

There is no doubt but that one craftsman profits by seeing another craftsman at work, but if a few hundred artists should stand at the elbow of Mr John Sargent while he is in the process of painting a portrait, it would in all likelihood so modify his customary performance that the sitter might with very good reason be dissatisfied with what may be spoken of in surgical parlance as the end-result. There is unquestionably a great deal of artistry about a well-conducted operation, but surely as surgeons we are not content to be mere manipulators and piece-workers – *more interested in the technique than in the portrait*. The important thing in surgery is *not operative*

⁶⁵ Davis, *op cit.* (note 52), 248.

⁶⁶ Stevens, *op cit.* (note 46), 88.

⁶⁷ Giovanna Ferrari, ‘Public Anatomy Lessons and the Carnival: The Anatomy Theatre of Bologna’, *Past and Present*, 117 (1987); Jonathan Simon, ‘The Theatre of Anatomy: The Anatomical Preparations of Honoré Fragonard’, *Eighteenth-Century Studies* 36, 1 (2002); Hillary M. Nunn, *Staging Anatomies: Dissection and Spectacle in Early Stuart Tragedy*, *Literary and Scientific Cultures of Early Modernity* (Aldershot: Ashgate, 2005).

⁶⁸ Owen Harding Wangensteen and Sarah D. Wangensteen, *The Rise of Surgery: From Empiric Craft to Scientific Discipline* (Minneapolis: University of Minnesota Press, 1978), 453–73; Annmarie Adams and Thomas Schlich, ‘Design for Control: Surgery, Science, and Space at the Royal Victoria Hospital, Montreal, 1893–1956’, *Medical History* 50, 3 (2006).

⁶⁹ Christopher Lawrence, ‘Democratic, Divine, and Heroic: The History and Historiography of Surgery’, in Christopher Lawrence (ed.), *Medical Theory, Surgical Practice: Studies in the History of Surgery* (New York: Routledge, 1992).

⁷⁰ Thomas Schlich, “‘Genius’ vs. “‘Pedantry’”: The Late Nineteenth Century Transformation of Ideals of Surgical Skill’ (in this issue).

⁷¹ Cushing, *op cit.* (note 8), 304.

dexterity but what the patient looks like after you and I have removed our gloves, and what he is subsequently able to do with what we have left of him.⁷²

But while large audiences were to be discouraged for these reasons, the small, select audience of hand-picked colleagues was essential for the progress of surgery, and this was precisely the kind of society of neurological surgeons that Cushing was organising and which was closed to morally suspicious surgeons like Sharpe. The moral anxiety over the spectacularisation of surgery was thus operating on multiple fronts: it signified an engagement with the public by means of the press, but it also structured the professional arena of the operating room. Here too the neurosurgeons' concern with the character of the skilful but ambitious surgeon of questionable character found a particular expression in a disapproval of spectacular performances and pitted flashy operative dexterity against surgical judgement.

Self-Control in the Surgical Theatre

Cushing articulated the potentially problematic relationship between skill and judgement in a 1920 address to the Cleveland Academy of Medicine, in which he explained the principles of brain surgery. He argued that the most dangerous surgeons were not those with mediocre skill – the 'somewhat awkward craftsmen' – but rather those 'whose operative technic exceeds their judgment as to when it should be put to use'.⁷³ Cushing envisioned the operation as a theatrical performance:

The patient, unfortunately, though he pays admission, has not the privilege of viewing the performance, else he might like to see his appendix removed with a flourish, and to applause. His active interest begins when the curtain falls and he is then apt to find himself more comfortable if the audience thought it a tedious and dull show.⁷⁴

In Cushing's vision the best brain surgeon had to aspire to put on 'a tedious and dull show' in the operating room, a slow and careful performance whose aim was to lead to the best result for the patient rather than to a dazzling show that nourished the surgeon's vanity. Skill, if corrupted by vanity, could, in fact, become a liability. Thus for Cushing, the surgeon's work – an alchemy of judgement, knowledge, and skill – had this crucial moral dimension that rested on the character of the surgeon, who had to refrain from spectacular performances not only on the public stage, but also in the operating room. By rejecting those like Sharpe who were judged to fall short on this metric, the founders of the society implicitly sanctioned a particular moral economy for the specialty. Although Cushing's initial defence of surgical specialisation was inflected by a belief that one day specialties would return to general medicine,⁷⁵ as a professional body the society became extremely important in the specialty's development and organisation, and it was soon evident that neurosurgery would enjoy a secure position as a medical specialty.⁷⁶

Cushing and Sachs had vetted nine surgeons, and they first met on 19 March 1920 in Boston at the Peter Bent Brigham Hospital. Other such travelling surgical clubs existed

⁷² *Ibid.*, (my emphasis).

