History 5 - Fire in the Medical Buildings to Selye

Summary of Topics

46. **Hans Selye (McGill: 1938-1946) – p 45**

33. Fire in the Medical Buildings (1907)

At the beginning of the 20th century, the infrastructure of McGill University became very impressive. Thanks to generous benefactors such as MacDonald, Molson and Lord Strathcona (at that time the University Chancellor), several new buildings had been constructed. In addition to the Arts Building and Dawson Hall, at the top of University Drive, there was the magnificent Redpath Museum to the west, and beyond this the new Redpath Library. To the east were the new Engineering, Chemistry and Physics Buildings. North of these was the new, greatly expanded, Medical Building, and finally, up the hill was the glorious new Royal Victoria Hospital [Frost 2:4].

In 1907, however, disaster struck! A fire of unknown origin destroyed much of the precious new Medical Building [Hanaway 2: 64-66]. The central portion was completely gutted and its roof and cupolas collapsed. The original lower portion was also damaged beyond repair. Only the northern-most Molson Extension survived to be reutilized. The Anatomy museum was completely destroyed, along with all the specimens that Shepherd had collected over 30 years! The Pathology museum also suffered major losses, but most of the Osler Collection, including the wonderful Holmes heart, was saved by the heroic efforts of Maude Abbott and the medical students. The latter sifted through the rubble containing broken museum jars, and, with bleeding hands, saved what they could. Lectures were temporarily held in the Arts, Physics and Chemistry buildings for the remainder of the year.

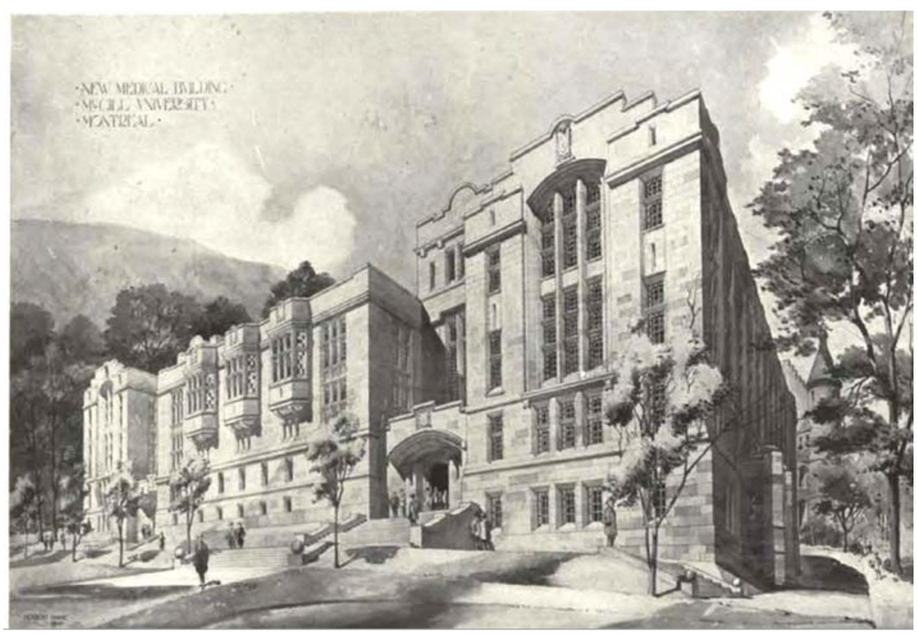
Ruins of Burnt-out Medical Building after Fire in 1907

From: Hanaway 2: 65

34. The Strathcona Medical Building (1911 – Present)

Clearly a new building was urgently needed. The insurance of the old structure was insufficient. Many McGill alumnae and other citizens contributed money, but this was not enough to build a new facility. Then Lord Strathcona came once more to the rescue and provided all the necessary funds for another new medical building. This would be called the Strathcona Medical Building, and was to be located on the southwest corner of Pine Avenue and University Street, south of the Royal Victoria hospital [Frost 2:83]. Since this land was not part of the original McGill campus, Lord Strathcona also supplied more than $500,000 for its purchase and for construction costs. Plans for the new building were commissioned from Percy Nobbs, McGill's professor of architecture.

The east wing of the Strathcona Medical Building was opened in 1909, and the remainder of the building was completed by 1911 [Hanaway 2:67]. On June 5, 1911, the building was formally opened by the Governor-General Lord Grey in his capacity as the Official Visitor to McGill University. The University Convocation ceremony was held on the same day, and the occasion was used to welcome back 600 graduates who had come for their first McGill Reunion.



Architect's Drawing of Strathcona medical building in 1911

From: McGill Calendar 1911-1912: following page 36

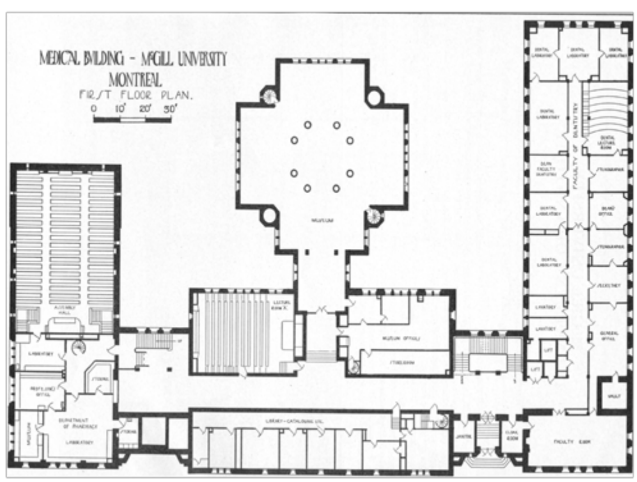
As described by a 1911 article in the British Medical Journal, “The building is of the highest modern steel construction, and is thoroughly fireproof. The exterior of the whole building is constructed of finely-cut Montreal limestone, and the roof is covered with green slate and copper flashings. All the windows are fitted with steel frames and sashes. The corridors have mosaic floors, with marble borders, and all other floors are of hard wood; the finish throughout is of white quartered oak. The entrances from the Campus and from University Street are by broad flights of granite steps, through vestibules finished with gray sandstone, with vaulted terra-cotta ceilings. Two separate staircases, finished with ornamental balustrades of wrought iron, with marble steps of ample width, lead to the upper floors. (It may be noted that, one hundred years later, the upper surfaces of the marble steps of the main staircases exhibit large concave depressions after use by countless thousands of students and staff!) The walls of the staircase halls, as well as the corridors, are lined with low glazed terra-cotta to a height of 8 ft.” This sumptuous Strathcona Medical building was described in the local press as “unsurpassed for efficiency” and much praised for its architecture and fitting [Frost 2:83].

The building consisted of a southern main portion and three wings (east, central and west) extending northward. The three floors were named according to the European system, with a street-level ground (main) floor and, above this, first and second floors. The main entrance to the building was at the eastern end of the front of the building facing the campus. At this impressive entrance were posted one or two doormen who acted as porters.

museum

assembly hall

dentistry

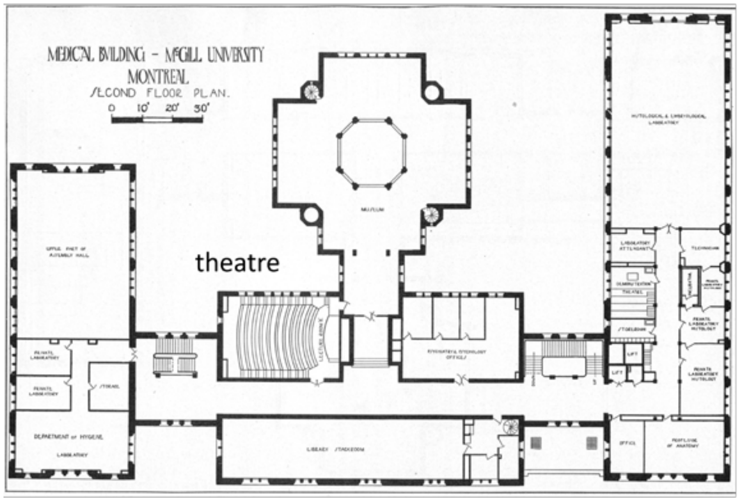


library stacks

Ground Floor of Strathcona Medical Building in 1924

From: Whitnall: 2

museum



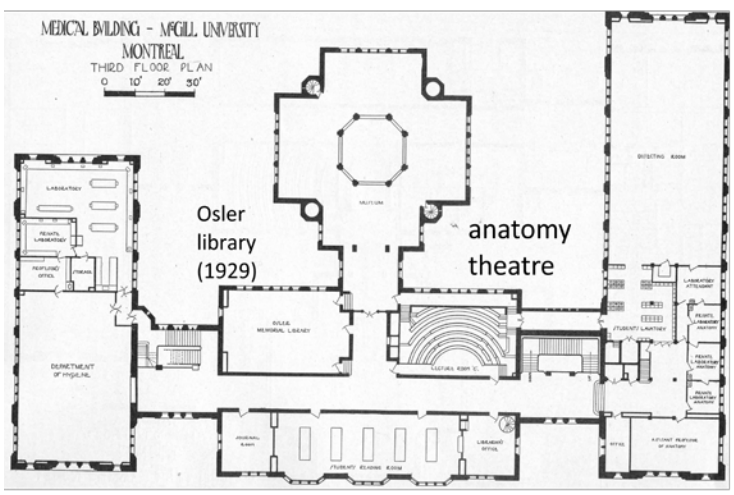
histology laboratory

library stacks

First Floor of Strathcona Medical Building in 1924

From: Whitnall: 3

museum



gross anatomy laboratory

library reading room

Second Floor of Strathcona Medical Building in 1924

From: Whitnall: 3

The main (southern) part of the building housed the 60,000 volume medical library. Its elegant reading room and journal room spanned most of the top (2nd) floor. This magnificant room had a beautiful skylight ceiling and the large stained-glass southern windows contained images of historical medical personages. On the walls and surrounding bookshelves were portraits and marble busts. Below the reading room, there were glass-floored library stacks on the 1st floor, and cataloging rooms on the ground floor. Small circular stair cases connected these floors.

