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*Hall of Fame*

# The paediatric cardiology Hall of Fame: Maude Elizabeth Abbott

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**Abstract** Few paediatric cardiologists know of Maude Abbott. Yet before Helen Taussig, no one contributed more to founding the speciality than Maude Abbott. She achieved international fame as the early 20th century expert on cardiac malformations. We summarise here her life and contributions, indicating how she is more than justified in being inducted to the Hall of Fame.

Keywords: Maude Abbott; McGill University; William Osler

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EVEN[1–8] BEFORE MAUDE WAS BORN, IN ST Andrews East, Quebec, tragedy had struck her family. Her parents, Jeremiah Babin, an Anglican minister, and Elizabeth Abbott married in 1865. In January 1866, the brother of Jeremiah brought their disabled sister, Marie Aglae Babin, known as Mary, to live with the newlyweds. Jeremiah and Elizabeth, however, were not happy with this arrangement. The Babins settled the non-ambulatory Mary into their attic, and kept her presence secret from their neighbours. In April 1866, a passer-by discovered the drowned body of Mary in a nearby river. The authorities accused Jeremiah of murder. During his trial in 1887, Maude's sister Alice was born. The court acquitted Jeremiah, because the prosecution introduced only circumstantial evidence. Even so, the event damaged the reputation of Reverend Jeremiah, and he permanently left his young family in the United States of America prior to the birth of Maude on March 18, 1869.

Sadly, when Alice was 2-year old and Maude only 7-month old, their mother died of tuberculosis. Orphaned, the sisters found sanctuary with their widowed maternal grandmother, Frances Mary Abbott. Tragically, all nine children of Frances Abbott had died years before Maude and Alice came to live with her. Their grandmother provided an intellectually stimulating atmosphere. Radical for the 19th century, she told her granddaughters that they could pursue any profession they wished, provided they studied and worked hard. A few years later, their grandmother requested that the Canadian Parliament grant Maude and Alice the surname Abbott.

Maude Abbott, excelled in high school, and received a scholarship from McGill University, in Montreal. Maude was among the first women to attend McGill, graduating in 1890 as class valedictorian. The head of the university, Sir William Dawson, habitually edited the addresses by valedictorians. But for Maude Abbott, Dawson kept all her words intact. A quotation from her valedictory address revealed her maturity, "The nineteenth century is pre-eminently practical. And it is well that it is so. Work is fundamental to the onward march of science; it is at the bottom of every great and good action that was ever done; it underlines the formation of all true character. In addition, it is the sin of idleness that is to be counted as the deadliest, just because it chokes, with stifling pressure of stagnation, every noble deed, and every holy aspiration".

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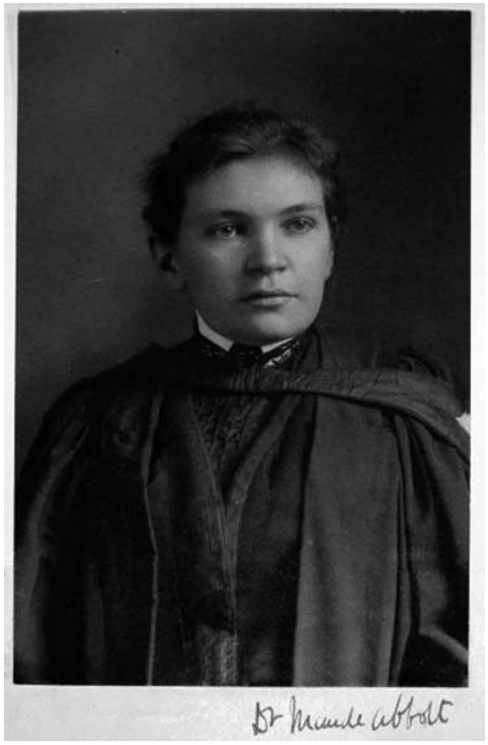


**Figure 1.**
*Photo of Maude Abbott (1904) in her academic robe taken 10 years after her medical school graduation. This photo was found inserted in front of the chapter by Abbott on Congenital Cardiac Disease in Osler's personal copy of Modern Medicine. Courtesy of the Osler Library of the History of Medicine at McGill University, Montreal, Canada.*

Maude needed all her eloquence and determination when she tried to matriculate into the McGill University Faculty of Medicine. A vigorous, but unsuccessful, attempt was mounted by Maude and her friends to persuade the medical school to admit her. With her matriculation at the Faculty of Medicine thwarted, the smaller, liberal Bishop's Medical College did accept her. Its policy for admission was friendly to women. Maude was one of the first students at Bishop's Medical College, and was the only woman in her class. As a medical student, she obtained clinical training at the Montreal General Hospital, also attended by the students at McGill. In 1894, Maude received her medical degree with highest honours (Fig 1). Ironically, and with vindication for Maude, in 1905 Bishop's Medical College merged with McGill University.[9] Furthermore, the McGill Faculty of Medicine granted Maude an honorary degree in 1910, even though the school continued its refusal to admit women until 1918.

