A student recalls Sir Charles Sherrington, O.M. (1857–1952)

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‘Experience is not to be measured by time served, but by the use which a man makes of his opportunities.’

(Sir William Osler)

The ‘Great Depression’ following the crash in 1929 of world stock markets ended my intended studies in banking and commerce at the youthful University of British Columbia in Vancouver. Adding a crushing load of courses in histology, chemistry, genetics and embryology, I proceeded instead to a Bachelor of Science degree achieving sufficient grades to enter McGill Medical School, Montreal, in autumn 1933.

There, the freshmen class was amazed at the renowned professors gathered by McGill—such as the anatomist, Dr Samuel Whitnall, an Oxford graduate who lectured to his class wearing a beautiful black silk gown and a monocle which he adeptly expelled from his orbit, catching it in one hand. He instructed the attendant Mr Murphy to display various parts of the human body specially dissected for the purpose. The lecture on the human intestinal tract required only 3 min, as Murphy was commanded to pull-up the entire human digestive tract by a rope and pulley attached to the ceiling, whilst the immaculately dressed professor declared, as he left the classroom—‘Gentleman, the Guts’. Understandably, the Dean of Medicine—himself a first class clinician—sought to modify the 5-year MD course, replacing it with the standard American 4-year requirement, and introducing some new and less-flamboyant professors. On learning of this impending change, I applied to Dr Wilder Penfield whose new Montreal Neurological Institute was about to open, in order to fit in a Master of Science degree year.

This was enthusiastically arranged by Dr Penfield and my work began in this sparkling new tower financed by prominent Montreal families and by the Rockefeller Foundation of New York. My task was to demonstrate, in large numbers, the all-important boutons terminaux by which neurons make synaptic contact with other nerve cells to close a circuit. The years of work that Penfield and his partner, William Vernon Cone, had spent staining the nervous system with silver solutions paid off handsomely in my histological efforts, and were to prove highly influential in shaping my career. I was awarded the Master of Science degree in 1935 and, while waiting to join up with the new 4-year medical course, was employed as a camp doctor in the Northern Ontario Lake District. Towards the end of August, I was making one last canoe trip when, from the south, a man, paddling his canoe at high speed, delivered a telegram from Oxford. The trio of Sir Charles Sherrington and his pupils Jack Eccles and Wilder Penfield had decided that I should transfer to Oxford to study for a Doctor of Philosophy degree in research whilst acting as a demonstrator in Physiology. The fact that Sir Charles had already retired (at age 75 years) did not worry them—he would make the appointment anyway! Wilder Penfield urged that I take the remarkable offer so I cabled my acceptance, if a young student dare use such a word. I was able to transfer my responsibilities at McGill—such as the presidency of the Student Christian Movement at Strathcona Hall—to others and to find money to pay for the cheapest fare to England aboard the Mauretania.

1Sherrington began his research on the nervous system as a Cambridge graduate student, with a publication of his findings on the brain of an anaesthetized monkey in a small area of the motor cortex which had been aseptically removed by David Ferrier of London. When the monkey was shown, limping, to the International Medical Congress in London in 1891, the famous French neurologist, Jean-Martin Charcot, cried out ‘C’est un malade’. Professor Goltz of Strasbourg shouted in reply, ‘I will prove beyond the shadow of a doubt that Ferrier’s theory is completely false!’ After this student paper, C.S.S. published 320 scientific articles over the next 60 years.

2My brother James, on leave from External Affairs in Ottawa, was already trying to complete his D. Phil thesis in history at Oxford, writing a biography of the distinguished British diplomat and historian, Sir Edmund Head, the Governor of Canada just prior to our country’s Confederation in 1867. We lived at 13a Broad Street, Oxford, above The Cuckaburro Café, run by the stately Miss Brown, daughter of an aging Oxford Alderman. When James’ furlough was up he returned to External Affairs at Ottawa, to be posted to the Prime Minister’s Office for 10 years of corvée.
Sir Charles Sherrington was at his favourite Oxford hotel, the Randolph, to welcome me to the hastily arranged demonstratorship within his old Laboratory of Physiology. At once, everyone wanted my modification of the silver staining techniques of Ramón y Cajal, the Nobel Prize winning neurohistologist, brought from Montreal, applied to their research projects. Jack Eccles introduced me to Sherrington’s former animal operating room where the bright ring of light bulbs, which suited Sherrington’s short stature, came uncomfortably close to our ears. Assisting in the medical students’ laboratory sessions in microscopic anatomy twice each week was a circus in some ways, since these extroverts claimed to see bizarre things in normal tissue (glass) slides. Although admiring their gusto, this was clearly a wild lot. My research work was time consuming, and had to meet stringent rules governing animal surgery developed over the previous half century.