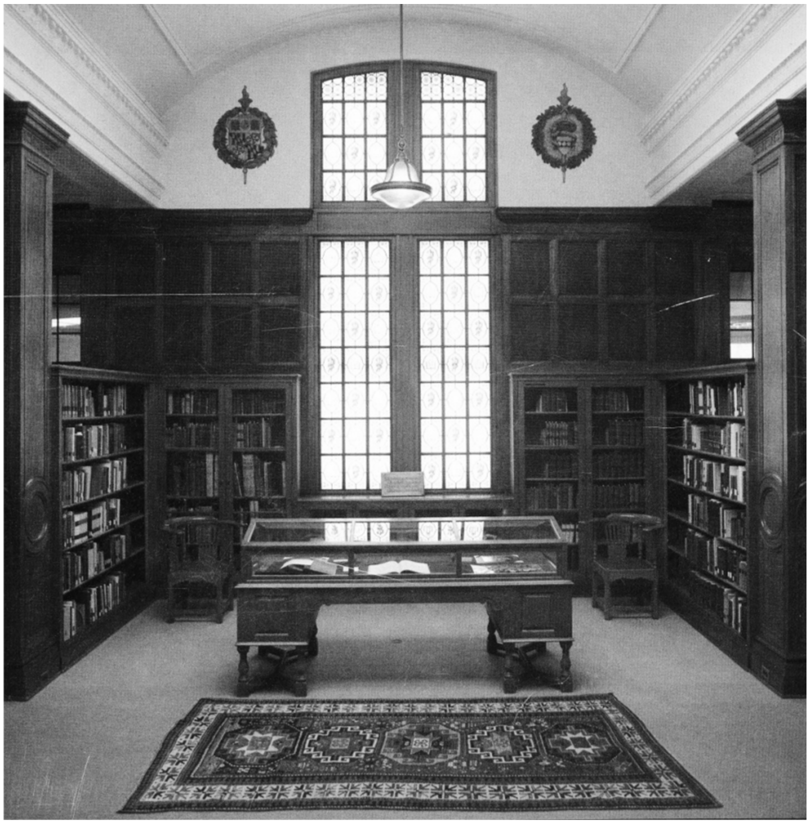
Medical Library Reading Room in 1924

From: Whitnall: 9

Skylight Ceiling of Medical Library Reading Room

From: McGill a Celebration: 170

When McGill University received the Osler Library from Oxford some years later, Percy Nobbs designed elegant rooms on the second floor of the central portion opposite the medical library. The chair of the Anatomy Department, S.E. Whitnall was in charge of the arrangements for the transfer, and the official opening of the library took place in 1929 [Hanaway 2: 132].



Osler Library

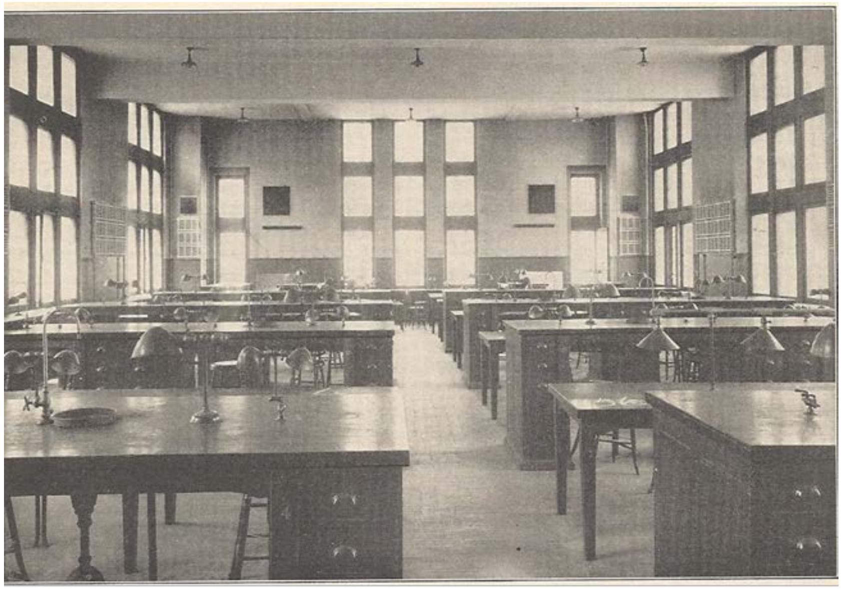
Osler's desk

In 1966, the Osler Library was transferred its entirety to the McIntyre building, adjacent to the new medical library. In our building, the vacated area became laboratory space. In the floor of the hallway leading to this space is a stone slab which exhibits a pattern resembling a cross section of the spinal cord.

On the ground and 1st floors of the main building were lecture theatres. On the second floor was a specialized anatomy theatre with an epidiascope. This theatre, with its long, curved benches (see floor plan) resembled the one in McGill's original medical building (See "15. Move to the New Medical Building" in Chapter 3 for photograph.) It was renovated in the 1960's to become a more functional but much less remarkable lecture theatre!

The center wing containing the octagon housed the McGill Medical Museum which is described in detail in a following section of this work. The west wing contained an Assembly Hall seating up to 400 persons on the ground floor, along with the Departments of Hygene, Pharmacology and Experimental Medicine on the upper floors.

The east wing housed the Faculty of Dentistry and the Anatomy Department. The Anatomy Department was described in detail fifteen years later in a 1926 paper written by its chair Earnest Whitnall. In the basement was the mortuary which housed eighty cadavers in airtight spirit-vapor chambers. Adjoining was the preparation room. Also on this floor was a large locker room with 400 steel student lockers, the students' lavatory (male only) and the students' reading and smoking room. The latter was provided with newspapers and magazines under the control of the students themselves. The ground floor was reserved for the Faculty of Dentistry. The first floor contained the Anatomy Department's large Histology laboratory in addition to the professor's office, as well as a number of research laboratories and offices for the staff and other workers.



Histology laboratory in 1911

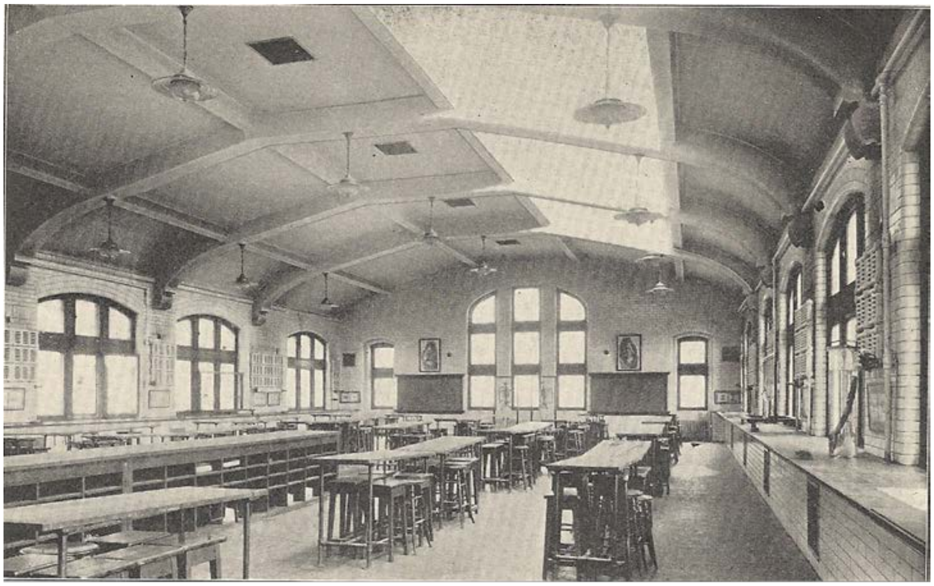
From: Whitnall: 7

Laboratories throughout the building had natural gas outlets at every bench for the use of Bunsen burners (some of which were used to brew coffee)! The water taps in the laboratories had a side portal which, when the water was running, served as a suction device. As a result, dangerous chemicals could be sucked into the water supply. This necessitated that all city water coming into the laboratories had to be stored in a large cistern in the basement. This water was considered unsafe to drink, and drinking water was provided by water fountains in the hallways.

In the days before each laboratory had its own freezer and refrigerator, there was a common refrigerated room, the "Cold Room" in which many chemicals and samples of tissue were kept. In later years, when the when the use of radioactive isotopes became a hallmark of our Department, all experiments using these isotopes were carried out in a special "Hot Lab" located in the east wing. Isotopes whose radiation travelled a significant distance (e.g. iodine) had to be kept in thick-walled lead containers. The most common isotope used in later years was ^{3}H-tritium. Molecules labeled with this isotope (amino acids, sugars or nucleotides) were purchased from supply companies in aqueous solution. The volume of solution often had to first be reduced by evaporation under a stream of nitrogen, followed by intravenous injection into animals. In order to save on the cost of isotopes, small animals such as mice or baby rats were used. Even then, the cost could be huge in any one injection, i.e. several hundred dollars in the 1960's (several thousand dollars today). The isotope solution had to be successfully injected intravenously into the animal, using surgery to reveal the internal jugular vein. The biggest challenge came at the time of sacrifice of the animal, since, to achieve quality fixation of tissues necessary for EM examination, it was essential to successfully perfuse the animal with glutaraldehyde fixative. This was done by surgically opening the thorax and injecting the fixative directly into the left ventricle of the heart via a perfusion system. If a successful perfusion was obtained, the whole body soon stiffened. If not, the experiment was recognized as being a failure in terms of obtaining quality results. Many tense moments were experienced by the team of young investigators on these occasions.

The animals were anesthetized using ether, which was often liberally used to ensure that the animals remained unconscious. As the room filled with ether fumes, little attention was paid to the well-being of the human investigators, the complaints of the Chairman's secretory next door, or to the fact that an explosion could have blown up the whole Hot Lab!

A mezzanine floor located between the first and second floors of the east wing had rooms for the Professor of Surgery and offices for the Canadian Medical Association. The second floor contained the large Gross Anatomy dissecting room which was 90 feet long and lighted on three sides with large windows and a large skylight extending the whole length of the room. The walls consisted of white enameled brick, and the floor was of vitrified tile. Large framed anatomical illustrations graced the walls. There were 40-50 wooden dissecting tables accompanied by numerous metal stools. The tables were later replaced by ones of stainless steel. In addition to the main lab, there were small rooms for demonstrators and assistants, a large general research laboratory and a (male) students' washroom.



Gross Anatomy Laboratory in 1911

From: Whitnall: 8

Gross Anatomy Class in 1920

From: Osler Library Photograph Collection

Gross Anatomy Class in 1939

From: Osler Library Photograph Collection

Gross Anatomy Class in 1947

From: Osler Library Photograph Collection

The whole building was electrified, and the east wing even boasted an electric passenger elevator [Frost 2:83] with a steel cage. An additional elevator was used to bring cadavers from the basement up to the dissecting room on the top floor. The main elevator was operated by a full-time staff member.

For many years, our Department had its own animal room, located in the attic floor above the gross anatomy facility, and run by one or two technicians. The facility housed mainly rats and mice, which were the chief experimental models of research investigations of this era.

Fortunately, in recent times, these laboratory rats were the only ones found in our building, as opposed to the wild rats which occupied the walls in former eras. During the early years, however, our animal facility was home to a huge colony of cockroaches which would disperse noisily at the sound of footsteps on the stairs leading up to the attic room.

In 1978, our Departmental animal facility closed, and the animals were transferred to a central animal facility. With time, much research emphasis has switched to the use of cell lines or to transgenic mice. A colony of frogs is still maintained in our attic by Craig Mandato.

35. Curricular Changes: The five-, six-, and proposed seven-year courses (1910 - Present)

In the early days, most students entered medicine directly from high school, and had had no university level science training. Thus basic courses such as Chemistry, Physics and Biology needed to be taken in the first year of the curriculum. The major medical courses, e.g. Anatomy, Physiology, Biochemistry, and Pharmacology and Therapeutics were taken over a period of two years [Hanaway 2: 67]. Minor courses, such as Histology, were taken for one year or even one semester. Clinical subjects like Medicine, Surgery, Obstetrics, Diseases of Infants, and Gynecology were taken in the senior two years. A new course in Clinical Microscopy was introduced, and students had the use of microscopes in the hospitals for doing simple laboratory tests such as blood smears and urinalysis. Failure in one or two subjects required a supplementary examination. Failure in more than two subjects or in Anatomy or Physiology meant repeating the year. [Hanaway 2:67].

In 1910 a fifth year was added to the medical curriculum in order to allow graduating students to gain more practical medical and surgical experience in the hospital wards. [Hanaway 2: 67]. Then in 1919, for similar reasons, the medical curriculum was still further extended to become a six-year course [Hanaway 2: 68].