Following medical school, Maude and her sister Alice sailed for Europe, where Alice studied music and Maude completed 3 years of postgraduate training, principally studying internal medicine and pathology in Vienna. While in Europe, Alice likely contracted diphtheria. This illness may have complicated previously known psychiatric problems, and the result left Alice permanently disabled. Maude would diligently care for her sister until the death of Alice on October 9, 1934. In her diary for that day Maude wrote, "My darling Allie died….".[10]

In the spring of 1897, Maude and Alice returned to Montreal, where Maude opened her office, offering services in internal medicine, at 156 Mansfield Street. Office practise, however, failed to feed her passion. She desired an appointment to the McGill University Faculty of Medicine. Charles F. Martin, the future Dean of the Faculty of Medicine, and one of her former attending physicians at the Montreal General Hospital, remembered Maude from her time at Bishop's College. Martin realised her dissatisfaction with general practise. He invited her to work at the Royal Victoria Hospital. He also suggested that she complete a study on cardiac murmurs, specifically in patients without known cardiac disease.

For this study, Maude painstakingly reviewed hospital records on 2780 patients. Abbott discovered cardiac murmurs resulting from anaemia, and other non-cardiac conditions, to be more prevalent than clinicians had previously believed. Her friend, James Stewart, read her article to the Montreal Medico-Chirurgical Society, as this organisation also restricted women from membership. Her paper impressed the members of the society, which lead them to ask her, and other female physicians, to join their group. She eventually published her paper "On So-Called Functional Heart Murmurs" in the *Montreal Medical Journal* in January, 1899.[11] This scientific publication was her first of many.

In the summer of 1898, McGill appointed Maude to be an assistant curator at their medical museum. She felt, however, that this job was little more than a token position. Shortly afterwards, nonetheless, the university promoted her to become head curator. The medical museum contained a collection of poorly captioned pathological specimens, which had grown considerably from 1876 to 1884 year, when William Osler held the position of Pathologist to the Montreal General Hospital (Fig 2).

In the winter of 1898, Abbott concluded she ought to visit other medical museums so as to consolidate her ideas before commencing the Herculean job of cataloguing the specimens in the McGill archive. In December, she ventured for the first time to the United States of America. She intended to visit the Army Medical Museum in Washington, District of Columbia. Before visiting the Army museum, however, she travelled to Baltimore to seek out William Osler, who had previously been appointed Chief of Medicine at Johns Hopkins School of Medicine

**Figure 2.**
*William Osler from about 1880 at McGill University. This photo from: Cushing, Harvey. The Life of Sir William Osler. Oxford, Clarendon press, 1925, front piece portrait.*

**Figure 3.**
*A young Maude Abbott, pictured here in 1900 at the beginning of her career as curator of the McGill University Medical Museum. Courtesy of the McCord Museum Archives, Notman photo collection.*

in 1889. Maude obviously knew of his reputation and of his prior work in pathology at McGill.

On the day they met, Maude Abbott arrived at The Johns Hopkins Hospital about 9 am. She accompanied the usual entourage of students and residents that trailed after Osler. Once rounds concluded, the accident-prone Abbott stood with her hand in a doorway. The door suddenly opened, crushing her finger. Osler rushed to offer help. While those present treated her finger, William Osler invited Maude to his home for one of his educational dinners that he often held for students and residents. That evening, Maude arrived at his house at No. 1, West Franklin Street. What followed is best described in her words from a speech she gave to the annual meeting of the graduates of Woman's Medical College of Pennsylvania[12]:

> Dinner over, the great experience of the evening came, for this was one of Dr Osler's student nights, in which I had been invited to participate. Seated at the head of the long dinner table, now covered with a dark cloth, were nine young men and three women ranged around it, and me beside him at the end, and with a little pile of books before him, he began by introducing four rare editions from the classics in medicine to his hearers, with wise words of appreciation on each.... I sat there with heart beating at the wonderful new world that had opened so unexpectedly before me, he turned suddenly upon me and said, 'I wonder now, if you realise what an opportunity you have? That McGill museum is a great place. As soon as you go home look up the British Medical Journal for 1893, and read the article by Mr Jonathan Hutchinson on a Clinical Museum. This is what he calls his museum in London, and it is the greatest place I know for teaching students. Pictures of life and death together. Wonderful. You read it and see what you can do'. And so, he gently dropped a seed that dominated all my future work.

