

A History of Neurology in Toronto 1892 - 1960: Part II

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In Part I of this history of neurology in Toronto, the advent of neurology as a specialty in 1892 and its progress over the next 20 years was described (Can J Neurol Sci 1995; 22: 322-332). Donald Campbell Meyers, the first neurologist received his training from "founders" in Paris, Vienna and London and returned to Toronto to establish his own private neurological hospital and a special unit – "the Nervous Wards" – in the Toronto General, the major teaching hospital. These pioneering initiatives clashed with an alienist establishment, itself internally in conflict, and the "Nervous Wards" were lost in the ensuing competition for medical resources.

When the splendid new Toronto General Hospital opened on College Street in 1913 (Figure 8), Superintendent Clarke, who was also Chairman of the Department of Psychiatry and Dean of the Faculty of Medicine, turned his attention again to the development of psychiatry. The new hospital, intended to be among the most modern, no longer had "Nervous Wards" and no special arrangements were provided for the in-patient care of neuropsychiatric disorders. Meyers had withdrawn to his private neurological hospital in Deer Park. Neurologic and psychiatric consulting at the General Hospital was left to Goldwin Howland, a neurologist appointed to the Department of Medicine in 1905, following training in London and Berlin that was the most advanced available at the time. For the next fifty years to be covered in this historical account, neurologists in Toronto would continue this major commitment to psychiatry, one that would delay entrance to the "immediate realm" of a pure neurology well beyond that of Britain, Europe and the United States. Part II of this history of neurology in Toronto is the slow and inexorable journey to the "immediate realm".

1912-1930: DUNCAN GRAHAM AND THE NEUROPSYCHIATRISTS

Goldwin Howland (1875-1950) (Figure 9). As Meyers' "Nervous Wards" opened, Goldwin Howland arrived back from his extensive training in London and Berlin. Howland was from a distinguished Ontario family (note 38). He graduated from the University of Toronto Faculty of Medicine in 1900 with the silver medal and interned at the Toronto General. He received his neurology training at the National Hospital, Queen Square where he was the Registrar from 1902-1904 following E. Farquhar Buzzard and preceding T. Grainger Stewart.⁷⁰ He also spent time in Berlin, where Herman Oppenheimer was the leading neurologist. He returned to the Toronto General where he was Medical and then sole Registrar from 1905-1908, reorganizing the record-keeping at the Hospital (note 39). He then joined the in-patient medical service of Dr. Graham Chambers. Howland was the only neurologist on staff when the Toronto General moved from Gerrard Street to the new buildings on

College Street adjacent to the University and the Hospital for Sick Children.

Howland led a long and active professional career as a neuropsychiatrist, teaching every day on Ward G and conducting a huge consulting practice with involvement in military and medico-legal neuropsychiatry. He established the first neurology clinic at the hospital in 1914,⁵⁶ assisted in 1915 by L.G. Yealland who then took up appointment as Resident Physician at the National Hospital, Queen Square and later by Julian Loudon, who was to become Physician-in-Chief at St. Michael's Hospital. At the beginning of the First World War, Howland was briefly joined on the in-patient service by George Boyer who would later establish the Neurology Clinic at The Hospital For Sick Children and by Robert Armour who was appointed as Senior Research Fellow. Howland was elected to membership in the American Neurological Association in 1925. In 1929, he presented a paper to the annual meeting describing the first case of dysinsulinism due to an islet cell tumour, with establishment of the diagnosis during life and surgical cure.⁷⁶

Howland made a major contribution to the establishment of occupational therapy in Canada.⁷⁷ There had been limited application of vocational and industrial training in hospitals for the insane.⁵² As a result of his experience with resettlement of soldiers from the First Great War,⁷⁸ Howland strongly promoted work therapy in the treatment of neuroses and organic neurologic disorders. In 1919, he arranged for the establishment at the Toronto General of the first occupational therapy service in a general hospital in Canada. As a member of the Advisory Board to the Ontario Society of Occupational Therapy formed in 1921 (Chaired by the Dean, Alexander Primrose), he conducted a survey of the requirements in all branches of medicine and surgery and made extensive recommendations. He chaired the first education committee for the Society and convinced the Senate of the University of Toronto to establish a two-year diploma course which began enrolling trainees in 1926. He was the founding President to the Canadian Association of Occupational Therapy and was instrumental in the formation of its journal in 1933. During the Second World War at the request of the British War Office, he arranged for enlistment of Canadian occupational therapists as Commissioned members of the armed forces.

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Figure 8: Drawing by the architects (Darling and Pearson) of the "new" Toronto General Hospital on College Street (Archives, The Toronto Hospital).

With the appointment in 1919 of Duncan Graham (Figure 10) as the Sir John and Lady Eaton Professor and the first full-time Chairman of a Department of Medicine in the British Empire, a major restructuring of the Department of Medicine at the Toronto General occurred. When Graham was appointed, there were three autonomous medical services at the General Hospital which he proceeded to amalgamate and, in the restructuring, fired half of the medical staff (note 40). In the re-organized department, there were three neurologists among

thirty-four members. Graham also re-organized the three public teaching wards (G, H and I) at the Toronto General along sub-specialty lines. Neurology was given beds on Ward G, along with haematology and dermatology, thereby re-establishing a neuropsychiatric service that continued for twenty-eight years.

C.K. Clarke retired as Medical Director of the General Hospital in 1918 (having stepped down as Superintendent in 1916) and as Dean in 1920 but remained as Chief of the Psychiatric Clinic and as Professor of Psychiatry until 1924,



Figure 9: Goldwin Howland (courtesy of the Honourable W.G.C. Howland).

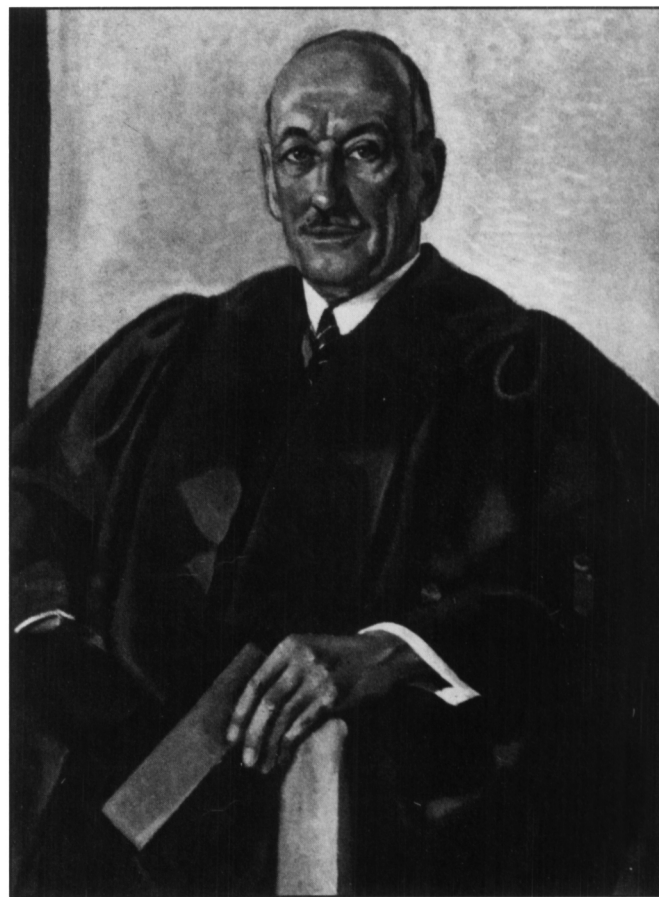


Figure 10: Portrait of Duncan Graham by L. Torrance Newton (Archives on the History of Canadian Psychiatry).

