William H. Feindel (1918–2014)

Richard Leblanc, MSc, MD, FRCSC,¹ and Mark C. Preul, MD²

¹Department of Neurology and Neurosurgery, Montreal Neurological Institute and Hospital, McGill University, Montreal, Quebec, Canada; and ²Division of Neurological Surgery, Barrow Neurological Institute, St. Joseph's Hospital and Medical Center, Phoenix, Arizona

William Howard Feindel (1918–2014) was one of the world's most distinguished neurosurgeons and a brilliant neuroscientist. As the Montreal Neurological Institute's third director, having succeeded Theodore Rasmussen and Wilder Penfield, he proved to be a visionary medical and scientific administrator. His keen interests in epilepsy and brain imaging were enhanced by a passion for medical history. Students and young people invariably gravitated to Dr. Feindel; he was a kind, patient, thoughtful, intelligent, and caring mentor who was never too busy for them. A pioneer in his own right, Dr. Feindel linked our modern neurosurgical world with the legacy of the first generations of important neurosurgeons and neuroscientists.

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WILLIAM (“Bill”) Howard Feindel, O.C., G.O.Q., M.D.C.M., D.Phil., died quietly at the Montreal Neurological Institute and Hospital of McGill University (MNI) on January 12, 2014, at age 95, following a brief illness.

Dr. Feindel (Fig. 1) was one of the world's most distinguished neurosurgeons and a brilliant neuroscientist. As the MNI's third director, having succeeded Theodore Rasmussen and Wilder Penfield, he proved to be a singular medical and scientific administrator. Indefatigable, Dr. Feindel never retired, and he remained a daily presence at the MNI up to the last, attending grand rounds and conferences, taking notes, and asking pertinent, pointed questions that led the speaker to consider further research and experimentation. The comment “good question,” spoken in a quizzical tone by first-year residents and distinguished neuroscientists alike, was heard from the podium at every conference that Dr. Feindel attended. But mostly he wrote; he wrote. At “the Neuro's” annual Feindel Lecture, a few weeks before his passing, he officiated at the launching of his most recent book, *Images of The Neuro*. He also left us an unfinished book—now taken up by his friends and colleagues—and he was pondering the one to follow when illness struck him.

William Feindel was born on July 12, 1918, in Bridgewater, Nova Scotia, Canada, where his father, as far-sighted as his son, opened one of the first Ford car dealerships in the Maritime provinces of Canada. Dr. Feindel was proud of stating that he had learned to drive in a Model T.

Graduating from Acadia University in Wolfville, Nova Scotia, in 1939, Dr. Feindel was awarded a Rhodes Scholarship to Merton College, Oxford, that same year. Dr. Feindel obtained a Master of Science degree in physiology from Dalhousie University in 1942 and an M.D.C.M. degree from McGill University in 1945. He returned to Oxford and was awarded his Doctor of Philosophy in neuroanatomy in 1949, for his work under Sir Wilfrid Edward Le Gros Clark, the eminent British anatomist.

In the interval, Dr. Feindel had been at the National Hospital, Queen Square, London, from 1946 to 1949, where he studied under Dr. Graham Weddell, Sir Hugh Cairns, and Sir Charles Symonds. He returned to Montreal for his neurosurgical training at the MNI with Wilder Penfield, William Cone, and Arthur Elvidge, whom he joined in clinical practice for the 2 years after the end of his training.

It was during this time that Dr. Feindel made his first significant contribution to the field of epilepsy when, with Penfield and Herbert Jasper, he discovered the role of the

ABBREVIATION MNI = Montreal Neurological Institute.

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FIG. 1. Dr. William Howard Feindel shown in later life, mirthful and inquisitive, in his dapper blue blazer, characteristic vibrant red pocket-handkerchief, and his MNI Third Foundation tie. The Order of Canada and the National Order of Québec medals are neatly pinned to his lapel. (Courtesy of the Montreal Neurological Institute, McGill University; photographer Owen Egan.) Figure is available in color online only.

amygdala in the production of the aura, automatism, and amnesia that accompanies temporal lobe epilepsy. This and other contributions with Penfield and Jasper focused interest on the structures of the medial temporal lobe and on their resection, along with the anterolateral temporal neocortex, in the surgical treatment of complex partial seizures, in what became known as the Montreal Procedure. Using this approach, and in a determined attempt to minimize the resection of the hippocampus so as to avoid memory impairment, Dr. Feindel operated on more than 500 patients and, as Dr. Rasmussen had done before him, he continued the follow-up assessment of his patients for the remainder of his life.

