

A history of the McGill Department of Surgery: the first 100 years (1923–2023)

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SUMMARY

In 1923, just over 100 years ago, Edward William Archibald was appointed the first chair of surgery in McGill University's Faculty of Medicine. This milestone provides an opportunity to reflect on where the department has come from and how it has progressed to the present day. Although the size, breadth, and diversity of the department members have changed notably over the century, the core values of innovative clinical care, research, and education established a century ago continue to this day. To reflect his values, the Archibald Chair of Surgery was established in 1990 and is today held by the department chair.

In 1923, just over 100 years ago, Edward William Archibald was appointed the first chair of surgery in McGill University's Faculty of Medicine. This milestone provides an opportunity to reflect on where the department has come from and how it has progressed to the present day. Beginning with a handful of part-time faculty at 2 hospital sites, the department now includes 258 faculty, 134 residents, and 45 fellows providing clinical care at 3 main teaching hospitals in Montréal and 21 affiliated sites across the province, with more than 500 publications and \$20 million in research funding per year.¹ The department encompasses 7 divisions, including general surgery; orthopedic surgery; urology; plastic, reconstructive, and aesthetic surgery; cardiac surgery; vascular surgery; and thoracic surgery. Each division has a division director overseeing integrated training, research, and, in some cases, clinical activities across the 3 main teaching hospitals.

The information presented here was based on several sources, including published histories of the Montréal General Hospital (MGH),² Royal Victoria Hospital (RVH),^{3,4} and McGill Faculty of Medicine,⁵ along with biographies of Archibald,⁶ the Gurd family,⁷ and Rocke Robertson.⁸ We also interviewed 3 living previous chairs, previous heads of general surgery at the Jewish General Hospital (JGH), and the 7 current division directors. Other sources included the department newsletter (<https://www.mcgill.ca/squareknot/archives>), external and internal reviews, annual reports, accreditation visits, and strategic plans that were available from the Faculty of Medicine. This admittedly provides a very imperfect account, with the lens primarily focused on the RVH and MGH. Innumerable other stories were not covered here in the depth they deserve, notably the development of the clinical and training programs at the JGH (opened in 1934) and Saint Mary's Hospital (moved to its current location in 1934). We also provide only cursory insight into the development and integration of the divisions themselves. Although this is certainly an incomplete account, we chose to emphasize the pressures that drove the creation of a unified academic department that, today, reaches across hospital sites and divisions to meet the challenges inherent in training surgeons to provide the range of care the population needs in the context of increasing specialization, sustaining impactful research, and supporting innovation, while providing connection, belonging, and career coaching to bring value to its members. These issues all remain relevant today.

For the purposes of this narrative, we divided this history into 4 eras, each spanning 20–35 years.

TWO-DEPARTMENT MODEL: THE EARLY YEARS (1923–1959)

In the immediate period after World War I, the faculty, exhausted by its substantial contributions to the war effort,⁹ was seen by the Carnegie Foundation, supporters of the Flexner Report of 1910, to be coasting on its reputation and previous high ranking.^{6,10} The increase in private practice and reduction in research productivity were alarming to Carnegie and led to much reflection on the part of the university leaders and those in the faculty. At the time, there were 2 teaching hospitals, the MGH and the RVH. Each had their own clinical chief who guided the clinical teaching of their students. The dean had no direct influence, there was no central curriculum, and the surgeons all had part-time faculty appointments. The university recognized the need for a full-time dean and geographic full-time professorial appointments in the major clinical departments. After the appointment of Charles F. Martin as dean in 1923, Edward William Archibald was appointed as chair of surgery. As will become evident, he was a model academic surgeon whose vision and accomplishments had a lasting impact even to this day (Figure 1).

Archibald was an excellent student at McGill, winning a gold medal in modern languages in 1892 and graduating

from medicine in 1896 after spending a term in Montpellier, France. Perfectly bilingual, he interned at the newly opened RVH for 3 years. Academic activities started early, with a paper on 89 appendectomies in the hospital's annual report of 1898. Afflicted with tuberculosis in 1901, he spent time at the Trudeau Institute and recovered with no recurrence. This was followed by 3 years in Europe, including time with Jan Mikulicz-Radecki at the University of Breslau. Archibald was appointed to the RVH as an assistant surgeon in 1904. James Bell, surgeon-in-chief, asked Archibald to be responsible for head injuries, leading to 3 months with Sir Victor Horsley at Queen's Square in London in 1906. He was Canada's first neurosurgeon, writing a 378-page monograph, *Surgical Affection and Wounds of the Head*, which became the standard text for 10 years.¹¹ In 1928, he gave up neurosurgery with the recruitment of Wilder Penfield to the RVH. Penfield subsequently created the Montréal Neurological Institute, which opened in 1934.

Archibald had a remarkable range of clinical interests, most of which he examined sufficiently deeply to publish. In about 1910, pancreatitis became his passion and, for many years, he studied the cause and potential therapeutic approaches independently in the laboratory and by scrounging resources. He linked the biliary system and pancreatitis, both acute and chronic, postulating that sphincterotomy could be a solution. He wrote extensively on gastroenterostomies and war wounds after his 4 years of service in World War I.