when he died. While at the Rockwood Hospital in Kingston, he had pioneered the concept of reception wards for the assessment of acute mental illness and had committed a ward to this purpose shortly after he arrived at the Toronto Hospital for the Insane. In 1913, a separate "Reception Hospital" was established in the former private patients pavilion at the site of the old Toronto General on Gerrard Street and continued to operate there and at other sites until 1920. The Psychiatric Clinic of the Toronto General temporarily closed with the building of the new hospital, but was reopened in 1914 largely as a referral centre from the juvenile court to evolve to the famous Forensic Clinic. Clarke continued to press for a separate psychopathic hospital⁵¹ and in 1920, the Rockefeller Foundation provided a grant to the Medical School and the faculty recommended that a portion go to "the erection of a psychopathic hospital of at least 85 beds in or near the grounds of the Toronto General Hospital to provide clinical facilities for teaching and research".⁵³ Campbell Meyers' last hurrah was in 1919 at a meeting with Clarke and provincial and city officials to consider the future of the Reception Hospital and the development of a psychiatric hospital. He was now a lone voice in favour of nervous wards in a general hospital.⁵¹ In 1925, the Toronto Psychiatric Hospital opened one block north of the Toronto General at 2 Surrey Place, thus fulfilling Clarke's plans and the recommendation of the Willoughby Commission of eighteen years previously (note 41). Clarence B. Farrar was appointed Chief as well as Professor of Psychiatry (note 42). Farrar and Graham would influence to a large degree, the development of neurology from the end of the First to the end of the Second World War. Although the Toronto General Hospital Act of 1911 stipulated that the University Heads of Departments be Chiefs of the corresponding Hospital Departments, this did not include Psychiatry. With Psychiatry centred at the Surrey Place Hospital and supported through the Ontario Hospital Service, "a new era for Institutional Psychiatry, the psychoses and 'pure psychiatry' had been ushered in within the Medical Faculty, but it was to operate without a bridge from the Toronto Psychiatric Hospital to the Toronto General Hospital for another 25 years".⁵³ Thus, the neuroses and mild psychoses as well as organic brain disorders became an accepted responsibility of the Department of Medicine, whose most celebrated members would become known as excellent general psychotherapists.⁵³

Apart from the presence of Campbell Meyers in the Nervous Wards from 1905 to 1911, Howland had carried the burden of inpatient neurology and psychiatry until Robert Armour was appointed in 1919. For almost thirty years, Howland and Armour ran the Neurology Service on Ward G. Farrar developed a psychiatric training program at the Psychiatric Hospital, largely for Ontario Hospital psychiatrists. The psychiatry at the Toronto General was left in the hands of the Department of Medicine and the neuropsychiatrists for the next 35 years (note 43). Allan Walters, who encountered Howland and Armour in the early 1930s while a medical student and in the early 1940s when he worked in the Neurology Clinic ("a lot of ... parkinsonism and multiple sclerosis, but there was an awful lot of hysteria and psychiatry in that too") and did the in-hospital consultations, has commented⁸¹ that "you couldn't get through medical school without at least three months training from them", which "would include exposure to hysteria". Howland was "steeped in neurology", "would teach every day", "make

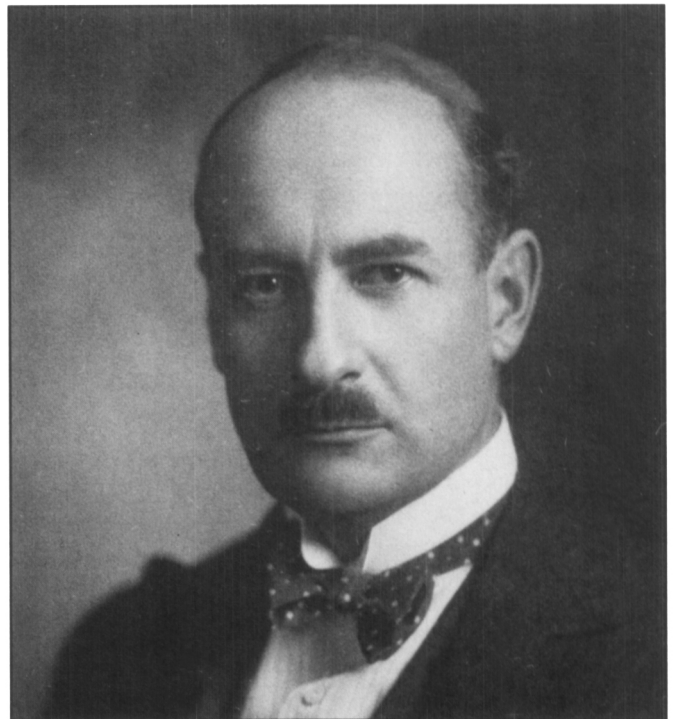


Figure 11: Robert Armour (courtesy of Madeleine Bain).

rounds every day with his final year men", "was a beautiful clinician" but "wasn't a showman". He "had a system of classification in which he talked of ... HMA – the higher mental functions" (note 44).

Robert Gardiner Armour (1883-1956) (Figure 11) (note 45) was appointed Assistant in Neurology at the Toronto General Hospital in 1919. He had graduated in Medicine from the University of Toronto in 1908, to spend two years in physiology and then two years of general and medical internship at the Toronto General.⁵⁶ He then went to Berlin (and possibly to Heidelberg with Erb) and to the London Hospital, Whitechapel, where he would have encountered Henry Head. This was followed by two years at the recently-founded New York Neurological Institute with Joseph Collins (note 46), with whom he lived. Two papers, on treatment of neurosyphilis with salvarsan and on Jacksonian epilepsy caused by metastasis from hypernephroma, were co-authored with Collins. He enlisted in March 1915, spending two and a half years with No. 4 Canadian General Hospital in Salonika where Duncan Graham was also posted. From July 1918 to May 1919, he was posted to Winnipeg as Neurological Consultant to the Army. Following this, he returned to Toronto to join Howland on Ward G. Allan Walters⁸¹ described him as "very patrician ... called 'the Baron' (by the house staff) because of his stylish ways ... was aristocratic in bearing and manner and everything else and had no patience with vulgarity ... was a good systematic teacher ... had a good New York training". He maintained a close association with psychiatrists and with Howland was active in the Ontario Neuropsychiatric Association, serving as Editor of the Association's journal, the Ontario Journal of Neuropsychiatry. Armour also served as Association President in 1927. The Association was the first professional organization for neurologists in Canada and the Journal, the first neurologic specialty

journal in Canada (note 47). He enjoyed medico-legal work⁸⁴ and was involved in celebrated cases, including the Evelyn Dick trial and the murder of the University of Toronto football player, Johnny Copp.

1931-1960: LINGERING DALLIANCE WITH PSYCHIATRY

Although the arrangement for neurology and psychiatry at the General Hospital was to remain for another eighteen years, new recruits to the Department of Medicine began to declare allegiance to one or the other camp.