⁷³ Cushing, *op cit.* (note 9), 612.

⁷⁴ *Ibid.*

⁷⁵ Greenblatt, *op cit.* (note 22).

⁷⁶ Delia Gaurus, 'Men of Strong Opinions: Identity, Self-Representation, and the Performance of Neurosurgery, 1919–50' (PhD thesis: University of Toronto, 2011); Carl H. Hauber and Chris A. Philips, 'The Evolution of Organized Neurological Surgery in the United States', in T. Forcht Dagi, Mel H. Epstein, and Samuel H. Greenblatt (eds), *A History of Neurosurgery in Its Scientific and Professional Contexts* (Park Ridge, IL: American Association of Neurological Surgeons, 1997).

(Cushing himself had been part of a travelling general surgery society), and while more work needs to be done to understand the history, culture and function of these clubs, it is clear that their existence represented an acknowledgement that, as the historian Sally Wilde has put it, ‘not everything necessary for the successful performance of a procedure could be specified in a written text’.⁷⁷ Cushing’s and Sachs’ plan to establish a society for neurosurgeons was a reflection of this wider trend in the culture of early twentieth-century surgery, embodying in part an expression of these surgeons’ belief in the importance of tacit knowledge in surgical training and practice. The first draft of the constitution of the society specified that ‘formal papers or written communications are to be discouraged’.⁷⁸

Surgical clinics were the main focus of the SNS meetings, which opened with the host neurosurgeon performing an operation in the presence of his guests. These performances, followed by extensive discussions, were designed to negotiate particular norms, to standardise surgical procedures, and to demonstrate the skill and judgement of the neurosurgeon. In the second meeting, for instance, Cushing demonstrated an experimental technique – a transsphenoidal sella decompression.⁷⁹ The secretary noted that ‘[f]ollowing the operation the merits of the intracranial approach and the transphenoidal [*sic*] route were discussed’.⁸⁰ At the second meeting there was a heated debate about the proper technique and the merits of ventriculography, a new diagnostic procedure based on X-rays,⁸¹ and at the June 1931 meeting, C.C. Coleman performed a surgical procedure he had devised for Ménière’s disease in which the eighth cranial nerve was cut.⁸²

The discussions following the surgical demonstrations allowed the neurosurgeons to create a common repertoire of therapeutic procedures as well as to standardise both the techniques and the instruments.⁸³ In the third meeting, following an operation at the University Hospital in Philadelphia, Francis Grant led the surgeons into a discussion about atypical trigeminal neuralgia and the ‘standardization of technic of alcohol injections’.⁸⁴ At the same meeting, there were demonstrations followed by a long debate about treating brain tumours with radium, which led to the consensus that ‘as yet nothing positive could be stated as to the effect of radium’, since a conclusion was made difficult by the impossibility of telling ‘how much the relief of symptoms may be attributed to the decompression and how much to the radium therapy’.⁸⁵

Cushing had noted that ‘[t]hey are ticklish performances, these operations for tumor, and demand not only a rigorous regard for detail, such as the patient’s position on the table and the choice of anesthetic ... but also a thorough knowledge of the diverse

⁷⁷ Wilde, *op cit.* (note 15), 363.

⁷⁸ The Society of Neurological Surgeons Constitution, Box SNS 1920–35, folder 22, Carpenter Archives.

⁷⁹ Transsphenoidal refers to a surgical approach through the nose rather than the skull.

⁸⁰ Program of the SNS Second Meeting, Peter Bent Brigham Hospital, November 26th and 27th, 1920, box SNS 1920–35, folder Meeting 1920, Carpenter Archives.

⁸¹ This procedure was devised by Walter Dandy, who declined an invitation to join the SNS because of frictions with Cushing.

⁸² Minutes of the 23rd Meeting of the Society of Neurosurgical Surgeons, 5 and 6 June 1931, box Minutes 1919–55, Carpenter Archives.

⁸³ Cushing wrote to Wilder Penfield: ‘There is one thing I am very anxious to have brought up at the meeting; ... to have some agreement passed whereby we can all get some of our instruments from a common source and perhaps thereby get better tools’ (Cushing to Penfield, 13 May 1929, Harvey Williams Cushing Papers, Yale University, Reel 43).