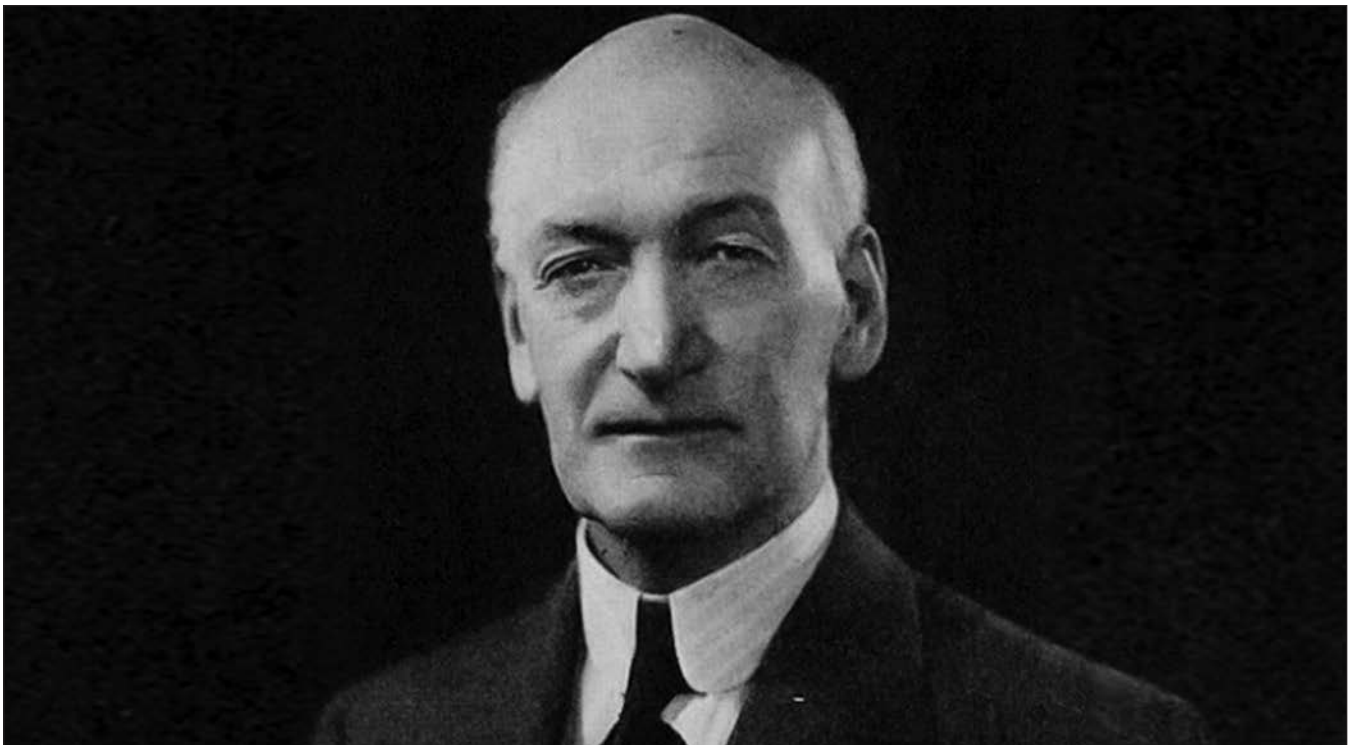


Fig. 1. Dr. Edward W. Archibald, first chair of the McGill Department of Surgery. Image from the McGill University Archives (PR041497).

The single clinical thread maintained throughout his career was thoracic surgery, with the first publication in 1906 and the last in 1935. He did not originate thoracoplasty for the management of tuberculosis, but refined the techniques such that he was considered the master of the procedure. His first thoracoplasty was in 1912 and he presented and published his results. In 1928, he established the thoracopulmonary service, a combined clinical entity incorporating all relevant disciplines with a training program for surgeons wishing to do thoracic surgery, particularly thoracoplasty. It is to this program that Norman Bethune came and, in time, joined the staff.⁵ However, Archibald's interests extended to pneumonectomy. Over time, he developed an approach that allowed him to do the first pneumonectomy with individual ligation of the vessels and the bronchial stump in July 1933.¹²

Upon the retirement of George Armstrong as surgeon-in-chief in 1923, Sir Vincent Meredith, chair of the RVH board of governors, wanting the chief to fill beds and not waste time on any academic activities, independently appointed Sir Henry Gray to the role over the wishes of the medical board. The university, not having participated in the appointment, refused Gray an academic post. The medical school was undergoing restructuring at the time, after the faculty was depleted by the end of World War I. Under the direction of the newly appointed dean, C. F. Martin, funding from The Rockefeller Foundation was acquired to establish the research arm of the Department of Medicine in 1924, known as The University Clinic, and a chair was appointed. Martin, wishing to achieve the same ends in the Department of Surgery, immediately created the chair of surgery position and appointed Archibald, a responsibility independent of his position at the hospital. The responsibility of the chair was limited to the surgical education of the medical students, meaning the curriculum could now be standardized under a university chair. The chair, however, had no role to play in the other institution's management, recruiting, funding, or direction. Although disappointed about the appointment of Gray as chief of surgery at the RVH, by reputation a perfect gentleman and seemingly untroubled by the absence of a title, Archibald went about the business of creating an academic Department of Surgery with emphasis on education and research, effectively doing the job without the title. The undergraduate teaching program was strengthened by using the combined resources of the MGH and the RVH. Archibald already had a widely recognized reputation in North America and Europe for an inquisitive mind and productive research programs.

When Gray was dismissed in 1925, infighting on the board led to some inertia and it was not until January 1929 that Archibald was made chief of surgery at the RVH. Nevertheless, in the interregnum, he was the *de facto* leader and organized the department in a collegial manner to everyone's benefit. An example of his leadership was the

creation of the thoracopulmonary service. With the involvement of Dean C. F. Martin, a Rockefeller grant was acquired with support from the hospital and university; in 1929, the Department of Experimental Surgery was established, equivalent to The University Clinic. The program was very successful in developing a cadre of academic surgeons, with many staff coming on after earning graduate degrees in basic physiology. Dr. Arthur Vineberg was the first to graduate in 1933 with a PhD in experimental surgery. Ninety years later, hundreds of degrees in experimental surgery have been granted, including 34 (27 master's degrees and 7 doctorates) in 2023 alone.

Archibald and Dr. William Gallie from Toronto were the first 2 examiners in surgery for the Royal College of Physicians and Surgeons of Canada. Archibald's involvement with education for medical students, the structured training program he developed in thoracic surgery, and his experience as an examiner focused his thoughts on the status of the profession within society and the need for standards within surgical training. These ideas were highlighted in his 1935 presidential address to the American Surgical Association, "Higher Degrees in the Profession of Surgery."¹³ Immediately following his address, Evarts Graham formed a committee, which led directly to the formation of the American Board of Surgery, with the first examinations in 1937.³ In all of these activities, Archibald exemplified the characteristics of a remarkable academic surgeon, making him a role model for generations of McGill surgeons.