Herbert Hylton Hyland (1900-1977) ("Bob" to his friends, "Herbie" to house staff) (Figure 12). In 1930 Hyland joined the Neurology Service at the Toronto General. A graduate of the University of Toronto in 1926, his interest in neuropsychiatry was sparked by a summer internship at the Ontario Psychiatric Hospital in Whitby under the Superintendent, Dr. James Forrester. After a brief internship at the Grace Hospital in Toronto and general practice in Stratford, he spent eighteen months in England and Scotland training in internal medicine and acquired the London Membership. He returned to Toronto in February 1929 and spent the next five months working in Neuroanatomy with Eric Linell (note 48) before returning to London and the National Hospital. The next year was spent in neuropathology with J. Godwin Greenfield and clerking for James Collier.

On returning to the General Hospital, in accordance with the Graham system, he spent the next four years in full-time hospital practice, largely in neurology but with some psychiatry, maintaining an intimate association with the Divisions of Neuropathology and Neurosurgery. He began his out-patient consulting practice in 1934. During the 1937 Ontario epidemic of polio, he was in charge of the 66 cases admitted to the Toronto General.⁸⁵ He enlisted in September 1939 and spent two



Figure 12: Herbert Hyland (courtesy of Dr. Robert H. Hyland).

and a half years at No. 1 Canadian Neurological Hospital at Basingstoke, Hampshire, England where he succeeded Colin Russel as Chief Neurologist, returning to Toronto in January 1943. He was promoted to Associate Professor in 1947 and on the retirement of Robert Armour, was appointed Head of Neurology at the University and Senior Physician in charge of Neurology and Psychiatry at the Toronto General.

In 1948, Duncan Graham retired from the Eaton Chair to be succeeded by Ray A. Farquharson. Farquharson, concerned about the effects of subspecialization on training in internal medicine, disbanded the geographic sub-specialty services. Neuropsychiatry was now distributed to the three public teaching wards and each of the three neuropsychiatrists was dispatched to a different ward (Hyland to Ward H, Walters to Ward I and Richardson to Ward G). It would be another eleven years before beds for neurology would again be segregated, before a clear separation of psychiatry would occur and before a full training program in neurology could be developed. In 1949, the Wellesley Hospital came under the administration of the General Hospital for financial reasons. Pressures for the establishment of a psychiatric service to provide training towards the Royal College Fellowship in psychiatry led to formation of a Psychiatric Unit of 21 public and 19 private beds at the Wellesley Division. Hyland headed this Unit which was staffed initially by J.C. Richardson and Allan Walters. The Unit treated mainly psychoneuroses and simple depressions and involved well-developed ancillary services including electroconvulsive, narcoanalysis and modified insulin therapy. Hyland and Richardson participated in both undergraduate and post-graduate teaching in psychiatry. In 1960, Dr. Hyland retired from his administrative and General Hospital activities for health reasons (note 49).

J. Clifford Richardson (1909-1986) ("Ric") (Figure 13). Richardson⁸⁶ was appointed to the Department of Medicine in 1938. As an undergraduate at the University of Toronto, he had been attracted to psychiatry. On graduation, he spent his internship, a year in medicine under Graham and a year in pathology under William Boyd at the Toronto General. Richardson then went to the National Hospital, Queen Square, where he spent two years, one as Registrar. His approach to neurology was profoundly influenced by Gordon Holmes. While in England, he cemented life-long friendships with Denis Williams, Charles Symonds and Charles Aring. During World War II, he spent four years overseas, succeeding Hyland as Chief Neuropsychiatrist at Basingstoke when the latter returned to Toronto in 1943. After the War, he continued neuropathologic studies, taught on Ward G where he was now the sole neurologist and at the Psychiatric Unit at the Wellesley and attracted a large practice. After the disbanding of the neuropsychiatric service on Ward G in 1947, he joined Hyland in pressing for a full training program in neurology and for restoration of a dedicated neurology in-patient service. In 1960, he succeeded Hyland as University and Hospital Head of Neurology and gave up his activities in psychiatry. He is best known for his disciplined teaching program for neurologists and for description in 1963 with John Steele and George Olszewski of progressive supranuclear palsy, a syndrome that he first recognized in 1956.

Allan Walters (1906-1986) (Figure 14). Although primarily a psychiatrist, Walters served as neurologist at various periods and contributed in a number of ways to the emergence of



Figure 13: J. Clifford Richardson (*Archives, University of Toronto*).

neurology as a separate discipline in Toronto. Following graduation in Medicine from the University of Toronto in 1933, he spent two years as physician at the Ontario Hospital, Whitby, a year as intern at the Toronto General, a year at the National Hospital, Queen Square in Neurology, a year at the Maudsley Hospital and then at the Coventry and Warks Mental Hospital in Warwick. In 1940, Duncan Graham asked him to return to Toronto to cover the work of Hyland and Richardson on Ward G and the neurology consultation service while they were at Basingstoke and he accepted with notable enthusiasm.⁸⁷ He later enlisted and spent two years in the Army at Basingstoke and in Europe. Walters returned to the Department of Medicine in 1945 to take on various responsibilities in psychological medicine. From 1949-1960 he was a member of the Psychiatric Unit in the Department of Medicine at the Wellesley Hospital. It wasn't until 1955, that he received an appointment in the Department of



Figure 14: Allan Walters (*Archives on the History of Canadian Psychiatry*).

Psychiatry. In 1960, he became Head of the Psychiatric Service at the Toronto General and withdrew the claim of Psychiatry to the Eleventh Floor Centre Block (now Urquhart Wing) so that a Neurology Unit could be re-established (for the second time). During his time as Chief of Psychiatry at the General, the separation of neurology and psychiatry became complete and the two services became fully established. Walters was initially interested in parkinsonism but is best known for his studies of pain (hysterical pain in particular⁸⁸) using intravenous barbiturate. He was a Charter member of the Canadian Neurological Society and its Secretary-Treasurer for the first five years (1949-1956). He was also elected to the American Neurological Association in 1957.

Hyland and Richardson were anxious to develop training in neurology and began to take fellows for a year of training. The first was Jack (J.H.) McGladery in 1944, a Rhodes Scholar who proceeded to additional training at Johns Hopkins where he was given a staff appointment, ultimately to become Head of the Division of Neurology and to train other Toronto graduates in turn. McGladery was followed by George O. Watts; Alan Douglas (1947-1948) (note 50); John L. Silversides (1948-1949); Henry J.M. Barnett and Oscar S. Kofman (1949-1950); Andrew Park; Livia Mitis (1951-1954); Daniel Levy (1953-

1954); Sidney Starkman (1954-1955); G. Walker Fitzgerald (1954-1956); Arthur J. Hudson (1956-1957); Paul J.A. Bratty, John G. Humphrey and John R. Wherrett (1957-1958); Henry Berry, William J. McIlroy and Alan Polak (1958-1959); Robert S. McPhedran (1959-1960); Stephen Bedwell (note 51); most of whom went on to further training, usually at Queen Square. Hyland was a member of the Royal College Committee on Specialty Training in 1948 that established the accreditation policies for training programs.⁸⁹

Until 1953, all the Toronto neurologists excepting Edward Brooks (who combined neurology and internal medicine) had practised to some degree as neuropsychiatrists. However, none of the people they were to train would attempt to maintain the duality (note 52). In the first half of the century, it was felt that a neurologist would not see enough organic neurology to earn a living. In the early 1950s, new neurologists were appointed to the teaching hospitals firmly establishing the divergence of psychiatry and neurology (note 53). In 1951, **John Lloyd Silversides (1914-1983)** ("Jack" to his friends and "Silver" to resident and hospital staff) (Figure 15) was appointed as the first neurologist to the Department of Medicine at the Toronto Western Hospital. A graduate of the University of Manitoba in 1940, he spent the next five years overseas on loan to the Royal

