

Historical Vignette

The relationship between Maude Abbott and Helen Taussig: connecting the historical dots

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Abstract The literature has scant documentation of the relationship between the important founders of paediatric cardiology, Maude Abbott and Helen Taussig. Recently discovered entries in the diaries kept by Maude Abbott provide evidence for a close connection between them. Further evidence suggests that their association was complex, and influenced by outside factors, such as their difference in age and era-related notoriety. In this review, I attempt to define more clearly the relationship between these two early icons of paediatric cardiology.

Keywords: History; paediatric cardiology; McGill University; Johns Hopkins University

MAUDE ELIZABETH ABBOTT AND HELEN BROOKE Taussig, together helped lay the early foundations of twentieth-century paediatric cardiology. They excelled in medical worlds ruled by men. At the same time, their male, collegial, contemporaries often failed to applaud their accomplishments. Maude Abbott was a pathologist whose fame peaked in the 1930s, just as the clinician Helen Taussig began her career. During the decade of the 1930s, the two developed a working relationship. This relationship is part of the history of paediatric cardiology, but the literature currently lacks documentation of their acquaintance beyond mention. Based on recently discovered diaries by Abbott, biographies of both Abbott and Taussig, and other relevant published works, in this article I attempt to develop a clearer picture of their connection.

Maude Elizabeth Abbott^{1–9}

Maude Abbott was born Maude Elizabeth Babin on March 18, 1869, in St. Andrews East, Quebec, Canada. Her father, Jeremiah Babin, was an

Anglican minister whom police accused of murdering his disabled sister-in-law, after authorities found her drowned in a nearby river. Although acquitted for lack of evidence, Babin nonetheless left his young family for the United States of America, and never returned. Maude's mother, Elizabeth, died of tuberculosis when Maude was seven months old, and her maternal grandmother, Frances Abbott, raised Maude and her older sister Alice. Frances Abbott had the family name of her granddaughter changed to Abbott.

Maude excelled in high school, and attended McGill University for undergraduate work (Fig. 1). When she applied to medical school, however, the McGill University Faculty of Medicine rejected her because the school then did not accept women. Rather, she attended the more women-friendly Bishop Medical School in Montreal, graduating with honours in 1894.¹⁰ Upon graduation, she sailed to Europe for two years of training in internal medicine and pathology, mainly in Vienna, Austria. In 1896, she returned to Montreal and opened a practice in internal medicine, which failed to provide the intellectual stimulation she sought. Sensing her dissatisfaction, one of her supervising physicians whilst at medical school, Charles F. Martin, later to become Dean of McGill University

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Figure 1.
The graduation of Maude Abbott from McGill.

Faculty of Medicine, suggested she review the charts of hospital patients that documented heart murmurs. This review resulted in her first article, "On so-called functional murmurs."¹¹ In 1897, a male colleague, James Stewart, delivered her work at the meeting of the Montreal's Medico-Chirurgical Society, since the organization did not admit women physicians as members, nor permit them to present at their meetings.

In 1898, the administration of McGill University Faculty of Medicine offered Abbott a position as assistant curator at their museum of pathologic specimens, from which she later rose to become the chief curator. In December of 1898, she ventured to the United States for the first time to visit the Army Medical Museum in Washington, District of Columbia, and the collection of pathological specimens held at Johns Hopkins University. World-famous fellow graduate from McGill, William Osler, 20 years her senior, was then Chief of Medicine at Hopkins. Abbott joined the entourage following Osler on rounds. While she was standing next to a door, it suddenly opened, crushing her finger. William Osler offered aid, and asked the accident-prone Abbott to join other students and residents for one of his regular education dinners held at his home. It was at this dinner that Osler inspired Abbott to pursue her career in pathology. She remained enamoured with William Osler until he died in 1919.¹²

Upon her return to Montreal in January of 1899, Abbott enthusiastically set out to catalogue the disorganized pathological museum at McGill. She discovered a mislabeled specimen with double inlet left ventricle and concordant ventriculo-arterial