In the years that followed, discussions continued as to which curriculum formula, in terms of length and content, would best achieve the desired learning goals. Certain faculty members, particularly Earnest Whitnall in Anatomy, and J. Tait in Physiology, with their British background, wanted to lengthen the curriculum to 7 years as was often done in that country [Hanaway 2: 121]. Instead, it was decided to shorten the curriculum by instituting two fundamental changes:

Firstly, by 1923, it was realized that many first year medical students had already taken part or all of an undergraduate B.A or B.Sc. degree at McGill or other universities. In 1902, a "Double Course" had also been introduced at McGill in which outstanding students could enroll in a Bachelor of Arts or Applied Science for two years, and then enter the four year Medical program. After two years in Medicine they would receive credit for basic science courses in the medical curriculum and would automatically be awarded a Bachelor's degree [Hanaway 2:9]. This practice continued until the 1960's.

Since many students had completed first year basic science courses (Chemistry, Physics and Biology) during their undergraduate studies, McGill now decided that the minimal entrance requirement for the medical school would be three years of a B.A. or B.Sc. degree with the inclusion of the above courses. By this means, the medical course was shortened from six to five years [Hanaway 2:121].

Secondly, by 1934, it was felt that the responsibility for the extended clinical training in the final years of the curriculum should be transferred from the medical school to the hospitals themselves. This was because the university did not have jurisdiction and control over the clinical training of students in the hospitals. By this change (and slightly lengthening the academic year), the medical curriculum was shortened from five years to four years [Han 2: 122]. A fundamental consequence of this shift, however, was that students did not become qualified to practice medicine after graduation from the university, but instead were required to complete a hospital internship before receiving a license to practice.

After Quebec's quiet revolution in the 1970's, the Parent Commission introduced the CEGEP system, whereby the French classical colleges were discontinued, and upon finishing high school, all students interested in proceeding to university education were required to first enroll in a two year CEGEP diploma program [Frost 2: 407]. Following this, students would attend university for three years to obtain a Bachelor's degree.

For entry into medical school, by this time, most North American universities required a Bachelor's degree. The Quebec Government, on the other hand, proposed that students should be accepted in the medical school directly from CEGEP. McGill objected to this and was allowed to require that students complete one university pre-professional year before being accepted into medicine [Frost 2: 407]. This arrangement remains in place until the present day. About half of our current students are accepted into medicine after completing a Bachelor's degree or even more advanced graduate training. The other half enter medicine after a "Med-P" year at McGill in which they are registered in a Bachelor's program. Acceptance into this Med-P program from CEGEP is highly competitive. During this pre-professional year they are required to pass courses in certain prerequisite subjects (such as Cell Biology and Physiology) and to maintain a minimum grade average. In the other francophone Quebec medical schools, students are accepted from CEGEP directly into the medical school.

36. The New Biology Building (1922)

After completion of the Strathcona Medical Building, it was decided that, of the basic sciences of the medical curriculum, Anatomy, Histology, Embryology, Physiology Pathology, and Biochemistry would be taught in the Strathcona Medical Building, while Organic Chemistry and Biology would be taught in that portion of the Old Medical building (i.e. the Molson Extension) which had survived the fire of 1907. In 1922, a new Biology building was erected on the site of the original portion of the Old Medical Building. This now housed the Departments of Botany and Zoology (in the Faculty of Arts), along with the Departments of Biochemistry, Physiology, Pharmacology, and Experimental Medicine (in the Faculty of Medicine) [Frost 2:122, 165]. The Molson Extension of the original medical building complex, remained attached to the back of this new building, and continued to be used for some years [Hanaway 2: 69].

Molson Extension of Old Medical Building (1895)

Biology Building in 1922

(now the James Administration Building with an additional sixth floor)

From: Pasztor: 53

In 1924, the Departments of Pathology and Bacteriology were transferred to the newly-built Pathological Institute [Hanaway 2:69, Frost 2:122, 165].

In 1965, the new circular McIntyre Medical Building was erected, named for the McIntyre family which donated the land for all the north-western campus buildings [Frost 2: 433]. The Faculty of Medicine Departments of Biochemistry, Physiology, and Pharmacology, as well as the Medical Library were transferred to this new building. The Osler Library was completely dismantled and its rooms were reconstructed at this new site.

At the same time as the opening of the McIntyre Building, the Departments of Botany and Zoology were transferred from the Biology Building to the new Stewart Biology Building. The old Biology building was then completely gutted and renovated, and became the new Cyril James Administration Building. The building was given an additional floor during this extensive renovation, but it still reveals its biological past by retaining the statue of the frog crouched over its doorway [Frost 2: 433].

This left the Strathcona Building in the hands of the Anatomy Department and the Faculty of Dentistry. The upper floors of the east wing continued to house the Polypeptide Laboratory of the Department of Experimental Medicine. The main medical library reading room on the second floor became the Anatomy Department Reading Room as well as the office and laboratory of Dr. Osmond.

37. Maude Abbott (McGill: 1898-1936) and Women in the Medical Community

The story of women's admission to McGill University is a long and fascinating one! When women such as Maude Abbot aspired to obtain higher education in the late nineteenth century, huge odds confronted them. In the McGill academic community, there were two broad camps of opinion regarding the status of women. One camp was represented by Principal William Dawson. He agreed that women should be educated, but he felt that a woman should be foremost a "lady, wife, mother and homemaker". He felt that women were emotionally and spiritually refined, possessing a precious quality which must not be coarsened by too much contact with male society [Frost1:253]. He therefore believed that her education should be largely cultural and certainly given separately from men [Gilette: 2, Frost 1:252].

This chivalrous view was perhaps charming, but was in fact strongly discriminatory. Under the law, women were classified with children, criminals and idiots. After her wedding, a woman underwent civil death: in marriage, a man and woman became one, and he was "the one" – with all the legal rights [Gilette: 2]. There was a strong feeling that women could not stand the mental strain of higher education. It was also felt that such an education would contain many subjects that a woman should not even know about, including sex, violence, and money. Dawson believed that male and female intellectual capacities were different and divinely assigned. In the great Nature versus Nurture controversy raging during this era, Dawson stood firmly on the side of Nature. Although he was a scientist, he rejected Darwin's theory of evolution and maintained a staunch belief in the Biblical explanation of the origin of life. This literalist approach to Christianity had marked implications for his attitude towards the education of women [Gillette: 28].

The opposite camp of opinion was represented by Dawson's colleague, J. Clark Murray. A stimulating lecturer in the humanities, and one of McGill's most popular professors, Murray regarded a woman as "a person, an independent being and potential worker". He considered that women should have access to exactly the same education - including professional education - as men, and in the natural company of men [Gillette: 2; Frost 1: 255]. In the above Nature versus Nurture controversy, Murray was strongly on the side of Nurture. He agreed with John Stuart Mill that "what is called the nature of Woman is an eminently artificial thing, the result of forced suppression in some directions, and unnatural stimulation in others" [Gillette: 1,2,3].

In the United States, higher education for women was somewhat accepted by the mid 1800's. Oberlin College admitted women in 1837, and Vassar College for women was founded in 1865 [Frost1: 252; Gillette: 9]. The first Canadian college to admit women was Mount Allison in New Brunswick in 1862, but it did not produce a female graduate until 1874. In the more conservative province of Quebec, women were admitted to the Faculty of Arts at McGill only in 1884. Laval did not admit women until 1910, and l'Université de Montreal until 1915 [Frost1:252, Gillette: 11].

At McGill, Principal Dawson had many supporters in his position that there should be no co-educational university courses for men and women, and in the end, his policy of separate education for women won the day. The resultant need to provide separate classes for women, however, posed a financial obstacle that delayed the admission of women to the university for some time. The problem was finally solved via the generosity of Donald Smith (Lord Strathcona), who shared Dawson's views on women's education. He provided a separate endowment for their education and built the very impressive Royal Victoria College for female students [Frost1:253; Frost 2: 8]. Maude Abbott, and the other young women who were enrolled in this Bachelor of Arts program in 1880's, were called "Donaldas" in recognition of their support from Donald Smith [Han2: 48]. They turned out to be excellent students and graduated with brilliant performances. Miss. Octavia Ritchie was voted valedictorian of her class and gave an outstanding valedictorian address at graduation. Prejudices about the capacities of women persisted, however, and, after the ceremony, she was asked, in a caring fashion, "And are you not very tired my dear" [Gillette:109] ?

Having overcome the first obstacle of admission to Bachelor's programs, some of these young women aspired to enter the McGill Medical School. This was another huge hurdle, however, since resistance was especially strong in the "male" professions of Medicine, Dentistry, Law and Engineering. Why would a woman want to do what was considered to be a man's work? The famous Oxford professor Charles Dodgson (alias Lewis Carroll – the author of "Alice in Wonderland") even considered such a woman to be a modern social monster, the "he-woman" [Gilllett: 8]. An article in the Cologne Gazette, in 1888, described such women as "having lost all womanly emotions. Truly educated and cultured men would avoid them, uneducated ones would flee them, and healthy natural women would shun their society" [Gilllette: 14].

Extreme views even came from the medical community when Edward Clarke, a physician associated with Harvard University, asserted in 1873 that "women were prone to overexcitement…and should not be placed in competition with men. Co-education would be extremely harmful and could induce neuralgia, uterine disease and hysteria, possibly to the extent that their children might be born deformed" [Gillette: 16].

This prejudiced attitude about women's mental status had in fact existed throughout history. In antiquity, Egyptian manuscripts dating back to 1900 B.C. ascribed women's depressive symptoms to spontaneous displacements of their uterus [Tasca: 2]. In 400 B.C., the Greek philosopher Plato also propagated the myth of the wandering womb [Knight: 141]. He believed that, if unused for long periods, the uterus took to moving around in the body, disturbing the body's spirits, blocking channels, and causing a form of mental illness. The term "hysteria" for this exclusively women's disease was coined by Hippocrates based on the idea that it was caused by a wandering of the uterus (Greek: hysteron) [Tasca: 2] . This concept, persisted for over three thousand years along with mainstream thought that the woman is a physically and theologically inferior being (St. Thomas Aquinas asserted that "a woman is a failed man") [Tasca: 4]. During the Middle Ages and Renaissance, hysteria was considered indicative of witchcraft and thousands of innocent women were executed until the practice finally ended in 1782 [Tasca: 7].

In the 1700-1800's, the cause of hysteria slowly became associated with the brain rather than the uterus. As early as 1680, Thomas Sydenham had indicated that the primary cause of hysteria was not the uterus [Tasca: 2]. However old concepts die hard. Even during the Victorian Age (1837-1091) most women carried a bottle of smelling salts. If they swooned when their emotions were aroused, it was believed, as postulated by Hippocrates, that the pungent odor would cause the uterus to return to its natural place, allowing them to recover their consciousness [Tasca: 8].