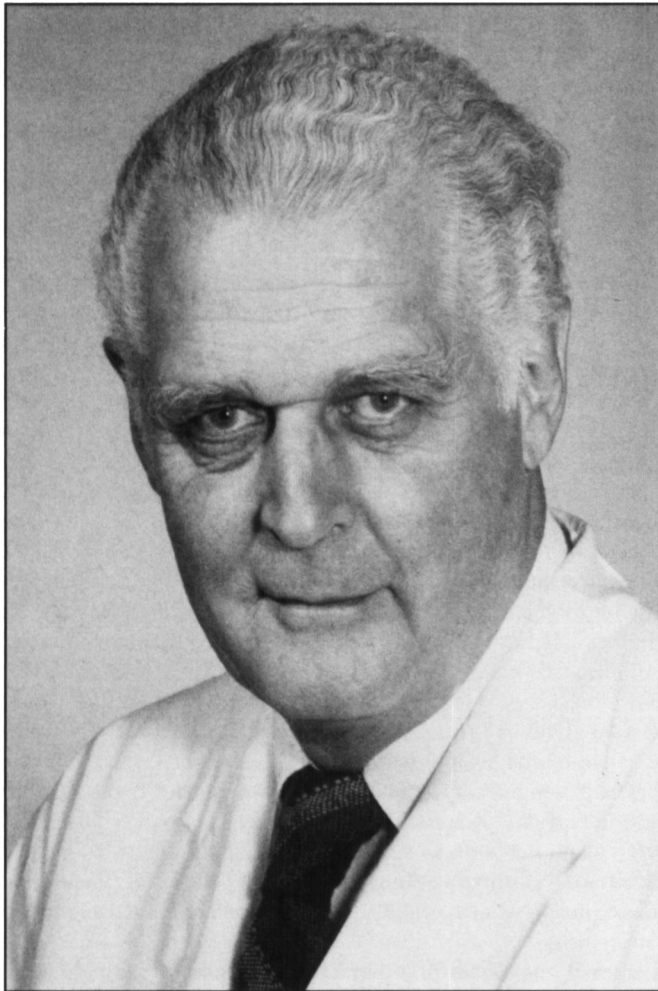


Figure 15: J.L. Silversides (Archives, The Toronto Hospital).

Navy with postings in the Mediterranean, Britain, France and New Guinea. He returned to Toronto for training in internal medicine and neurology with Richardson and Hyland followed by the now obligatory year at Queen Square as a Nuffield Fellow, including time in neuropathology with Godwin Greenfield. In 1953, he was joined at the Western Hospital by **Andrew Park (1919-1970)** who returned to establish an EEG laboratory from training at Johns Hopkins with McGladery and at the Massachusetts General Hospital. He was also appointed to the Alcoholism Research Foundation.

Henry J.M. Barnett⁹⁰ ("Barney") was appointed to the Toronto General in 1953. Following graduation from the University of Toronto in 1944, internship at the Toronto General and a short stint in the army, he spent a year in pathology with William Boyd. During this year, Graham suggested that he train in neurology. He spent two further years in internal medicine and then a year with Hyland. He then went to Queen Square with a few months at Oxford with Ritchie Russell and Hugh Cairns. He returned to the General Hospital in 1951, was attached to Ward I with an extensive commitment to teaching, developed a large practice and pursued his interest in cerebrovascular disease (note 54). Although asked to join the staff of the Psychiatric Unit at the Wellesley Hospital, Barnett decided against it, so that Silversides and Barnett became the first pure neurologists in Toronto. However, Barnett retained an association with psychiatry as neurological consultant to the Toronto Psychiatric Hospital for some years.

Oscar S. Kofman was appointed to the Toronto General in 1952 and went on to found the neurology service at the New Mount Sinai Hospital when it opened in 1953. He graduated from the University of Toronto, interned at the Toronto General and then took a year of medicine at Jefferson Medical School Hospital where he was encouraged to enter neurology by Bernard Alpers. This was reinforced during a further year of medicine at Sunnybrook Hospital in Toronto and he went on to spend a year with Richardson and a year at Queen Square where he was joined by Silversides, Barnett and Charles Drake. He spent a further year with Allan Walters before taking up appointments at the General, Hospital for Sick Children and Mount Sinai Hospital (note 55).

Richard A. Chambers was recruited from Boston to the General Hospital in 1957. He had had extensive experience at Queen Square and the Boston City Hospital with Derek Denny-Brown. With the anaesthetist H. Barrie Fairley, he was instrumental in establishing the first intensive care unit in Toronto for management of patients with ventilatory failure (note 56).

EMERGENCE OF NEUROSURGERY AND CLINICAL NEUROPHYSIOLOGY

In 1923, **Kenneth G. McKenzie⁹²** was appointed to the Toronto General as the first full-time specialist in neurosurgery in Canada. By 1936, he had obtained dedicated surgical facilities, assembled a team and established a training program. He had also been instrumental in the installation of neuropathology. Further development of neurosurgery was delayed by the Second World War. McKenzie favoured close association of clinical neurosciences in a general hospital setting, even a combined department.⁸⁰ McKenzie retired in 1952, to be succeeded by **E. Harry Botterell**. Planning for clinical neurosciences that

included psychiatry in a new wing to be constructed at the Toronto General (Centre Block later Norman Urquhart Wing) was done by Hyland, Botterell and Prof. R.A. Farquharson.^{53,87} In Toronto, electroencephalography was first performed in 1938 by physiologists in the Department of Medical Research, Banting Institute in collaboration with Hyland in neurology, William Hawke in child neurology and McKenzie and Botterell in neurosurgery.⁹³ Hyland published the initial clinical experience.⁹⁴ By the end of World War II, need for a laboratory in the hospital with a dedicated director was apparent. McKenzie obtained a room adjacent to the neurosurgical operating room ("D.O.R.") and equipped it. **John W. Scott** was recruited as Director in 1949, with appointments in Medicine, Surgery and Physiology. While a graduate student of D.Y. Solandt in physiology, Scott had collaborated with Denis Williams of the National Hospital, Queen Square, who had come to Toronto to study sympathetic reflexes in a patient in whom McKenzie had done a hemicortectomy.⁹⁵ Following internship at the Toronto General in 1941-1942, Scott enlisted in the Navy and was attached to the Medical Research Unit at the Banting Institute. During 1945, he was posted at the National Hospital, Queen Square for studies of autonomic physiology. Following a residency year with Graham, he spent time with Herbert Jasper at the Montreal Neurological Institute and with William Cobb and George Dawson back at Queen Square. He returned to direct the EEG laboratory adjacent to D.O.R. that had been furnished with a 6-channel Grass machine (note 57). During the 1950s he was involved in a wide variety of studies of the EEG and autonomic function during hypothermia and paraplegia with the neurosurgical and neuro-anaesthetic groups and began to train neurologists in EEG. He was to go on to studies of evoked potentials and their application and vestibular function while carrying most of the teaching in neurophysiology.

