Newsletter

January 2015

History of Pathology Society 2014-2015 Officers

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History of Pathology Society Meeting
Sunday, March 22, 2015, 3:30-5:15 p.m. Convention Center Room #208
Hynes Convention Center, Boston, MA, USA
United States and Canadian Academy of Pathology Meeting

Boston Pathology: The Founders and Their Descendants
Moderator: David N. Louis, Massachusetts General Hospital, Boston, US

3:30	**Introductory Remarks** David N. Louis, Massachusetts General Hospital, Boston, US
3:35	**The 19th Century and the Era of Physician-Pathologists: The Warrens and Their Colleagues** Robert H. Young, Massachusetts General Hospital, Boston, US
4:00	**The Turn of the Last Century and the Transition to Full-Time Pathologists: Frank Burr Mallory, William Councilman and James Homer Wright** Michael J. O'Brien, Boston University School of Medicine, Boston, MA
4:30	**The Early 20th Century and the Spread of Pathology in Boston: The Many Hospitals and Many Descendants** David N. Louis, Massachusetts General Hospital, Boston, US
5:00	**Business Meeting**

BOSTON PATHOLOGY: THE FOUNDERS AND THEIR DESCENDANTS

History of Pathology Society
2015 Annual Meeting
Boston, MA

Introduction

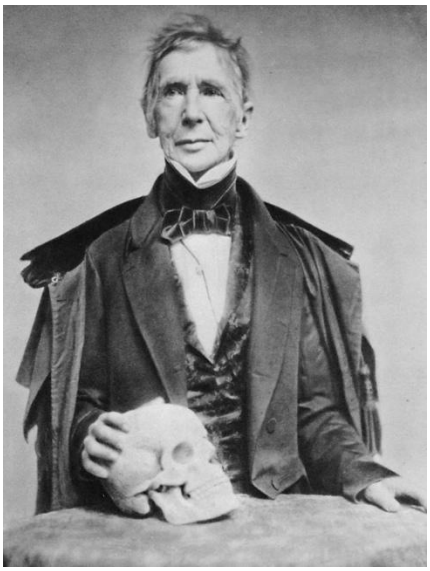
The discipline of pathology in Boston has a rich history and this symposium, held in Boston, relates that history through approximately 1950. The first part begins with the founding of the Massachusetts General Hospital (MGH) in 1811 and features members of the Warren family as well as notables such as John Barnard Swett Jackson, the first professor of pathology in the United States, and Reginald Heber Fitz, the first person to have the title of "pathologist" in Boston. The second part picks up the story in 1892, when William Councilman was recruited to Harvard Medical School; Councilman in turn sets up Frank Burr Mallory at the Boston City Hospital and James Homer Wright at the MGH—two giants who, along with Councilman, set the stage for the further development of pathology in the city. The last part of the symposium tells the story of Councilman and Mallory's trainees, including S. Burt Wolbach, who go on to populate the pathology departments of the many hospitals that develop in Boston over the first half of the twentieth century.

The 19th Century and the Era of Physician-Pathologists: The Warrens and Their Colleagues

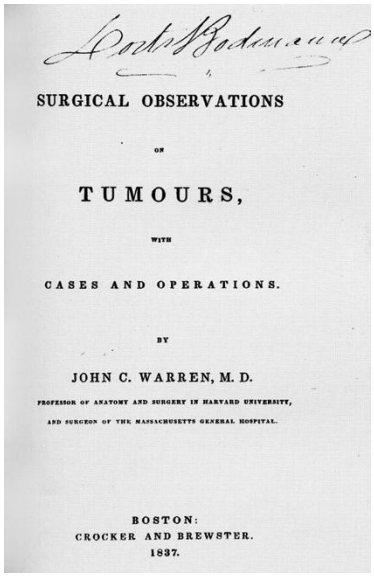
Robert H. Young, MD
Massachusetts General Hospital/Harvard Medical School

Although it was not until the late 19th and early 20th century that pathology in Boston gained a "head of steam," earlier investigators, along with diverse individuals in Europe in particular, laid the groundwork for the great advances of the early 20th century and later years.

The first individual mentioned and another noted later belong to perhaps the most luminous family in the entire history of medicine in New England, the Warren family. The first member of the Warren family who features in this story is John Collins Warren (1778-1856). His father was one of the founders of Harvard Medical School (HMS) in 1782 and its first Professor of Anatomy and Surgery. He authored the first paper published in the *Boston Medical and Surgical Journal* (now the *New England Journal of Medicine*). John Collins Warren graduated from HMS in 1797, and studied medicine at Guy's Hospital, and also in Edinburgh and Paris, before returning to Boston after three years. Warren's fame rests largely on his first public demonstration of ether at the Massachusetts General Hospital (MGH) in October 1846, and his role in the founding of the hospital, but two of his works are notable in the context of pathology. In 1809 he published a monograph entitled "Cases of Organic Diseases of the Heart." More noteworthy is his 1837 book "Surgical Observations on Tumors, with Cases and Operations." The coverage of gross aspects of pathology is impressive. Using material obtained abroad and from the many operations he



performed as the first surgeon at the MGH, and those his father had collected, he formed the collection that became the Warren Anatomical Museum.



SURGICAL OBSERVATIONS

ON

TUMOURS,

WITH

CASES AND OPERATIONS.

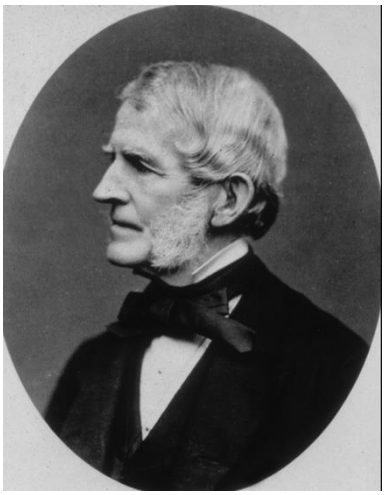
BY

JOHN C. WARREN, M. D.