In time for the spring vacation of 6 weeks in 1936, I was able to arrange work in the beautiful laboratory of Professor Pio del Rio-Hortega in his excellent new Cancer Institute in Madrid. The laboratory benches were well-filled with pathologists and neurologists from the United Kingdom, the United States and Latin America. One of the brightest Spanish workers attached to this excellent laboratory was later killed while serving in the mountain battle grounds when General Franco’s fascist troops, with Hitler’s and Mussolini’s armies and air forces, joined in air bombardment against the first elected government of Spain (King Alfonso had already retired, overnight). In the long vacation at Oxford in 1936, I made plans to work again with Rio-Hortega in the summer laboratory provided for him on the north coast at Santander by the Marquess of Val de Cilla. But General Franco’s Fascisti made that impossible, and I was relieved to get out of Spain on the U.S. Battleship Oklahoma to southwest France, and from there by train back to Oxford. (That great ship was later bombed by Japan while anchored in Pearl Harbour). Rio-Hortega was eventually invited to come to Oxford with his family by Professor Sir Hugh Cairns, the distinguished Australian neurosurgeon, trained at Harvard by Harvey Cushing who had himself been Sherrington’s assistant at Liverpool in July 1900. Taking Don Pio by Cairn’s motor car to visit Sherrington at Ipswich was an unexpected pleasure (Fig. 1). These two researchers of the nervous system, both speaking in French, had a day to remember. Over tea, they discussed the microscopic structure of the nervous system, with Sherrington describing another visitor, Ramón y Cajal, who—half a century earlier—had so greatly entranced his hosts at Cambridge. Cajal had become so enthralled with the gardens of the ancient Colleges, that he almost missed his own honorary degree ceremony! Sherrington found it hard to believe that the Nazis were in Spain and, with General Franco’s fascist troops, were herding Republicans into bull-rings and shooting them. Among the supporters of the democratically elected government of Spain were volunteers of the MacKenzie–Papineau Brigade from Canada, one of the first of whom to be killed in action was a schoolmate from Victoria, B.C.

On other visits to Sir Charles, I found him anxious to chat about his very early years. He described the early influence of members of Sir Michael Foster’s department in Cambridge, especially WH Gaskell and JN Langley. As Superintendent of the Brown Institute, set up by an animal lover in London for the care of injured or sick animals, he had succeeded the pioneering neurosurgeon, Sir Victor Horsley, as head of this animal refuge. When Horsley attempted, some years later, to challenge Sherrington’s early neurological research—even suggesting the formation of an expert committee to adjudicate matters—Sherrington completely ignored him, and became Professor of Physiology at Liverpool. The rising American neurological surgeon, Dr Harvey Cushing, completed his wanderjahr in Europe, and was invited to see Horsley at work in London. The patient was operated upon in a private residence, and surgery completed in 1 h! So Cushing, shaken, left London and instead paid a visit to Liverpool to see the distinguished Professor Sherrington at work. To Cushing’s surprise he was put to work by Sherrington for several weeks on animal brain operations, all of which experiences forged a happy relationship.
between these two neurological researchers for the rest of their very productive lives. Seven years post-retirement from Oxford, Sherrington returned to see Cushing and Rio-Hortega crowned with highly acclaimed honorary doctorates in the Sheldonian Theatre. He also spoke with affection of those with whom he worked during and after the Great War—Wilden Penfield, Wiliburt Davison and Emile Holman (all to become professors in North American medical schools); and the subsequent group of students that included EGT Liddell, Ragnar Granit, John Fulton, Howard Florey, RS Creed and Derek Denny Brown.

We would be wrong if we were to assume that Sherrington was only a neurophysiologist. Although dimunitive, he was an excellent soccer player at school in Ipswich and played for the town. His son Carr reminded me that his father enjoyed, with his brothers, cycling on the bone-shaking bicycles of the 1870s devoid of brakes. As an undergraduate in Cambridge, he rowed for his College (Caius) and proved to be a vigorous and fast rugby player—there and at St Thomas’ Hospital in London where he made the cup-winning first team—diminutive but fast. Sherrington accompanied student friends to Grindelwald in Switzerland where he was early to take up winter sports, writing a memoir of that 1887 visit for the Alpine Club 60 years later. He was keen on canoeing on the Thames, writing poetry while his son, Carr, paddled. In old age, Sir Charles still walked sprily in the beautiful grounds of his Valley Road home in Ipswich, composing poetry!