⁸⁴ Program of the SNS Third Meeting, Philadelphia, 3 and 4 June 1921, box SNS 1920–35, folder Meeting 1921, Carpenter Archives.

⁸⁵ *Ibid.*

tricks of controlling hemorrhage from scalp, meninges and brain'.⁸⁶ Even the seemingly straightforward task of using a Gigli saw could be tricky, since the instrument could get caught in the dura.⁸⁷ 'Tricks' like these were traded and negotiated in the professional meetings that set the stage for surgical performances. It was here that certain routines, technical values and procedures, technologies, habits of mind and body became sanctioned while others were discouraged.

Historians of surgery drawing on the work of Michel Foucault have emphasised the technologies of control that came into play in the operating room towards the end of the nineteenth century. The architecture of surgical theatres changed as surgeons demanded more control over the environment as well as the body of the patient through technologies such as anaesthesia or asepsis.⁸⁸ But there was also another type of control that has been emphasised less – the surgeon's control over his own body and gestures, the role this control played in the formation of a collective surgical identity, and the technologies that made it possible.⁸⁹ The surgical performances that neurosurgeons put on for each other fulfilled this crucial role by legitimating particular communal habits of the body,⁹⁰ and it can be useful to think of these performances as a kind of technology of the self – a technology that helped the neurosurgeon effect a change on the individual self in such a way as to help align him to a community.⁹¹ Historians have highlighted both the importance of shared cultural practices and spaces in the creation of a collective identity,⁹² as well as the fact that personal identity cannot be made without the cooperation of others.⁹³ The neurosurgeons' surgical performances in front of a select audience were a means through which they affirmed interest in a shared practice and sought to align their self to that of the entire specialist group.⁹⁴

⁸⁶ Harvey Cushing, 'The Special Field of Neurological Surgery: Five Years Later', *Bulletin of the Johns Hopkins Hospital*, 21 (1910), 331.

⁸⁷ Cushing shared with Sachs his trick for avoiding this problem in a letter dated December 1919. Box SNS 1920–35, folder 1919, Carpenter Archives.

⁸⁸ Thomas Schlich, 'Surgery, Science and Modernity: Operating Rooms and Laboratories as Spaces of Control', *History of Science*, 45, 149 (2007), Adams and Schlich, *op cit.* (note 68).

⁸⁹ Christelle Rabier, "'Publier Le Geste Chirurgical.'" La Lithotomie en France et en Grande-Bretagne (1720–1820)," in Anne-Claude Ambroise-Rendu, Fabrice d'Almeida and Nicole Edelman (eds), *Des Gestes en Histoire: Formes et Significations des Gestualités Médicale, Guerrière Et Politique* (Paris: Seli Arslan, 2006). On self-control and the contemporary surgeon see Rachel Prentice, *Bodies in Formation: An Ethnography of Anatomy and Surgery Education* (Durham, NC: Duke University Press, 2013).

⁹⁰ On bodily discipline and scientists' self-fashioning see Christopher Lawrence and Steven Shapin, *Science Incarnate: Historical Embodiments of Natural Knowledge* (Chicago: University of Chicago Press, 1998); Jan Golinski, 'The Care of the Self and the Birth of Masculine Science', *History of Science*, 40, 2 (2002).

⁹¹ Michel Foucault *et al.*, *Technologies of the Self: A Seminar with Michel Foucault* (Amherst: University of Massachusetts Press, 1988).

⁹² See the example of collecting and museums in the early modern period: Paula Findlen, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy* (Berkeley: University of California Press, 1994), 97–150; 293–345.

⁹³ Shapin, *op. cit.* (note 12), 127.

⁹⁴ Historians have used Foucault's concept of technologies or techniques of the self in different ways. Daston and Galison investigate the different kinds of scientific selves that are created by different ways of observing nature (Daston and Galison, *op. cit.* (note 55), 199). Other historians of science have explored the way particular practices such as commonplacing in the eighteenth century functioned as such techniques that 'tailored habits of thinking, construed new domains of knowledge, and fulfilled social demands'; see Lucia Dacome, 'Noting the Mind: Commonplace Books and the Pursuit of the Self in Eighteenth-Century Britain', *Journal of the History of Ideas*, 65, 4 (2004): 625. More recently, Michael Pettit has read early twentieth-century endocrinology – and rejuvenation therapy – as a particularly modern technology of the self that allowed lay individuals to reconfigure their selves; Michael Pettit, 'Becoming Glandular: Endocrinology, Mass Culture, and Experimental Lives in the Interwar Age', *American Historical Review* 118, 4 (2013).