## After the Holmes heart

Following[1–8] her inspirational trip to Baltimore and Washington, Maude returned to Montreal in January of 1899, and enthusiastically set out to catalogue the chaotic medical museum. The pathological specimens dated from 1823, before the founding of the McGill Faculty of Medicine. The autopsies by William Osler had resulted in more contributions. The organisational activities of Maude brought order to the medical museum, and created an effective tool for research and teaching.

In 1900 (Fig 3), she came across a heart incorrectly labelled ulcerative endocarditis. She recognised the heart to be unusual because the specimen had two atriums, but functionally only one ventricle. She also discovered the specimen was one of the oldest in the medical museum. Wyatt Johnson, one of her colleagues, suggested that she write to William Osler to explore what knowledge he had of the apparently

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three-chambered heart. William Osler responded that he knew the case well; the heart having come to newly founded McGill University in 1823 from Andrew Holmes, the first Dean of the Faculty of Medicine. Osler directed Maude to review the report published by Holmes in 1824.[13] Thomas Bevill Peacock had even referenced this case in his book of 1855 on cardiac malformations.[14] Abbott promptly read the report by Holmes, and she republished his original paper with her commentary in the issue of the *Montreal Medical Journal* for July 1901. Paediatric cardiologists, who occasionally use the eponym Holmes heart, may be unaware of its origin. The heart still remains on display at the medical museum at McGill.[15–17]

The Holmes heart sparked her interest in cardiac malformations, and all her later endeavours trace back to it. Physicians had previously published case reports with similar findings. A few had even penned extensive texts devoted to congenitally malformed hearts prior to the 20th century.[18] Yet before Maude Abbott, none made the study of these defects their primary focus. In 1905, her intense interest became a passion when William Osler requested that she write the chapter on congenital heart disease for the multivolume textbook, Modern Medicine, which he was helping to edit.[19] Maude revelled in the request by Osler. She idolised the dashing clinician, and she fervently hoped that her completed efforts would garner his approval. Osler directed her to treat the subject matter statistically. With this counsel in mind, she set out to analyse reports of cardiac malformations in the medical literature, supplementing her review of the literature with clinical and autopsy information from the medical museum at McGill. Her efforts took 2 years. When completed, she had provided details of 412 congenitally malformed hearts, more than anyone had previously assembled into a single report.

Disaster struck McGill, however, in the spring of 1907 when a fire destroyed the building housing the medical museum (Fig 4). The blaze consumed collections of specimens and personal libraries of several professors. Fortunately, the fire did not damage either the Osler collection or the Holmes heart. Because Maude often wrote at home, her notes for the text of her planned chapter for the textbook of Osler also survived.

The chapter appeared in the fourth volume of the first edition of Modern Medicine, published in 1908. Upon reading her chapter, Osler wrote to Maude expressing his compliments, indicating he felt her work was the finest treatment of the subject not only in English, but also in any language. In following editions, her chapter grew to twice its original size. Besides this work prepared for Osler,

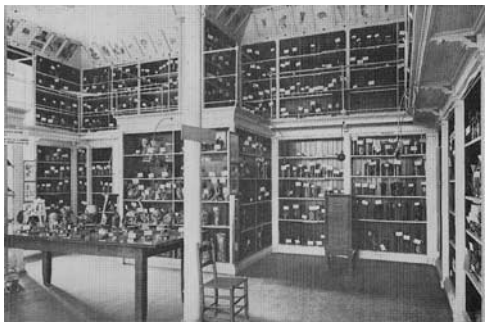

**Figure 4.**
*Photo of the McGill pathological museum from: Abbott, Maude E. Sir William Osler: memorial number appreciations and reminiscences. Toronto, Murray Print, 1926. The picture appeared opposite page 194. It was labelled as "The old Pathological Museum of McGill University (burnt down in 1907), as it was when Sir William Osler worked over his collection in 1905".*

she published several chapters on congenital cardiac abnormalities in other contemporary textbooks, along with articles on cardiac malformations, and a few works on basic clinical science.[20–33] Her contributions made her the premier authority on cardiac malformations in early part of the 20th century.

Throughout her career, William Osler remained her inspirational figure. Later, she once poetically reminisced "Sir William Osler, whose keen interest in my work and broad human sympathy pierced the veil of my youthful shyness with a personal stimulus that aroused my intellect to its most passionate endeavour". Besides the congenitally malformed heart, her passions also extended to medical history, and she authored several works, including the history of medicine in Quebec, the history of nursing, the history of McGill University, and the life and work of William Osler. Following the death of Osler in 1919, she began assembling an extensive memorial volume, which she published in 1926.[34–38]

Stimulated by Osler, Maude also became passionate about the educational and research value of medical museums beyond the walls of McGill. In 1906, she organised the International Association of Medical Museums, serving as its secretary, and the editor of its journal from 1907 until 1938. Years later, the Dean of the McGill University Faculty of Medicine, Charles F. Martin, wrote, "It was she, and she alone, who fostered the closer correlation of the museum with the clinician, and in an astonishingly short time the whole teaching staff became museum conscious".

