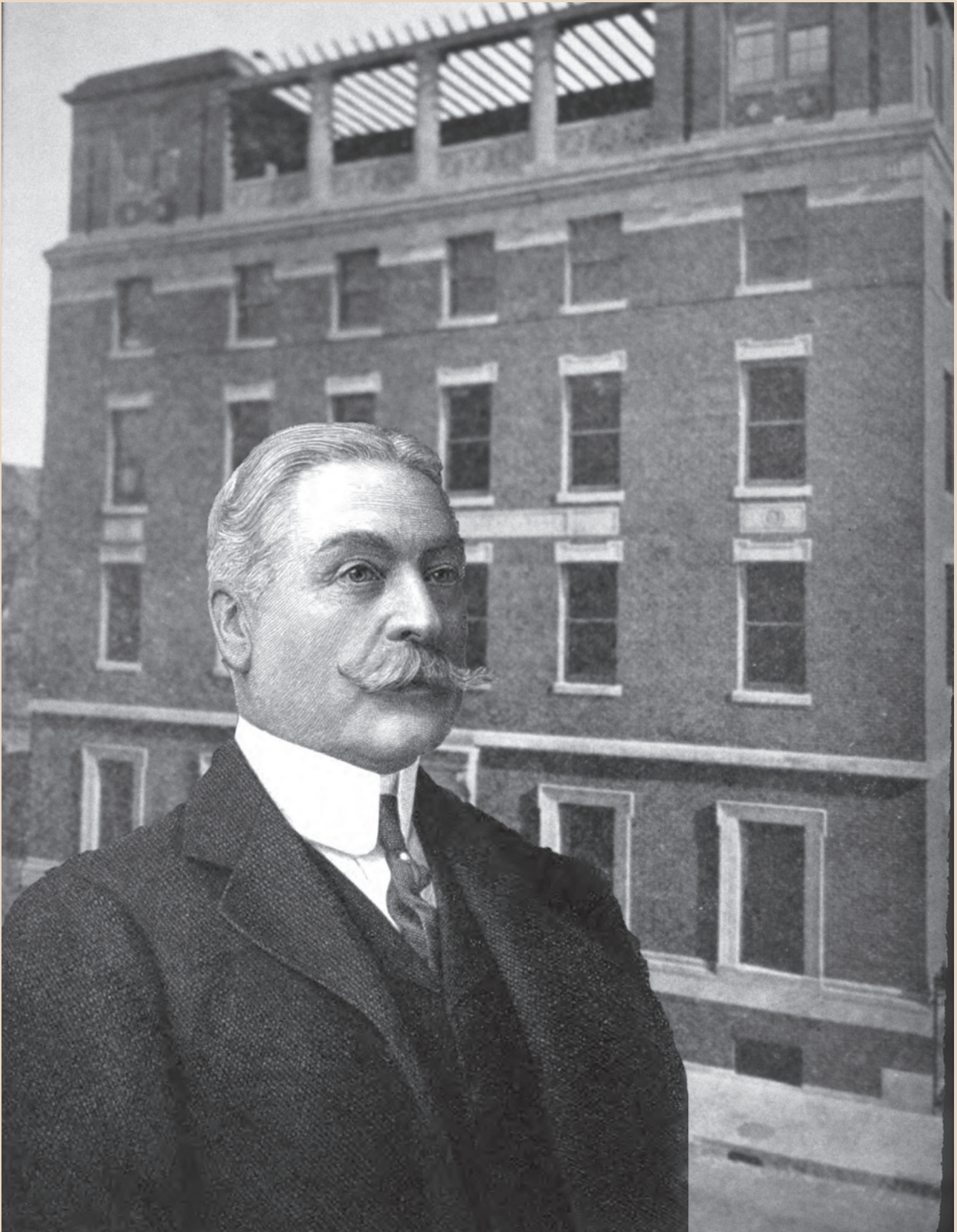
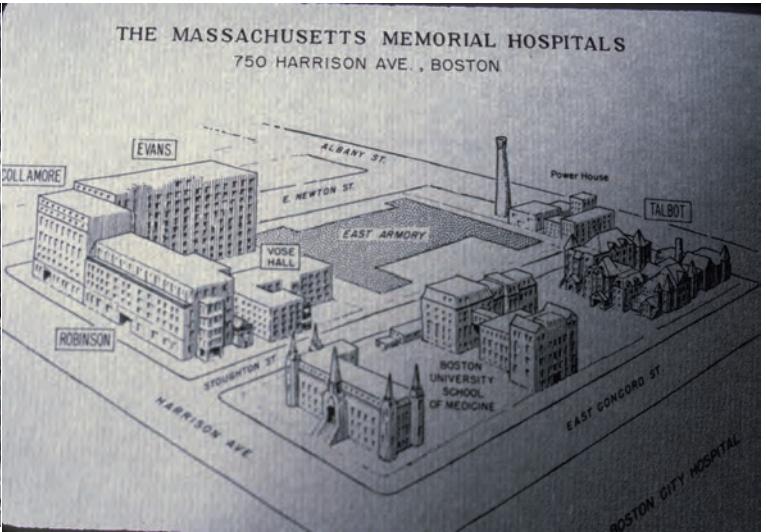