Upon Archibald's retirement in 1935, Frances Scrimger became chief at the RVH and chair of surgery. His premature death led to the alternation of the chair role between the chiefs at the MGH and RVH; subsequently, terms were frequently short because of World War II and the remarkable service provided by the surgical staff of the McGill hospitals to the Canadian Armed Forces during that time.

In 1944, Fraser B. Gurd (chair and chief at the MGH) and Gavin Miller (chief at the RVH and, subsequently, chair) established the McGill diploma course in surgery. This was the first combined program between the MGH and RVH, as well as 2 additional institutions, the Queen Mary Veteran's Hospital and the Montréal Children's Hospital (MCH). There was a formal application process. The admission committee was made up of the surgical chiefs of the 4 major teaching hospitals at the time, the RVH, MGH, Queen Mary Veteran's Hospital, and the MCH. Resident training was a hospital responsibility at the time and the university did not wish to be involved. The program was of 5 years' duration, including a research year, usually in the Department of Experimental Surgery. The penultimate year was in the United Kingdom or the United States. The final year involved 2 rotations of 6 months' duration, usually in one of the adult hospitals.

The Department of Experimental Surgery continued at the RVH. In 1947, after the construction of the Donner building on the McGill campus, some activities were transferred. Degrees continued to be earned and some important work was done. Most notable was Arthur Vineberg's efforts at revascularization of the heart, eventually leading to the internal mammary implant. The war had taken its toll and there was, in all clinical areas, an emphasis on private practice and reduction in research activities. Academic productivity was a focus in H. Frederick Moseley's *Textbook of Surgery*, with all the authors from the RVH.¹⁴ Well reviewed, it became a standard text in the 1950s with the third edition in 1959. Moseley followed this with *Accident Surgery* in 1962.¹⁵

Concerned about this decline in research and academic activity, Principal F. Cyril James and Dean Lloyd Stevenson initiated the process that would lead to a period in which the Department of Surgery would enjoy considerable academic success, with focus on the strength of the 2 hospital departments individually rather than on a unified university department. The university, together with the RVH and MGH, recognizing the academic weakness, agreed to an external review of the McGill Department of Surgery in 1958. The review was chaired by Professor Robert Milnes-Walker of Bristol University, accompanied by Dr. Frederick G. Kergin of the University of Toronto and Dr. Frances D. Moore of Harvard Medical School. They were mandated to determine how the department was performing "in regard to the care of the sick, the teaching of students and the conduct of research."⁸ Their report noted with regret that the staff were more interested in clinical practice than academic activities. The report was particularly critical of the RVH, but it was clear that leadership in both institutions was failing. Science was weak in 1 hospital, nonexistent in the other. The committee also made it clear that "the department must be inspired from the top" and suggested that the chiefs be changed as soon as suitable candidates could be found and that the search for new chiefs target individuals younger than 50 years with an established record of academic achievement.⁸ Although they were recommending the development of 2 independent hospital-based academic units at McGill, they did also comment and make recommendations on the creation of a combined management structure, to which no attention was paid. The report led to the definition of 2 independent surgical departments with strong hospital-based leadership and a focus on the development of an academic vision.

TWO-DEPARTMENT MODEL: THE LATER YEARS (1959 TO LATE 1980s)

The MGH took a constructive view of the report. Dr. Philip Rowe, who had not been happy in the chair position, resigned and returned to his practice. Taking the

report seriously, the MGH board instigated a search and, by the end of 1958, recruited H. Rocke Robertson to be their new chief of surgery. In July 1959, he also became department chair at the university. Robertson had been the surgeon-in-chief at the Vancouver General Hospital and chair of surgery at the newly established medical school at the University of British Columbia. He had an impressive record of published research with an emphasis on wound infection and thromboembolic disease and had made an enviable impact on the academic world of surgery in North America and Europe. He had been offered a full-time post as assistant professor at McGill in 1947, but after considerable delays by McGill, and given that he was already well established in Vancouver, he turned it down.⁸ A critical component of the recruiting package was the establishment of The Surgical University Clinic at the MGH (funded by Percy Walters),¹⁶ modelled on the structure established in 1924 for the Department of Medicine at the RVH and similar to what Rockefeller had done for Archibald in 1929 in creating the Department of Experimental Surgery at the RVH.

In contrast, the RVH took a very different view of the Milnes-Walker external review. They decried the report, contested it with the medical board and board of governors, wrote defensive reports, and circled the wagons. Donald Webster did not resign, as Philip Rowe had immediately done, and instead was reappointed as surgeon-in-chief for 1958–1962. The search for Webster's successor is hidden in the archives of the university, which were unfortunately moved to another site, making finding the details of the search for his successor impossible at time of writing. The recruitment of Dr. Lloyd D. Maclean was via a joint selection committee led by the dean, Lloyd Stevenson; among its members were Robertson and the chief of medicine at the RVH.⁸ There is no record in the minutes of the medical board concerning the process until Jan. 13, 1962, when, at a special meeting of the board, chief of medicine Dr. Ronald V. Christie announced the committee's recruitment of Dr. Lloyd MacLean to the post starting July 1, 1962. Dr. Lloyd MacLean, a Calgarian, was a graduate of the Owen Wangenstein surgical program at the University of Minnesota, where a PhD was de rigeur. Upon completing his chief residency, he became the chief of surgery at the Ancker Hospital in St. Paul, Minnesota. His research included published work in transplantation, shock, and surgical metabolism. In the previous year, Dr. Fraser N. Gurd, surgeon-in-chief at the MGH, had incorporated Dr. MacLean as a speaker on septic shock in a program for the American College of Surgeons.⁷