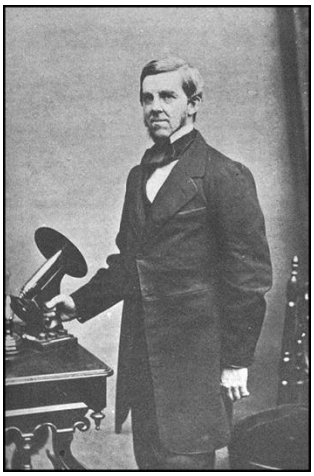
PROFESSOR OF ANATOMY AND SURGERY IN HARVARD UNIVERSITY,

AND SURGEON OF THE MASSACHUSETTS GENERAL HOSPITAL.

BOSTON:
CROCKER AND BREWSTER.
1837.



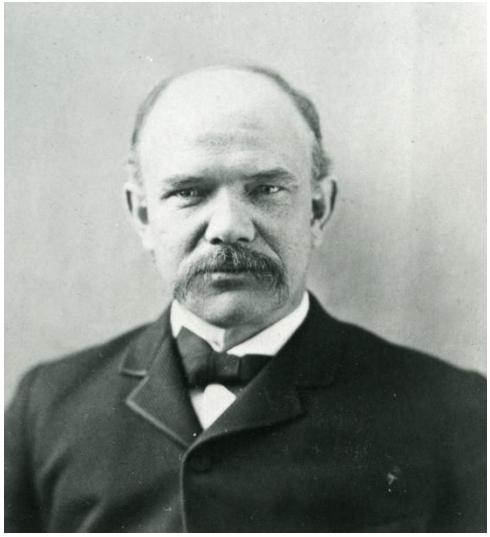
Although gross pathology was a major interest of Warren, he was primarily a surgeon and it was Dr. John Barnard Swett Jackson (1806-1879) who had a dominant interest in pathology. He was also a member of a medical family, being a nephew of the Dr. James Jackson, one of the co-founders of the MGH. J.B.S. Jackson also studied in Europe. Upon his return to Boston in 1831, he devoted most of his time to pathology at the MGH and HMS. He was a great collector of specimens and from 1847 was curator of the Warren Museum. In 1854 he became the first Shattuck Professor of Morbid Anatomy at HMS (and first professor of pathology in the United States). He had little to no interest in microscopy which was beginning to be applied to tumor pathology in his mid career years.



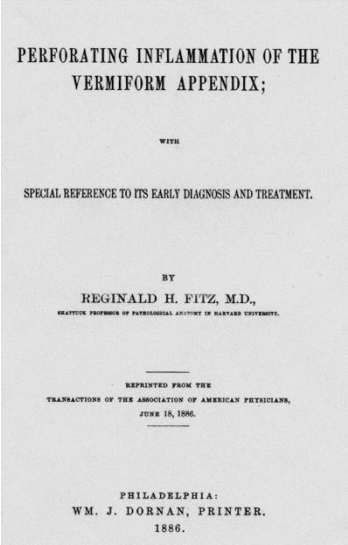
A famous physician at the MGH at this time was the eminent literary figure Dr. Oliver Wendell Holmes (1809-1894) who was affiliated with the MGH from 1840 to 1849. Holmes made an important contribution in 1843 when he published an essay on the contagious nature of puerperal fever. This was a revolutionary concept at the time and was met with hostility from many leading obstetricians; it was only the work of Semmelweis a few years later that led to its acceptance. Holmes is usually given credit for the introduction of the microscope at HMS. Since HMS was adjacent to the MGH on North Grove Street by 1847 it is likely that his introduction of the microscope at HMS had an impact on its introduction at the hospital around that time.

The first person to take up microscopy officially at the MGH was Dr. John Bacon, Jr. who held the new position of Chemist and Microscopist from 1851 to 1855 and then Chemist from 1855 to 1863. He was an avid microscopist but apparently in relation to clinical fluid examination rather than in analysis of anatomical specimens.

Dr. Calvin Ellis (1826-1883) took over the role of Microscopist at the MGH after Dr. Bacon, and held the titles of Shattuck Professor of Pathological Anatomy, Curator of the Pathological Cabinet and Microscopist for the hospital from 1855 to 1865. He had studied medicine and pathology in Vienna, France, and Germany. Upon his return he became Assistant to J.B.S. Jackson. He was the first MGH physician to use the microscope in evaluating anatomical specimens. He published over forty papers and won the Boylston prize in 1860 for his essay on "Tubercle." He was appointed the Jackson Professor of Clinical Medicine in 1866 and served in that capacity until 1869 when he became Dean of HMS.



Dr. Reginald Heber Fitz (1843-1918) succeeded Dr. Ellis as Microscopist and Curator of the Pathological Cabinet at the MGH in 1871. Three years later the first significant pathology facilities were built at the MGH (on Allen Street), where they remained until 1956 when the Warren Building opened. He was the first physician to be designated Pathologist at the hospital. He graduated from HMS in 1868 and then trained with Rokitansky, Virchow, and Orth, in Germany. Fitz became the head of HMS Pathology in 1879 (upon the death of Dr. Jackson), becoming the third Shattuck Professor. His most notable contribution was in 1886, his paper "Perforating inflammation of the vermiform appendix with special reference to its early diagnosis and treatment." He showed that acute inflammation, abscess formation, and bowel perforation in the cecal region were almost always secondary to a disease he designated "appendicitis."



PERFORATING INFLAMMATION OF THE VERMIFORM APPENDIX;

WITH

SPECIAL REFERENCE TO ITS EARLY DIAGNOSIS AND TREATMENT.

BY

REGINALD H. FITZ, M.D.,

SHATTUCK PROFESSOR OF PATHOLOGICAL ANATOMY IN HARVARD UNIVERSITY.

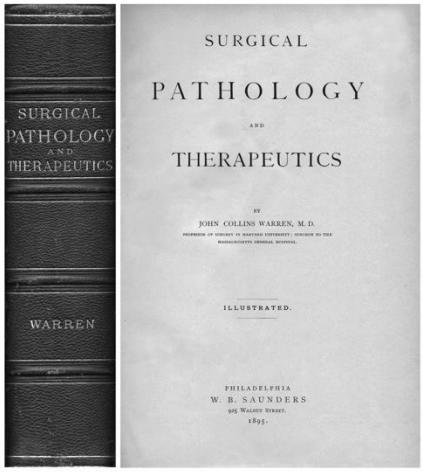
REPRINTED FROM THE TRANSACTIONS OF THE ASSOCIATION OF AMERICAN PHYSICIANS, JUNE 18, 1886.