# ACESO

Journal of the Boston University School of Medicine Historical Society  
Fall 2018





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Original Evans Building <https://www.bumc.bu.edu/surgery/about/history/archives/historical-photos/>

## Aceso:

Journal of the Boston University  
School of Medicine Historical Society

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Aceso welcomes letters to the editor. Please send them by email. Please note that content can only be reproduced with permission of the author.

### *About the Cover*

*Portrait of Robert Dawson Evans (left) and the first Evans Building, what is now the A building (right)*

Robert Dawson Evans (1843-1909), is someone whose name has been fondly familiar to the Boston University Medical Campus community for decades, however, less known about him is who he was in life and how his name came to hold such meaning to the Boston University School of Medicine.

In the enclosed pages, you will find an article revealing some of the intimate details of the life and death of Robert Dawson Evans (Pages 29-36). Written decades ago by another prominent figure of BUSM, Dr. Franz J. Ingelfinger, the article provides an illuminating insight into who Evans was as a man, and how, despite coming from little means, he went on to become a rubber baron and important figure in Boston society. It is also importantly gives a fascinating look into common medical practices at the time of his death.

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## Join the Aceso Staff

Interested in getting involved with *Aceso*? We are actively looking for new editors and graphic designers to join our staff. We are recruiting for this upcoming semester so spread the word! Editors take part in shaping the overall direction of *Aceso* and review the articles submitted by our writers. This position requires the staff member to have excellent writing skills.

If you are interested in applying for one of these positions, please email us at [aceso@bu.edu](mailto:aceso@bu.edu) and let us know what position you are applying for.



## About Aceso

This journal is named for a Greek goddess, Aceso, the daughter of Asclepius and sister of Panacea. Her name comes from the Greek word *akéomai*, which means "to heal." She represented the act of the healing process itself. Unlike the other gods, she personifies medicine from the patient's side, a process that involved both the ill and the

physician. Rather than a magic cure, personified by Panacea, Aceso symbolizes a more holistic approach to health care, understanding that the path to wellness takes time and effort.

## Letter from the Editors

### *The Things We Take Away:*

It is our pleasure to introduce the 6th issue of Aceso, the journal of Boston University School of Medicine's Historical Society. As editors, we had the unique pleasure of soliciting and reading submissions on a wide variety of meaningful and noteworthy topics. Within these pages, you will find tales concerning the burgeoning days of hand surgery, antiseptic technique, and facial transplantation, as well the stories of scholars who helped to shape Boston University School of Medicine at its inception.

It is our opinion that the field of medicine could not have progressed to its present state without frequent meditation by its adherents upon its colorful past. We believe, therefore, that it is immeasurably important to continue to explore the histories of the art that we practice and the laws by which we live. As we reviewed these essays, on not one occasion did we fail to deepen our own understanding of both the science of medicine and the art of patient care. We have been humbled by the authors' creativity and passion for telling the world these stories, and we hope that our readers feel the same.