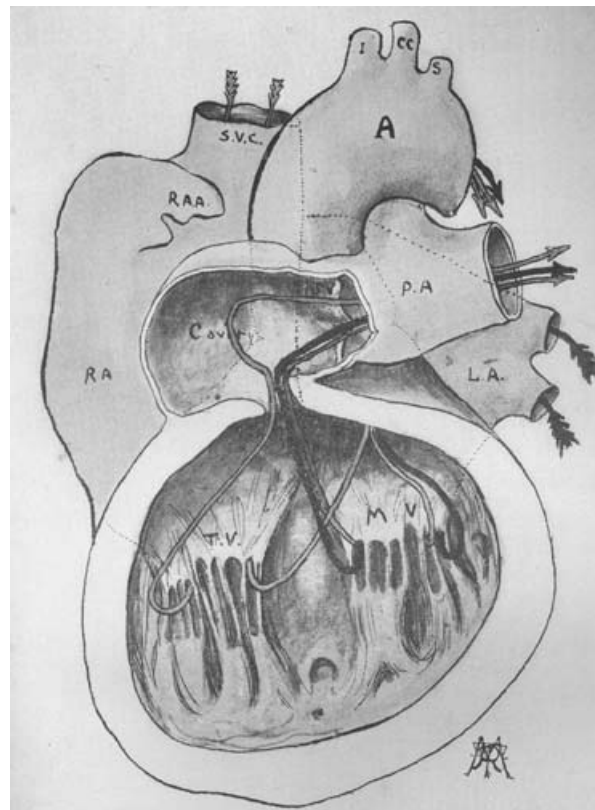


Figure 2.
Diagram of the Holmes heart from the article written by Maude Abbott in 1901.

connections that stimulated her to pursue the study of the congenitally malformed heart. A founder of McGill University, Andrew Holmes, had previously described this particular specimen in 1824.¹³ The specimen, characterized by origin of the normally related pulmonary trunk from the incomplete right ventricle, became known as the Holmes heart (Fig. 2).^{14,15} Over the next several decades, Abbott's fame grew. By 1930, following the publication of her extensive chapters in major textbooks,^{16,17} the medical community came to recognize her as the world's expert in congenital cardiac disease.

Helen Brooke Taussig¹⁸⁻²³

I met Helen Taussig in New York City at the Second World Congress of Pediatric Cardiology, held in June, 1985. My mentor at Childrens Hospital Los Angeles, Paul Lurie, kindly introduced me to her during a reception at the Metropolitan Museum of Art. Draped in a silver mink stole, and regally seated in the centre of the atrium in the American Wing, Helen Taussig, then 87 years old, serenely held court.

Helen Brooke Taussig was born in Boston on May 24, 1898, the same year Maude Abbott began

her curatorship of the museum at McGill. Helen's father, Frank William Taussig, was the distinguished Henry Lee Professor of Economics at Harvard. Her mother was a graduate of Radcliffe, and a biologist. As a young girl, Helen enjoyed the lessons from her mother about the botany of Cape Cod, the location of the family summerhouse. In a coincidence tragically similar to the life of Maude Abbott, however, Helen's mother died of tuberculosis when Helen was only 11 years old. Helen grew closer to her father, who helped her to overcome the dyslexia that plagued her schoolwork.

Like her mother, Helen initially attended Radcliffe as an undergraduate. There she played tennis and basketball. In 1919, she transferred to the University of California at Berkeley, from which she graduated in 1921. She had become familiar with Berkeley when she accompanied her father one summer as he taught an economics course there. At Berkeley, she acted in school plays, and in her free time hiked throughout the Yosemite National Park.

Despite the protests of her father, Helen wished to apply to medical school. Again paralleling Maude Abbott, Harvard Medical School rejected Helen because they did not accept women, even those who were daughters of famous Harvard Professors. For a couple of years, Helen took premedical courses at both Harvard and Boston University. At Boston University, a Professor of Anatomy, Alexander Begg, became an inspirational mentor. Helen worked with him on a project investigating the myocardium, which she later published in the *American Journal of Physiology* of 1925, her first article in the medical literature.^{23,24} Alexander Begg counselled Helen to apply to Johns Hopkins University, as they had a policy of admitting women, this being the legacy of a group of women donors who helped found the Johns Hopkins School of Medicine in 1893.²⁵