PHILADELPHIA:
WM. J. DORNAN, PRINTER.
1886.

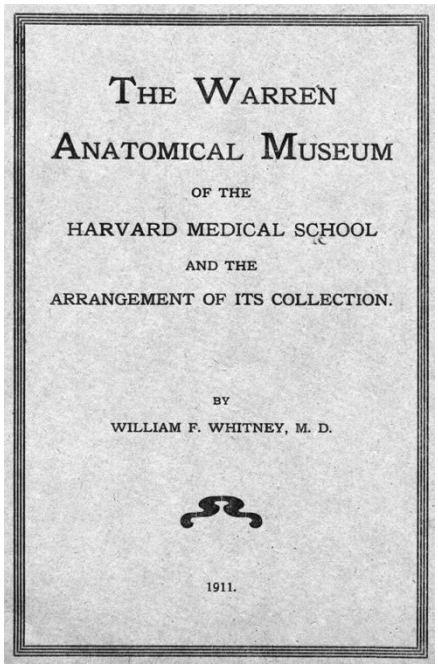
Although others had made contributions concerning this condition previously, Fitz's study was more significant in that it included a plea for appendectomy as the appropriate treatment. The late Dr. William B. Ober stated that a case can be made for Fitz's investigation of appendicitis marking the beginning of surgical pathology in North America. Another major contribution of Dr. Fitz was his 1889 paper on acute pancreatitis. In 1892, Dr. Fitz relinquished the chair of pathology to become the Hersey Professor of Theory and Practice of Physic.

The development of surgical pathology at the hospital can was aided by another distinguished member of the Warren family, John Collins Warren (1842-1927), grandson of the first John Collins Warren. He styled his name J. Collins Warren to distinguish him from his grandfather. After graduation from HMS in 1866, he studied in Vienna in Rokitansky's laboratory, under Billroth and in Berlin under Cohnheim, in Paris under Ranvier and Cornil, and in Glasgow with Joseph Lister. He fought vigorously to have Lister's concepts instituted at the MGH, against strong opposition.

Warren recorded his pathologic observations in a ledger entitled "Microscopic Examination of Tumors." This constituted early examples of anatomical pathology diagnoses at the hospital. He won the Boylston prize in 1872 for his paper on "The Anatomy and Development of Rodent Ulcer" and Warren authored a book "Surgical Pathology and Therapeutics," published in 1895. The book is based largely on gross observations but it also includes a microscopic classification of breast tumors with drawings reflecting his particular interest in breast disease. Dr. Warren was a pioneer of the use of the needle biopsy in evaluating breast disease. At that time, the suggestion that one would biopsy a breast tumor prior to resection was controversial. Warren also has a claim to priority in utilization of frozen section in tumor diagnosis, having written in 1889 that specimens were sometimes examined immediately "with the freezing microtome;" this was six years before the report of frozen section technique by Dr. Thomas S. Cullen of Hopkins who is generally credited with devising the technique. Dr. Warren played a major role in the move of HMS to its current location on Longwood Avenue in 1906 and was the first Moseley Professor of Surgery at the medical school. It is fitting that their name of the Warren family is commemorated in the name of the building that houses a significant part of the pathology department to this day.



From 1888, the hospital was well-served by another illustrious figure, Dr. William Fiske Whitney (1850-1921), whose career saw the movement of diagnostic pathology from the surgeon to the specialist pathologist. Dr. Whitney was an HMS graduate and, after serving as a house officer at the MGH, studied in Berlin, Munich and Strasburg. In 1879 he became curator of the Warren Museum, serving as such for a remarkable 42 years. He was appointed pathologist to the MGH in 1888 and served as such until his retirement in 1916.



THE WARREN
ANATOMICAL MUSEUM
OF THE
HARVARD MEDICAL SCHOOL
AND THE
ARRANGEMENT OF ITS COLLECTION.

BY
WILLIAM F. WHITNEY, M. D.

1911.

Dr. Whitney carried the specific title of Surgical Pathologist, the first to do so at the MGH. He had many interests, ranging from conventional diagnostic pathology to forensic pathology to infectious disease. In a tribute to Dr. Whitney after his death, Drs. J. Collins Warren and Samuel J. Mixter noted his "wonderful skill and quick diagnosis and knack in the examination of fresh specimens." Dr. Whitney can be considered a major transitional figure in the practice of pathology at the hospital. He was the first person to spend his career at MGH oriented firmly around the practice of pathology, rather than practicing pathology part-time while serving as a physician or surgeon. He also set the stage for the burgeoning of surgical pathology in the years after the formation of the Pathology department in 1896 (see essay below).

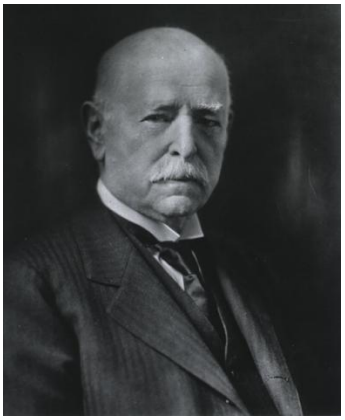
The above is an abbreviated version of the essay “The Warrens and Other Pioneering Clinician-Pathologists of the Massachusetts General Hospital During Its Early Years: An Appreciation on the 200th Anniversary of the Hospital Founding” by Robert H. Young and David N. Louis that was published in Modern Pathology 24:2185 1294, 2011. All references above are cited in this reference.

The Turn of the Last Century and the Transition to Full-Time Pathologists: William Councilman, Frank Burr Mallory, and James Homer Wright

Michael J. O'Brien, MD
Boston University School of Medicine

The end of the nineteenth century was a critical period for American medicine. Systemic reform was needed if the US was to participate in the great advances in medical discovery and practice that were occurring in Europe, particularly in Germany. Pathology, a specialty that included the microscopic examination of diseased tissues and the new science of bacteriology, was seen as an important agent of medical progress. With an eye to this, Harvard Medical School (HMS) recruited, for the first time, a medical school professor who was not home grown, namely William T. Councilman, from Johns Hopkins, as the Shattuck Professor of Pathology (Pathological Anatomy). Councilman, in turn, placed two brilliant men in positions within his purview, Frank Burr Mallory at Boston City Hospital (BCH) and James Homer Wright at Massachusetts General Hospital (MGH). Together, these three men set the future trajectory of pathology in Boston and are sometimes referred to as the founders of the Boston School.