The development of the Department of Surgery at the MGH by Robertson was extraordinary. Within a couple of years, the University Clinic had been built and staffed with full-time scientists and collaborating clinicians. The atmosphere had changed and become focused on the role of an academic unit with considerable renown in North

America.⁸ There is little in the Pound biography⁸ of Robertson on his working with MacLean on the changes each wished to establish in their respective departments, yet it is likely they had somewhat concordant views. Robertson became principal of McGill University on Dec. 1, 1962. The chairship had been at the MGH since 1952 and was expected to rotate regularly. However, in 1963, Dr. MacLean was reorganizing surgery at the RVH, so it was thought helpful to have the chairship remain at the MGH, and Dr. Gurd was appointed with the expectation that it would revert to the RVH and Dr. MacLean in 5 years.⁸

At this stage, being chair of the McGill Department of Surgery essentially meant just having a title, with the principal responsibility being undergraduate education and representing the department at the faculty and university. The 2 hospital departments functioned independently from each other in recruitment, clinical program development, research directions, and research funding. In that era, the model had benefits in that the institutions were strong with separate but effective community support. Two effective leaders and 2 parallel units with the ability to train surgeons created productive research programs in a variety of areas, interestingly, with virtually no duplication. The research was widely presented and, although some implied that competition existed between the hospitals, their areas of clinical and research interests were sufficiently different that competition was not really relevant. Surgeons from both departments were widely recognized in North America, with a substantial number of surgeons recruited to the McGill Department of Surgery from the 1960s through the late 1980s ultimately being recognized with Canadian honours (Table 1).

In 1962, the McGill Diploma in Surgery program, the first rapprochement between the hospitals in surgical training, was terminated, and the MGH and RVH initiated independent, hospital-based resident training programs. At that time, general surgery and orthopedic surgery were the 2 most clearly defined specialties and they had completely independent residency programs with no cross-fertilization between hospitals. Although a broad range of surgical services were provided, these 2 surgical divisions dominated the departments. In practice, the McGill Faculty of Medicine had 2 departments of surgery. However, the growth and evolution of the resident training programs in the other divisions — including cardiovascular and thoracic surgery, plastic surgery, and urology — took a different direction.

From its initiation, the cardiovascular and thoracic surgery division was a multi-site training program at the RVH, MGH, MCH, and Queen Mary Veteran’s Hospital with 4 rotations of 6 months’ duration. With the closure of the Veteran’s Hospital in 1977, the Montréal Chest Institute provided thoracic education. Although the residency was a McGill program, each hospital had independent academic directions and

Table 1. Examples of major national recognitions to McGill surgeons

Recognition	Surgeon
Order of Canada	H. Roche Robertson, CC
	Ricard L. Cruess, CC
	Lloyd D. Maclean, OC
	Balfour Mount, OC
	Jonathan L. Meakins, OC
	Mostafa Elhilali, OC
	Carroll Laurin, OC
	David S. Mulder, CM
	Edward J. Tabah, CM
	David Lin, CM
	Anthony R. C. Dobell, CM
	Richard Margolese, CM
Meritorious service cross	Gerald M. Fried
Canadian Medical Hall of Fame	Jonathan L. Meakins
CC = companion, CM = member, OC = officer.	

recruitment. The faculty worked in 1 institution, with the exception of division head Dr. Anthony R. C. Dobell, a pediatric and adult cardiac surgeon.

The Division of Plastic Surgery had a partially integrated training program in the 1960s. It was completely integrated in 1976 under Dr. Bruce Williams’ direction. Residents had to rotate through the MCH. However, given the emergence of subspecialization, it became clear that to guarantee adequate clinical exposure, all adult hospitals had to be incorporated into the rotations. Similar to the Division of Cardiovascular and Thoracic Surgery, research, academic interests, and faculty differed by hospital and clearly contributed to different clinical patterns, making the need for integration evident.

The pattern was repeated in the Division of Urology. The need for the residents to have substantial experience at the MCH meant that residents from the RVH and MGH had to have equal time at the MCH. The harmonization of schedules led to complete integration of the residency and, thus, the division. With the arrival of Dr. Mostafa Elhilali in 1982, the division went further in its approach to being a McGill program. In the 1980s, the RVH established a clinical practice plan that was extended to the MGH, and subsequently to the JGH, in the 1990s.

Therefore, by the late 1970s, only the general surgery and orthopedics divisions remained hospital-based residencies. The Royal College had urged integration of both divisions since the 1974 review, but this recommendation had been met with indifference. The individual hospital division heads managed recruitment and clinical directions. The Division of General Surgery at the MGH was established in 1984 and at the RVH in 1989. Recruiting, clinical programs, and academic activities were overseen by the surgeon-in-chief. In this setting, integration of the general surgery residency was never seriously considered. Aside from the urging of the Royal College, 2 other factors

forced its consideration. Hospital budget cuts by the ministry were almost annual, creating substantial difficulties in staying abreast of the explosion in radiologic and endoscopic technology that was taking place. Linked to these changes was the development of subspecialization in both orthopedics and general surgery. The budget reductions put stress on hospital management to deal with the competing equipment demands of the evolving clinical fields. The RVH and MGH established working groups to determine whether pooling or combining some management and administrative functions could free up revenue to deal with the reductions in ministry support. The conclusion at the time was that it would not work. The final push to integrate came from the Royal College in 1987, when it indicated that all residencies had to be based at a university and that hospital programs would no longer be evaluated. University program directors were appointed for both divisions.

EVOLUTION TO A SINGLE DEPARTMENT (LATE 1980S TO 2002)

The hospital-based model was a success until the mid-to-late 80s, at which time increasing subspecialization was becoming apparent. Until that point, patient care was the purview of the hospitals, while teaching and research were the domain of the university. However, the distinction between these domains was increasingly blurred. Subspecialization created the increased need for multidisciplinary programs and centres of excellence as pathways to enable access to adequate volumes of patients for more specialized surgeons, integration with scientists and clinician–scientists, and advanced training opportunities like fellowships. The need to concentrate subspecialized clinical care, address challenges in education, and find creative ways to pool resources to support clinical and translational research provided purpose and opportunities that led to a more unified McGill Department of Surgery.