EMERGENCE IN OTHER HOSPITALS

Meyers had retained his appointment at St. Michael's Hospital until 1915 and possibly later.³² In 1911, **Julian D. Loudon (1881-1959)** – the son of a President and a 1906 graduate of the University of Toronto, joined the staff after extensive medical training in London, England. In 1902, while a student he had gained fame as a prospector, having found and staked in the gold deposits of what became the Kerr Addison Mine. In London, he had been Senior Resident Physician under Sir Henry Head at the London Hospital and Resident Physician under Risien Russell at University College Hospital. He returned with a strong interest in neurology. He published a scheme for examination of the nervous system in 1912 (note 58), the first of its kind to appear in Toronto as well as seven papers on neurologic subjects over the next three years. From 1914 to 1916, he worked with Howland in the Neurology Clinic at the General but thereafter became fully occupied at St. Michael's with additional interest in cardiology and cancer research. In 1921, he became Physician-in-Chief establishing a strong neurologic presence in that position that continued for the next fifty-eight years with the next two physicians-in-chief. In 1932, **Edward F. Brooks (1904-1970)** (Figure 16) was appointed. Brooks graduated in 1928 from the University of Toronto with the silver medal, and after two years as House Surgeon and Resident Physician at St. Michael's, spent a year at the National Hospital,



Figure 16: Edward Brooks (Archives, St. Michael's Hospital).

Queen Square. He returned to a staff appointment at the Toronto General with Howland and Armour, but after a year he moved to St. Michael's where he was now the sole neurologist. He was one of the rare individuals in Toronto who successfully combined neurology with internal medicine throughout his career. An unusually perceptive clinician, he became Physician-in-Chief in 1947 and continued in this role for 22 years. During this time he established the renowned training program in internal medicine at the Hospital. He diagnosed the first pinealoma to be cured surgically.⁹⁸ **Joseph T. Marotta** was the next neurologist to be appointed at St. Michael's. He joined the Department in 1956 and later succeeded Brooks as Physician-in-Chief. A University of Toronto graduate in 1949, Marotta took his medical training under Brooks and then went on to neurology training at the New York Neurological Institute under Houston Merritt followed by additional experience at the Maudsley Hospital and at Queen Square.

The first neurologist appointed to the Hospital for Sick Children was **George F. Boyer (1885-1966)** (Figure 17) in 1912. He obtained an M.B. in 1907 at the University of Toronto and went on to five years of training in paediatrics and neurology at Sick Children's, the Cleveland Lakeside Hospital and in London (presumably at Queen Square). For some years, he held an appointment at the Toronto General and is noted in Annual Reports to have been attached to the Service of Graham Chambers along with Howland from 1914 to 1918 and to have been Assistant in Medicine both before and after the Graham "purge" in 1919.⁵⁶ He enlisted in 1915 and went overseas with No. 4 Canadian General Hospital, joining Graham and Armour. He remained in the army until 1920. About 1921, he established the Neurological Clinic and "observation class" for defective children at the Hospital for Sick Children, and was assisted for a



Figure 17: George Boyer (courtesy of Patricia Clark).

while by Julian Loudon. An “epileptic sub-division” of the Clinic was established in 1932. The Hospital Annual Report for 1937⁹⁹ notes that 1400 patients were seen in the Clinics in the previous year and there were 505 neurology admissions. A separate Clinic for Psychological Medicine was established that year. A trial of a new drug Dilantin was underway as were studies with electroencephalography in collaboration with the Banting Institute. After a long career as senior physician and neurologist at the Hospital for Sick Children, he retired in 1950 (note 59).

Boyer was joined by **William Wray Barraclough (1892-1964)** as Clinical Assistant in Neurology in 1927. He was a 1916 graduate in Medicine, spending four years in the army overseas before returning to private practice. In 1928, he obtained a Rockefeller Foundation Fellowship and spent a year at Johns Hopkins and a year at the National Hospital, Queen Square, obtaining the M.R.C.P. (London). He returned to appointments at the Hospital for Sick Children, the new Psychiatric Hospital (where Boyer was also appointed), subsequently at Sunnybrook Hospital. **William A. Hawke**¹⁰¹ was appointed to Sick Children’s in 1937 and at the Ontario Hospital in Orillia. He had graduated from the University of Toronto in 1930 and after training in medicine under Graham and paediatric

atics under Alan Browne, he was sent to Queen Square where he spent eighteen months, dividing his time equally between the services of Gordon Holmes and Godwin Greenfield. He then moved on the Bradley Home for psychiatric disorders in children in Providence, Rhode Island where he worked with Herbert Jasper on electroencephalography. On taking up his appointment at the Hospital for Sick Children, he was involved in research on Vitamin B₆ deficiency and in the E.E.G. studies at the Banting Institute. He subsequently became involved in consulting and teaching in both neurology and psychiatry and with J.D. Griffin established the Clinic for Psychological Medicine.

On the retirement of Boyer in 1950, **John Stobo Prichard (1914-1986)** (Figure 18) was recruited to Head the Neurology Service at the Hospital and Hawke became Head of Psychiatry. He was the first neurologist to have had all of his training outside Toronto since Ernest Jones. A graduate of the London Hospital School, he had trained at the National Hospital, Hammersmith and at the Massachusetts General Hospital with Raymond Adams. He established training in child neurology in Canada, initially training fellows from many parts of the world and later collaborating with J.C. Richardson to develop the formal training programs in paediatric and adult neurology. He possessed a unique enthusiasm and charm that elevated the tenor of all his endeavours.

In 1955, **Livia Mitis** was appointed to the Women’s College Hospital becoming the first female neurologist in Toronto (and the second in Canada after Ludmilla Zeldowicz of Vancouver). Dr. Mitis had graduated from the University of Edinburgh, starting her neurology training with a year at Queen Square under

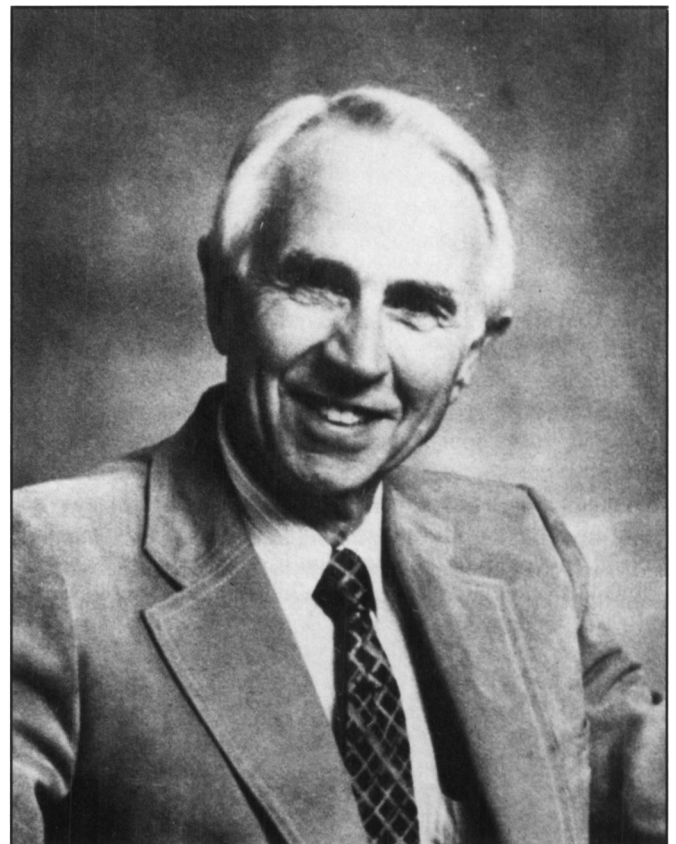


Figure 18: J.S. Prichard (Archives, Hospital for Sick Children).