At Hopkins, Helen pursued her interest in cardiology that began with Alexander Begg by signing up for elective time in the adult "heart station." (Fig. 3) There, she fell under the spell of her next mentor, Edward Perkins Carter.²⁶ Following graduation in 1927, Helen failed to obtain an internship in internal medicine at Hopkins, and Edward Carter invited her to spend an extra year learning cardiology in the heart station. In 1928, another important mentor, Edwards Park assumed the chair of pediatrics at Hopkins.²⁷ Following the year in the heart station, she completed a paediatric residency under Edwards Park. The visionary Park decided to set up the first university pediatric specialty clinics. He initially asked Clifton Leech to head the cardiology clinic. Leech left in 1930, and Park appointed his junior faculty member, Helen

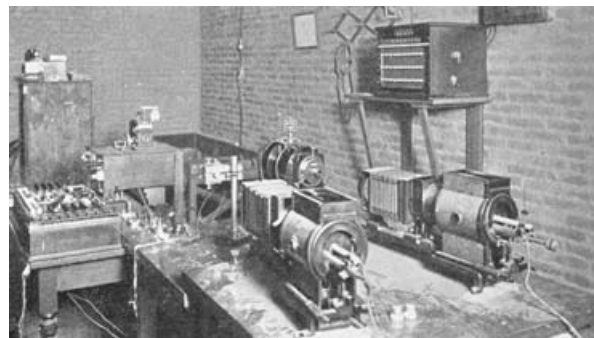


Figure 3.
The Heart station at Johns Hopkins in the 1920s.



Figure 4.
Helen Taussig during the 1930s.

Taussig, fresh out of residency, to head the cardiology clinic²⁰ (Fig. 4).

Abbott and Taussig together

The diaries of Maude Abbott, including entries from January, 1930, to shortly before her death in September, 1940, are held in the archives of McGill University.²⁸ Her handwriting is difficult to read, and she did not write entries for every day and month. The diaries, nonetheless, contain a wealth of information about her meetings; trips in Canada, to the United States, and to Europe; and the care she provided for her invalid older sister, Alice.

On November 6, 1930, Abbott inscribed an entry that noted: "Dr Toussig ? from CMH brought

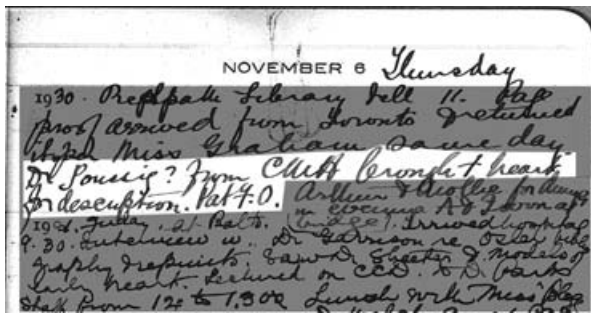


Figure 5. The diary entry of Maude Abbott for November 6, 1930, with the pertinent part highlighted.

heart for description. Pat F.O" (Fig. 5). Initially, I thought it was possible that Dr. Toussig was Dr. Taussig. A letter located in the Osler Library Archives at McGill University, however, identified this individual as Dr. Touzel, then a resident in pathology at Children's Memorial Hospital.²⁹

The entry for October 20, 1931 clearly states that she met Helen Taussig that day, although it is unclear if it was their first meeting (Fig. 6). As discussed above, Helen Taussig had assumed the directorship of the pediatric cardiac clinic at Hopkins in the summer of 1930. Then, Maude Abbott's fame was worldwide. Taussig may have been as thrilled as any young fellow or faculty member would be upon meeting an icon in a similar field of study. This entry for October 20 also documented that they discussed a seventeen-year-old patient with mirror-imagery ("situs inversus") and tetralogy of Fallot.