For the first generation of neurosurgeons, these communally sanctioned surgical techniques were underwritten by moral values such as self-control. During the first meeting of the society, Sachs noted that ‘Dr Cushing started a temporal lobe case which we had seen the day before. The anesthetic was taken badly, so he removed fluid from the hernia, but then postponed the operation, not thinking it wise to go on.’⁹⁵ Sachs thought Cushing’s decision not to operate ‘was a hard decision to make, but it made a profound impression upon me and, I am sure, upon the others. It seemed to me to show superlative judgment and self-control.’⁹⁶

Self-control meant the ability of the surgeon to suppress his emotions as well as his impulses, and it could be observed most clearly in action in the operating room. Reflecting on the establishment of the specialty board that began to certify neurosurgeons in the 1940s, Sachs made explicit the importance that early neurosurgeons attached both to self-control and to the ability of the community to watch the prospective member in order to determine if the surgeon possessed the proper technique, judgement and character. He decried the suggestion that this examination not be oral because observing a surgeon’s reaction to a problem ‘gave me a reasonably good idea of his ability to cope with a given situation. On the other hand, some men become speechless in an oral examination; yet is this not in itself significant? One wonders how such a man would react when faced with an emergency at the operating table.’⁹⁷

An emphasis on self-control translated into a particular kind of neurosurgical practice – conservative, careful, painstaking, slow, fastidious, tedious, dull – all descriptors that the first generation of neurosurgeons used to characterise their ‘technic’. This kind of surgery, its proponents argued, was different from the quick, bloody surgery of the end of the nineteenth century.⁹⁸ A quiet performance was also often part of the new neurosurgery – speech was strictly suppressed in Cushing’s operating room.⁹⁹ A former resident described the routine pantomime in the surgical theatre: ‘Cushing’s operating room was a silent place. He used a set of hand signals to indicate the instrument he wanted, the thumb and forefinger pinched for a scalpel, an open palm with a twist of the wrist for the needle holder, rapid motion of two fingers for scissors, and so forth’.¹⁰⁰ Certainly, this kind of slow, careful surgery did not originate with Cushing himself, nor was it limited to neurosurgery. William Stewart Halsted, under whom Cushing trained, had

⁹⁵ Record of the Proceedings at the First Regular Meeting of the Society of Neurological Surgeons, Peter Bent Brigham Hospital, Boston, MA, March 19th and 20th, 1920, Collection SNS 1920–35, folder 1920–21, Carpenter Archives.

⁹⁶ Ernest Sachs, ‘The Early History of the Society of Neurological Surgeons,’ reprinted in Eben Alexander Jr. (ed.) *The Society of Neurological Surgeons: Diamond Jubilee* (Winston-Salem, NC: Hunter, 1984), 14.

⁹⁷ Sachs, *Fifty Years of Neurosurgery: A Personal Story*, 118.

⁹⁸ In 1933 Cushing asked Sachs whether he had ever seen Victor Horsley, the British surgeon with whom Sachs had trained, turn down a bone flap. ‘I have an idea’, Cushing wrote, ‘that he was too impetuous for this sort of fiddling, painstaking work which today we are so accustomed to do’; Cushing to Sachs, quoted in John F. Fulton, *Harvey Cushing, a Biography* (Springfield, IL: C.C. Thomas, 1946), 257. Outside the US, many surgeons who performed brain surgery did not engage in this slow, fastidious ritual. In 1928, in letters to the neurosurgeon Wilder Penfield, William Cone described, sometimes incredulously, the brain operations he observed in London: ‘I have seen Sargent operate. He turned down a frontal bone flap, explored a pituitary cyst, filled the cavity with muscle and closed the flap all in forty minutes. And he spent a great deal of time joking about [Percival] Bailey’s characteristic American arrogance and Cushing’s silver clips as he did it. It took him as long to prepare a silver clip as it did to do one operation. He surely works rapidly. The rest I saw was equally bad’; Cone to Penfield, 17 May, 1928, C/D 15-1, Penfield Papers, Osler Library, McGill University.

⁹⁹ Wangenstein and Wangenstein, *op. cit.* (note 68), 470.