Macdonald Critchley and later moving to Toronto where she completed her training with Richardson.

As the 1950s came to an end, Hyland and Richardson had been able to again establish a dedicated in-patient service at the General Hospital adjacent to neurosurgery and clinical neurophysiology (electroencephalography) on the Eleventh Floor of the new Centre Block (later Norman Urquhart Wing). A small amount of laboratory research space was to become available. Neurology was well established at the Hospital for Sick Children, St. Michael's and Toronto Western Hospitals and neurologic consultants available to other teaching and community hospitals. A fully integrated training program would be soon developed. The formal involvement of Toronto neurologists in psychiatry would come to an end (note 60). Walters and Hawke now devoted all of their effort to psychiatry and of the remaining 18 neurologists only one, Watts continued to see primary psychiatric disorders. Unlike the major centres in the United States and Europe, neurology in Toronto remained firmly entrenched in internal medicine. Not only would neurology survive its divorce from psychiatry but recruitment of subspecialists would begin and programs in laboratory research would be established. Aspirations to a separate department would begin to be expressed. Neither the issue of separate department status nor the possibility that neurology might be included in a wider clinical neuroscience (note 61) or neuropsychiatric grouping had arisen in the Graham era. Although neurologists are deeply involved in the investigation of organic mental diseases, they have accepted only a very limited role in the management of the behavioral disorders associated with forebrain or other organic disease and in doing so have given up access to the resources provided for care of these diseases.

TORONTO NEUROLOGY AND THE GREAT WARS

The Great Wars greatly influenced neurology in Toronto. All of the neurologists and neurologists-to-be were enlisted in the First World War, three of them spending extended periods over-

seas (note 62). Extensive experience in the screening of recruits and in the management of "shell shock" both at the front and during resettlement, as well as the time away from more traditional academic activities, would shape subsequent careers. The succeeding generation of neurologists were equally involved in a great war (note 63) (Figures 19, 20); their careers were interrupted either in full flight or at outset and their attention was focused extensively on psychoneurosis. These experiences from both wars were published extensively.^{78,104-108} Hyland and Richardson (and Walters) were highly skilled in managing neuroses, an expertise that was only passed on informally to their neurology residents.

In 1945, Sunnybrook Veteran's Hospital was opened by the Federal Department of Veteran's Affairs in North York to the northeast of Toronto. Unlike the organization at Basingstoke, neurology and psychiatry had separate services. The medical service under William P. Warner and subsequently R. Ian MacDonald became a popular centre for training in internal medicine in the 1950s. The neurology ward on the Ground Floor D Block admitted mainly elective and chronic neurologic disorders. Patients were managed by "senior interns" in medicine who presented them to the visiting consultants Hyland, Richardson, Silversides and Barnett.

THE FIRST SEVENTY YEARS – THE "IMMEDIATE REALM" IN SIGHT

Neurologists at the University of Toronto and indeed in Canada may be assured of the legitimacy of their heritage. Their legacy derives directly from the French and German Founders, the physicians of the National Hospital at the turn of the century and since, and the neurologists of New York. However, during the first seventy years, it was mainly an inheritance of Queen Square neurology; in the next decades, this inheritance would be greatly enriched through recruitment of individuals trained in different traditions and centres.

This account highlights the positioning of neurology in its

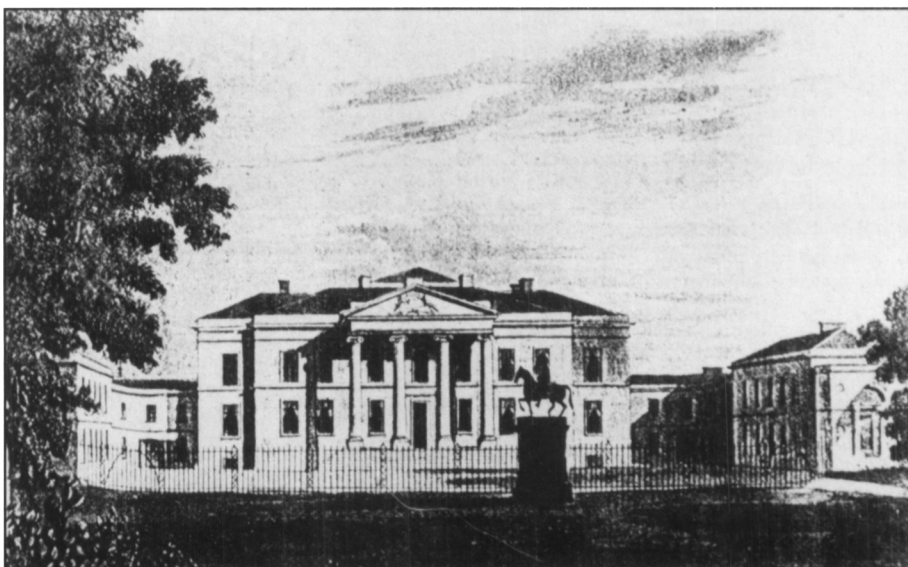


Figure 19: Hackwood House, Basingstoke Surrey which became No. 1 Neurological Hospital (Archives, The Toronto Hospital).



Figure 20: Medical Staff, No. 1 Neurological Hospital (Archives, The Toronto Hospital). Members identified by E. Harry Botterell are: front row from left – Herbert Hyland, Colin Russel, Col. Cross, William V. Cone, Botterell; middle row – Stover Humphreys, D. William Stewart, Fred Hanson (three American neurosurgery and neurology residents from the Montreal Neurological Institute), ? Ken Wilson, C. Palmer McCormick (neurosurgeon, Toronto); top row – George Boddington (anaesthetist, Toronto), Vic Jekyll (D.D.), Clifford Richardson, Quartermaster ? “Skippy” Davis.

ambivalent relationships with psychiatry and internal medicine. Constrained first by the major role in psychiatry assumed for neurology by internal medicine throughout most of the period, secondly by the needs of the training program in internal medicine which took precedence over teaching and research in neurology, and thirdly by the perception that a neurologist needed to accept psychiatric patients in order to earn a living, neurology made only limited excursions to the “immediate realm” of a pure organic neurology. Only late in the seventy years, was the “immediate realm” claimed by the neurologists and ceded to them by their professional peers so that the resources needed for its exploration could be defined in a modern context. Meyers, the first neurologist, aspired to the “immediate realm” and took risks to approach it but lacked the scientific credentials and the political support to attain it. Placed in conflict with the broader social goals, vision and political savvy of the alienists cum psychiatrists, neurology found refuge in internal medicine, a refuge that paradoxically perpetuated the neuropsychiatric dualism. Both the closure of the Nervous Wards and the failure to establish a collaboration of neurology and psychiatry reflect on the vision of the leadership. C.K. Clarke was determined to “go it alone”. Graham saw the validity of a concentrated clinical service; however, the neuropsychiatric orientation of this service and its minimal formal linkages to psychiatry (note 64) diluted any effort toward the “immediate realm”.