Given that, at the time, the primary responsibility of the chair was undergraduate surgical teaching, the McGill department did not have much to offer the divisions other than advocacy in promotions. There were now 5 university-based residency directors. No department-wide approach to an academic career existed. Recruiting was still through the hospital rather than directed by the university. The department appeared strong and productive, but the threat posed to the teaching mission by increasing subspecialization within divisions was becoming apparent. The general surgery and orthopedics residency programs continued to be hospital-based programs. If the combined strengths of the McGill surgeons remained unintegrated, the residents would not have complete coverage of the curriculum. This would become even more troublesome as economics or the complexity of programs made it clear that many subspecialties within each surgical

Table 2. Chairs of the McGill Department of Surgery

Years of service	Chair
1923–35	Edward W. Archibald
1936–37	Francis A.C. Scrimger
1937–38	Alfred Turner Bazin
1938–42	Frank Stewart Patch
1943–44	C.K.P. Henry
1944–46	Fraser B. Gurd
1947–52	Gavin Miller
1953–58	Philip Rowe
1959–62	H. Rocke Robertson
1963–68	Fraser N. Gurd
1968–73	Lloyd D. MacLean
1974–77	Alan Thompson
1977–82	Lloyd D. MacLean
1982–87	David S. Mulder
1987–88	Lloyd D. MacLean
1989–93	Jonathan L. Meakins
1993–98	David S. Mulder
1998–2002	Jonathan L. Meakins
2002–10	Mostafa M. Elhilali
2010–19	Gerald M. Fried
2020–present	Liane S. Feldman

division should be at a single site. Examples in general surgery included transplantation, colorectal, hepatobiliary, trauma, head and neck, and endocrine surgery; examples in orthopedics included arthroplasty, oncology, foot or ankle, shoulder, hand, spine, and trauma surgery. The hospital-based model also highlighted that the department had little to offer the members in the face of changing times.

Even so, the 2 largest residency programs, general surgery and orthopedic surgery, remained hospital-based programs. The other divisions already interacted through their cross-site residency programs, and the need to have McGill-wide division heads was obvious; to have a good training program, effective leadership and an administrative structure was required. At this time, McGill did not have a division of general surgery and each hospital had its own approach. The same situation prevailed in orthopedic surgery. In the Royal College review of the residency programs in 1987–1988, the general surgery residency program was placed on probation, creating the urgency that led to the very important merging of the hospital-based programs with the university, with a single director across all sites. If their advice had been followed earlier, the department may have become more cohesive sooner.

Until 1989, the chairs rotated between the RVH and MGH almost automatically (Table 2). There would be discussions and conference calls, with recorded minutes, but the custom of rotating chairs remained (R. Cruess, McGill University: personal communication, 2024). In 1989, Dr. MacLean retired as chair a few months earlier than anticipated. A search committee was struck and

Dr. Jonathan L. Meakins, chief of surgery at the RVH, completed Lloyd MacLean's term with the vision to strengthen interhospital links between all teaching hospitals and connections to the McGill Department of Surgery. A departmental tie and scarf with the McGill crest and surgical symbols (e.g., a fleam, a square knot) were created. The departmental newsletter (The Square Knot, <https://www.mcgill.ca/squareknot/archives>) was started and would become a source of continuity for all, particularly those who had moved away from Montréal to work elsewhere.

There had never been McGill departmental recognition of departing residents and fellows. The MGH had done so since 1978 with their Fraser Gurd Day. Generously, the MGH agreed that this should become a departmental event. This was initiated in 1990 to great approval and was further stimulus to the complete integration of all resident training programs under the banner of the university department. Fraser Gurd Day has been of signal importance in bringing disparate components together. The event includes a full day of research presentations chaired by a prominent visiting professor, followed by a banquet in the evening that celebrates the graduating residents and fellows and recognizes excellence in research and teaching. The Kathryn Rolph Award, recognizing the contributions of women to the department, was initiated through a generous patient donation and has been awarded since 1996.

In 1989, concrete steps were being taken to create a unified department across all sites. Medical students and residents rotated through a variety of sites other than the MGH and RVH hospitals. The JGH was an increasingly vital undergraduate and postgraduate training site, as was St. Mary's Hospital and The Queen Elizabeth Hospital. Some coordination and planning, as well as definition of direction, were needed. In 1990, a Forward Planning Task Force, with wide representation, was struck by the new chair Dr. Meakins and led by Dr. Bruce Williams. A broad and inclusive review of all divisions and components of the department was carried out over a 16-month period, which culminated in a comprehensive report. The last step was a departmental retreat where the draft report was presented for broad discussion before being finalized. Interestingly some of the recommendations were started before the retreat, while meetings were still taking place. The task force was strikingly useful in defining issues and directions. It also clarified the strengths and weaknesses of the department. Meeting over 18 sessions led to considerable productive collegiality but also the need to start to change and integrate the various components of the enterprise and create forward movement. Many of the concerns raised were very similar to today's issues, including recruitment of academic surgeons, integration of services across hospital sites, relationships between faculty and trainees, service-to-education ratios, and research funding (salary and operating).

One of the key recommendations was the development of a core program, a precursor to today's Royal College Foundations of Surgery Residency. The evolving nature of specialties and their specific educational needs had to be addressed. As individuals increasingly entered specialty training out of medical school, the one-size-fits-all approach fell by the wayside and, for each discipline, a specific sequence of rotations was required. In 1992, a formal departmental core program was established with a program director, a committee structure, curriculum, and administrative support. This program was a direct result of the Forward Planning Task Force's recognition of a gap in education and an opportunity for the department to address that need for all divisions.

Recommendations for changes in departmental governance also resulted from the task force. The tradition to alternate between the RVH and MGH was abandoned. Chair appointments would be through a search committee for a 5-year term with the opportunity for 1 reappointment after formal internal and external review.