Despite the encouragement and friendship of the Dean, and her many accomplishments, McGill, the university she loved and devoted her life to, never advanced her academic appointment beyond assistant professor. Her fame failed to overcome her

**Figure 5.**
*Maude Abbott and her assistant Lionel Judah at McGill in the 1920s. Courtesy of the McGill University Archives.*

situation as a female member of the faculty. She did, however, receive offers to leave McGill. During the First World War, the University of Texas asked her to join their faculty, but she preferred to remain at McGill. Her frustration, nonetheless, continued to grow. In 1923, she finally left Montreal and accepted a position as Professor of Pathology at the Woman's Medical College of Pennsylvania. Nonetheless, after 2 years in Pennsylvania, Maude Abbott returned to her beloved McGill in 1925 (Fig 5).

One of her close friends, and her successor at the Woman's Medical College, Helen Ingleby, described the time Maude spent in Philadelphia: "She remained here as Professor of Pathology for 2 years, and those of us who can remember know well what a wonderful job she did. It was just after the great schism, and she set herself to reconcile the warring factions and heal the breach. No one could resist that amazing personality for long, and members of rival camps would forget their differences sitting side by side at her jolly parties.... Her amazing ability and persevering energy might not always be apparent behind the camouflage of scattered belongings, but one has only to turn to her writings and to consider what she accomplished in an age when a woman was anything but welcomed in the field of medicine to realise her greatness".

She had wished to write a comprehensive textbook of paediatric cardiology. Her goal remained unfulfilled when she died in 1940. She did live to see her Atlas of Congenital Cardiac Disease published in 1936 (Fig 6).[39] In the introduction, Maude wrote, "The Atlas here published is merely preliminary to a larger volume on congenital heart disease which the author has under preparation".

The Atlas originated as an exhibit that Abbott first displayed at the New York Academy of Medicine in October of 1931. Her artistic friend and medical colleague, Louis Gross of New York City, helped Maude compile many specimens, photographs, and diagrams from her published papers, leading to an organised, eye-catching presentation. Her exhibit incorporated diagrams of comparative anatomy, embryology, cardiac physiology, cardiac anomalies, photographs, clinical histories, chest radiographs, and electrocardiograms. The display was massive, being 4 feet wide and nearly 30 feet long. The exhibit had data on more than 1000 cardiac malformation cases, culled from the literature and from her personal experience.

In July 1932, Maude packed up the entire exhibit and took it to London for the Centenary Meeting of the British Medical Association. An article in the issue of the *British Medical Journal* for December of 1932 described the exhibit: "The artistic merit of the many fine medical art drawings interpolated the wall display, and the skilful technique manifested in the mounting and stencil labelling of the specimens, made this exhibit one of the most attractive parts of the museum.... The systematic demonstration given by the author during the 3 days of the exhibition was honoured by a large attendance of visiting physicians, among which were many leading cardiologists".[40]

Her collection, when displayed in New York and London, inspired clinicians and scientists to pursue the study of cardiac malformations. Her work was like a pebble cast in a pond, creating ripples that spread out across space and time, moving others to investigate, to understand, and to develop methods for diagnosing and treating children with cardiac disease. James W. Brown,[41] of Grimsby in the County of Lincolnshire in the United Kingdom, authored the worthy but little known text published in 1939 with the tile Congenital Heart Disease. In his preface, he wrote, "Many will recall a magnificent collection of specimens and diagrams of congenital heart disease at the Centenary Meeting of the British Medical Association.... This exhibit was the work of Maude Abbott who has established herself as a principal pioneer in this particular field.... I must freely acknowledge my indebtedness to her....".[42]

Her travelling exhibits assured her reputation as an authority on both sides of the Atlantic. Another of her friends, David Seecof, suggested that she compile the exhibit into an atlas. The Atlas was