Brian Fissel, Danielle Eble, Gianpaolo Carpinito, and Andrea Foster  
Editors in Chief, Aceso  
Boston University School of Medicine Class of 2019



Aceso 2018-2019 Editorial Staff (from left to right): Gianpaolo Carpinito, Danielle Eble, Dr. Robert Beazley, Andrea Foster, Brian Fissel.

## About the Art

Unless noted, pictures throughout this issue are from the archives of the Alumni Medical Library of Boston University School of Medicine or the Boston City Hospital collection (7020.001). Special thanks to A'Llyn Ettien and the City of Boston Archives, for allowing us to access the archives.



Hemenway Ward at Massachusetts Homeopathic Hospital.

# The Waterhouse Professorship of Anatomy



Brian M. Fissel, MS  
Boston University School of Medicine  
Class of 2019

The Waterhouse Professorship of Anatomy was the first named professorship in the history of the New England Female Medical College, which would later merge with the Boston University Hospital in 1874 to become the Boston University School of Medicine. The Waterhouse Professorship was in 1864 by Mrs. Louisa (Lee) Waterhouse, widow of Dr. Benjamin Waterhouse. The Waterhouse Professorship still exists today as the Chair of the Department of Anatomy and Neurobiology. This article serves to highlight both Dr. Waterhouse, one of the most renowned physicians in American history, and Mrs. Louisa Waterhouse, whose financial contributions to the New England Female Medical College that established the professorship were some of the most important in its early history.

Benjamin Waterhouse was born in Newport, Rhode Island on March 4, 1754 to Timothy and Hannah Waterhouse. He married Elizabeth Oliver in 1788, and the two went on to have six children together. In 1815, however,



Figure 1: 1775 portrait of Benjamin Waterhouse at the age of 21 by Gilbert Stuart (1755-1828). Redwood Library and Athenaeum Collection, Newport, Rhode Island, bequest of Louisa Lee Waterhouse. Digitized by the National Gallery of Art.

Elizabeth died tragically during childbirth. Four years later, Dr. Waterhouse remarried Ms. Louisa Lee, to whom he would remain married for the duration of his life. (1)

Benjamin Waterhouse's mother was a



Figure 2: 1831 portrait of Dr. Benjamin Waterhouse at the age of 77 by James Frothingham. Harvard University Portrait Collection, Gift of Mrs. Benjamin (Louisa) Waterhouse to Harvard College, 1863. <https://www.harvardartmuseums.org/art/304900>

cousin of Dr. John Fothergill, a renowned English physician who practiced in London and was one of the first physicians to describe diphtheria (2). Influenced by Dr. Fothergill and a number of local physicians, Benjamin Waterhouse began to study medicine under the apprenticeship of Dr. John Halliburton, a well known surgeon, with whom he studied for several years. (1) With the outbreak of the Revolutionary War in 1775, Waterhouse left for Europe to live with relatives and continue his studies. He lived in London and Edinburgh from 1777-1778 and moved to Leiden, Netherlands in 1778, where he finished his medical studies in 1780. (3) While studying in Leiden in 1780, Waterhouse developed what would become a productive and long-lasting friendship with his roommate, Thomas Jefferson, the future President of the United States. After graduation, Waterhouse traveled through Europe for two years before returning to the United States in 1782 to build his career. (3)

In 1783, a year after his return from Europe, Dr. Waterhouse joined the faculty of Harvard College, where he was appointed as the

first Professor of the Theory and Practice of Physic (what is now medicine), becoming one of three faculty members of the newly established Harvard Medical School. (1) During his career, Dr. Waterhouse wrote a number of influential books that reflected his personal philosophies regarding the practice of medicine, including *The Rise, Progress, and Present State of Medicine* published in 1791. This book underscored Dr. Waterhouse's belief in the importance of research to the field of medicine. This belief separated Dr. Waterhouse from some of his contemporaries, such as Dr. Benjamin Rush, who believed in theoretical medicine. Champions of this philosophy tried to make their observations fit a unified theory, leading to popular beliefs in treatments such as bloodletting and purging. (3)