With the establishment of the McGill Division of General Surgery in 1989, recognizably late compared with other Canadian departments, all surgical divisions could be represented at the Department Executive, which began to have a functional life after the task force. Most recruitment and research directions were determined by each hospital and continued to be so until subspecialties were established on single sites, allowing the formation of compatible teams. This occurred at different times for the various divisions and programs.

In some cases, clinical, educational, and research opportunities coincided to help bridge silos between the hospitals. The introduction of laparoscopy to general surgery in the early 1990s, specifically for hernia repairs and cholecystectomies, is a good example, whereby the opportunity to learn and evaluate these 2 operations helped create and bind a McGill Division of General Surgery across sites. This required teamwork and collegial discussions to formulate research objectives, determine study designs, allocate responsibilities, and garner participation. In May 1990, the first McGill laparoscopic cholecystectomy was performed at the MGH. From the first case, all were entered into a registry designed by the McGill Gallstone Group, incorporating surgeons from 4 hospitals (RVH, MGH, JGH, and The Queen Elizabeth Hospital). In parallel, a randomized trial comparing laparoscopic to mini-open cholecystectomy was established with participation from 3 units. Running the 2 studies required the surgeons to meet regularly, often over dinner, to discuss data, enrollment and the growing difficulties with equipoise. The first 1700 cases went into the registry and led to several important publications. The randomized trial, the first of laparoscopic versus open cholecystectomy, was published in *The Lancet*. A course in laparoscopic surgery was designed and was very active for about 2 years, instructing surgeons from

the northeastern United States and eastern Canada. A collateral benefit was the opportunity for surgeons at the 4 participating hospitals to work cohesively. The important laboratory component of the course took place at the JGH. The collegiality of research activity led directly to the establishment of a surgeon–scientist program within the division in the mid-1990s for third-year residents to pursue formal research training, with salary support available on a competitive basis.¹⁷ This evolved into a department-wide program to support residents in all divisions through a competitive application requiring structured projects, preliminary data, and appropriate faculty support.

In orthopedic surgery, the recruitment of Dr. Max Aebi as division chief galvanized the division, which, as with general surgery, came together with some reluctance. His vision was that orthopedics at the RVH and MGH should be at a single site and that the trauma centre at the MGH was the appropriate location. In 1995, the orthopedic division at the RVH moved to the MGH. It did not take long for the benefits to become evident. Research activity expanded, teaching was easier and therefore better, the critical mass provided by all surgeons being on 1 site and in contact provided a collegial atmosphere, and all components of academic orthopedics were enhanced. A couple of years after the move, a dedicated purpose-built clinic with the surgeon's offices was completed.

The budget difficulties referred to earlier were manifest in the delivery of vascular surgery services. The infrastructure required to support a vascular service is substantial, given the expense and space requirements of a vascular laboratory, its equipment, and its personnel. In 1995, chair Dr. David Mulder struck a balanced committee to assess where a McGill vascular service should be established. After wide consultation, the vascular surgeons at the MGH moved to the RVH in 1996. The move provided the attendant benefits of working in a team setting rather than in isolation. Concurrently, the JGH program was integrated to share call duties across all sites and enhance clinical, educational, and research activities, providing benefits for both units and strengthening the McGill program.

The following year, all solid organ transplantation was centred at the RVH. With a critical mass of surgeons on the same site, it was possible to create a multi-organ transplant program to include kidney, liver, pancreas, and cardiac transplantation, sharing all the overlapping infrastructure without duplication at a second hospital. The transplant nephrologists and hepatologists also largely relocated. The liver transplant program, established in 1990, also encouraged the development of the hepato–pancreatic–biliary service at the RVH.

By the early 1990s, the Division of Urology had established a practice plan such that all clinical revenues were pooled and redistributed according to clearly defined ground rules. General urology services were provided at all hospitals, but subspecialty expertise was localized and

focused at 1 or another of the sites. Most of clinical urologic oncology was done at the MGH, where oncologic research was focused. At the RVH, the clinical focus was on stone management, infertility (including research), and all laser applications. At the JGH, the clinical and research concentration at that time focused on neurourology, urinary incontinence, and erectile dysfunction. The faculty maintained a strong collegial clinical and academic relationship despite working in their specific buildings. Consciously over a period of time, the 3 sites each decided on their clinical and research areas of concentration and scientists and clinicians moved to ensure the maintenance of a critical mass, ensuring a true bench-to-bedside environment.

In cardiac surgery, transplantation and a mechanical assist program were at the RVH, and the cardiology division developed a heart failure program at the site. Basic science research, focused on approaches to the failing heart, were at the MGH. In 2007, the cardiac surgeons at the MGH moved to the RVH to consolidate. At the MGH, cardiac surgery had evolved into a program with referrals from across the country. The JGH established their own cardiac surgery program in November 1991. Thoracic surgery, including lung and esophageal surgery — once a component of the Division of Cardiovascular and Thoracic Surgery and offered at the JGH, MGH, RVH, and SMH — evolved over time, and in the late 1990s began to consolidate as a single high-volume referral centre at the MGH. This evolution was also owing to regionalization of thoracic surgery in the province under ministry directives. A formal McGill Division of Thoracic Surgery was not established until 2012.