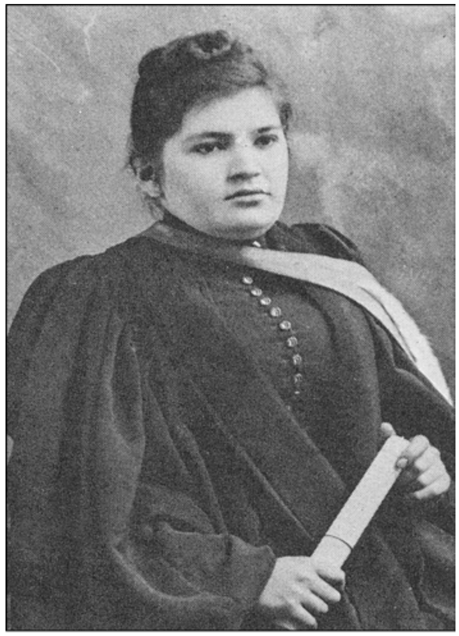
It should be noted that, in spite of their generally inferior status, individual women sometimes played important professional roles. During classical antiquity and during much of European history, there had been many instances of women in medical practice and as faculty members in universities. An example is Trotula de Ruggiero, a faculty member of the University of Salerno in the 11th century who is considered the first female doctor in Christian Europe [Tasca: 4].

In the 1800's however, especially in Victorian British and American societies, a trend of thought started to develop that considered femininity an essential nature and delegated women to a specific social mission: to be mothers and guardians of virtue (see comments of Principal William Dawson earlier) [Tasca: 7]. If women broke away from these normal natural functions they would be subject to mental illnesses such as hysteria (see comments of Edward Clarke above).

The standards of these societies regarding the role of women essentially prevented them from entering higher education and professional practice. Occasional women went to great lengths to overcome this barrier. Dr. James Miranda Stuart Barry, for example, disguised herself as a man in order to take a medical degree at Edinburgh University in 1812. She maintained this disguise for the rest of her entire medical career, and the discovery of this ruse after her death caused a great scandal in the medical establishment [Gillett: 280].

In North America, by the second half of the 19th century, some progress had been made in providing medical education for women. At first there were separate medical schools such as the New England Female Medical College in Boston in 1848 and the Philadelphia Women's Medical College in 1850 [Gillette: 280].

In Canada, women were admitted into mixed medical classes at Queen's University in Kingston in 1880, but the women were subjected to such antagonism by both teachers and male students that they had to be given separate lectures. The outraged women finally transferred to the new Women's Medical College in Kingston [Gillette: 282].



Maude Abbott in 1890

From: Frost 1: 284

At McGill, Octavia Richie and Maude Abbott, both outstanding graduates from McGill's Bachelor of Arts program, applied to the Medical school in 1888 and 1889, but were instantly refused [Gillette: 282; Hanaway 2: 48]. This was at a time when admission standards for men were quite low, requiring only a high school graduation with modest scores. Only a minority of the male candidates had a college degree [Hanaway 2:49]. The obstacle encountered by Olivia Richie and Maude Abbott was a stone wall created by chauvinism, prudishness, stubbornness and tradition. "Women belonged in the home and were unsuited to a physician's public life. Their endurance was limited, their nerves were weak, and they were not mature enough or prepared for the stress involved. They would become hardened and defeminized, especially by the study of Anatomy with its dissection course [Gillette: 287]"!

Even the male medical students were openly opposed to admitting women [Hanaway 2:48]. While some professors were supportive, realizing the value of women doctors in such fields as obstetrics and gynecology or pediatrics, others were opposed. Dr. F.W. Campbell stated that "Women may be useful in some departments of Medicine but, in difficult work, in Surgery for instance, they would not have the nerve. And can you think of a patient in a critical case waiting for half an hour while the medical lady fixes her bonnet or adjusts her bustle" [Gillette: 287]. Even Sir William Osler, while personally supportive of women, had stated in 1885 that "the people have not yet reached the condition in which the lady doctor finds a suitable environment; in fact, Quebec and Montreal have none, and in smaller towns and villages of this country she would starve". A prominent McGill anatomist and surgeon, Dr. G.E. Fenwick, even threatened to immediately resign if women were ever admitted to the medical course [Gillette: 287].

After being refused admission to McGill Medicine, Octavia Ritchie was accepted by the Women's Medical College in Kingston. Maude Abbott, on the other hand was so in love with McGill University that she insisted on staying in Montreal and reapplying. When it finally became clear that the University would not yield, Maude Abbott reluctantly entered the Bishops University Medical School which had been operating in Montreal since 1871 and had accepted women since 1890 [Hanaway 2:48 , Gillette: 289]. Bishops' admission policy was more liberal than that of McGill, and they accepted women, Jews, and even black students from the Caribbean.

At Bishops, Maude's overzealousness did not make her popular with the male medical students, for this was an age when it was not considered honorable to achieve more than "gentlemen's grades"! Ironically, to complete her clinical training, Maude needed to be accepted on the wards of the Montreal General Hospital. The management committee (consisting of McGill faculty members) were loath to accept her, and it took a newspaper campaign and a threat of withdrawal of public support to gain her admittance. In the hospital, practically all of Maude's clinical teachers were McGill professors [Frost1: 286]! Here again, her aggressiveness was noted and she continued to be harassed. On one occasion, McGill's eminent Anatomy professor, Francis Shepherd informed the male students that "I have to let you out early today, gentlemen, to attend a meeting we're having in order to keep out those troublesome lady-students."

In 1894, Maude Abbott obtained her degree in Medicine from Bishops, winning the Senior Anatomy Prize and the Chancellor's Prize. [Gil:289]. Her ultimate dream of obtaining a McGill medical degree came only sixteen years later when the Bishop's school merged with McGill, and as a result she was awarded an M.D.,C.M. "ad eundem" (honorary) from McGill University in 1910 [Hanaway 2: 213]. Even then McGill was not prepared to admit women to its own program [Frost 2: 45]. It was only in 1918, that the first five women (Jesse Boyd, Mary Childs, Lilian Irwin, Eleanor Percival and Winifred Blampin) were admitted to McGill Medicine, and this was only due to an increased demand for physicians and surgeons during the First World War [Gillette: 292, Frost 2: 176].

During their training, these young women were treated with amused tolerance by the male students, although, even then, bloody spleens were once thrown at them during one Anatomy class! Certain accommodations were made for the women students however. They were permitted to enter the anatomy dissecting room through the demonstrators' door, thus avoiding the embarrassment of having to pass through the male student locker-room. They were also given separate semi-private instruction in subjects such as urology examination [Gillette: 298]. Nonetheless the washroom adjacent to the anatomy lab was reserved for males. Indeed, until the 1960's, there was no washroom in the whole building for female students except an improvised area in the basement!

Upon their graduation in 1922, the five women were treated by Maude Abbott to a celebration dinner at the Ritz Carleton Hotel which was attended by many of the university's elite [Gillette: 297; Frost 2:176]. Jesse Boyd graduated second overall in the class of 126 students and won the Wood Gold Medal for excellence in Clinical Medicine. She married a McGill medical colleague, Walter Scriver, and their son Charles Scriver became a noted McGill genetics researcher. Jesse Boyd Scriver herself became a distinguished professor of pediatrics at McGill from 1926 to 1967, and was granted an honorary D.Sc. (A superb clinician, she was also the pediatrician of the author of the present work.)

Jesse Boyd Scriver

The enrolment of women in the medical school increased only slowly over the years, amounting to 1.7% in 1918, 3.4% in 1928, 6.3% in 1938, 7.0% in 1948, and 13.4% in 1968. By 1978, however, it had risen to 30.0% [Gil: 300].

From: check

38. Maude Abbott and the Medical Museum

Maude Abbott's early history at McGill is described in the above section. Having been refused entry to McGill's Medical School, she graduated with her M.D. (with honours) from Bishops University in 1894. She then applied for a teaching appointment at the McGill Medical School, but was once again was rejected [Han2:212]. She went to study in Europe, and upon her return in 1898, exhibiting a remarkably persistent devotion to McGill, she once again applied for a teaching position. She was again denied, but was given a position as an assistant curator of the Medical Museum, but only on the condition that she was not to be considered a member of the teaching staff [Gillette: 290]. Even after Maude joined McGill, many of the members of the McGill Faculty remained unkind to her, considering her an inferior character, someone to be only tolerated and humored – "a hen medic". Francis Shepherd and Thomas Roddick called her "Miss" Abbott, reluctant to acknowledge her medical degree. (Remember that women were not admitted to McGill's medical program until 1918). Maude was undeterred, however, and made the Medical Museum the focal point of her contribution to McGill.

In 1900, Maude found a remarkable cardiac anomaly in the museum collection. This adult heart had "no interventricular septum, but had a small supplementary cavity on its right upper angle, giving off the pulmonary artery". Osler informed her that this was the "Holmes Heart", which had been previously described in a publication by, Andrew Holmes (one of McGill's four founders) in 1823. The re-discovery of the Holme's three-chambered heart attracted world-wide attention and marked the beginning of Maude's interest in congenital heart disease [Hanaway 2: 213]. At the time, this area of research was a medical wasteland since nothing could be done for the unfortunate victims, many of whom lived only short lives. Only much later did surgical corrective operations become possible in the 1940's, and Maude's research (linking embryological and anatomical observations with clinical symptoms) greatly facilitated diagnosis and surgical treatment. This showed the huge value of research which had been initially carried with no immediate clinical application but resulted years later in an important therapeutic payoff! Eventually, Maude published her Atlas of Congenital Cardiac Disease which remained the authoritative word on the subject for many years.

In 1907 Maude was instrumental in founding the International Association of Medical Museums which later became the International Academy of Pathology. As a founding member, she became an informal "patron saint" of the academy. Globally, Maude Abbott was one of the first Canadian physicians, along with Osler, to become a figure known around the world, and she continued to be honored more outside the University than at McGill itself. In 1902, she was invited to write an article about McGill's new medical building and expanded this topic into a general history of the medical faculty [Hanaway 2: 213]. As part of this project, she had acquired photographs of paintings of the school's four founders from Notman's Studio. This turned out to be fortuitous, for when the original paintings were later destroyed in the medical building fire, it was possible to replace the originals with reproductions based on these photographs.

In 1925, Maude was tempted leave McGill by offers of senior positions in two medical schools in the United States. In response, McGill promoted her to the position of Assistant Professor of Medical Research. She did go to the Women's Medical College of Pennsylvania for a two-year appointment as Professor and acting chairman of Pathology. Nonetheless, she considered this an "on loan" appointment, and she returned to McGill to finish her career [Gillette: 290; Hanaway 2 :213]. Nonetheless, she remained bitter that she was never promoted to Associate Professor at McGill. As result of this denial, her name was never placed on a plaque in the Strathcona Medical Building - an honor was reserved for Associate and Full Professors – even if they had served at McGill for only one year!

In 1936, the university, in accordance with its standard practice, insisted that Maude retire at the age of sixty-five. She requested the title of "Emeritus Professor", but was once again refused. She did, however, receive an honorary LL.D. from McGill, [Hanaway 2: 213]. In addition, a "Maude. E. Seymour Abbott Scholarship" was created, giving some of the recognition which she so richly deserved. A portrait of Maude Abbott hangs in the Department of Anatomy and Cell Biology reading room (check).