Sir Charles usually had some good cause on his agenda. He and Sir William Osler, his close neighbour and friend at Oxford, had a long history of public lectures together beginning in 1903 at the opening of a new medical building at the University of Toronto.3

Osler was back home where he had begun his meteoric medical career. Coming from his post as Physician in Chief of the Johns Hopkins University Hospital, Sir William held a massive audience spellbound as he made his historic speech, ‘The Master Word in Medicine’. Sherrington concluded his own moving speech with the ringing charge:

‘Do not, O my brothers, forget research. Science calls us all to it, and the call is from humanity as well’.

Their formal addresses, in many countries, brought honour to Oxford, and to the medical profession. Sherrington insisted during World War I that, at last, women should be admitted to medical studies and given Oxford degrees, no longer merely receiving an official statement. In effect, if they had been born male, they would be entitled to a real degree on graduation. Osler joined in Sherrington’s protest against this male bastion of privilege.

In their Oxford years together, 1913 to 1919, these two gifted scholars were at home in each other’s libraries. While Osler gathered together 7600 rare or significant books which he bequeathed to McGill University in Montreal, Sherrington also collected and—despite a non-clinical Oxford salary, no patients and no pension—Sir Charles gave to the British Museum and to other libraries, 200 of the rarest medical and basic science books ever printed including many incunabula. His gifts of books from his retirement in 1935 to 1939 alone have been listed in an appendix to the Eccles–Gibson biography (Eccles and Gibson, 1979). Over his lifetime, this list would have been greatly expanded. For instance, as a 1915 Christmas present to the infant University of British Columbia in Vancouver, and to his great friend of Cambridge days, President Frank Wesbrook, Sherrington sent (despite the German Navy) a beautiful volume: Godfrey Bidloo’s *Anatomia*, London, 1685. It had originally been the property of Christopher Wren’s domestic clerk, Nicholas Hawksmoor, and was purchased by Sherrington at Heffer’s bookshop in Cambridge in 1887. But Sherrington had not yet finished with that beautiful Bidloo Atlas—he had his friends in Oxford sign it: Osler, Col. John McCrae of Flanders Fields, Professor Walter Raleigh, Frederick Gowland Hopkins, the vitamin discoverer, and Arthur Thomson, Professor of Anatomy.

Our conversations at Ipswich often returned to Sherrington’s high regard for his friend Wesbrook whom he had known for the 4 years during which the Canadian had taught pathology at Cambridge—by himself, eventually, as British members of the department were stolen away by expanding clinics or research establishments. Before I left Oxford in 1938, to return to medical school at McGill, Sherrington entrusted to me, for delivery to UBC’s nascent Woodward library, the rarest medical classic I had ever seen: the *Elegantiarum* by Laurentius Valla, published in 1476 in Venice, 16 years before Columbus set out for America. Sir Charles had described it in a letter to that other active collector of rare books, Dr Harvey Cushing, as being found in a ‘market stall with quite usually, incunabula exposed on it, often in the rain’.

The 6 years that Sherrington and his British colleagues experienced through World War II called forth a multitude of memories, some going back to the Great War with his experience, incognito, working in a munitions factory. In World War II one of his concerns was still for displaced scientists from Axis countries but also for populations and historic structures bombed out of existence, as in Coventry. He was rescued from the roof of one of his London scientific associates whence he cheered on the defending British fighter planes! His lovely house near Ipswich was requisitioned by the defence forces, but

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3It was on the roof of this historic building that Banting and Best later made their unassisted discovery of insulin for the successful treatment of diabetes.
eventually he found comfortable and friendly quarters near the shore at Eastbourne, living out the 95 years of his amazing life.

Few lives compare with that of Sir Charles Sherrington. Active in mind and body throughout a life of service to science and society—whether in physiology, poetry, scientific writings or lectures—he epitomized citizenship of a high (and humble) order. He lived to research the mechanisms of the human body with skill and modesty.

He disliked ‘humbug’ in any form and was an educator who unearthed the once-hidden secrets of the central nervous system. Industrious, scholarly and inspiring, as an historian of science and as an interpreter of the wisdom of the body, he was unique.

References