The department's role in supporting surgical research across hospital sites and in developing the next generation of academic surgeons also advanced in this era. In the early 1990s, the department had no discretionary research funds. All work was funded through grants or private donations to individual surgeons. Salary support was tricky and came largely from the Fonds de recherche du Québec – Santé (FRQS) in recognition of the value of research training and the development of academic surgeons. In 1998, building on the program established in general surgery, the chair introduced a department-wide surgeon–scientist program under the direction of Dr. E. J. Hinchey, who obtained generous funding from the Fast Family Foundation, which continues to this day.¹⁸ Application was competitive and followed a similar process as an external training award. The program became a key resource for providing the salary support that has enabled generations of residents across the divisions to pursue formal research training leading to a master's degree or a doctorate. With evolving success and recruitment of more formally trained surgeons and scientists as supervisors, more residents were able to obtain support from the FRSQ and the Canadian Institutes of Health Research, which allowed the program to expand. The program was another example of an asset the department could

Table 3. Examples of endowments supporting the McGill Department of Surgery

Name	Program
Michal And Renata Hornstein Career Award for Surgical Excellence	Surgical research at McGill University Health Centre
Dr. David S. Mulder Chair in Surgery	Thoracic surgery leadership/research
Adair Chair in Surgical Education	Vice-chair of surgical education
Dr. Alan G. Thompson Chair in Surgery Research	Vice-chair of surgery research
Dr. Jo Miller Chair of Orthopaedic Research	Arthroplasty research and clinical excellence
Dr. Mostafa Elhilali/David Azrieli Chair in Urologic Science	Quality improvement, innovation, and academic excellence in urology
Stephen Jarislawsky Chair in Urology	Urology research
Gail & Stephen Jarislawsky Chair in Thoracic Surgical Epidemiology	Clinical research in thoracic surgery
Aune Foundation Chair in Thoracic Oncology	Research chair in thoracic oncology
Synthes Chair in Spinal Surgery	Research and patient care in spine surgery
Dr. Ray Chu-Jeng Chiu Distinguished Scientist in Surgical Research	Thoracic surgery research
Nicole & Francois Angers – Sarcoma Fund	Sarcoma research
Edward W. Archibald Chair of Surgery	Chair of the Department of Surgery
H. Roche Robertson Chair in Surgery	Scholarly activities in trauma and critical care surgery
Richard Tomlinson Chair in Urology	Urology research and leadership
Maurice E. & Marthe Müller Chair of Orthopaedic Surgery	Academic leadership in orthopedic surgery
The Florenz Steinberg Bernstein Award Fund	Research and training in minimally invasive surgery and innovation

provide to the divisions. As the programs flourished, the academic profile of the divisions increased. The Division of Surgical Research, replacing Archibald's Department of Experimental Surgery, was created to oversee the graduate program and the surgeon–scientist program. The Fraser Gurd graduation event was also widened to include research presentations and highlight the best of surgical research, whether performed by graduate students or clinical trainees.

THE MODERN ERA: THE MCGILL DEPARTMENT OF SURGERY IN THE 21ST CENTURY

It is evident from the annual reports, the Square Knot newsletter, and formal internal and external reviews that that a McGill Department of Surgery that would bring value to members across divisions and across the teaching hospitals was a theme that became even more intentional and codified in the 21st century. To recruit and retain competitive scientists and clinician–scientists, fundraising toward endowments to support program-based chairs was a priority for Dr. Elhilali. During his tenure as chair (2002–2010), a landmark donation from noted philanthropist Richard H. Tomlinson (1924–2018) established the Young Surgeon's Endowment Fund with the main objective to support recruitment and retention of young surgeons with academic potential, and to encourage them to spend protected time on nonclinical academic endeavours. This enabled the department to contribute to promising academic recruits regardless of hospital site, as long as the funds were matched or exceeded by start-up resources from the hospital division, foundation, or research institute. The award committee membership reflected the academic, geographic, and clinical diversity of the department.

Several other named chairs were established in surgical education (Adair Chair) and surgical research (Thompson

Chair, Michal and Renata Hornstein Chair) and to support excellence in specific programs or diseases. The number continues to grow (Table 3). In the absence of sufficient McGill tenure-stream positions, these large endowments were critical to attract outstanding scientists and clinician–scientist recruits, provide sustainability for academic programs, and allow the department to compete for retention of faculty. Access to provincial career development awards through the FRQS continued to be a critical avenue to protected research time for clinician–scientists in the absence of sufficient tenure-track positions. In 2015, a specific clinician tenure stream was established by McGill for clinician–scientists who were continually funded through the FRQS (junior 1, junior 2, and senior awards) to ensure continued access to protected research time.

In 2012–2013, an external review and strategic planning retreat for research was convened by chair Dr. Gerald Fried, which resulted in identification of the 4 priority areas of basic science, clinical research, surgical education and simulation, and surgical innovation. This resulted in the reorganization of the experimental surgery graduate program into concentrations including basic science, surgical education, global surgery, and surgical innovation. The surgical innovation graduate program brought together surgical trainees, business students, and engineering students to work on clinically relevant problems, which has resulted in several start-ups. Dr. Fried and professor Jake Barralet, the vice-chair for research, furthered the innovation agenda through their vision to create a clinical incubator in a purpose-built renovated space at the MGH. Although it was set to open in 2020, the COVID-19 pandemic delayed the full opening of this Clinical Incubation Platform until 2022. More recent additions include non-thesis tracks for master's degrees, concentrations in surgical outcomes and digital health innovation, and an oncology stream. In the past decade, the number

of graduate students enrolled in graduate programs in experimental surgery increased from 40 (10 PhD students) to 170 (> 60 PhD students) today. This growth enabled the creation of 3 new tenure-track positions in the department for these priority areas — namely in surgical outcomes, education, and innovation — that were filled by researchers based at the JGH and the McGill University Health Centre (MUHC).

A new area for the department to support was in faculty development and leadership training. Funds were raised to enable the department to support travel awards to acquire new clinical or academic skills. Surgeons taking on new leadership roles were encouraged and supported to attend courses or complete more formal programs to develop those new skills.

Substantial renewal and reorganization of the hospitals occurred during this time. In 1997, the McGill University Health Centre was created through the merging of the RVH, MGH, MCH, the Montréal Neurological Institute, and the Montréal Chest Institute. In 2008, the Lachine Hospital was added. The Royal Victoria Hospital, MCH, Montréal Chest Institute, and the MUHC Research Institute moved to the new Glen site in 2015, which led to further reorganization of clinical activities. Expansion and renewal also occurred at the JGH with the opening of the 10-storey Pavilion K, which included new modern operating rooms and intensive care units.