The McGill Medical Museum

From the beginning of its existence in 1829, McGill had always had a medical museum, but it was really just a collection of professors' interesting specimens without any definite teaching purpose. The Anatomical portion of the museum contained specimens which Francis Shepherd had collected the anatomy lab. The Pathological museum contained about 500 pathological specimens prepared by Sir William Osler in the autopsy room of the Montreal General Hospital [Hanaway 2: 12]. This collection consisted of dried bony specimens along with wet specimens housed in glass containers. Robert Boyle had shown in 1664 that soft animal tissues could be preserved by immersion in alcohol [Persaud 2:44]. The first scientific medical museum in England was that of the Royal Society, created in 1681. The development of modern biological museums of comparative anatomy came in the 1700's with the formation of John Hunter's collection [SingerBiol: 146,212]. It was only in 1867 that August Wilhelm von Hofmann discovered formaldehyde. After that date, one may assume that the wet anatomical specimens in McGill's museum were from bodies embalmed with formaldehyde.

Until Maude Abbott became curator in 1898, the McGill pathology museum had been underused and poorly catalogued [Hanaway 2:13]. There was no recognized system for classification and cataloguing of specimens, and there were no written descriptions. To be useful, a good pathological museum needed to meticulously describe the clinical manifestations of a disease during the patient's life and to integrate these observations with the pathological features shown in the museum autopsy specimen. Maude Abbott had the essential qualities of a scientist, i.e. a bright mind, curiosity, and prodigious energy. Using these assets, she organized and catalogued the museum collection, and then started to use the collection to teach groups of students. These teaching sessions were so popular and useful to the students that in time they became a compulsory part of the pathology course [Hanaway 2:15]. Until she retired in 1939, Maude Abbott created what was acknowledged internationally as one of the world's most important teaching collections in the medical field. Although Sir William Osler had left McGill before Maude's arrival, she met him in Baltimore in 1899, and he became her lifelong mentor, father-figure and supporter. Until his death, she continued to collaborate with Osler in collecting and documenting specimens for the museum.

The Medical Museum in the original Medical building was quite an impressive structure (See photograph in "15. Move to the New Medical Building" in Chapter 3). Unfortunately, during the great fire of 1907, the anatomy portion was completely destroyed by the fire, along with all the specimens that Shepherd had collected over 30 years. The pathology portion also suffered major losses due to the fire, but much of the Osler Collection, including the Holmes heart, was saved by the heroic efforts of Maude Abbott and the medical students. They sifted through the rubble containing broken museum jars with bleeding hands, saving what they could. Specimens that were lost were replaced by generous donations from other museums [Hanaway 2: 147].

Upon completion of the Strathcona Medical building in 1911, the McGill Medical Museum moved into the beautiful central octagon-shaped wing in which it occupied all three floors. The central part of this structure was an impressive open well, extending from the ground floor all the way to the roof. On each floor, the well was surrounded by banisters and columns finished in low glazed terra-cotta and decorated with McGill crests. The roof consisted of a huge stained-glass dome, permitting light from the exterior, and this was protected by an outer dome of prism glass. In later years this sky-lit dome had to be closed over.

Anatomy Museum in 1924

From: Whitnall: 6

skylight ceiling

anatomy museum on second floor

remainder of medical museum on lower floors

Well of Octagon Wing in 1924

From: Construction: Annemarie Adams

The Medical Museum at this time consisted of three separate collections, i.e. the Anatomy, Pathology, and Ethnographic Museums. The Anatomy Museum occupied the 2nd (top) floor of the "octagon". The specimens were housed in large glass and metal cases. The human anatomical specimens lost in the fire had been replaced from the anatomy lab. The museum also contained the human skeleton assembled by John Stevenson in the early 1800's and saved from the fire. In addition, the museum included skeletons of a variety of animals which were used to teach comparative anatomy. It also contained models of anatomical specimens made of plaster or wax. The wax models are particularly impressive, and include one large life-size wax model of the lymphatic system and several smaller models of the neck viscera. The latter are from the personal collection of Dr. O. Rabinovitch, (added in the 1920s and 1930's). In recent years, our department has also received a set of excellent plaster models of facial anatomy accompanied by colored labeled diagrams.

It should be noted that much larger collections of wax specimens are found in specialized museums in Europe. These were created in Italy mainly in the 1700's and 1800's and were adapted from the Greco-Roman techniques of wax modeling. The great advantage of these preparations is that they last indefinitely and are anatomically very accurate. Created by skilled artists, they were both artistic and scientific masterpieces. These models, studied by students of art as well as medicine, were life size and placed in artistic, living anatomy, poses in the manner of the drawings of Vesalius. Current museums with superb collections include the Instituto di Anatomia of the University of Bologna, the Museo la Specola in Florence, and the Josephinum Museum in Vienna [Persaud 2:44]. The latter was built in 1785 by Joseph II, Emperor of Austria for the training of his army surgeons. The models were crafted in Italy and then carefully transported across the Brenner Pass of the Alps on the backs of mules [Cooke (Scientific Med in 20th C)): 121-23]!

In the McGill Medical Museum, the Pathology and Ethnographic portions originally occupied the ground floors and first floors of the octagon. In the Ethnographic Museum, there was a 34 foot high totem pole which extended upwards in the well of the octagon wing.

Totem Pole which stood in Well of Octagon Wing

From: McGill a Celebration: 21

The collection also included war canoes which were stored in the tunnel connecting the Strathcona Medical Building to the Pathological Institute.

In 1924, the Pathology Collection was transferred to the Pathology Institute where it remained until 2013. Some of the more precious specimens were displayed in hallway glass cases in the Duff Building (the new name for the Pathology Institute), while others were kept in storage under the curatorship of Dr. Richard Fraser. Security concerns were an issue since many of these specimens are completely irreplaceable.

McGill's Ethnographic Museum was subsequently dismantled and its specimens dispersed. Many of the artifacts were transferred to the McCord Museum in the 1960's. Included amongst these is the totem pole, which now occupies a prominent position in the McCord Museum. The war canoes were sent to the Museum of Civilization (History) in Ottawa.

The continuing insatiable need for faculty and research space since the Second World War has taken its toll on museum space in all medical schools including that of McGill. During the 1930's and 1940's the ground floor of the octagon was taken over by the Dentistry Faculty and converted to offices. In the 1960's, the Anatomy Department converted the first floor into offices and laboratories and, in the process, the open-space architecture of the octagon area had to be sacrificed. A corridor around the central well was maintained, but the peripheral space was compartmentalized with wallboard partitions and doors. The second floor was similarly compartmentalized. The old glass specimen cases were removed, and the Anatomy Museum was moved into three new rooms. The anatomical displays were completely renovated and modernized under the supervision of Dr. Dennis Osmond. The large glass cases were replaced by tables. The specimens, many of which were newly dissected, were housed in specially built plexiglass containers. These were placed upon wheeled circular trays, by means of which the students could rotate the specimens for observation of all sides. For the first time, special lighting was provided.

The largest of these three rooms, located in the north part of the octagon, was walled off from the corridor around the central well, but this wall contained a huge artistically-designed window which permitted an unobstructed view of the windows of the north wing with their outlook onto the Royal Victoria Hospital. In this manner, part of the essential architecture of the octagon was maintained. This northern room was also equipped with modern computer facilities for self-directed student learning.

In the 1990's, the new Building for Genomics and Proteomics was built to the south of our Strathcona Anatomy and Dentistry Building. This building was constructed partly due to the initiative of John Bergeron, and it provided important laboratory space for some members of the Anatomy Department. The construction of this building, however, had necessitated the demolition of the old Donner Building which had accommodated offices of the Faculty of Dentistry. In compensation, the Faculty of Dentistry was given the two southern rooms of our Anatomy Museum.

In the 2000's, even the final northern room in the octagon was assigned by the University to the Faculty of Dentistry, and new location had to be found for the Anatomy Museum. This was accomplished by converting office space plus a large preparation laboratory next to the gross anatomy laboratory into one spacious, well-lit museum room. Gary Bennett, along with some other departmental faculty members and the anatomy technician, Robert L'Heureux, visited Queen University to examine their Anatomy Museum and used this as a model to create new display areas for the McGill facility.

In 2013, blasting renovations to the Duff Building made it necessary to move some of the contents of the Pathology Museum to another location. In the meantime, the Dentistry Faculty had vacated the northern room of our octagon (so grudgingly handed over by our Anatomy department some years earlier!) and this made it possible to return much of the Pathology collection to the Strathcona building after an absence of 90 years. The specimens were carefully carried down the hill to our building by Dr. Richard Fraser and his assistants, and, under his supervision, a new elegant display is in the process of being completed.

In former years, medical museums played a much larger role in education and research than today. Textbooks did not tend to be illustrated, and photography (especially in color) had not been developed. Museum specimens were therefore necessary for reference. A first-class medical museum was considered an important feature of all good medical schools in Europe and North America, and highly valued as a means of attracting excellent students and faculty members to the institution [Hanaway 2: 12; Persaud 2:247].

So what lies in the future for our museums? Over the past century, several different factors have combined to decrease the use of medical museums at McGill and elsewhere. Less time is dedicated to the teaching of classical Anatomy and Pathology since many other important disciplines now compete for space in the curriculum. The new generation of faculty members teaching Anatomy and Pathology are often molecular biologists, biochemists or immunologists, they have little interest or ability in maintaining a museum. In pathology museums, there have also been questions as to the legality and necessity of preserving body organs. In addition, much fewer autopsies are being performed, a major source of pathological specimens in the past.

In many universities around the world, the importance of medical museums has waned in recent years. Some new medical schools have no museum. In some institutions, entire museums have been disbanded and their contents destroyed or distributed elsewhere. In other cases, the museums have been kept in reduced form.

The information originally provided by museum specimens is increasingly available to students in other ways. Text books and computer web sites are profusely illustrated with colored diagrams and photographs, and these are available to students 24 hours per day, even in their own homes! A primary advantage of museum specimens was that they could be observed in three dimensions. Videotaping of specimens using a moving camera, however, provides excellent three-dimensional imaging even when viewed on a computer screen. In addition, many of the most important clinical images today are those provided by diagnostic tools such as radiographs, CT scans and MRI scans. These are themselves two dimensional and can be well shown on computer screens or printed photographs.

Finally, our personal experience in teaching Anatomy is that, given the choice, most students prefer to put on gloves and examine specimens in the gross anatomy laboratory rather than viewing a museum specimen under glass in a museum. This is because, in the laboratory, they can physically manipulate each specimen, feeling as well as seeing the features. They can push certain structures out of the way to view others, giving them more information from one specimen than might be seen in several museum specimens. If the students are dissecting their own specimen, the only limitation to their learning experience is their dissecting skill and their knowledge of what anatomical details to look for. Thus, at McGill, although some use is made of our museum collection, we have tended to favor the use of student dissection or examination of prosections in the laboratory as our main learning emphasis. The Anatomy museum retains an important teaching function, however, in showing specialized dissections which students do not routinely carry out (such as the layers of the hand, or lymphatics) or showing variations in anatomical structure not often seen in the laboratory.

McGill's Pathology museum has a very special historical importance given its association with the history of medical teaching at McGill and with noted professors such as William Osler and Maude Abbott. Many of its specimens may unique to our collection and perhaps not available anywhere else in the world.

Two major historical museums have been preserved in Great Britain. One is the Hunterian Museum of the Royal College of Surgeons of England in London. The other is the Museum of Royal College of Surgeons in Edinburgh, and is housed in one of Scotland's most famous heritage buildings, Surgeons' Hall. It has become a charitable institution, linked to the aim of Scottish tourism. A graduated entrance fee has been introduced and the museum hopes to engage the public (hopefully 15,000 visitors per year) in "life-long" education [Cooke (Scientific Med in 20th C): 96].