¹⁰⁰ Richard U. Light, ‘Remembering Harvey Cushing: The Closing Years’, *Surgical Neurology*, 37, 2 (1992), 149.

endorsed similar techniques in the late nineteenth century, and the entire Hopkins school of surgery relied on this approach.¹⁰¹ Some European surgeons had adopted similar practices. When Halsted visited Kocher in 1899, he was pleased to remark on the similarities between their techniques.¹⁰² Such slow, exacting practices had been made possible by new technologies such as anaesthesia and asepsis, and, for neurosurgery, Cushing's silver clips (which allowed the surgeon to stem blood loss) and the charting of blood pressure during the surgical procedure (which constituted a way of monitoring intracranial pressure). Nevertheless, despite the fact that many of these techniques were practised more widely by elite surgeons from the end of the nineteenth century, an attention to detail, a slow meticulous surgery, an intolerance of both blood loss and the sacrifice of healthy tissue and the prescribed steps to open and close the skull became known as 'the Cushing ritual', or, as one of his students had described it, 'the fastidious ritual of the Cushing school'.¹⁰³ On this point neurosurgery was special, because, Cushing had argued, there was 'no field of surgery in which fastidiousness is more essential to success'.¹⁰⁴

Conclusion

The meetings of the first neurosurgical society staged a critical encounter between the host neurosurgeon and the society's members and guests who watched him perform surgery. These technical performances in the operating theatre, followed by discussions, were designed equally to encourage particular norms, to negotiate surgical knowledge, and to demonstrate the skills and character of the neurosurgeon. The performances acted as a technology of the self that at once aligned the operator to a community and helped that community refine its norms of surgical conduct. In less than a decade these men spoke confidently for the new specialty; no outsider could compete. Sharpe himself was taught this lesson when a scathing anonymous reviewer of his 1928 book *Neurosurgery: Principles, Diagnosis and Treatment* declared that 'the surgical course advocated and the measures indicated are not in accord with the procedure of the leading neurologic surgeons of this country'.¹⁰⁵

The founding members of the society had sought a small group of elite surgeons with superior professional and moral qualities. Their concern about the skilful but ambitious surgeon of questionable character developed in a context in which many North American surgeons worried about unethical behaviour, from fee-splitting to the performance of unnecessary operations. As the presidents of the ACS (Cushing among them) had argued, the community had to be vigilant about the character of its members because too often the objectionable surgeon was 'disguised in our own garb'.¹⁰⁶ Surgical skill, if not balanced by judgement, and in conjunction with vanity, ambition, or a commercialising impulse, could be very dangerous. When Cushing and Sachs objected to Sharpe's flair for the dramatic and the appearance that he was courting the press, they were doing so out of a moral anxiety

¹⁰¹ Fulton, *op. cit.* (note 98), 110–60.

¹⁰² Bliss, *op. cit.* (note 24), 139.

¹⁰³ Fulton, *op. cit.* (note 98), 257. These terms were frequently used to describe the early neurosurgeons' technique. Gilbert Horrax's (1887–1957) qualities were described as follows: 'No one surpassed Horrax in his mastery of the meticulous, time-consuming, and brilliant surgical technique that ensures first-grade neurological surgery'. Frank Turnbull, 'As it was in the beginning: an essay to commemorate the fiftieth anniversary of the founding of the Society of Neurological Surgeons, March 1970', in Eben Alexander (ed.), *The Society of Neurological Surgeons: Diamond Jubilee* (Winston-Salem, NC: Hunter, 1984), 5.

¹⁰⁴ Cushing, *op. cit.* (note 9), 611.

¹⁰⁵ 'Book Notices', *Journal of the American Medical Association*, 92, 24 (1929).

¹⁰⁶ Matas, '1925 Presidential Address: The Mission and Ideals of the American College of Surgeons', 73.

over the spectacularisation of surgery, which could manifest on two different fronts: in the public arena through advertising or the public intimation of radical cures, as well as in the operating room through flashy surgical performances calibrated to showcase skill and dexterity and to stoke the vanity of the operator. For the first generation of neurosurgeons similar moral values, such as self-control, underlined both the embrace of a conservative surgery and a distrust of publicity.

This case study illustrates the historically contingent connection between surgical skill and professional judgement, a relationship that reflects the broader concerns that animate the medical community at a given time. In the first decades of the twentieth century, a group of elite surgeons saw skill as a desirable but potentially problematic attribute that had to be kept in check. The first generation of neurosurgeons believed that an awkward surgeon with inferior technical ability was preferable to the brilliant and vain operator who lacked the capacity to judge when he should *not* call on his spectacular skills.