In October of 1931, Maude Abbott was in New York City, attending a meeting at the New York Academy of Medicine. At that meeting, Abbott presented an exhibit on the congenitally malformed heart that included specimens, drawings, photographs, and electrocardiograms. Helen Taussig likely saw this exhibit, which probably further stimulated her interest in congenital cardiac disease. The clinic for pediatric cardiology at Hopkins in its early days almost exclusively cared for children with rheumatic heart disease, then far more common than congenital cardiac disease. Maude Abbott remained in the United States through November of 1931, and visited hospitals in New York, Pennsylvania, and Maryland. While in Maryland at Hopkins, she was a guest at the house of Helen Taussig on November 5 and 8, as noted in the entries in her diary.

Maude Abbott recorded several meetings with Helen Taussig in May of 1933, and February of 1934, during her trips to medical meetings in Washington, District of Columbia, Baltimore, and New York City. Maude documented that they socialized and discussed various cases of congenitally

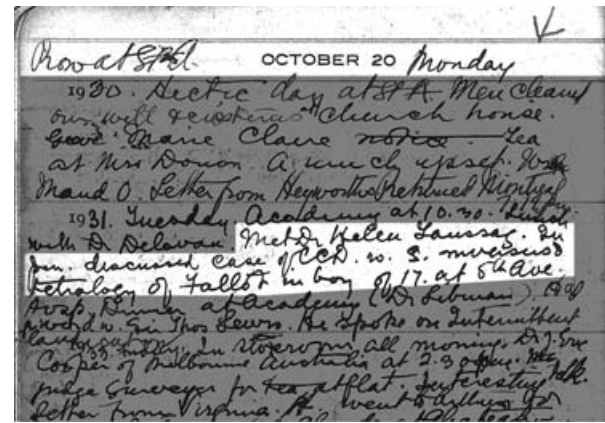


Figure 6. The diary of Maude Abbott for October 20, 1931, again with the pertinent part highlighted.

malformed hearts, covering both specimens and patients. Maude Abbott also documented other meetings with prominent medical figures of the time, such as Paul Dudley White, Howard Sprague, and T. Duckett Jones.

Maude also displayed her travelling exhibit in London, assuring her reputation on both sides of the Atlantic³⁰ (Fig. 7). Her friend, David Seecof of the Jewish Hospital of Montreal, suggested that she compile the information contained in the exhibit into an atlas. The American Heart Association published the Atlas of Congenital Cardiac Disease in 1936³¹ (Fig. 8).

The founder of the American Heart Association, Paul Dudley White, composed the foreword to the Atlas. In the foreword, White honored 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."

Helen Taussig and Maude Abbott both attended the 29th Symposium of the International Association of Medical Museums, founded by Maude Abbott, and held in Boston in April, 1936. At the scientific session, Helen presented an abstract, "Two Cases of Congenital Malformation of the Heart Due to Defective Development of the Right Ventricle. Clinical and Pathologic Findings."³² This was the first report of her insight in diagnosing right ventricular underdevelopment clinically. The full report appeared in the Bulletin of the Johns Hopkins Hospital later that year.³³

Fortunately, the publishers, Maude Abbott being the editor, preserved the question-and-answer session



Figure 7.
The exhibit of Maude Abbott for London, July, 1932.