In 1799, Dr. Waterhouse learned of Edward Jenner's efforts to develop a vaccination against smallpox using cowpox in England. Dr. Waterhouse immediately began to learn about the procedure and became one of the vaccination's first proponents in the United States. He obtained samples of cowpox from Jenner in 1800 and immediately set about to confirm Jenner's work in what would today be considered a highly unethical experiment. Dr. Waterhouse inoculated his 5-year-old son and a servant boy with the cowpox samples, and then exposed the servant boy to smallpox. The servant boy fortunately developed only a very mild infection, limited to the arm. (1) Waterhouse was supported in his efforts by his old friend Thomas Jefferson, who, while President, had his entire household, including slaves, vaccinated with Dr. Waterhouse's cowpox samples. (3) Later that year, after his experiments demonstrated success, Dr. Waterhouse wrote *A Prospect of Exterminating the Small-Pox* and became one of the leading advocates for vaccination against smallpox in Massachusetts and nearby states. (1) While he was not the first to use cowpox inoculation as a smallpox vaccine in the United States, Dr. Waterhouse is widely credited as being responsible for establishing it as a general practice. (4)

In 1804, Dr. Waterhouse took up a new

cause, targeting tobacco and liquor use among Harvard students, and in 1805 wrote one of his most well-known books: *Cautions to Young Persons Concerning Health... Shewing the Evil Tendency of the Use of Tobacco upon Young Persons; More Especially the Pernicious Effects of Smoking Cigars.* (3) Waterhouse believed use of these substances were to blame for increased rates of tuberculosis and neurological diseases. These efforts did not endear him to his younger colleagues at Harvard, and his disagreements with them would only worsen in years following. (1)

Dr. Waterhouse began to disagree with the direction of medical education at Harvard. He believed exclusively in a lecture-based model and was opposed to the development of clinical facilities near the proposed Massachusetts General Hospital. (3) Ultimately, he was forced to resign from Harvard in 1812 after a failed attempt to establish a rival medical school in Boston: the College of Physicians. (1)

Although Dr. Waterhouse's Harvard career had finished, he continued to practice medicine and held a commission as a military physician in the U.S. Army during the War of 1812. In 1813, he was appointed as the medical superintendent of all New England military posts by President James Madison. He was later promoted to Post Surgeon in 1818 and, ultimately, honorably discharged in 1821. (5)

In the twilight years of his life, Dr.

Waterhouse devoted his time to literary pursuits. His best-known work, a book entitled *A Journal of a Young Man of Massachusetts*, tells the story of a ship's physician who becomes imprisoned by the British during the War of 1812. Waterhouse passed away at the age of 92 in his home in Cambridge on October 2, 1846, and was survived by his wife, Louisa. (1) He was interred at Mount Auburn Cemetery where a monument in his name was erected at the site of his grave by Mrs. Waterhouse.

Louisa Waterhouse would carry on her husband's estate after his passing. In the years following his death, she became a strong advocate for women pursuing medicine as a profession. Mrs. Waterhouse believed that this was a matter of great importance to the health and well-being of the whole of society. She took on this cause with the support of her late husband, who "was accustomed to speak[ing] of the necessity and importance of having women in the medical profession, not as practitioners of some special branch, but as physicians." (6) In 1856, she donated a significant portion of her late husband's personal library to the recently established New England Female Medical College. The donation included titles such as Cheselden's *Anatomy*, Haller's *Physiology*, Liebig's *Organic Chemistry of Agriculture and Physiology* and many others. (7) The following year, she donated \$1,000 to the New England Female Medical College to start an endowment



Figure 3. Dr. Benjamin Waterhouse gravesite at Mount Auburn Cemetery. Photo credit: Brian Fissel.

for a Professorship of Anatomy in her late husband's name, with the intention of completing the endowment by increasing the donation to \$10,000 upon her death. (8) This donation provided the foundation for the first professorship at the all-female institution, and while it was named in honor of her husband, it is noteworthy that it was established by a woman.

Mrs. Waterhouse proved a steadfast ally in helping the cause of the New England Female Medical College. She was eager to not only do her part, but to recruit others as well. In a letter addressed to the Secretary of the New England Female Medical College on September 5, 1858 regarding a package of reports of the college and pamphlets titled "Letter to Ladies in Favor of Female Physicians," Mrs. Waterhouse wrote: "The two dozen pamphlets which you sent me, I have distributed. They were taken hold of with great avidity, and I trust will increase the number of donors. If you have more unappropriated I can give them away with pleasure to myself and advantage the cause." (6) Mrs. Waterhouse passed away in November 1863, leaving in her will a bequest of \$9,000 to the New England Female Medical College to complete the endowment originated in 1857. This donation was one of the largest donations in the institution's early history. Of particular note, the donation came at a time of financial uncertainty for the school, thus providing a critical financial bedrock from which the institution could continue to grow.