William Thomas Councilman



William T Councilman
[Nat Library Med]

Born in Pikesville, Maryland, Jan 1, 1854, W.T. Councilman was the son of a country doctor. By his own account he was raised "barefoot", close to nature on the family farm. He graduated MD from the University of Maryland in 1878 and developed an early interest in dissection and microscopic investigation of tissues. He was appointed as a pathologist to Baltimore Quarantine station (1878-79) and was awarded a Fellowship in John's Hopkins Department of Biology under the direction of H.N. Martin in 1880. Councilman sought to further his education in pathology and in late 1880 went to Europe, where he spent a year at leading centers, notably Vienna (the Rokitansky School), Leipzig with Cohnheim and Weigert (students of Virchow) and with Chiari in Prague. On his return to Baltimore, he was appointed Pathologist at Bayview Hospital; he taught at University of Maryland and College of Physicians and was appointed Associate in Pathology at Johns Hopkins in 1886.

During his years at Hopkins, Councilman worked closely with the leaders of this new institution, already perceived to be a model for American scientific medicine. The faculty included physician William Osler, surgeon William Halsted and a cadre of outstanding physicians and scientists, who were led by William H. Welch, Professor of Pathology and the Dean of the new medical school. When approached by Harvard President, Charles Eliot, Welch recommended Councilman for the Shattuck chair.

Councilman had been active in research during his years in Baltimore. He identified the malaria parasite in red blood cells, confirming the earlier, but at the time disputed, work of Leveran. His name is eponymously associated with the characteristic apoptotic bodies that he described in the livers of patients with yellow fever (Councilman bodies). Another important contribution (with H.A. Lafleur) was an original and definitive description of amebic dysentery. Among his notable publications during his Boston career was a detailed study of cerebrospinal meningitis (with F.B. Mallory and J.H. Wright), a study of diphtheria (with F.B. Mallory) and an extensive treatise with G.B. Magrath and others on the pathology of smallpox.

Councilman's initial clinical appointment in Boston was Chief of Pathology at Boston City Hospital. He placed F.B. Mallory, who was already at HMS, as an assistant at the hospital. Over time Mallory played the larger role at the hospital and was appointed Chief in 1908. When the Peter Bent Brigham Hospital was opened in 1913 Councilman became its first Chief of Pathology.

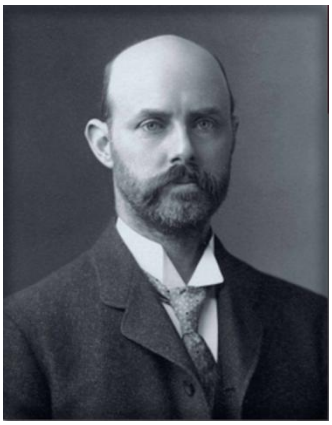
"His most important work at Harvard University was his influence on teaching," according to his successor S.B. Wolbach. Shortly after taking up his new position, Councilman reorganized the teaching program, introduced student laboratories and reduced the emphasis on lectures. He is quoted as saying, "I think lecturing is an intellectual stimulus (for the lecturer) and comparatively harmless to the audience." Councilman was a gifted and engaging teacher, who was revered by his students and inspired many future leaders in pathology and medicine.

Shortly after coming to Boston he married Isabella Coolidge, a member of a prominent Boston family. He and his wife and family of three daughters lived at 78 Baystate Road in Boston. They had a summer home in York, Maine, where Councilman pursued his love of gardening. His interests in trees and horticulture found an outlet also at the Arnold Arboretum, where he was said to be as knowledgeable about the plantings as the Director, his friend Charles S. Sargent. In addition to these accomplishments, according to Harvey Cushing, he was a deadly shot with a pistol and could swear at a golf ball like few others!

In the final years of his career at Harvard, Councilman explored new horizons. He published a lengthy report of medical and anthropological interest of the Rice expedition to the Amazon, on which he served as medical officer. Prior to his retirement in 1923, he spent two years as visiting professor of pathology in China at Peking Union College, sponsored by the Rockefeller foundation. Among his last scholarly publications was a study reported in the *Proceeding of the National Academy of Sciences* on the root system of the Mayflower, a tiny aromatic wildflower. His activities were constrained in his later years by angina pectoris. He died while working in his garden in York on May 26, 1933.

Frank Burr Mallory

Frank Burr Mallory, the son of a Great Lakes ship's captain, was born in Cleveland, Ohio on November 12, 1862. He attended Harvard College, supporting himself by waiting on tables in the dining hall, and graduated A.B. in 1886. He went on to HMS and graduated in 1890. He was appointed Assistant in Histology at HMS, a department in which he had previously worked as a technician. On Councilman's arrival in Boston, he was appointed as an assistant in Pathology at Boston City Hospital.



Frank Burr Mallory
[Courtesy Kenneth Mallory]

Mallory married Persis McClain Tracy in 1893 and they had two sons, Tracy Burr (1896-1951) and George Kenneth (1900 – 1986), both destined to lead Boston departments of pathology with distinction. Following their wedding the couple went to Europe, where Mallory spent a year studying with Chiari in Prague and Ziegler in Freiburg. In 1896 he was appointed First Assistant Pathologist at Boston City Hospital and Assistant Professor at HMS.

1896 also marked the birth of his first son and the opening of the new Pathology laboratory at Boston City Hospital. This impressive building, 180 ft long by 42 ft wide, had two stories over the basement and an attached mortuary and chapel. The postmortem room, 32 ft by 20ft was placed within an auditorium extending through two floors and had seating for 70 observers, reflecting the centrality of performance of autopsies to the laboratory's mission at the time. There was ample accommodation for bacteriological work and

laboratory space designated for research, as well as space assigned for a clinical laboratory for use "by the medical and surgical interns." That the trustees saw fit to make an investment on this scale reflected the new status of Pathology in Boston medicine. In a 1905 report on the department, Mallory notes that the (clinical) work of the laboratory consists of "the making of autopsies" (1,934 between 1897 and 1904), examination of surgical specimens (~900 per year), and bacteriological study of material from various sources including autopsies (e.g., up to 150 throat swabs for diphtheria each day).