The advent of a strongly organic approach to neurologic disease in the person of the neurosurgeon K.G. McKenzie with the

obligatory establishment of neuropathology ensured eventual entry to the “immediate realm”. But again a Great War and a lack of appreciation on the part of the internal medicine sponsor of neurology’s quest for its academic home delayed progress to the “immediate realm” of an organic neurology strongly rooted in neurobiology. By 1960, obstacles in the path had become cleared.

NOTES

38. His grandfather, Sir William Pierce Howland had been a “minor” Father of Confederation and Lieutenant-Governor and had been knighted for his non-partisan support of Sir John A. Macdonald. His father, William Holmes Howland, was the famous “people’s mayor” of Toronto elected in 1886 and 1887. His campaign for moral rectification established a reputation for the city that has endured in the nickname “Toronto the Good”. Goldwin Howland was undoubtedly named after Professor Goldwin Smith, formerly of Oxford and Cornell, who was an aristocratic English intellectual, scathing political commentator and ardent liberal. Smith, the “sage of the grange” had been a “Canada Firster” with William Holmes Howland and was a supporter of the latter’s mayoralty.¹⁴ Both William Holmes Howland and his brother Oliver Aiken Howland, were Mayors of Toronto and Chairmen of the Board of the old Toronto General Hospital on Gerrard Street. William Holmes Howland was responsible for the building of the Mercer Eye and Ear and Burnside Wings at the Gerrard site.⁵⁵
39. See Annual Reports, Toronto General Hospital.⁵⁶ It is curious that the hand-written records of in-patients admitted to Meyers’ Nervous Wards, as well as patients discharged from other services with neurologic diagnoses, from the period 1906-1927 have survived and are

- preserved in the Archives on the History of Canadian Psychiatry and Mental Health Services at Queen Street Mental Health Centre (Griffin-Greenland Archives). The records, consisting of 4626 cases including most of the 406 patients admitted to Meyers' service between 1906 and 1911, were discovered in the basement of the hospital Annex in 1972 and the donation to the Archives arranged by the Psychiatrist-in-Chief, Robert Pos. It seems highly probable that collection of these records was arranged by Howland.
40. Graham's experience had largely been in pathology and microbiology and his appointment evoked mixed reactions from Osler who opposed the full-time arrangement.⁷⁹ One of the terms of Graham's appointment to the Eaton Chair was to amalgamate the three medical services currently existing at the *Toronto General* into a single service committed to academic ends. This was duly effected with the result that forty percent of the Department were not re-appointed. The furore that ensued led to appointment of a special committee of the Provincial Legislature chaired by the Premier. This Committee of politicians reported four years later and in doing so repudiated the University, the Hospital and the donors. However, the tardiness of the Committee's report and the defeat of the government left the report "mouldering in the files" and Graham's restructuring continued. In the terms of the Endowment, Graham was also Head of Paediatrics. He was a dour personality, but to at least one neurologist he was a hero as teacher and mentor by virtue of his high standards, integrity and support for neurology.⁸⁰
 41. Graham reviewed the plans for *President Falconer* in May 1922.⁵¹ The portico of the building is thought to closely resemble the Kraepelin Klinik in Munich.
 42. Howland was a member of the search committee that recommended Farrar. In this role, he encountered the political sensitivity in the Ontario Hospitals system that had so bedeviled Clarke in the form of a stiff reprimand from a Provincial official for canvassing nominations without political approval.⁵¹
 43. It is ironic but rather obvious that Clarke's closure of Nervous Wards in 1911, had no effect on the admission of mentally disturbed patients to the *Toronto General*. The records of neurological patients admitted to the hospital from 1906 to 1928 preserved at the Archives for Mental Health and Psychiatry at Queen Street Mental Health Centre have been subject to some historical analysis.²⁹ As would be expected, "insane" patients would inevitably be admitted to the *Toronto General* and "insanity" would develop in in-patients so that the Hospital required its own "asylum" in the form of an Observation Ward in the basement well away from the large open wards of the College Street Building. This ward remained in operation until the opening of the Urquhart Wing in 1958. Designed to handle disturbed patients awaiting transfer or requiring general hospital admission for non-psychiatric illness but unmanageable elsewhere in the hospital, it consisted of single rooms with barred windows and doors that could be locked. At times it confined patients with various organic and primary psychoses and had all the characteristics of a nineteenth century asylum. It is also ironic to reflect that this ward was probably the first "intensive care unit" in the hospital.
 44. On the evening of July 16, 1917 while fishing at Canoe Lake, Howland had his line fouled by something in the water, which he discovered the next day was the body of Tom Thomson, the "Group of Seven" painter who had died mysteriously and whose remains mysteriously disappeared. Howland was the only medical person to examine the body and to testify at the inquest. His report described a linear bruise over the left temple but made no mention of an open wound, possibly a bullet wound. The manner of Thomson's demise and the fate of his remains became the subject of national controversy.⁸² Years later a body was exhumed from a grave at Canoe Lake which had a defect in the left temporal bone. A medical expert who was a former student of Howland testified that the latter would not fail to distinguish between a bruise and a bullet wound as he was known to be "a careful observer".
 45. Armour's father was a lawyer and his uncle, Chief Justice of Ontario whose son was Donald John Armour, a graduate of the University of Toronto, protege of Victor Horsley and surgeon to the National Hospital for Nervous Diseases, Queen Square.⁸³
 46. Armour probably started working under Collins about two years after the Jones-Collins imbroglio.
 47. The Association and Journal were founded in 1920 as successors to the Association of Superintendents of Ontario Asylums for the Insane and the *Bulletin of the Ontario Hospitals for the Insane*. "The object of this Association shall be the study of all subjects pertaining to mental and nervous disease". It met bi-annually until the Second World War, usually at one of the Ontario Hospitals. The programs were evenly divided between organic neurology, neurosurgery, neuropathology and issues of management in the mental hospitals. Howland and Armour were among the editors from 1920 to 1925. The Journal was published by the Department of the Provincial Secretary of the Province of Ontario whose picture often graced the early editions in true commissarial fashion.
 48. *Neuropathology was vital in the long pilgrimage of neurology in Toronto to the "immediate realm"*. Eric Linell, a neuroanatomist in the Department of Anatomy at the University of Toronto transferred from Anatomy to Pathology through the encouragement of Canada's first neurosurgeon, K.G. McKenzie, to form Canada's first Division of Neuropathology and with his colleague, Mary Tom to become the first neuropathologists. Linell's reputation in Anatomy had already attracted Hyland and Richardson as students and Linell and Tom established a first-rate Division, considered by neurologists such as H.J.M. Barnett⁹⁰ who followed, as the strongest in a strong Department.
 49. In 1959, Hyland was invited by Pearce Bailey, the Director of the National Institute for Neurological Diseases and Blindness in Bethesda to spend a year as external reviewer of the intra- and extramural programs of the Institute. Hyland declined. On retirement as University and Hospital Head of Neurology, he continued his practice and consulting in the psychiatric service at Wellesley Hospital and in neurology at Sunnybrook Hospital. In 1969, he retired completely from practice and then served for two years as Medical Director at Queen Elizabeth Hospital, the renamed Toronto Hospital for Incurables, with which he had been associated for twenty years as the first neurologist.
 50. Douglas spent the year with Richardson, then went to Queen Square before returning to London, Ontario as the first neurologist at the University of Western Ontario.
 51. Fellows in the 1940s and 1950s were attached to one neurologist and cared for private patients in the Private Patient's Pavilion (now Bell Wing), conducted in-hospital consultations particularly with the medical teams on the public wards G, H and I, attended out-patient neurology and epilepsy clinics, carried out air ventriculograms, myelograms and in the late 1950s angiograms on their patients and organized the Tuesday-morning Neurology-Neurosurgery Rounds. Later fellows rotated among the neurology staff and neurosurgery.
 52. Oscar Kofman covered both psychiatry and neurology at the New Mount Sinai Hospital for 3-4 years after his appointment and then restricted his practice to neurology. Henry Berry who was a fellow in 1959, was also trained in internal medicine and psychiatry. He joined the staff at St. Michael's where he has practised clinical neurophysiology putting his experience in psychiatry to use as a medico-legal expert.
 53. Collegiality of neurology and psychiatry, indeed of the neurosciences was maintained in a number of formal professional associations. The Academy of Medicine, Toronto, founded in 1907 (with Howland as charter member) became the central academic and professional forum for neurologists and they all participated actively. A "Sub-section" for Neurology and Psychiatry was formed November 10, 1932 with Howland as Chairman and E.P. Lewis as Secretary. The "Sub-section" met monthly between October and May in the evening, both at the Academy and at the general and psychiatric hospitals. The program was published monthly in the *Bulletin of the Academy* as were many of the papers presented. Full sectional status was attained in 1938 (Wm. Baillie, Chairman and E.F. Brooks, Secretary) and neurology and psychiatry continued to meet together with strong contributions from neurosurgery and neuropathology until 1960 when separate Sections of Neurological Sciences and Psychiatry formed (the former Chaired by E.H. Botterell with H.J.M. Barnett as Secretary). Although everyone participated, during the 1920s, 30s and 40s Boyer and Armour, K.G. McKenzie and the neuropathologists Eric Linell and Mary Tom were especially active contributors. An academic highlight in the late 1930s was an elite "Thirteen Club" of neurologists William