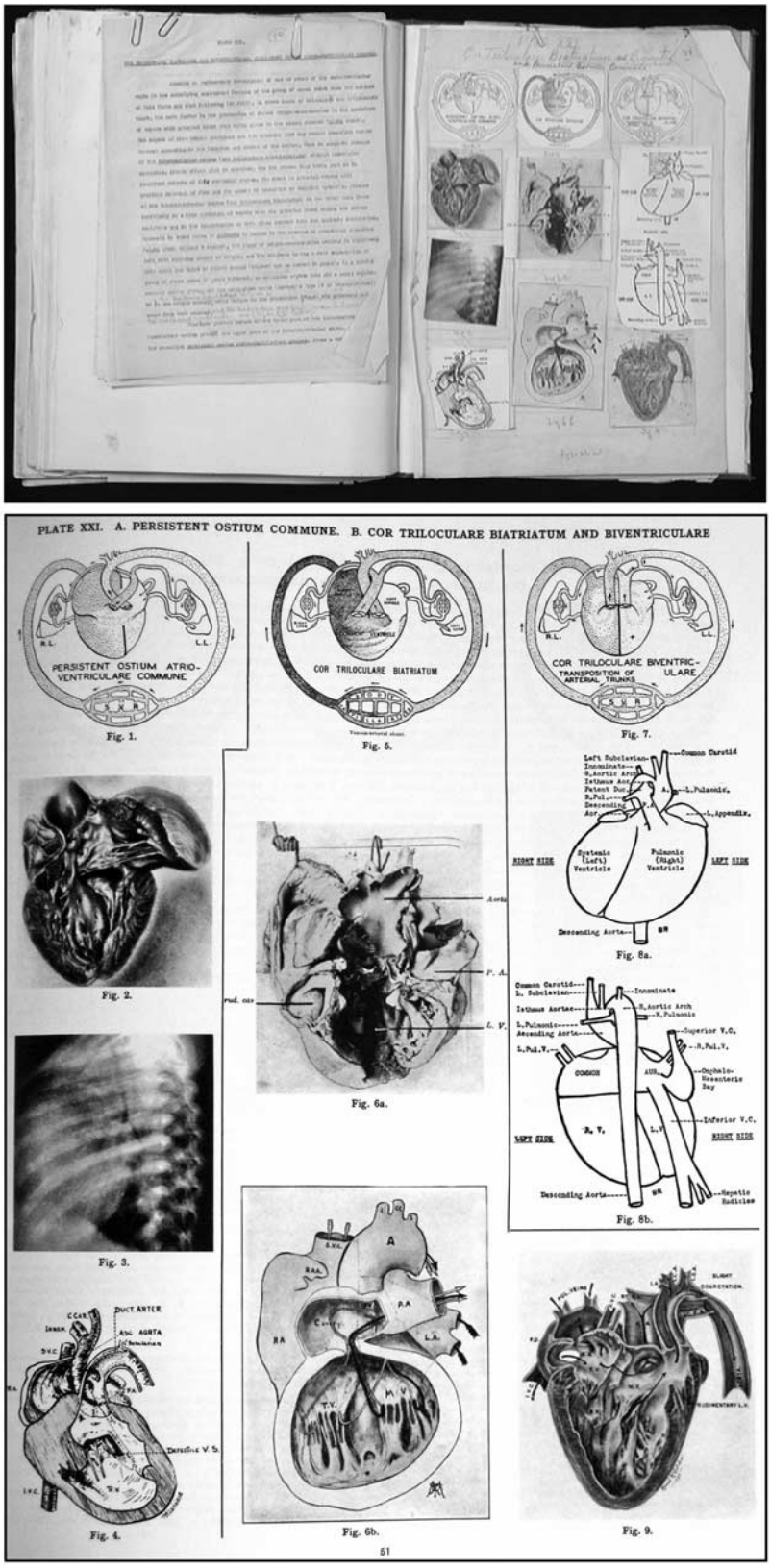


**Figure 6.**
*Top-Maude Abbott's Atlas draft copy safely kept for many years by Lois Hawkins of the Division of Paediatric Cardiology in Edmonton, Canada and generously given to the Osler Library at McGill University in 2008. Bottom-same plate page from the 1936 Atlas showing a diagram of the Holmes heart, middle of the bottom row of figures.*

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published by the American Heart Association in 1936. Maude made many entries in her diary between 1932 and 1936 that documented her extensive work on the text and the plates, including entries that indicated she also had to solicit buyers to purchase most of the copies.[10] Almost 2 decades after the first edition, however, demand resulted in the American Heart Association, in 1954, issuing a limited edition of 1500 copies of the Atlas. Then in 2006, Richard Fraser, Professor of Pathology at McGill, spearheaded another reissue with additional colour photographic plates of the preserved Abbott specimens currently in the medical museum at McGill.[43]

In the first part of her Atlas, Maude addressed a theory of aetiology for congenital cardiac defects that suggested malformations originated from arrests in embryology, resulting in cardiac similarities to the normal anatomy of hearts in reptiles, fish, and amphibians. She had published an article in 1922 on this topic.[44] The theory itself originated with Johann Friedrich Meckel,[45] and was expounded upon by Alexander Spitzer, an early 20th century Professor of Anatomy at the University of Vienna. Spitzer believed his studies on comparative anatomy supported a causation theory that cardiac malformations had evolutionary linkage.[46] The interest of Maude in these theories led to a notable anecdote. According to H. E. MacDermot, a biographer of Abbott, Spitzer had not yet published his theories when Abbott became interested. MacDermot described how Maude obtained an advance copy of the work by Spitzer from the Chicago pathologist, Maurice Lev. Over the years, Maurice Lev preserved the example of Maude Abbott by presenting congenital heart exhibits at national meetings. Similar to Abbott, Lev displayed specimens, diagrams, and a wealth of written material.