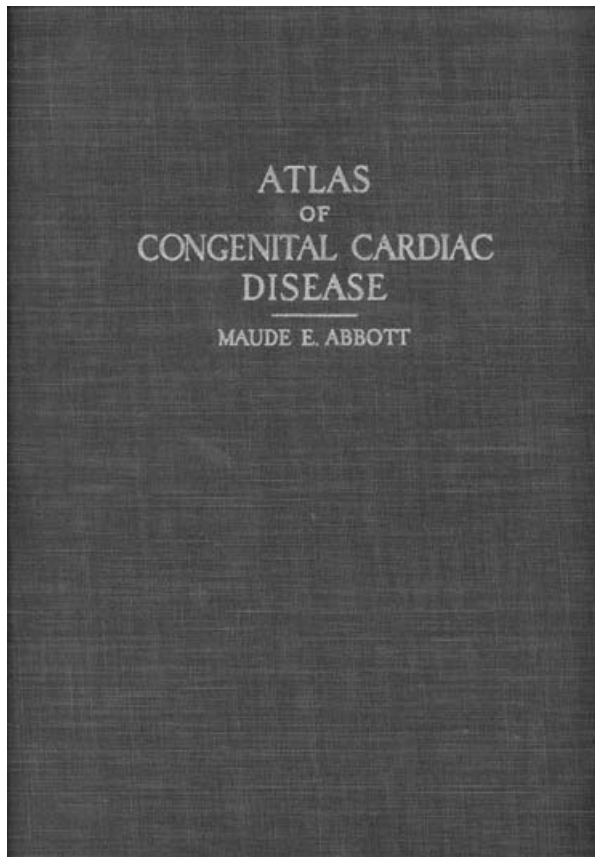


Figure 8.
The cover of the Atlas published by Maude Abbott in 1936.

that followed. In this written record, Maurice Lev of Chicago, and Howard Sprague, of stethoscope fame from Boston, initially posed a few general questions. Then the short, stout, 67-year-old icon of congenital cardiac disease, Maude Abbott, directed her pointed

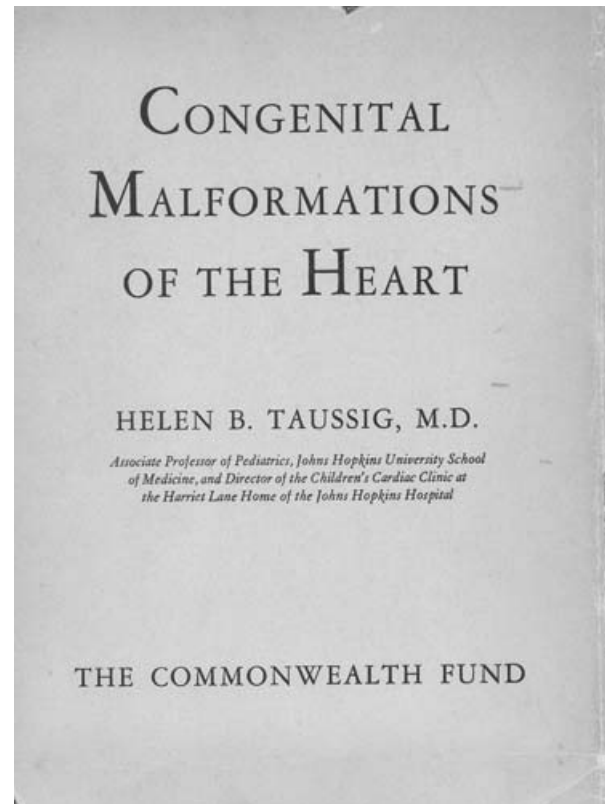


Figure 9.
The cover of the textbook of Helen Taussig published in 1947.

questions to the 38-year-old tall, slender, newcomer, Helen Taussig.

Dr. Abbott: I wonder if it is right to call this an absence of the right ventricle. Should it not be aplasia of the right ventricle? It sounds as if this were a four-chambered heart in which the right side has become aplasic, and was of no use, but was still there anatomically.

Dr. Taussig: In the second case the right ventricle was markedly hypoplastic.

Dr. Abbott: In the first case you could find no trace of it and yet you had a pulmonary artery above?

Dr. Taussig: In the first case there was no demonstrable evidence of a right ventricle. It may be more accurate to consider it an aplasia than a defect. I merely meant such a case appeared to represent a failure of the right ventricle to develop in the normal way.

Dr. Abbott: It is an interesting point. These cases that have been described as cases of defect I think are not really so from the anatomic standpoint. The case we had at Bellevue Hospital was just like that. If there is a pulmonary artery there should be a trace of right ventricle.

Dr. Taussig: Then it is aplasia.

This exchange is interesting. Helen and Maude knew each other well from a social and professional affiliation over the previous 5 years. Helen spent time with Maude during the visits of the latter to Baltimore and New York City, reviewing specimens, discussing cases, enjoying lunches, dinners, and social gatherings. At scientific meetings, nevertheless, even individuals who knew each other well, often presented challenging material. Those challenged may take umbrage at blunt public interrogatives, compounded by the tension felt by the junior presenter from questions directed by a senior iconic figure. In addition, they used imprecise and confusing descriptive language. Pathological terms were in flux; years passed before clinicians and morphologists clarified them. There is also a sense that the expert, Abbott, was authoritatively lecturing the novice, Taussig.