The great interest of the general public in viewing exhibits to learn about their own bodies has been dramatically shown in recent years by the success of travelling exhibits, such as “Body Worlds. The Anatomical Exposition of Real Human Bodies” created by Gunther von Hagen[Von Hagen], or “Bodies, the Exhibition” by Premier Exibitions [Geller]. These exhibits utilize a new technique of plastic embedding to create actual human pre-dissected specimens which are durable and odor-free. They are as esthetic as wax models and can show specimens in various stages of dissection or cut into plastic sections. Our own Anatomy Museum possesses some plastic sections of this type. These travelling exhibitions have been controversial and have posed questions concerning the source of the bodies and the life-like anatomical poses chosen. When tastefully carried out, however, they are valuable educational experiences. Their extreme popularity has been indicative of the great interest of the general public in examining human anatomy specimens after having been denied this privilege of for many centuries!

39. The School of Physical and Occupational Therapy (1943 – Present)

The School for Physical Therapy was developed in the Faculty of Medicine In 1943, to order meet the needs of a new generation of veterans coming from the Second World War. The original instructional programs were described in the University Calendar as “a profession for women” and were brief diploma courses [Gillett: 333]! These started modestly in the Strathcona Medical building with eight students. By 1949, it was recognized that mental attitudes were as important as physical capabilities in rehabilitation. The school then became the School of Physical and Occupational Therapy, offered a three year diploma program [G:363, Frost 2:394].

In 1956, the school moved to Davis House, and the programs were upgraded to a five-year B.Sc. (Physical Therapy) and B.Sc. (Occupational Therapy). After introduction of the CEGEP program in 1967, the B.Sc. degrees required three years post-CEGEP training [Frost 2:394]. The Anatomy Department has always offered Gross Anatomy courses to students in these programs. These have included “Anatomy of the Limbs and Back” (often with dissection) and “Visceral Anatomy” (Head and Trunk) in addition to a Neuroanatomy course.

Until the late 1960’s, the student body was consisted exclusively of female students. In 1967, the first male student was enrolled in the B.Sc. Physical Therapy program. In 1980, male students accounted for 13.3% of the students in the Physical Therapy program and 3.6% in the Occupational Therapy program [Gillette:363].

Recently the professional requirements for practice have been elevated to a M.Sc. (Physical Therapy) and a M.Sc. (Occupational Therapy). There is now a strong emphasis on research, and the school has offered Ph.D. programs for several years.

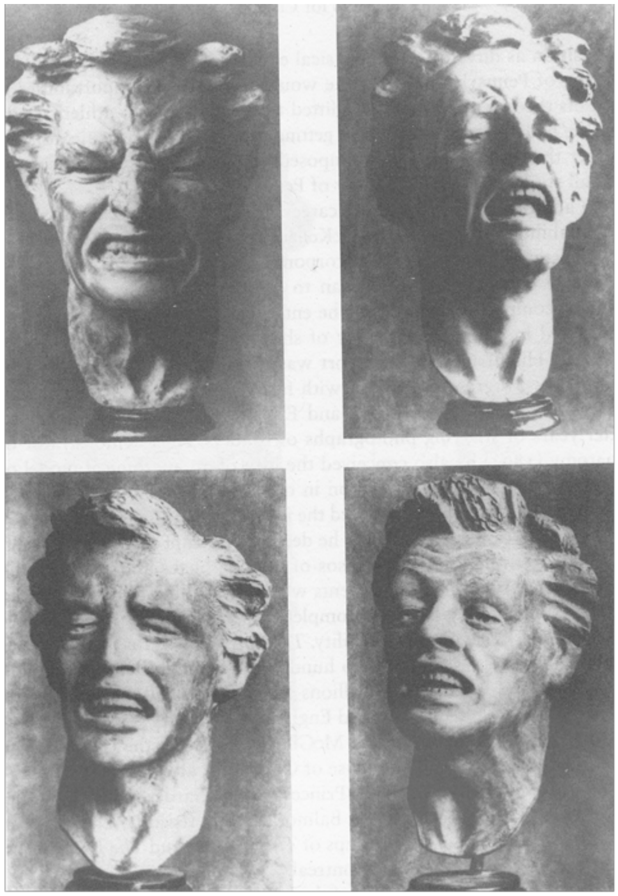
40. The Montreal Neurological Institute (MNI) (1934 – Present)

The Montreal Neurological Institute was founded in 1934 [Frost 2: 171; Hanaway 2: 122-129]. Under the leadership of Wilder Penfield, this institute soon achieved world prominence, making not only clinical advances in the treatment of epilepsy but also advancing our understanding of the normal function of the brain. It was Penfield who stated that the mind of man consists of nothing but a set of excitations travelling through the network of brain cells. [Frost 2: 382]. A Rhodes Scholar, he had lived in the home of Sir William Osler in Oxford. After graduating in medicine at Johns Hopkins, he studied histology in Spain with the anatomist Ramon y Cajal (who won a Nobel Prize in1906) [Hanaway 2: 238-239].

Since its beginning the Montreal Neurological Institute has been a great strength in Neuroanatomy and basic research on the Nervous System, and in recent years, cells of the nervous system have provided exciting model systems for basic cell biology research. Our own Anatomy Department has also made major discoveries in the neurological field, such as Leblond's discovery of axonal flow with Bernard Droz. Nonetheless, it may be argued that, with the MNI at McGill, our Department has had less of a neurological slant than it might otherwise have had. In recent years, on the other hand, several cross appointments have been created between our department and the MNI.

41. Robert Tait McKenzie, Demonstrator of Anatomy (McGill: 1894-1904)

Born in 1867, Robert Tait McKenzie, graduated in medicine at McGill and became a demonstrator in the Anatomy department. McKenzie was one of first physicians to recognize the importance of physical fitness in human health [Hanaway 2: 55, 233-234]. He was, himself, a champion gymnast. Also an aspiring artist, he went to Paris and met with Auguste Rodin whose work inspired him. After studying photographs of runners, he created four facial masks called "The Progress of Fatigue" showing the stages of violent effort, breathlessness, fatigue, and exhaustion. Bronze casts of these masks are on display in the Montreal General Hospital.



Facial Expressions by Robert Tait McKenzie 1899

From: Hanaway 2: 58

"The Falcon" by Robert Tait McKenzie 1934
At McLennan Library since 1951

From Hanaway 2: 59

As a demonstrator in Anatomy at McGill in 1894, he measured the limbs and torsos of many athletes and created a sculpture entitled "The Sprinter" in order to demonstrate the surface anatomy of muscles. In 1904, McKenzie moved to the University of Pennsylvania as Director of Physical Education. He went on to create many other world famous sculptures until his death in 1938. His last work, "The Falcon" (1934) stands in front of the entrance of the McLennan Library [Hanaway 2: 55-60, 233-234].

42. John McCrae (McGill: 1899-1918) and the First World War

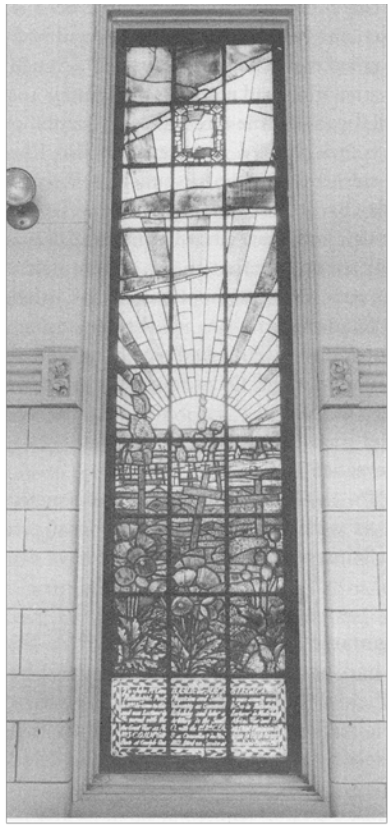
John McCrae in 1918

From: Hanaway 2: 87

With the coming of the First World War in 1914, Canada as part of the British Empire found itself at war. Feelings of imperialism ran very high [Frost 2:96], and a large proportion of McGill faculty members and students volunteered for military service. In most non-medical Faculties, individuals simply signed up as soldiers, but in Medicine, the faculty and students created a McGill Hospital unit with 1040 beds, 35 officers, 73 nurses and individuals of other ranks. This unit came to be considered a model throughout France during the war [Frost 2:99; Hanaway 2: 81-9].

One faculty member of this unit was John McCrae, a major figure in the McGill Pathology Department [Hanaway 2: 86-91]. He had graduated in medicine at the University of Toronto and came to McGill in 1899. Although not a member of the Anatomy Department, he worked with Maude Abbott on the Medical Museum Collection [Hanaway 2: 232; Ben: 91]. In 1918, Lieutenant-Colonel McCrae died at the front from pneumonia, meningitis and septicemia [Han2:233]. Because of his poem “In Flanders Fields”, his name had become a household word in Canada. After the war McCrae’s memory was commemorated by a stained glass window on the second floor of the Strathcona Medical Building [Hanaway 2: 92].

Of the 4,356 McGill faculty and students who served, some 363 (12 %) were killed or died in active service; many more were wounded and some maimed for life [Frost 2:101; Hanaway 2: 86-92]. These individuals are commemorated by a large plaque in the Strathcona Anatomy and Dentistry Building.



Memorial Window for John McCrae

From: Hanaway 2: 92

At home, the war years at McGill were years of great strain. With people devoting all of their energies to the war effort, there was little opportunity for academic development [Frost 2:108]. The faculty members who remained at home had a double load, with increased teaching assignments and increased clinical practice due to the absence of doctors serving overseas. The war showed the immense importance of military technology, and considerable research was carried out in war-related topics in Physics, Chemistry and Metallurgy. It was conspicuously lacking in Medicine, however, especially in the clinical departments. After the war, the pace of all scientific research quickened all around the world, and scientists became recognized as highly important members of society [Frost 2:103].

43. Sir Auckland Geddes (McGill: 1913-1919)

Upon the resignation of Francis Shepherd in 1913, Auckland Geddes came to the Anatomy Department as Chair of Anatomy [Hanaway 2: 137]. He also became our first Robert Reford Professor, a position created in the previous year by a $100,000 donation to the Anatomy department from Robert Reford, a shipping merchant and philanthropist [Hanaway 2: 137]. Geddes came to McGill from Edinburgh, having previously worked in Dublin. He had a somewhat different philosophy of Anatomy than Francis Shepherd, and without consulting Shepherd, he changed the Anatomy course substantially devoting much more time to Embryology. Shepherd was not pleased but did not prevent the change. He considered Geddes a good instructor but a man with little tact, dogmatic and always sure that he was right.

Geddes's tenure at McGill was notable by his not being there! After only one year, the First World War broke out in 1914, and Geddes was given leave of absence until the end of the war. He left for England to work for the British Army as director of recruitment. He then became a member of the British cabinet and was knighted for his war contributions. After the war, the McGill governors appointed Geddes Principal of McGill after the resignation of Principal Sir William Peterson in 1919. He accepted the position, but once again he immediately left McGill to become British ambassador to the United States [Frost 2:109].

After the departure of Geddes in 1914, the Anatomy course was taught by the assistant professor, John Henderson. Unfortunately he died from pneumonia only one year later, and lecturers of questionable ability then struggled to teach the course until the arrival of the new chair in 1919 [Hanaway 2: 137; Howell:209].