A detailed insight into the work of a pathological department in this era can be gained from examination of the multiple editions of *Pathological Technique, A Practical Manual for Workers in Pathological Histology and Bacteriology*, written by F.B. Mallory and his friend at MGH, James Homer Wright. This manual has been characterized as the "bible" of laboratory methods of the period; it was first published in 1895 and revised in seven subsequent editions. The manual, with detailed descriptions of methodology and technology, encompassed the scope of the clinical mission of pathology departments of the time. It was organized into 3 main sections, I, Postmortem examinations, II, Bacteriological methods and III, Histological methods. Its first edition had 400 pages and 105 illustrations.

From the outset, Mallory was committed to the training of future generations of pathologists, and described his department as being organized "along the lines of a professional training school." Structured training of not more than three years was provided under Mallory's close direction. More than 120 graduates emerged from the program, including many distinguished future leaders in pathology and chiefs at major Boston teaching hospitals, MGH (Tracy B Mallory – his elder son), Peter Bent Brigham Hospital (S. Burt Wolbach), New England Deaconess Hospital (Shields Warren), Tufts (Timothy Leary and H. Edward McMahon) & Boston City Hospital (Frederic Parker Jr. and George K. Mallory – his second son).

Mallory held the position of Chief of Pathology at Boston City from 1908 to his retirement in 1932, and he continued on the staff as a Consultant until his death in 1941. He was promoted to Associate Professor at Harvard Medical School in 1901. He resigned his Harvard appointment in 1919 as a result of a dispute with the University but he was later reconciled and appointed Professor in 1928 and Professor Emeritus on reaching retirement age in 1932.

There were few areas of research in pathology that did not get Mallory's attention over the course of his career. He made notable contributions to histological methods using the newly available aniline dyes and developed widely adopted stains for connective tissue, muscle cells and neuroglia. His work included several definitive descriptive studies of the pathology of infectious diseases, typhoid, diphtheria, pertussis, scarlet fever and measles, studies of nephritis and seminal work on the classification of tumors. His descriptive and experimental investigations of cirrhosis of the liver focused on alcohol-related liver disease, hemochromatosis and the role of copper in liver injury. His name is eponymously associated with the hyalin material that accumulates in the hepatocytes in alcoholic liver disease, *Mallory's hyaline*. His published work was marked by clear and elegant illustrations, whether as camera lucida drawings or photomicrographs. This fastidiousness carried over into his stewardship of the *American Journal of Pathology*, of which he was editor-in-chief from 1923 to 1940.

Mallory received many awards during his career including honorary degrees from Boston University and Tufts, the Kober Medal of the American Association of Physicians, and the Gold-Headed Cane Award of the American Association of Pathologists. The City of Boston in 1933 named a new pathology building at Boston City Hospital (the Mallory Institute of Pathology) in his honor. Notwithstanding his life-long immersion in his work, he was a strong family man, enjoyed the outdoors and is reported to have had an excellent tennis game. He died, at the age of 78, on September 27, 1941.

James Homer Wright

James Homer Wright was born on April 8, 1869 in Pittsburgh, Pennsylvania. He attended John Hopkins University, and graduated with honors in 1890. He subsequently attended the medical school of the University of Maryland and graduated in 1891, receiving the gold medal and the first prize in surgery. Following graduation he came to work at the pathologic laboratory of the Johns Hopkins Hospital and became known to its director, William H. Welch, and his associate William T. Councilman. The following year he took an appointment as a Thomas A. Scott fellow at the University of Pennsylvania, and under the direction of Dr. John Shaw Billings, where he conducted an investigation of the bacteriology of the water supply of Philadelphia that was published in 1893 in the *Proceeding of the National Academy of Sciences.* The potential of this young man was not lost on Councilman who recruited him as an assistant in Pathology at the Sears laboratory at Boston City Hospital in 1893.

James Homer Wright
[*Nat Library Med*]

Put forward by Councilman, the 27-year-old James Homer Wright was then appointed to the position of Director of Pathology at MGH in 1896 and became the head of its newly constructed state-of-the art clinical laboratory and the institution's first full-time pathologist. Wright continued to collaborate with his friend Frank Burr Mallory at Boston City and, as noted above, the first edition of their co-authored *Pathologic Technique* appeared in 1898. The scope of Wright's clinical service included the performance of autopsies, bacteriological testing on a large scale, and small but increasing numbers of surgical pathology specimens. Wright had a strong preference for research over clinical work and relied on able assistants, notably Oscar Richardson, Albert Steele (bacteriologist), William Whitney (surgical pathologist) and Harry Hartwell (surgical pathologist).

Wright was a talented researcher and he attracted and mentored many physicians of like mind, not least by affording them bench space in his laboratory. Among such men was Dr. George Minot, of pernicious anemia fame who, in his Nobel Prize acceptance speech in Stockholm in 1934, acknowledged his particular debt to Wright's influence. The scope of James Homer Wright's investigations was broad and included hematology, infectious disease, neoplasia and laboratory techniques. His research made lasting contributions to medicine, not least his simple and elegant reworking of the Leishman-Romanowsky stain, published in the *American Journal of Medical Research* (later *American Journal of Pathology*) in 1902, which serves to this day as a definitive hematological method and bears his name as the Wright stain. This method was key to his seminal work on the histogenesis of plates (platelets), which was first reported in the *Boston Medical and Surgical Journal* in 1906. Studying the megakaryocytes of multiple species, he was able to show the identity of the staining characteristics of the megakaryocyte cytoplasm and platelets. He was not one to rely entirely on morphology, however, and in his study proffered an additional eight independent proofs.

Prior to the platelet study, Wright's technical skills were in evidence in a paper published in the *Boston Journal of Medical Science* in 1901, in which he reported, for the first time, that multiple myeloma represented a malignancy of plasma cells. This was supported by a series of high quality photomicrographs that proclaimed the identity of the tumor cells. Wright gave some credit for the discovery to the quality of the thin sections of the tumor he was able to produce using a new Blake-Minot

rotary microtome. A second eponymous association with Wright is the Homer-Wright pseudorosettes of neuroblastoma. He first described these in a paper published in 1910, in which he noted the ball-like arrangements of small cells with centrally placed fibrils. Based on his knowledge of the embryology of the sympathetic nervous system, he proposed that these represented tumors of undifferentiated neurocytes or neuroblasts rather than "sarcomatous" tumors, as they had been previously characterized.