BUILDING THE FUTURE OF SURGERY

In reviewing the history and evolution of the department, one is struck by how many of the foundational values and structures that were developed over the past 100 years have remained in place. They have been sustained and improved but the commitment to core missions as an academic surgical department has remained. However, it is again a time of rapid innovation and change in surgery and in the science of surgery, which, in almost all areas, is unrecognizable from that practised a century ago. The introduction of minimally invasive, robotic, endoscopic, catheter- and image-based surgery has improved safety, quality, and outcomes for patients. As surgery has transformed to become safer, more personalized, and less invasive, the interface between surgery and other disciplines starts to blur and the list of interventional specialties continues to grow as technology and imaging make this feasible. Some of the advanced technologies that have been identified as likely to have the greatest impact on patient outcomes in the coming years include next-generation surgical robotics; imaging, virtual reality, and augmented reality; big data, omics and artificial intelligence; and novel interventions like nanosurgery delivered by highly specialized, interdisciplinary teams.

Surgeons must be ready to meet the changing needs of the communities they serve. As was done at several key

junctions throughout the department's history, we embarked on a department-wide strategic planning exercise, which was delayed by the pandemic but completed in 2022. This reaffirmed our mission to provide the highest-quality patient-centred surgical care, perform innovative research, and train the next generation of surgeons and scientists. We identified 4 research pillars in which we currently excel as a department, including surgical outcomes and quality, regenerative medicine, oncology, and surgical education and simulation. Cross-thematic capabilities in data science, precision health, medical technology, and translation and innovation are required to support sustained excellence, all built on a foundation that includes a graduate program that will attract and train outstanding students in priority areas, transparent performance-based processes to recruit and support research scientists, and interdisciplinary networks. Recent clinical and research recruits are bringing new approaches and skills in robotics, data science, patient-centred outcomes, clinical trials, artificial intelligence, procedural planning, and other exciting areas across multiple divisions and programs, and are initiating novel interdisciplinary research programs. To better represent the future that awaits us, the evolving multidisciplinary approaches to surgical and interventional care, and the advances in repair and ablation technologies, diagnosis and imaging, and clinical care delivery, the Division of Surgical Research was renamed Surgical and Interventional Sciences in 2023.

The growth of our department has been remarkable and is accelerating. In 2008, the department counted 175 faculty members (152 clinical and 23 research faculty), but by 2023, there were 258 faculty members across the main teaching hospitals and affiliated sites in which the medical school has expanded (221 clinical, 24 research, and 13 other faculty). What is the role of an academic department of surgery today? The subspecialization that drove the department's unification efforts more than 40 years ago has only accelerated and surgeons today often share more clinical and research interests with members of their multidisciplinary teams than with their divisional or departmental colleagues. And yet, there is something special about the craft of surgery that connects us now and to the past, things like the difficult road to technical competence, the lifelong road to mastery, the unique responsibility we have to the patients on whom we operate, the connection to disease we see and feel and that drives surgical research and innovation, the culture of accountability, and the agency and leadership platforms we have in the clinic, operating room, and institutions to be able to drive change. The McGill Department of Surgery became more unified by providing value to its members across all divisions and career phases and must continue to do so to remain vibrant and relevant for the next 100 years.

Table 4. McGill Department of Surgery Executive Committee 2023

Name	Role
Liane S. Feldman, MD	Chair, McGill Department of Surgery
Michael Tanzer, MD	Vice-chair, clinical
Melina Vassiliou, MD, MEd	Vice-chair, surgical education
Jake Barralet, PhD	Vice-chair, research
Kevin Lachapelle, MD	Vice-chair, faculty development
Renzo Cecere, MD	Division director, cardiac surgery
Simon Tanguay, MD	Division director, urology
Mirko Gilardino, MD	Division director, plastic, reconstructive and aesthetic surgery
Lorenzo Ferri, MD, PhD	Division director, thoracic surgery
Gregory Berry, MD	Division director, orthopaedic surgery
Paola Fata, MD	Division director, general surgery
Kent MacKenzie, MD	Division director, vascular surgery
Justine Chamoun	Associate director, Department of Surgery

One critical role for the department is in mentorship and career development — establishing and nurturing a culture where McGill surgeons are supported as individuals to thrive professionally and reach their full potential throughout the phases of their career.¹⁹ We are serving increasingly diverse communities of patients and trainees. Ensuring that we attract and nurture faculty and leaders who are representative of the communities we serve promotes innovation and may even be associated with better clinical outcomes. To be sure, our department looks very different than that of 100 years ago. To start with, 24% of our faculty and 30% of our trainees are women. In recruitment, to ensure we cast a wide net to attract talent beyond our walls, the department now requires search committees for all clinical and research recruits. We have developed career tracks that align with paths to promotion, division-based onboarding and mentorship committees, and an early-career researcher mentorship program focused on the FRQS career development award competition. We added a vice-chair for faculty development to the surgical executive group with an increasing focus on surgeon well-being, occupational distress, and professional fulfillment (Table 4).

CONCLUSION

Over the past century, each department chair has brought their own personality, experience, approach, and priorities to the role and have contributed to bringing the department where it is today. Over time, the role of department chair has evolved from a title to an actual job. Although there are a myriad of leadership styles and trajectories, in the end, effective leaders are able to inspire and motivate others to work together to achieve a common goal. As in other domains, skills that support effective leadership — including change management, conflict resolution, negotiation, time management, budgeting and finance, emotional intelligence, and others — are not innate and can be learned. As surgeons — no matter what career phase, area of specialization, or research interest

— we can all benefit from enhancing these leadership attributes. This was the impetus to introduce our own 3-month McGill Department of Surgery Leadership Training course, developed with the Desautels Faculty of Management. In this centennial year, marking the appointment of Dr. Edward W. Archibald as first chair of the Department of Surgery, it was most touching to learn that Griselda Christmas, Dr. Archibald's youngest daughter, funded a surgical research fellowship before she passed away in 2023, and that Dana Wessel, Dr. Archibald's granddaughter, and her husband, Jim Wessel, provided the generous support to allow the surgical leadership program to continue for several more years. The legacy continues.

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