- Hawke, Herbert Hyland and Clifford Richardson; psychiatrists Brock Chisholm and John D. Griffin; neurosurgeons Harry Botterell, William Keith and Kenneth McKenzie; neuropathologist Eric Linell; neuroanatomist Carleton Smith; physiologists Robert Cleghorn (destined to become a psychoanalyst and Chairman of Psychiatry at McGill) and Donald Solandt and pharmacologist Kenneth Ferguson. The Club met at the University Club in black tie for dinner and a presentation by one of the members (Griffin JD. personal communication). Botterell has commented that a paper given by the psychoanalyst Chisholm on development of sexuality in childhood was one of the best he had ever heard⁸⁷ – further indication of the openness to interdisciplinary communication among the group. The Canadian Neurological Society was formed in 1948 and among the charter members from Toronto were twelve psychiatrists, eight neurologists-neuropsychiatrists, four neurosurgeons, one neuropathologist and one neurophysiologist.
54. While at Oxford, Barnett learned to do carotid angiograms for Cairns and introduced this technique to the General and Sick Children's Hospitals. In 1955, he demonstrated carotid stenosis with this technique for the first time in Toronto. The original and two additional patients were operated upon by Dr. Donald Wilson, a cardiovascular surgeon. Following this it was agreed among surgeons at the General Hospital, that further carotid endarterectomies would be carried out by Dr. William Lougheed, Division of Neurosurgery.
 55. At the General Hospital, Kofman was consultant for a number of years to a small acute treatment unit of the Alcoholism Treatment Foundation and to the Special Treatment Clinic. In 1956, he published the experience at the clinic with neurosyphilis, 10 years after the introduction of penicillin, demonstrating that the classical syndromes were replaced by "variant and in-between forms".⁹¹
 56. Positive pressure ventilators were not acquired by the Toronto General Hospital until 1958. Just prior to this, Chambers and the author fashioned the first cuffed tracheostomy tube to be used at the Hospital in a patient with the Guillain-Barré syndrome who was maintained in a Drinker Respirator.
 57. This machine was probably obtained from the physiologists J. E. Goodwin and G.E. Hall (future President, University of Western Ontario) at the Banting Institute. It served its final days in the early 1960s as the electrocardiographic monitor in the first acute coronary care unit.⁹⁶
 58. The scheme⁹⁷ includes details of history and examination with the components of the modern neurological assessment on the right hand page with more detailed notes on the left page. The scheme for analysis of speech incorporates the concept of localization in centres of the "diagram-makers" of the time and that of the sensory system follows the ideas and terminology of Head.
 59. Boyer was one of a group of neuropsychiatrists and neurosurgeons from Toronto, Montreal and elsewhere, including Robert Armour, William Keith and Harry Botterell, who for many years planned and delighted in reminiscing over sailing expeditions on the upper Great Lakes during the summer in the ketches "Maud I and II", much to the amusement of their families. Maud II remains afloat at Camp Hurontario on Georgian Bay.^{84,100}
 60. Hyland had a long standing interest in anorexia nervosa and summarized thirty years experience in his Lecture in Medicine to the Annual Meeting of the Royal College of Physicians and Surgeons in 1963.¹⁰²
 61. McKenzie and Richardson had discussed a combined neurosurgery-neurology-neuropathology department.⁸⁰
 62. The Toronto effort was the No. 4 Canadian General Hospital organized by C.K. Clarke that went to Salonika. Armour and Boyer joined Duncan Graham there and life-long friendships developed.
 63. The centre of Canadian neurological and neurosurgical activities was at the No. 1 Neurological Hospital at Basingstoke, Hampshire. The Hospital ("No. 1 Nuts") which was organized and staffed by neurologists and neurosurgeons and nurses from Montreal and Toronto took over Hackwood Park, the ancestral home of Lord Camrose, proprietor of the Daily Mirror. The choice reflected the preferences of Wilder Penfield and William Cone for a combined neurological-neurosurgical unit along the lines of the recently founded Montreal Neurological Institute, rather than those of K.G. McKenzie, who favoured association of neurosurgery with other surgical specialties, an arrangement that was adopted by British and Canadian units in the war zone. The activities of the Toronto neuropsychiatrists in the Second War have received detailed study by historians.¹⁰³
 64. Farrar's yearly reports to the Dean¹⁰⁹ reveal little evidence of formal collaboration with the neuropsychiatrists. In the 1926 and 1927 reports it is recorded that optional clinics on Ward G were given to fifth year students by G.W. McLarty. On the institution of the Diploma Course in Psychiatry in 1931, lectures in neurology were given but by whom is not mentioned. J.A. Hannah had a brief career as "Provincial Neuropathologist" from 1931 to 1937 sponsored by the Department of Health at the Toronto Psychiatric Hospital and Banting Institute.¹¹⁰ Farrar, who was highly regarded by neurologists,⁸⁰ was active in the Ontario Neuropsychiatric Association and in the Academy Section of Neurology and Psychiatry. On succession to the Chairmanship of Psychiatry in 1947, Aldwyn Stokes established liaisons with the neuropsychiatrists at Sunnybrook Hospital and the Hospital for Sick Children and Hyland was appointed Associate in Psychiatry probably with consulting responsibilities at the Toronto Psychiatric Hospital. Henry Barnett was appointed in 1953 as the first pure neurologist consultant to the Hospital. By 1958, the General Hospital had still not joined the psychiatric teaching hospital network, although all other teaching hospitals were involved.

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