Wright published numerous studies of infectious disorders related to bacteria, spirochetes, fungi, and parasites. Notable among these was a study of Actinomycosis, which led to an invitation to contribute on the subject in the first edition of Osler's *Modern Medicine* published in 1907. Another important contribution was an early report on the demonstration of spirochetes with a Levaditi stain in a series of cases of aortitis, which was also hailed by Osler in a congratulatory letter to Wright as a definitive proof of the nature of syphilitic aortitis.

As observed in an obituary written by Councilman, James Homer Wright "was not a social man, rarely going to medical meetings, but he formed many enduring friendships." He received multiple awards: two major prizes for his research, the Gross Prize for his study of actinomycosis and the Boylston Prize of Harvard University for his platelet studies; as well honorary doctorates of science from University of Missouri, Harvard University and University of Maryland; and in 1915 he was elected to the American Academy of Arts and Sciences.

Shortly after coming to Boston he courted Norwegian opera singer Aagot Lunde, who was giving a recital in the city, with serial bouquets of roses. They got married on Christmas day 1901. The couple lived happily in Newton, MA, and had a summer home in Duxbury. They made frequent trips to Norway, and Wright was said to have become fluent in Norwegian. Mrs. Wright died of cancer in 1923. Dr. Wright did not thrive in the years following, and he died at MGH on January 3, 1928 of pneumonia, which he contracted returning from a Christmas visit to his family in Pittsburgh.

Conclusion

Each of these three exceptional men contributed their multifaceted talents to the emergence of Pathology as a modern medical specialty. Among them, Councilman was pre-eminent as a visionary and teacher, Mallory as a leader and "trainer of men" and Wright as a scientist. Of their collective legacy as the founders of the Boston School, we can say they were at the vanguard of a new American century of progress in medical science and education; that they were influential in the education and formation of US leadership in pathology going forward to mid-century; that they made singular contributions to the improvement and standardization of laboratory techniques and pathology practice in the US and elsewhere; and that they advanced Pathology as an academic medical discipline, a clinical specialty and an investigative science.

Acknowledgements: *I wish to express my thanks to Dr. David N Louis and Dr. Robert H Young for their cordial invitation to participate in this project and for providing me with access to archived documents and images related particularly to James Homer Wright and MGH history. I also wish to acknowledge my indebtedness to Dr. Robert E Lee's 2002 biographical article on James Homer Wright (Lee RE, Young RH, Castleman B. James Homer Wright Am J Surg Pathol 26(1): 88-96, 2002). I am also grateful to Mr. Kenneth Mallory for his interest and his permission to use family photographs of his grandfather, FB Mallory*

The Early 20th Century and the Spread of Pathology in Boston:
The Many Hospitals and Many Descendents

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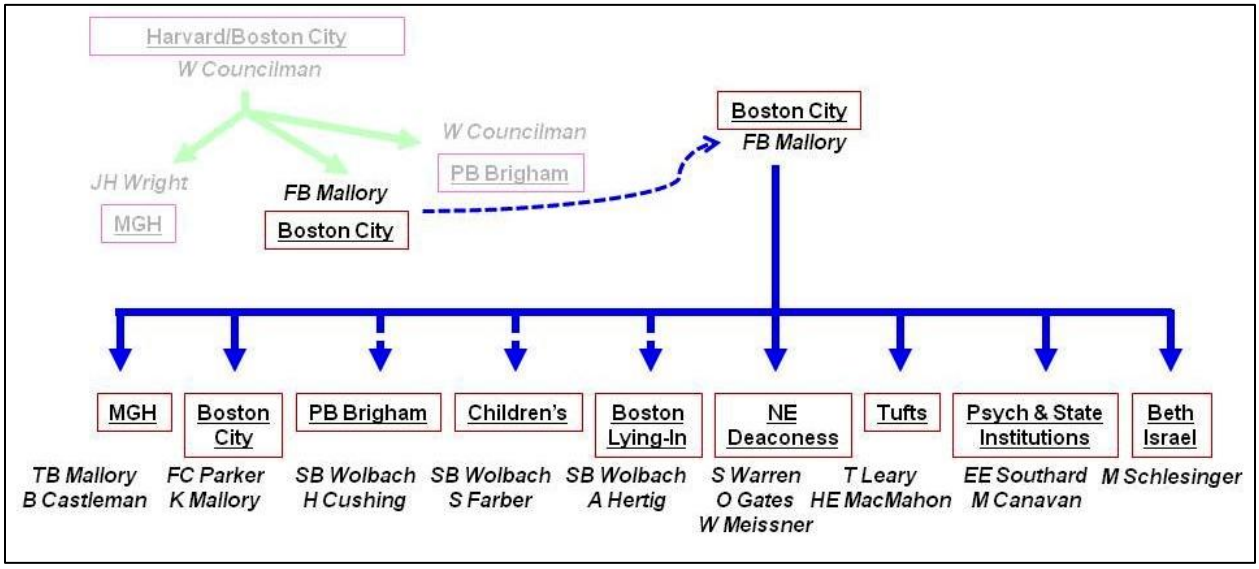
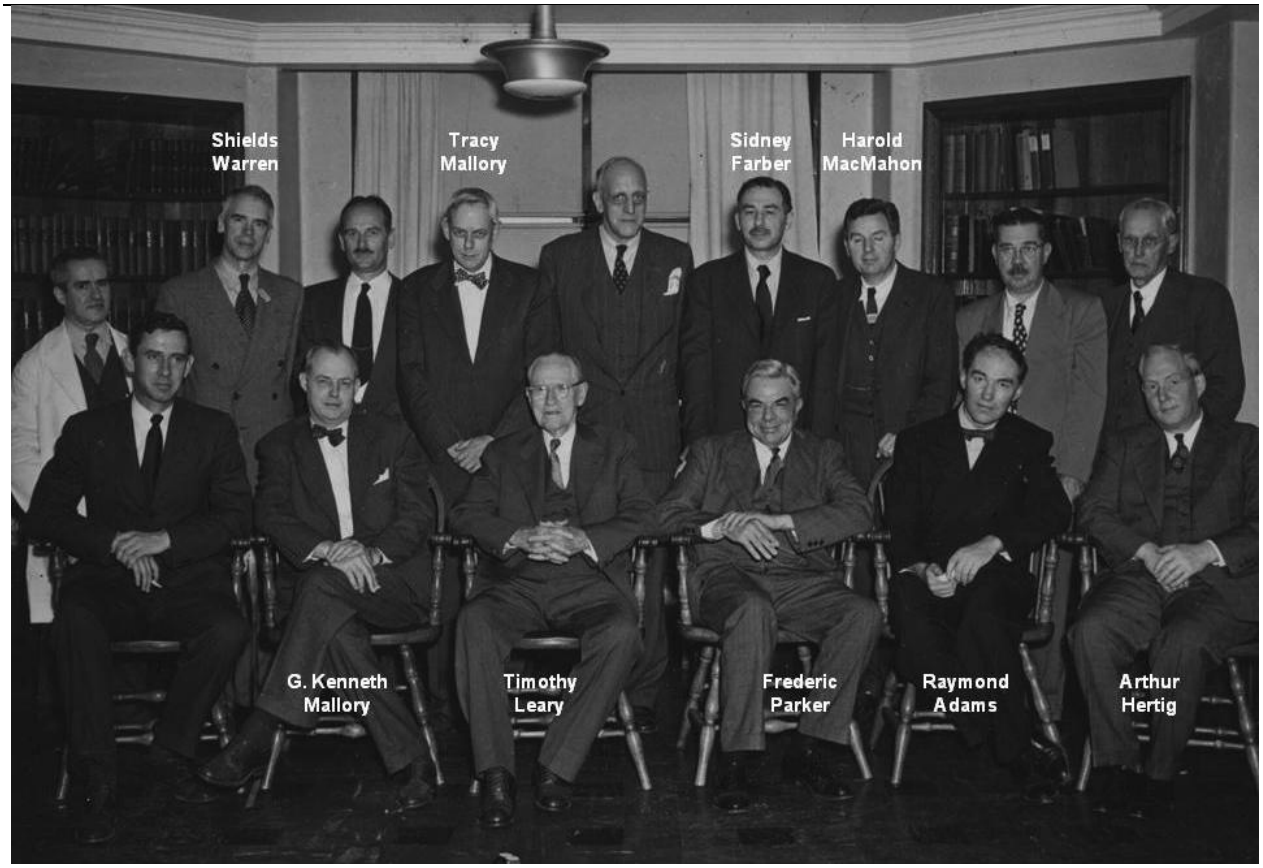
The story of pathology in Boston in the first half of the twentieth century is summarized in the following schematic and few pictures.