A founder of the American Heart Association, and another of her friends, Paul Dudley White, provided the foreword to her Atlas. In it, he honoured his friend, "It was left to Maude Abbott, fired by a spark from Osler, to make the subject one of such general and widespread interest that we no longer regard it with either disdain or awe as a mystery for the autopsy table alone to discover and to solve. She has been the most important of the pioneers in establishing congenital heart disease as a living part of clinical medicine".

The year 1936 was crucial to Maude Abbott for another reason. Being 67-year old, she was forced to take compulsory retirement. She appealed the decision, but the policy of the university with regard to retirement applied to all, even to the currently most famous member of its faculty. Following her retirement, McGill awarded her an honorary degree of Doctor of Laws. In the entry to her diary for October 22 of 1936, Maude wrote, "LL.D. degree conferred" (Fig 7).[10]

**Figure 7.**
*Academic procession at McGill University when Maude Abbott received her LL.D. degree in 1936. Courtesy of the Osler Library of the History of Medicine at McGill University.*

After 2 days, she received her honorary degree, Maude left for California on a tour of the western United States that lasted 2 months. The Women Physician's Club of San Francisco, and the California Heart Association, sponsored the excursion. Maude remained for a month in San Francisco, from where she visited hospitals and clinics in the area, including Stanford. From there, she also travelled for pleasure to the coast of Northern California, and Yosemite National Park in the Sierra Nevada Mountains. Later, Maude journeyed south to Santa Barbara and Los Angeles, visiting hospitals and lecturing about William Osler. She saw patients and cardiac specimens at Los Angeles County Hospital and the Childrens Hospital of Los Angeles. On December 4, 1936, Maude wrote in her diary, "Went to Hollywood and Culver City and met Clark Gable and Myrna Loy".[10] Following her visits to Los Angeles and its environs, she travelled to Phoenix, the Grand Canyon, Tucson, and Santa Fe, returning to Canada via Chicago. She arrived back in Montreal in December. Over the next few years, she travelled to the United States several more times to attend scientific meetings, and to visit with colleagues and friends, including Helen Taussig with whom she developed an extensive and influential professional relationship.[47]

In 1938, 2 years after Maude had published her Atlas, a child underwent the first reported surgical procedure for a congenital cardiac defect, ligation of a patent arterial duct. At Boston Children's Hospital, John Hubbard proposed such ligation to the surgeon, Robert Gross. Hubbard based his diagnostic conclusions, in part, on the statistical information he gained from the Atlas of Congenital

Cardiac Disease.[48,49] But Maude did not live long enough to witness the first Blalock-Taussig shunt for tetralogy of Fallot, even though she popularised the eponym for the tetralogy.[50] In July 1940, Maude suffered a cerebral haemorrhage, from which she never recovered. She lingered throughout the summer months, and died at 71 years, on September 2, 1940.

There are two frescos painted by Diego Rivera hanging in the National Institute of Cardiology in Mexico City, and entitled La Historia de la Cardiología. Maude appears in one of them together with Vesalius, Harvey, Malpighi, Laënnec, Rokitansky, and others. Rivera included her as the sole physician-scientist who was a woman, a fitting testament to her reputation and impact.

In a book by Ignacio Chavez, founder of the cardiovascular institute in Mexico City, published in 1946, he honoured those portrayed in the murals by writing: "But the work of Rivera has yet another value, higher, more subtle and imponderable: its educational value for the younger generations. It is the evocation of the heroic past, with its great lesson of humility; the voice of the masters of yesterday that keeps alive its stimulating power; the call of a tradition moulded through the centuries, which orders us to continue forward. Youth that passes through the halls cannot but familiarise itself with these great figures of thought, and knowing them will be led to cultivate the holy attitude of veneration".[51]

In 1981, Anthony R. C. Dobell, cardiac surgeon at the Faculty of Medicine of McGill, wrote: "Maude Abbott's name is not attached to any congenital abnormality, although she certainly described several unusual malformations for the first time.... I like to think that Dr Abbott was not particularly interested in an "Abbott" heart, because she surely could have arranged it if she'd wanted to. Sadly, a person's name may live longer as an eponym than as a testimony to a lifetime of fundamental work".[52]

Nevertheless, local and national tributes to Maude Abbott continue years after her death. In Canada, a postage stamp bears her image. This stamp, entitled "The Heart of the Matter", was issued by Canada Post on January 17, 2000. Also, the Adult Congenital Heart Programme at McGill University bears her name.