Dr. Feindel, along with Drs. Joseph Stratford, Donald Baxter, and Jerzy Olszewski, left the MNI for Saskatoon in 1955, where he became the first Director of the Department of Neurosurgery at the University of Saskatchewan. While there, Dr. Feindel was instrumental in developing Canada's first radioisotope contour brain scanner for the detection of intracranial lesions. His interest in brain scanning would eventually lead to acquisition of the first positron emission tomography scanner for clinical use in Can-

ada, at the MNI, in 1975. While still in Saskatoon, Feindel and Stratford described the clinically relevant anatomy of the cubital tunnel and developed the technique of decompression, without transposition, of the nerve at the cubital tunnel for the treatment of tardy ulnar palsy.

Dr. Feindel returned to the MNI following William Cone's sad and untimely death in 1959, to become the first William Vernon Cone Professor of Neurosurgery at McGill University, a position that he held until 1988. He also founded and directed the Cone Laboratory for Neurosurgical Research. Dr. Feindel was Neurosurgeon-in-Chief at the Montreal Neurological Hospital from 1963 to 1972, and he was Neurosurgeon-in-Chief at the Royal Victoria Hospital.

From 1972 to 1984, Dr. Feindel was, at one time and most often concurrently, the Director of the MNI, the Director-General of the Montreal Neurological Hospital, and the Chairman of the Department of Neurology and Neurosurgery of McGill's Faculty of Medicine. During his tenure as director, the MNI experienced an unprecedented expansion of its clinical and scientific facilities and of its faculty: the construction of the Penfield Pavilion, the Webster Pavilion, and the McConnell Brain Imaging Centre more than doubled the clinical, research, and teaching resources. Under his leadership the MNI was designated a World Health Organization medical facility. The MNI maintained its preeminence as one of the original neurosurgical training programs in North America and as a world leader in neurological sciences.

Early on, Dr. Feindel recognized the potential importance of CT scanning, which resulted in the MNI's purchase, in 1973, of one of the first CT scanners in North America, the EMI Mark I. Similarly, he was responsible for the acquisition, in 1984, of the first MRI scanner in Canada. This was followed by the purchase of one of the first MRI systems capable of clinical MR spectroscopy, which was used by one of us (M.C.P.), along with Dr. Feindel, to demonstrate that common types of brain tumors could be diagnosed on the basis of their *in vivo* chemical spectral pattern.

Dr. Feindel's major contribution to neurological imaging, however, was perhaps the development, with Dr. Lucas Yamamoto, Dr. Christopher Thompson, and others at the McConnell Brain Imaging Centre of the MNI, of the first medically dedicated positron emission tomography scanner supplied with nitrogen, oxygen, carbon, and fluoride produced by its own, on-site cyclotron. This proved essential to the development of functional brain imaging and led to the first-ever demonstration, by one of us (R.L.), of the reliability of functional neuroimaging in identifying eloquent areas even in the presence of a structural brain lesion.

Dr. Feindel was a fellow of the Royal Society of Canada and governor and chancellor of Acadia University. The World Health Organization, the Medical Research Council of Canada, and the National Institutes of Health sought his advice. He was a fellow of the Royal College of Physicians and Surgeons of Canada and a member of the American Association of Neurological Surgeons. Dr. Feindel was also a diplomate of the American Board of Neurosurgery, the American College of Surgeons, and the American Academy of Neurological Surgery, of which he

was vice president. He was also vice president of the Society of Neurological Surgeons and the American Neurological Association; and he was president of the Canadian Neurosurgical Society, the Montreal Neurological Society, and l'Association des Neurochirurgiens du Québec.

Dr. Feindel was awarded the Order of Canada and he was made a Grand Officier de l'Ordre National du Québec. He was inducted into the Canadian Medical Hall of Fame, and he was honored with the J. Kiffin Penry Award for Excellence in Epilepsy Care by the American Epilepsy Society. The William Feindel Chair of Neuro-Oncology at McGill University was created in his honor. He published more than 500 articles, 300 in peer-reviewed scientific and medical journals, and authored or edited 6 books.

He had a passion for medical history—one of Dr. Feindel's favorite subjects was the work of Thomas Willis. He was Honorary Osler Librarian, Curator of the Wilder Penfield Archives, member of the Board of Curators of the Osler Library at McGill University, and he received the John Neilson Award from the Hannah Institute for the History of Medicine.

Dr. Feindel was a true gentleman and a caring mentor to those of us who were fortunate enough to have come under his influence. His professional life began with the pioneers of our profession, and continued with the eminent neurosurgeons of our age, most of whom he knew on a first-name basis. Paraphrasing him, one of us (R.L.) recalls Dr. Feindel saying "You young neurosurgeons are lucky; you have a scan that shows you where the tumor is located. We had to figure it out by our clinical acumen and shadows on a pneumogram."

A Mentor and a Friend Indeed (M.C.P.)