The schematic above illustrates that many of the pathologists that began the pathology departments at the many hospitals that grew in Boston were the academic descendents of Frank Burr Mallory and S. Burt Wolbach.

The gentleman on the horse and at the right is **S. Burt Wolbach** (1880-1954). Dr. Wolbach was originally from Nebraska, but came to Boston during his schooling and graduated from Harvard Medical School in 1903. He trained in pathology at the Boston City Hospital with Drs. Frank Mallory and William Councilman and spent a few years at the pathologist at the Long Island Hospital in Boston and at the

Boston Lying-in Hospital. Following a year in Albany, NY, and a year in Montreal, he returned to Boston in 1908. Wolbach had a remarkable career, serving as the chief of pathology at Children's (1915), Boston Lying-in (1916), and Peter Bent Brigham (1916) hospitals and Harvard Medical School (1922)—all until his retirement in 1947. His particular interests were in infectious diseases (with seminal work in Rickettsia) and vitamin deficiencies. When he served as head of pathology at the Peter Bent Brigham Hospital, he had strained relationships with the head of surgery, the neurosurgeon **Harvey Cushing** (1869-1939), but this had the fortunate end of encouraging some very talented neurosurgeons, such as **Percival Bailey** (1892-1973) and **Louise Eisenhardt** (1891-1967), to focus their scholarly activities on brain tumor classification along with Cushing; these collaborations led to the basis of current glioma (Bailey and Cushing) and meningioma (Cushing and Eisenhardt) classifications. Wolbach influenced Boston pathology in major ways through teaching and research, inspiring many individuals into the field, including Sidney Farber, Shields Warren and Arthur Hertig (who are discussed in the next section) as well as **Monroe Schlesinger** (1892-1955). Dr. Schlesinger trained with Wolbach and at Boston City Hospital and became the first chair of Pathology at Beth Israel Hospital, where he served from 1927 to 1955. He was known for his meticulous approach to his scientific studies, particularly the novel injection methods that he used to study the coronary arteries—studies that, with Paul Zoll, formed the basis of modern coronary angiography.



The picture above is from the later 1940s at the Mallory Institute at Boston City Hospital. The exact date of the picture is not known, nor is the occasion, but it brings together a cast of the most prominent and influential Boston pathologists of the mid-twentieth century, as well as other notable researchers. The pathologists are labeled in the picture and each is discussed briefly below, but it is also important to identify the noted physician-scientists Dr. Maxwell Finland (infectious diseases, antibiotics), standing in

the white coat next to Shields Warren, and William Bosworth Castle (hematology), standing in the center between Tracy Mallory and Sidney Farber.

Frederic "Ted" Parker, Jr. (1890-1969) trained with FB Mallory and followed Mallory as the chief of Pathology at the Boston City Hospital, serving from 1932 until 1951. He was a superb diagnostician (with Dr. Mallory claiming that Parker was a better diagnostic pathologist than he was!) and was interested in hematopathology (including publishing seminal articles on Hodgkin's lymphoma in the New England Journal of Medicine) and renal disease. Despite having a good sense of humor, he reportedly had an unusual personality, often not leaving his office. Nonetheless, he had a powerful influence on patient care and on training. Following Dr. Parker as head of Pathology at the Boston City Hospital (from 1951 to 1966) was the younger of F.B. Mallory's two sons who became pathologists, **G. Kenneth Mallory** (1900–1986), who is perhaps best remembered as the "Mallory" of Mallory –Weiss tears in the esophagus. This lineage formed the basis of the Pathology department at Boston University School of Medicine once the Boston City Hospital shifted over to becoming fully affiliated with Boston University.