## Conclusions

Maude Abbott, born in the 19th century, bridged the gap between the 19th and the 20th centuries. Her efforts helped lay the groundwork for the future work in cardiac malformations. Abbott steeped herself in anatomy, and it was upon her contributions to cardiac pathology that Helen Taussig began the process of developing a practical, clinical approach to congenital cardiac disease. For all of these reasons, she rightly joins the international pantheon of those already inducted in Paediatric Cardiology Hall of Fame (Fig 8).

**Figure 8.**
*Recently discovered Maude Abbott portrait painted late in life by Canadian artist Mary Alexandra Eastlake (1864–1951) that now hangs in the Osler Library at McGill University. Courtesy of the Osler Library of the History of Medicine at McGill University, Montreal, Canada.*

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## References

1. Abbott ME. Autobiographical sketch (1928). McGill Med J 1959; 28: 127–152.
2. MacDermot HE. Maude Abbott: A Memoir. MacMillan Company, Toronto, 1941.
3. Hacker C. The Indomitable Lady Doctors. Formac Publishing Company, Halifax, 1984.
4. Nuland SB. Doctors: Biography of Medicine. Alfred A. Knopf, New York, 1988, pp 432–433.
5. Waugh D. Maudie of McGill: Dr Maude Abbott and the Foundations of Heart Surgery. Hannah Institute and Dundurn Press, Toronto, 1992.
6. Abbott E. All heart: notes on the life of Dr Maude Elizabeth Abbott, MD, Pioneer Woman Doctor and Cardiologist. E. Abbott, Saint Anne de Bellevue, Quebec, 1997.