43a. George Wilkins (McGill: 1884-1907)

After the departure of Sir William Osler in 1884, the Institutes of Medicine course was discontinued, and its four components, i.e. Histology, Physiology, Embryology and Pathology were taught as a separate courses. Histology was taught by George Wilkins, a pathologist and surgeon [Hanaway 2: 243]. Wilkins had no special training in histology, but he did purchase more microscopes and he continued to teach Osler's special Histology course [Hanaway 2: 6, 139]. He was assisted by Neal Gunn, who had graduated from McGill as a Holmes Medalist and then obtained a Ph.D. in Anatomy and Histology from Johns Hopkins University.

43b. J.C. Simpson (McGill: 1910-1936)

When Wilkins retired in 1907, Histology was taught by another pathologist, C.W. Duval [Hanaway 2:139]. Then in 1908, J.G. Adami (Chair of the Pathology Department) suggested that the Histology course become jointly shared by the Pathology and Physiology Departments [Hanaway 2: 139]. This attempted takeover of the Histology course by the Pathology Department was thwarted by J.C. Simpson of our Anatomy Department. He took charge of the Histology course, along with Embryology, and taught both courses for the next 28 years until 1938! Instruction was carried out in our spacious new Histology laboratory (see p 10) in the Strathcona Medical Building [Hanaway 2: 139].

When Geddes became chairman in 1913, Histology and Embryology became the sole responsibility of the Anatomy Department. Simpson was promoted to Professor of Histology and Embryology in 1936, and then retired from the Department to become Dean of Medicine in 1940.

44. Samuel Ernest Whitnall (McGill: 1919-1934)

Ernest Whitnall in 1930

From: Bensley: 106

In 1919, Samuel Ernest Whitnall came to our Department as Chair and Robert Reford professor, and retained both positions until1934 [Hanaway 2:137-138]. A "pure" anatomist, Whitnall had received his medical degree from Oxford. He was a charming man, a respected and dedicated teacher, and a stickler for detail. In Anatomy, students received three lectures per week. In the laboratory, students worked in groups of four students per cadaver, and spent nine to twelve hours per week dissecting. The body was studied in regions, e.g. thorax, abdomen, pelvis, limbs, back, and head and neck. Following the initiative of Francis Shepherd, students were graded in oral as well as written exams in both the lecture theatre and laboratory. In the laboratory “spot” exams, the students were required to identify structures on bones or dissected specimens. Sometimes students were even asked to identify bones by touch while blindfolded. In one instance, perhaps as a joke, Whitnall was reported to have sawed the hook of the hamate (a wrist bone) in order to make the question harder! Students were also graded on the quality of their dissections.

As in former times, Anatomy was studied over a two year period. During the first year, students dissected the body to obtain an overview of systems and relationships. Students were loaned a box of bones, and surface anatomy was demonstrated to students in the lecture theatre or small groups using living models. Lectures and labs took 330 hours. This was accompanied by Histology and Embryology lectures and labs, accounting for 180 hours. In second year, the body was dissected again in more detail, accompanied by X-ray and cross-sectional anatomy (360 hours), and more embryology (60 hours). It was emphasized that Anatomy had to be absorbed slowly with constant repetition and revision if it was to be retained for permanent value. The average number of students dissecting in the gross lab at any one time was 200 (at 40 tables) although it could be as many as 250 (at 50 tables). A course was also given in Physical Anthropology, which medical students were encouraged to learn.

As a researcher, Whitnall was an acknowledged as world expert on the orbit, and in 1921 he published a book entitled: “The Anatomy of the Orbit”. He is the only McGill professor after whom an anatomical structure (the practice of eponymy) is named! This “Whitnall’s Tubercle” is located on the lateral orbital margin, and serves for the attachment of the lateral check ligament. In terms of teaching, Whitnall also published a small book in 1922, “The Study of Anatomy”, for use by the medical students.

Whitnall was involved in the establishment of the Osler Society, the most prestigious society of the medical faculty. He was devoted to medical history, and attracted many medical students and graduates to the Osler Society’s meetings and its annual banquets [Hanaway 2:138-139]. Since he had connections at Oxford University from his earlier days, Whitnall played a very important role in bringing Osler’s collection of books from England to McGill in 1929 to form the nucleus of the Osler Library. Finally, in another aspect of his life, under the pen-name of ‘Tingle’, Whitnall was a regular witty contributor of typically British humorous articles to Punch Magazine.

In 1934, much to the regret of the faculty, he returned to England to become professor of Anatomy at the University of Bristol.

45. Cecil Percy Martin (McGill: 1936-1963)

Portrait of Cecil P. Martin in Reading Room

From: Anatomy Department Reading Room

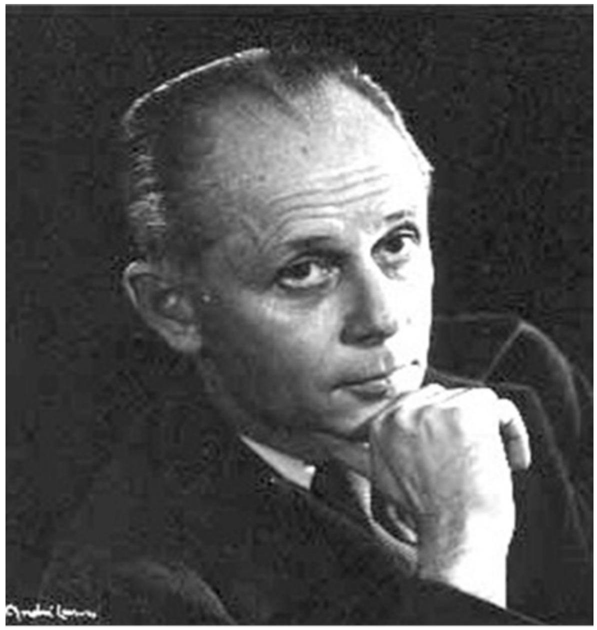
Cecil P. Martin came to the Department as Chair in 1936 [Hanaway 2: 139]. He was born in Ireland in 1892. One of nine children, he could not afford to attend college and became a police officer in the Royal Irish Constabulary. During the First World War in 1915, he served with the Royal Irish Regiment in the Middle East where he was wounded in the head by a large shell fragment. For the remainder of his life, he wore a patch and black headband and this became a constant feature of his personal appearance. At the end of the war, Martin returned temporarily to the police force, but then, with his earnings, entered Trinity College, Dublin. Here he enrolled in Medicine, recognizing the prestige value of a medical degree, but his primary interests were in Geology, Botany and Philosophy. In Medicine, Anatomy particularly appealed to him, and after graduation he became Demonstrator and then Professor of Anatomy, Embryology and Physical Anthropology at Trinity from 1928 to 1936 [Hanaway 2:139; Bensley:155].

The greater part of Martin's research work was in the field of Physical Anthropology. Along with Sir William Dawson, he was in the anti-evolutionist camp. In 1935, he published a book entitled: Prehistoric Man in Ireland". He was a deeply religious man, and was disturbed by the attitude of many of his fellow scientists that the whole of reality could be found in the "little whirling particles of the atom". In his book, "The Decline of Religion", he tried to inform his colleagues of the avenues in knowledge which are not experimental [McGill Med. J. vol 1-33 (1931-64)].

Martin was a gifted speaker on a variety of topics, and delivered his lectures with a delightful Irish accent. A modest, but witty man, he would sometimes receive telephone calls intended for his namesake, the current Dean, Charles P. Martin, to which he would reply: "I am not the Dr. Martin you want – you want the wealthy Dr. Martin." His lectures were demanding but entertaining, and were interspersed with lively anecdotes. He felt that physical anthropology added "new life to anatomy". A very approachable teacher, he gave advice to countless students who remembered him with gratitude.

At McGill, Martin served as Chair for twenty-one years until 1954, and following this, he acted as co-chairman of the Department with C.P. Leblond until 1957 [Hanaway 2: 139]. After his retirement, he continued to teach on a part time basis until 1963. A plaque is mounted in Martin's honor in the Strathcona Building.

46. Hans Selye (McGill: 1938-1946)



Hans Selye In 1930's

Hans Selye joined our Department of Anatomy in 1938 as an Assistant Professor of Histology. He had originally come to McGill in 1932 to work with James Collip in the department of Biochemistry [Hanaway 2: 145]. Born in Budapest from a long line of medical doctors, he had obtained an M.D. and then a Ph.D. from the German University of Prague.

Hans Selye in Vienna, 1909.
Little boys and girls were dressed in the same fashion.

From: Selye: Stress of My Life: a Scientist's Memories

During Selye's initial years, there was a real sense of excitement in of the McGill Biochemistry Department since spectacular developments were occurring in the field of Endocrinology [Hanaway 2: 145]. In addition to the discovery of insulin, a growth hormone had been obtained from the pituitary gland, testosterone had been isolated from the testis, and other hormones were isolated from the adrenal, thyroid and parathyroid glands. The Chair, James Collip, had already made a major contribution to the field by isolating insulin in a form suitable for human use. [Johnstone:40; Frost 2:171; Hanaway 2: 145]. Research productivity was very high, and there was also extensive collaboration between members of the department of Biochemistry and the Department of Anatomy, many of whose members were involved in studies of different hormones [Johnstone:44].

Selye was interested in identifying and classifying reproductive hormones. During his early years as a Lecturer in the Biochemistry Department, he injected ovarian extract into rats in the hope of discovering a new hormone. He found that the rats subsequently developed a triad of symptoms including enlargement of the adrenal cortex; atrophy of the thymus gland and lymph nodes; and ulcers of the stomach and duodenum [Selye:Stress of Life: 25]. He initially found these results very promising, suggesting the presence of some new ovarian hormone. He then found, however, that the same results were obtained with extracts of various other organs including pituitary gland, kidney, spleen, placenta, and even an injection of formalin [Selye:Stress 27].

Further experiments showed that similar results could be obtained after subjection of rats to other physical agents such as pain, mechanical trauma, forced muscular exercise, heat or cold [Selye:Stress 35]. The latter environment had been achieved by placing the rats on the flat wind-swept roof of our Strathcona Medical Building during a Montreal winter [Selye:Stress 44]!

All of these features indicated that the results were probably due to some non-specific toxic response. At first Selye was bitterly disappointed, but then he came to the conclusion that this general response to injury was worthy of study in its own right [Selye:Stress 29]. He ultimately came to the understanding that exposure of the body to various “noxious agents” causes a three-stage response consisting of 1) “Alarm Stage”: fight or flight reaction. 2) “Resistance Stage”: adaptation during which resistance is built, and finally 3) “Exhaustion Stage”: a sort of aging due to wear and tear [Selye:Stress 38]. He showed that the thymic involution was mediated by the adrenal glands since it did not occur in stressed adrenalectomized animals.

Selye published this classic work in a short communication in Nature in 1936 (vol 138:32) under the title: “A syndrome produced by diverse nocuous agents”. [Selye:Stress: 36; Gabrie: l4]. He named the syndrome the “General Adaptation Syndrome” (GAS). Later in the same year, he published a fuller account in the British Journal of Experimental Pathology (XVII: 234-248, 1936). Afterwards he came to refer to the nocuous agents as “Stress” and to the syndrome as the “Stress Syndrome” [Selye:Stress: 46].