Two of the individuals in the picture went on to illustrious careers at the Massachusetts General Hospital: **Tracy Burr Mallory** (1896-1951) and **Raymond D. Adams** (1911-2008). Tracy Mallory trained with his father (F.B. Mallory) and the famous microbiologist at Harvard, Hans Zinsser. Tracy Mallory went on to be the chief of Pathology at MGH from 1926 to 1951. In this role, he started the MGH pathology residency training program and became the editor of the Clinical-Pathological Conferences of the MGH published in the New England Journal of Medicine, which he did from 1935 to 1951. During World War II, Dr. Mallory was the Chief Pathologist for Mediterranean theater and he published a number of important papers on the pathology of war injuries and their sequelae. Raymond Adams moved to the MGH in 1951 to become the chief of Neurology, a position he held until 1977. He was the Bullard Professor of Neuropathology at Harvard and was one of the leading neurologists of the second half of the twentieth century—one of the "triumvirates" of great MGH neurologist-neuropathologists: Adams, C. Miller Fisher (1913-2012) and E.P. Richardson, Jr. (1918-1998).

Pathology at Tufts University begins with **Timothy Leary** (1870-1950?). Dr. Leary had been the first trainee of F.B. Mallory at the Boston City Hospital. He moved to Tufts in 1900 and was the head of Pathology there until 1929. During this time, he ran a private laboratory at the medical school and, for unclear reasons in 1929, fell out with the medical school. He returned to Mallory Institute (the department of Pathology at the Boston City Hospital that had now been named in honor of F.B. Mallory) and was a medical examiner there through the 1930s and 1940s, when he was widely recognized as an authority in forensic medicine. Following Dr. Leary at Tufts was **H. Edward MacMahon** (1901-1996), who had also trained with F.B. Mallory. Dr. MacMahon was the chief at Tufts from 1930 until 1971.

Shields Warren (1898 –1980) was inspired to go into pathology by Wohlbach and then trained with FB Mallory at the Boston City Hospital. Following his training, he opted to join the New England Deaconess Hospital, because of the renown of its primary surgeon, Frank Lahey (of "Lahey Clinic" fame), and internist and diabetologist, Elliot Joslin (of "Joslin Clinic" fame). Warren was to spend 50 years at the New England Deaconess Hospital, 36 of those years as chief of the Pathology department. He was a nationally and internationally recognized expert in the biological effects of radiation and had a particular interest in endocrine pathology, publishing a number of key books in the area. His illustrious pupil and successor, William Meissner, said of him at his passing, "We are grateful for the privilege of having had this fine gentle man with his quite dignity among us. May his way of life to continue to live within us all."

Olive Gates (1901?-1999) was an important diagnostic pathologist in the early to mid-twentieth century in Boston, an expert in both surgical pathology and cytopathology who was based at the New England Deaconess Hospital with Shields Warren. She was a central pathologist for Tumor Diagnostic Services, a free state cancer unit at Harvard Medical School that participated in the running of the Pondville Hospital,

the state cancer hospital. (Of note, in this capacity, she was an early teacher of Dr. Robert E. Scully, one of our mentors.) Dr. Gates wrote on of the early (1947) handbooks on cytopathology, along with Drs. Warren and Papanicolaou, and was the first woman awarded gold medal for distinguished service by the Massachusetts chapter of the American Cancer Society.

Sidney Farber (1903-1973) had trained at the Peter Bent Brigham Hospital with Wolbach and with FB Mallory at the Boston City hospital and was appointed by Wolbach as the first full-time pathologist at Children's Hospital in 1929. His early interests relating to pathology focused on congenital heart disease, cystic fibrosis, encephalitis, histiocytosis and pediatric tumors. It was this last topic, pediatric cancer, that commanded Farber's interest and remarkable energy during his career, and he is chiefly remembered today as a true pioneer in the development of effective chemotherapy for cancer and in raising funds locally and nationally to support cancer research. In this capacity, his name remains today as part of one of the large cancer centers in Boston: the Dana-*Farber* Cancer Institute.

Arthur T. Hertig (1904-1990) trained with Wolbach and Farber and was asked by Wolbach to organize the pathology laboratory at the Boston Lying-In Hospital, where Hertig was the chief of Pathology for 34 years, from 1934 to 1968. He was also the pathologist for the Free Hospital for Women from 1938 to1968. Given the institutions with which he was affiliated, he naturally became an expert in gynecological and perinatal pathology, with his well-known "egg hunts" providing key physiological information that was to inform the work of his colleague, Dr. John Rock, in developing a contraceptive "pill". Indeed, his lifetime study of gynecological issues resulted in his humorously named autobiographical piece, published in 1973, "*Forty Years in the Female Pelvis. An Unusual Case of Prolonged Dystocia"*. Hertig served as the chair of the overall Harvard Medical School pathology department from 1952 to 1968. Even after his "retirement," he kept active in research, serving as the primary pathologist at the New England Regional Primate Research Center from 1968 until 1989.

An individual not in the above picture also needs to be mentioned, since he was an important trainee of F.B. Mallory, and who, despite his relatively short life, influenced the pathology (primarily neuropathology) being done at the various psychiatric and state hospitals in the Boston area: **Elmer Ernest Southard** (1876-1920). Among his colleagues and those who followed him at these hospitals were individuals who contributed in major ways to neuropathology, particularly maldevelopmental, metabolic and inherited conditions: **Myrtelle Canavan** (1879-1953), whose name today is mostly remembered for Canavan disease; **Harry C. Solomon** (1889-1982), a psychiatrist who co-authored important books on syphilis, first (in 1917) with E.E. Southard and later (in 1946) with Raymond Adams and H. Houston Merritt when both were at Boston City Hospital; and **Paul Yakovlev** (1894-1983), who was an enormously productive individual, having amassed a collection of some 250,000 slides by the time his collection was transferred to the Armed Forces Institute of Pathology.

The reader interested in more details on many of the above-mentioned individuals can turn to no finer a source than the essay written by Drs. Robert E. Scully and Austin L. Vickery, Jr., "Surgical Pathology at the Hospitals of Harvard Medical School" in Dr. Juan Rosai's Guiding the Surgeon's Hand

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