The First Clinical Conference on Congenital Heart Disease, compiled by Tucker, Lindsmith and Takahashi in 1979, recorded the presentations of a meeting held at Childrens Hospital of Los Angeles in January, 1979. This book recorded the entertainment at the dinner of the symposium, including a conversation between the special guest at the conference, Helen Taussig, and Louis Martin, one of her mentors whilst at Hopkins during the 1920s, and former director of cardiology at Childrens Hospital of Los Angeles. During this dialogue, Martin asked Taussig about her early experience with congenital cardiac disease, and how she learned to detect specific problems using chest X-rays and electrocardiograms. Taussig explained how she recognized similarities in patients that had "absent right ventricles." As she is reported in the book from Tucker, Helen relayed, "The first time I reported the case, I was severely criticized for not showing a picture of an absent right ventricle. I just said, 'It's awfully hard to photograph that which doesn't exist'."³⁴

Although this comment probably received a hearty laugh from the assembled paediatric cardiologists and

surgeons, Taussig was possibly referring to the 29th symposium of the International Association of Medical Museums held in 1936, where she first presented her observations on diagnosing "absent right ventricles." It is also likely she remembered the questioning that followed and plausible that, 43 years afterward, the comments made by Maude Abbott still stung.

The archives of the Osler Library at McGill also has a small series of letters exchanged between Abbott and Taussig between April, 1935, and January, 1937. The letters discuss cases for which Helen sought advice from Maude. They also discussed upcoming meetings in New York City and Baltimore, during which they hoped they would have time to meet.³⁵ In her diary, Maude documents additional meetings with Taussig after 1936. They included visits together in New York City in January, 1937, and in Baltimore and New York City in April, 1938. From 1931 to 1938, Abbott recorded more than 20 meetings between them. Other meetings likely occurred, as Maude may have simply failed to enter them all. Maude even penned the address of Helen in her diary, in which she recorded few other addresses.²⁸

Between 1938 and 1939, Maude Abbott was laying the groundwork for a comprehensive textbook devoted to paediatric cardiology. She signed a contract with the publisher Lea and Febiger, based in Philadelphia, and she applied for a fellowship from the Guggenheim Foundation to help defer her costs in taking a sabbatical to write her book. In her application, Maude Abbott summarized her aims:

- further to analyze the findings and long-term outcome of the 1,000 patients comprising her Atlas,
- to report clinical laboratory findings in congenital cardiac abnormalities, such as electrocardiograms and chest X-rays,
- to carry her investigations out in a number of institutions willing to cooperate,
- to compile all the data and information in a comprehensive textbook of paediatric cardiology for "which there is a widespread demand."¹

Accompanying her application for the Guggenheim Foundation Fellowship, Maude Abbott composed an interesting letter to Edwards Park at Johns Hopkins, reproduced on page 235 of the biography of Abbott written by MacDermot.¹ Maude wrote, "A condition of the Fellowship is that the work is to be carried out in the United States. I am planning to spend some time in the Department of Cardiology at the Massachusetts General Hospital and one of the New York hospitals. I would very much like also to spend a couple of months in Baltimore next autumn both in the Welch Library and in following

the clinical work in pediatrics on your service at the Harriet Lane Hospital. I would appreciate it very much if you will let me know if I would have your permission to enjoy this privilege if a Fellowship is awarded to me."

The letter from Maude to Edwards Park overlooked Helen Taussig. Abbott was familiar with Helen, and Helen was the director of the pediatric cardiac clinic at Hopkins. The reasons for Maude omitting reference to Helen are unclear, but may include anything from simple oversight, Maude was notoriously absent-minded, to an intentional lack of mention. She was, after all, the world expert, and Helen was "the new kid on the block." Conceivably, Park showed this letter to Helen Taussig. Maude Abbott failed to obtain the Guggenheim Fellowship, although she received a smaller stipend from the Carnegie Foundation. Sadly, she died in September, 1940, before she could begin her textbook. Her likeness is immortalized in the massive murals of Diego Rivera "La Historia de la Cardiología", painted in 1943 and still hanging in the National Institute of Cardiology in Mexico City.³⁶ Maude Abbott is the only woman depicted among the 50 greats in the history of cardiology.