Selye initially met with a great deal of resistance to his ideas. One senior professor of the Biochemistry department had discouraged him from continuing with his studies on this non-specific syndrome, saying: “But Selye, try to realize what you are doing before it is too late! You have now decided to spend your entire life studying the pharmacology of dirt!” [Selye:Stress: 32]. On the other hand, he received considerable encouragement from the Nobel Laureate Sir Frederick Banting who frequently visited his lab [Selye:Stress: 33].

Within the Biochemistry department, Selye had not seen eye to eye with the chairman, James Collip, especially after Selye asserted independent credit for his observation on the role of the adrenal steroids in an animal under stress. According to colleagues who knew them both well, the two individuals had extreme antipathy [Johnstone: 44]. This was to be a pattern in the relationships between Selye and his coworkers in later years. According to a colleague, he always challenged one's imagination and intellect, therefore touching one's emotions. It was hard to be neutral towards him. Some individuals admired Selye, considering him the foremost medical researcher of the twentieth century, and one of the great pioneers of medicine. Others were violently opposed to everything he stood for. Many individuals had a love /hate relation with him [Berczi].

In 1938, Selye moved from the Biochemistry department to the Department of Anatomy as an Assistant Professor of Histology, and his office moved up the campus to the Strathcona Medical Building [Jackson]. He later was promoted to Associate Professor of Histology. With his medical background Selye had become a skilled histologist and surgeon, and he used these assets to investigate the efficacy and specificity of hormones and the effect of their removal on the organs involved [Johnstone: 44].

In 1941-1943 a two-year artistic/scientific collaboration was carried out between Selye and the noted Canadian artist Marian Scott which culminated in a famous mural by Scott entitled "Endocrinology" [Jackson: 179]. This mural was painted on the wall of our original departmental reading room. When the Medical library moved to the McIntyre building, its reading room was taken over by our department and the original reading room became the office of our Chair, Dr. Leblond. The measured 12x16 feet. In its center is the formula of a steroid ring, highlighting Selye's interest in steroid molecules as being central to neuroendocrine function.

"Endocrinology" by Marian Scott
Commemorating work of Hans Selye

From: Department of Anatomy Original Reading Room

A similar steroid ring, although somewhat weathered, can be discerned on a cement plaque on the side of Selye's former house on the north-east corner of University and Milton streets. In addition, a steroid image was carved on one of the plaques in our Strathcona Anatomy Building (in the corridor adjoining the office of the Chair, Dr. Leblond) [Jackson: 202].

Plaque showing Steroid Ring on Former House of Hans Selye

From: Side of Hans Selye's House

In 1943, Selye received over $40,000 in grants (about $600,000 today) from charitable, state and pharmaceutical businesses [Jackson: 203]. In 1944, Selye promoted his steroid research, writing that: "It is very probable that by learning more about the hormones produced under different types of stress we shall acquire valuable information concerning the therapy of the corresponding diseases of human Pathology". "I believe", he wrote to McGill's Principal,F. Cyril James in May 1943 "that with the help of the grants mentioned above … we would be able to create an excellent center for research and graduate teaching in the steroid hormone field" [Jackson:201]. Selye coordinated a diversity of the research projects, and, with apparent ease, obtained funds to in order to employ research fellows and technicians and to expand laboratory facilities at McGill.

Selye's research focused initially either on the physiology of sex hormones or on the broad pathological manifestations of the general adaptation syndrome. During the early 1940s, his attention turned increasingly to the functional biochemistry of steroid hormones, particularly the glucocorticoid hormones released from the adrenal cortex. He concentrated on the role of the HPAC axis (i.e. the Hypothalamic-Pituitary-Adrenal Cortical Pathway) which operates in the "resistance" stage of the General Adaptation Syndrome. In this stage, stressors cause the hypothalamus to release a hormone, corticotrophin releasing factor (CRF). This travels in the blood to the pituitary gland where it stimulates the release of adrenocorticotrophic hormone (ACTH). This in turn travels in the blood to the adrenal cortex to increase the production of glucocorticoid hormones such as cortisol.

Selye's extraordinarily prolific publication profile led to a growing international reputation. During his tenure at McGill from 1933 to1945, he authored or co-authored approximately 300 academic papers, many of which offered original insights into the mechanisms of physiological adaptation. Of these, Selye published 219 papers while in our Department of Anatomy from 1939 to 1946. This productivity is particularly impressive since McGill University and the medical faculty were coping with obligations imposed by the Second World War [Han2:202]. Of the above articles, three were co-authored with C.P. Leblond (in 1942, 1944 and 1945). In 1943, Selye published the first four volumes of his *Encyclopedia of Endocrinology*, which provided a classified index of the steroid hormones and related compounds.

Relationships between Selye and the Anatomy Department members were mixed. Some of Selye's colleagues were supportive both of his intellectual endeavors and of his aspirations to enlarge his research team. The chair of the Anatomy Department, C. P. Martin, for example, appreciated Selye's value and wrote a letter to Principal F. Cyril James in 1944, expressing the opinion that, based on the external recognition of Selye's academic status as well as his ability to attract funds, "Selye was going to be a very big asset to McGill". Yet James himself spoke of "the whole problem created by the expansion of Professor Selye's work".

As the research frontiers of his work expanded, Selye attempted to broaden the scientific expertise of his staff. Towards the end of 1944, he obtained $10,500 from Desbergers-Bismol Laboratories in order to fund the appointment within the Anatomy Department of Dr. C. H. Li, a promising young biochemist at the University of California. Faculty members of the Anatomy Department stated that Dr. Li, was a biochemist, and lacked the necessary qualifications to become an Assistant Professor in an Anatomy Department. This issue therefore caused immediate tensions.

Ultimately, Dr. Li chose not to join Selye's group, de-fusing the problem. Tensions increased again, however, in 1944 when Selye obtained funds from the Frank W. Horner pharmaceutical company, to purchase a house that would house a new independent research institute dedicated to his own steroid research. This house was the family mansion of the Morgan Family (owners of Morgan's Department store – now "the Bay") and was located on the east side of University Street (3619) opposite the Strathcona Medical Building. This proposal fed growing anxieties within the Department about Selye's increasing autonomy and his independence from university regulation [Jackson: 204]. There were also concerns about the nature of his collaboration with the pharmaceutical industry as well as his tendency to promote his research and his reputation beyond the academy world through the media.

These reservations and uncertainties expressed by his immediate colleagues were instrumental in Selye's decision to leave McGill. Thus, within two more years, he accepted the position of director of new Institute for Experimental Medicine and Surgery at the Université de Montréal.

The gift of the house on University Street had been conditional on Selye's remaining at McGill, and the University was required to purchase the building. In 1949, after a brief period as a student residence, the building became the home of the newly-formed McGill-Montreal General Hospital Research Institute, headed by the noted biochemist Judah H. Quastel [Johnstone:55]. During the next seventeen years, this highly productive unit (nicknamed the "Quinstitute") graduated some 70 Ph.D.'s [Frost 2:383]. One of these was Annette Herscovics who was to play a prominent role in our Department of Anatomy. The facilities in the Quinstitute were also sometimes used by members of our Department, such as Hershey Warshawsky. In later years, Quastel attempted to obtain further financial support from the Morgan family, and he invited the family to come and see the "wonderful way" in which the old family mansion was being used. Apparently they were horrified at the transformation of their beautiful home, with its ornate ceilings and solid oak floors into an ad-hoc four-story laboratory!

At the Université de Montréal, with enlarged facilities on a brand new campus, Selye and an expanding pool of international researchers began to construct a novel framework for biological studies of adaptation and stress and to provide a platform for the proliferation of stress research across an anxious post-war world. [Jackson: 229]. In 1950, he published his magnum opus "Stress" with over 1000 pages and 5000 references. Already he was regarded as one of the world's leading experts in endocrinology, steroid chemistry, experimental surgery and pathology [Rosch]. Selye was convinced that neuroendocrine factors play a role in most, if not all, diseases. The pituitary gland constantly reacts to our internal and external environments, which enables us to function normally.

In time, his work gained international prominence concerning the role of corticosteroids in responding to stress [Johnstone: 44]. A whole new medical field connecting stress to illness was created and involved thousands of researchers in the years to come [Gabriel: 4]. Selye's work was originally highly regarded only by psychologists, whereas most scientists in other disciplines ignored his ideas. It was widely held that his experiments were highly artificial and not relevant to pathophysiological processes that occurred in real life [Berczi].

A major dilemma with Selye's work was that he was never able to define stress exactly [Berczi]. Pleasurable experiences were also found to evoke a neuroendocrine response that involved the

ACTH-adrenal axis. Furthermore a large variance occurs amongst individuals, such that a stimulus may be pleasurable for one person and highly stressful for another.

In 1979, he and Alvin Toffler founded the Canadian Institute of Stress. In addition to exposure to noxious agents, stress could be anything from prolonged food deprivation to a good muscular workout. In time it became clear that stress could be a significant causative factor in a number of major illnesses, including heart disease and cancer. Failure to cope with stressors could lead to "diseases of adaptation" such as ulcers and high blood pressure.

Selye had a commitment to sharing the practical benefits of his work with everyday people. During the 1950's, he turned away from the laboratory to promote his concept of stress through popular books and lecture tours. He wrote for both non-academic physicians and the general public. Two of his books, "The stress of life" and "Stress without Distress" were unequalled bestsellers. It is possible, however, that his ventures into philosophy and popularization contributed to some loss of esteem in the eyes of more traditional scientists.

It has been stated that Selye's greatest scientific work was carried out at McGill, and that after his publication of 1946, much of the further work was of less significance. In fact Selye himself affirmed this fact in 1979, stating: "As the years went by, I managed to acquire every available facility that modern science can offer in the way of the most sophisticated techniques of histology, chemistry, and pharmacology. I have been given the means to construct one of the best-equipped institutes of experimental medicine and surgery in the world and have acquired a staff which, at the peak of its activity, comprised about 100 trained assistants, technicians, and secretaries. Yet today, as I look upon the years that have elapsed since those early observations in 1935-1936, I am ashamed to say that, despite all this help, I have never again been able to add anything of comparable significance to those first primitive experiments" Selye:Stress: 44.

Selye received three earned doctorates (M.D., Ph.D., D.Sc.), forty-three Honorary Doctorates, the highest Order of Canada, published 1700 scientific articles and wrote 39 books. He was nominated ten times for the Nobel Prize [Rosch].

Selye fluently spoke eight languages including Hungarian, German, English, French and Italian, and could converse in a half dozen others. According to reminiscences of Paul Rosch, a longtime colleague and friend, he was noted for the intensity of his working habits. He was in his office from 6:00 a.m. to 6:00 p.m. every week day, and from 6:00 a.m. to 4:00 p.m. even on Saturdays and Sundays! After taking up his position at the Université de Montréal, Selye continued to live in his house on Milton Street. He would routinely get up at 5:00 a.m. or earlier, take a dip in his basement swimming pool, and bicycle the six miles to his office. Paul Rosch felt that Selye certainly qualified as "the most unforgettable character that he had ever met!"

Hans Selye bicycling to work from his home at 5:00 am

Undoubtedly Selye was an important figure in the history of McGill Medicine, but he never fitted well into the McGill system. Was the Université de Montréal's gain McGill's loss? History may tell, depending on its final evaluation of Selye's contributions.