7. Ferencz C. Maude E Abbott – physician and scientist of international fame. Can J Cardiol 2000; 16: 889–892.
8. Kelen S. Maude Abbott: a biography. Can J Cardiol 2000; 16: 893–898.
9. Bensley EH. Bishop's Medical College. Can Med Assoc J 1955; 72: 463–465.
10. McGill University Archives, Maude Abbott Trust, M.G. 1070. Maude Abbott diaries 1930–1940.
11. Abbott ME. On so-called functional murmurs. Montreal Med J 1899; 28: 1–13.
12. Abbott ME. William Osler. Transactions of the Alumnae Association of the Woman's College of Pennsylvania, 1924.
13. Holmes AF. Case of malformation of the heart. Edinburgh Trans Medico-Chir Society 182; 1: 252–259.
14. Peacock TB. On malformations and C, of the human heart: with original cases. John Churchill, London, 1858.
15. Abbott ME. Unique case of malformation of the heart? Defect of the interventricular septum; rudimentary right ventricles patent foramen ovales great dilation of the right auricle and right auricular appendix. Montreal Med J 1901; 30: 522–532.
16. Anderson RH, Lenox CC, Zuberbuhler JR, Ho SY, Smith A, Wilkinson JL. Double-inlet left ventricle with rudimentary right ventricle and ventriculoarterial concordance. Am J Cardiol 1983; 52: 573–577.
17. Dobell AR, Van Praagh R. The Holmes heart: historic associations and pathologic anatomy. Am Heart J 1996; 132: 437–445.
18. Evans WN, Acherman RJ, Anderson RH. One hundred years of texts describing congenitally malformed hearts from 1814 to 1914. Cardiol Young 2009; 19: 12–29.
19. Abbott ME. Congenital heart disease. In: Osler W, McCrae T (eds). Modern Medicine its Theory and Practise, Vol. 4, Lea Brothers & Co, Philadelphia, 1908, ch. 9, pp 323–425.
20. Abbott ME. Statistics on congenital cardiac disease (400 cases analysed). J Med Res 1908; 19: 77–81.
21. Boothby WM, Abbott ME. On the difference between the carbon-dioxide tension in the arterial and venous blood as a diagnostic sign in cardiac septal defects. Bull Int Assoc Med Museums 1915; 6: 122–126.
22. Abbott ME. Observations on the Roth modification of the Plesch method of estimating the carbon dioxide tension of the alveolar air as an index of acidosis. Royal Victoria Hospital Scientific Reports 1916; series B: 27–33.
23. Lewis FT, Abbott ME. Reversed torsion on the ventricular bend of the embryonic heart in the explanation of certain forms of cardiac anatomy. Bull Int Assoc Med Museums 1916; 6: 111–115.
24. Abbott ME. On the technique of obtaining samples of alveolar air for estimation of the carbon dioxide tension, with especial reference to the Roth modification of the Plesch-Higgins method. Bull Int Assoc Med Museums 1918; 7: 60–67.
25. Abbott ME. The determination of basal metabolism by the "respiratory-valve and spirometer method" of indirect calorimetry, with an observation on a case of polycythemia with splenomegaly. Can Med Assoc J 1918; 8: 491–509.
26. Abbott ME. The determination of basal metabolism by estimation of the respiratory exchange (indirect calorimetry) as a clinical method in the diagnosis and treatment of hyperthyroid and hypothyroid states. Can Med Assoc J 1921; 11: 217–220.
27. Abbott ME, Dawson WT. The clinical classification of congenital cardiac disease. Int Clinics 1924; 4: 156–188.
28. Abbott ME. The diagnosis of congenital cardiac disease. In: Blumer G (ed.). Bedside Diagnosis, By American Authors, Vol. 2, W. B. Saunders company, Philadelphia and London, 1928, pp 353–514.
29. Abbott ME. On the clinical classification of congenital cardiac disease. The Lancet 1929; 2: 164–165.
30. Abbott ME. Congenital heart disease. Nelson Loose Leaf Med 1932; 4: 207–321.
31. Abbott ME. Clinical lecture on the differential diagnosis of congenital cardiac disease. Int Clinics 1934; 3: 15–45.
32. Abbott ME. Congenital cardiac abnormalities. In: Piersol GM and Bortz EL (eds). The Cyclopedia of Medicine, Vol. 3, F.A. Davis Co, Philadelphia, 1934, p 225.
33. Abbott ME. Congenital cardiac abnormalities. In: Stroud WD (ed.). Diagnosis and Treatment of Cardiovascular Disease. FA Davis CO, Philadelphia, 1940, pp 14–41.
34. Abbott ME. The pathological collections of the late Sir William Osler and his relations with the medical museum of McGill University. Can Med Assoc J 1920; 10 (Special Issue): 91–102.
35. Abbott ME. McGill's historic past, 1821–1921. An outline of the university from its origin to the present time, McGill University Publications, Montreal, 1921; series 6: 80–109.
36. Abbott ME, Blogg MW, Osler W. Sir William Osler, Memorial Number: Appreciations and Reminiscences. Privately issued, Montreal, 1926.
37. Abbott ME. Medicine and Surgery in the Province of Quebec. In: The Storied Province of Quebec, Vol. 2, Toronto Dominion Publishing Company, New York and Toronto, 1930, pp 1066–1150.
38. Abbott ME. The history of nursing as a force in nursing education and how to teach it. Canad Nurse 1931; 25: 509–516.
39. Abbott ME. Atlas of Congenital Cardiac Disease. American Heart Association, New York City, 1936.
40. Abbott ME. Centenary meeting British Medical Association: McGill University exhibit. Br Med J 1932; 2: 1197–1199.
41. Wilkinson JL, Gerlis LM, Anderson RH. Paediatric cardiology – James William Brown. Cardiol Young 2007; 17: 130–135.
42. Brown JW. Congenital heart disease. Staples Press Limited, London, 1939, p vii.
43. Abbott ME. Atlas of congenital cardiac disease. McGill-Queens Univ Press, Montreal, 2006.
44. Abbott ME, Shanly E. Cardiac defects in the light of the comparative anatomy of the vertebrate heart. Bull Int Assoc Med Museums 1922; 8: 188–213.
45. Clark OE. The contributions of JF Meckel, the younger, to the science of teratology. J Hist Med Allied Sci 1969; 24: 310–322.
46. Spitzer A. The architecture of the normal and malformed hearts. (Translated 2nd edn), Charles C. Thomas, Springfield, 1951.
47. Evans WN. The relationship between Maude Abbott and Helen Taussig: connecting the historical dots. Cardiol Young 2008; 18: 557–564.
48. Gross RE, Hubbard JP. Surgical ligation of a patent ductus arteriosus: report of first successful case. JAMA 1939; 112: 729–731.
49. Hubbard JP, Emerson PW, Green H. Indications for the surgical ligation of a patent ductus arteriosus. NEJM 1939; 221: 481–485.
50. Evans WN. "Tetralogy of Fallot" and Etienne-Louis Arthur Fallot. Pediatr Cardiol 2008; 29: 637–640.
51. Chavez I. Diego Rivera, Sus Frescos en el Instituto Nacional de Cardiología. Francisco Orosco Munoz, Mexico City, 1946.
52. Dobell ARC. Quoted. In: Tucker BL, Lindesmith GG and Takahashi M (eds). Second Clinical Conference on Congenital Heart Disease. Grune & Stratton Inc., New York City, 1982, pp 237–263.