Students and young people invariably gravitated to Dr. Feindel; he was a kind, patient, thoughtful, intelligent, and caring mentor who was never too busy for them. We can all remember meeting him for the first time. For me the first meeting was as a junior neurosurgery resident, waking him from one of his daily 20-minute afternoon power naps on his comfortable office couch. Having been previously bewildered by the source of Dr. Feindel's energy, the secret of how he recharged his batteries was finally out. Dr. Feindel, not missing a beat, then told me that during his short repose, it had come to him how best to organize the index cards on which Dr. Penfield had made notes and sketches during his visits to observe Harvey Cushing operate. As Dr. Feindel handed me the cards, it occurred to me that I was holding neurosurgical history in my hands. Despite his afternoon naps, or perhaps because of them, like Newton, Dr. Feindel's mind was never at rest. And through the 23 years of our friendship, his advice to work on the big problems of neuroscience and neuroimaging, in the knowledge of what had gone before, has served me well. But the memory I will most cherish is Dr. Feindel's unannounced 1:00 a.m. visit to the Royal Victoria Hospital Neonatal Intensive Care Unit, to visit and comfort me minutes after my wife's emergency cesarean section to deliver our 2-month premature son. Unbeknownst to me, he had been made aware of our situation and arranged personally for the finest of care for my family.

On First Meeting a True Gentleman: a Personal Anecdote (R.L.)

I was a junior resident on a rotation at the University of Ottawa Heart Institute at the time. The Ottawa Heart Institute was newly opened and had been conceived along the lines of the MNI: it was a clinical and research institute, autonomous, in a separate building and connected to a major general hospital—in Montreal by the Bronfman bridge and in Ottawa by a short, brightly lit tunnel.

I had applied for a position in the residency program at the MNI on the advice of Dr. Eric Peterson, a neurosurgeon at the University of Ottawa, who had been the senior resident on Dr. Penfield's service when Dr. Feindel, already accomplished as a Rhodes Scholar, began his clinical training as a junior resident. I was surprised when, a few days later, I received a handwritten note from Dr. Feindel, telling me that he would soon be in Ottawa for a meeting of the Medical Research Council, and asking if I would join him at the Chateau Laurier, the most prestigious hotel in our nation's capital, for an interview.

When the appointed time arrived, the Director of the Heart Institute, a great admirer of the MNI, gave me the afternoon off and wished me luck, as I made my way to Centretown to meet the Professor of Neurosurgery from McGill University.

Dr. Feindel, gracious as usual, asked me what particular field interested me. I told him of the work that I had done with Eric on vasospasm, to which he listened with genuine interest. He then told me of the pioneering work of Francis Echlin on cortical vasoreactivity that he had done as part of his master's thesis under the supervision of Dr. Penfield, in the mid 1930s, and of his own recent work with Lucas Yamamoto on the same topic. Heady stuff for a first-year surgery resident!

We continued in this vein, Dr. Feindel putting me at ease with his own informal demeanor, when we were gently disturbed by a soft knock on the door. Dr. Feindel rose to let in a room-service waiter pushing a tea trolley carrying a large teapot, two delicate cups, and a tray of butter cookies.

"Would you join me for a cup of tea?" Dr. Feindel asked, to which I replied, as politely as possible, that I would be very pleased to do so. After a few sips, Dr. Feindel offered me a choice from the tray of cookies, and I obliged. We then parted company and I returned to the hospital to take night call. No sooner had I arrived than my bellboy beeped and left a number that I recognized. I called back to hear Eric anxiously ask, "How did it go?"

"Well—I think," I answered tentatively. "We talked a lot about spasm and the old days at the Neuro when he was your junior resident," I continued, only to be brusquely interrupted.

"Never mind that," Eric said gruffly, "did he offer you cookies?"

"Why yes, yes he did," I answered, bewildered.

"Don't worry then," Eric replied, and I could almost see him beaming at the other end of the line. "You're in." And so it was.

That winter's day in Ottawa marked the beginning of a friendship that lasted for 35 years, a friendship that con-

tinues to this day and beyond, as I strive to live up to Bill's standards. Also, whenever I have a cup of tea, I always have it with butter cookies.

Survivors

Dr. Feindel will be missed by his loving wife Faith (née Lyman, who had been Dr. Cone's favorite scrub nurse); by his two sons, Christopher (Mary Ann) and Michael (Karen); by his three daughters, Patricia, Janet (Robert), and Anna (Bernard); by his two grandsons, Michael (Laura) and Andrew (Tina); and by his great-grandson Finn. Dr. Feindel was predeceased by his beloved son, Alexander (Ling), in 1985.

Dr. Feindel cared deeply for the Neuro and for all who were part of it. We will truly miss him; we were his family

and he ours. His dear friend and secretary, Ann Watson, said it best: "We loved him, and he loved us."

Author Contributions

Conception and design: both authors. Acquisition of data: both authors. Analysis and interpretation of data: both authors. Drafting the article: Preul. Critically revising the article: Leblanc. Reviewed submitted version of manuscript: both authors.

Correspondence

Richard Leblanc, Department of Neurology and Neurosurgery, Montreal Neurological Institute and Hospital, 3801 University St., Montreal, QC H3A 2B4, Canada. email: ann.watson2@mcgill.ca.