Helen Taussig probably began writing her own textbook on paediatric cardiology in the late 1930s.¹⁸ Could the letter from Abbott to Park have accelerated her efforts? Following the description of the Blalock-Taussig shunt in November, 1944,³⁷ Helen Taussig became an international superstar, a long way from her youthful obscurity in the shadow of Maude Abbott.

Taussig published her own book in 1947, entitled *Congenital Malformations of the Heart*.³⁸ (Fig. 9). Treatises devoted to congenital heart disease had been published prior to the offering from Helen Taussig, for example the works of Abbott, as well as other reasonably comprehensive texts.³⁹⁻⁴¹ Taussig, however, summarized her personal clinical experience, exceeding the content in previous works. Her practical, well-illustrated, book was groundbreaking. The prediction of Maude Abbott was correct; a "widespread demand" for a comprehensive pediatric cardiology textbook existed, as physicians everywhere embraced the book from Taussig.

Many years later, Helen Taussig paid homage to Maude Abbott, both in the T. Duckett Jones Memorial Lecture of 1965, and in an article written for the *Medical Times* in 1978, "Pediatric Cardiology – Past, Present, and Future."^{42,43} But many years previously, she made no mention of Maude Abbott in the preface to her textbook of 1947, even though she thanked Edwards Park, and described how she diagnosed missing right ventricles by using chest X-rays and electrocardiograms. In a separate series of introductory remarks for her text of 1947,

entitled "Plan for the Book," she wrote the following, "Dr. Maude Abbott in her studies of congenital malformations of the heart divided all malformations into three groups: the cyanotic group, the cyanose tardive group, and the acyanotic group. This classification has a sound anatomic basis.... [However] Dr. Abbott's classification is of no aid in the clinical analysis of congenital malformations; therefore, it is not used in this book."

Helen Taussig died tragically in an automobile accident on May 20, 1986. Numerous photographs have immortalized her likeness in her later years. My favourite image is the portrait of Helen Taussig painted by Jamie Wyeth in 1963, reproduced in Joyce Baldwin's "To Heal the Heart of a Child". Controversy over the depiction, as detailed in Joyce Baldwin's book, has precluded its public display at Johns Hopkins or any other venue.¹⁸ I feel, nonetheless, that the portrait of Wyeth displays the determined personality that underpinned Helen Taussig's success.

Conclusions

Maude Abbott and Helen Taussig shared a number of traits and circumstances. Their mothers both died of tuberculosis when they were young, they had difficulty entering medical school because of their sex, they were single, focused, driven, and had important male mentors; and they had many challenges during their careers. They also had important differences. Maude grew up in the 19th century. Physically she was short and stout. She was senior to Helen Taussig, and primarily a pathologist. Helen grew up in the 20th century. She was tall, slender, and athletic. She was junior to Abbott, and primarily a clinician.

Richard Bing, cardiac physiologist and contemporary of Helen Taussig at John Hopkins in the 1940s, wrote in his book "Cardiology: The Evolution of the Science and Art", that Helen Taussig was a "friend and disciple of Maude Abbott."⁴⁴ I think that this is too simplistic. The diaries of Abbott document that these two icons knew each other well. The complete story of their association, however, is elusive. Written or photographic evidence documenting their connection probably remains undiscovered. The available record supports the possibility that these two independent women, two decades apart in age, may have perhaps simultaneously appreciated and envied each other.

Maude Abbott and Helen Taussig were central to the emergence of paediatric cardiology, albeit that they were not saints. Regardless of relationships, Taussig and others benefitted from the pioneering work of Maude Abbott. But it was the dogged

determination of Helen Taussig that helped push for surgical intervention in children crippled by cyanotic cardiac malformations such as tetralogy of Fallot, thus helping to set paediatric cardiology and paediatric cardiac surgery in motion.

Acknowledgement

I am indebted to Paul R. Lurie, Emeritus Professor of Pediatrics University of Southern California, for suggestions and editorial assistance.

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