Mrs. Waterhouse's donation to the New England Female Medical College was the only bequest in her will made to a public entity, highlighting her fondness for the school and her commitment to the cause for which it stood. In the year following her passing, the Board of Trustees of the New England Female Medical College passed the following vote at their annual meeting: "Whereas, Mrs. Louisa (Lee) Waterhouse, of Cambridge, widow of Dr. Benjamin Waterhouse, former Professor in the Medical School of Harvard University, manifested her interest in this Institution and its objects, by giving to it the sum of \$10,000 for the endowment of a Professorship of Anatomy; and,

whereas, the Trustees desire to record their grateful remembrance of the honored founder, and to perpetuate so eminent a medical name, there - Voted, that the Professorship founded by Mrs. Waterhouse, in the New England Female Medical College, be designated and known as the Waterhouse Professorship of Anatomy." (6)

Thus the Waterhouse Professorship of Anatomy was established as the first endowed professorship at the New England Female Medical College. The first Waterhouse Professor was a Professor of Physiology and Hygiene, Frances S. Cooke, M.D., who was appointed to the Chair in 1861, three years before the endowment was officially completed. (6) She held the position until after the New England Female Medical College merged with the Boston University Hospital. Dr. Cooke was followed by Caroline E. Hastings, M.D. in 1886, who became the First Professor of Anatomy at the new Boston University School of Medicine. Mark Moss, Ph.D., the recently retired Chair of the Department of Anatomy and Neurobiology at Boston University School of Medicine is the current Waterhouse Chair until a new department chair is appointed.

Dr. Waterhouse has rightfully continued to be a source of pride for the school over the years. His legacy as one of the most renowned physicians in American history and earliest advocates for women physicians has lived on in more ways than the Waterhouse Professorship alone. The Benjamin Waterhouse Medical History Society at Boston University School of Medicine existed from 1954-1979, and could be joined for a mere \$2. They produced pamphlets highlighting the history of the school's architecture, held meetings and talks, and, ultimately, integrated history into the medical curriculum, including a BUSM IV elective in History of Medicine. It is unfortunate that the deeds of Mrs. Waterhouse appear to have been overshadowed by her husband's distinguished career for much of our institution's history, but hopefully this piece can serve to highlight the importance of her own actions in helping ensure the continuation of the fledgling New England Medical College and advancing the cause of equal access to medical education for women.



**Other Medical History Activities  
At BUSM**

The first thing you see as you enter the Instructional Building is the Bernard Appel Hall of Medicine, which consists of twelve massive stone plaques, each eight feet high. They depict, in bold relief, great figures in the history of medicine from ancient Egypt to the present century.

The Hall of Medicine was designed and executed by Doris Appel, distinguished sculptor and medical historian, and was donated to BUSM by members of her family. An illustrated descriptive brochure is available in the lobby, where one may listen to Mrs. Appel discussing her subjects' roles in the evolution of medicine on a tape.

A set of twelve portrait plaques depicting leaders in the progress of medicine, by the same artist, is in the Alumni Medical Library on the twelfth floor of the same building.

The History of Medicine Room (L-1109) in the Alumni Medical Library consists of a modest core collection of monographs and journals devoted to the subject. It has been set aside to facilitate study and research into the written roots of medicine at BUSM, although the outstanding collections at the Countway Library provide the most extensive primary resource materials in New England for more detailed studies.



Paré, *Surgery*, 1579



Vesalius, *Anatomy*, 1543

Boston University  
School of Medicine



**Benjamin Waterhouse  
Medical History Society**



Massachusetts Homoeopathic Hospital 1876

80 East Concord Street  
Boston, Massachusetts 02118

**The Society**

The Benjamin Waterhouse Medical History Society, founded by Dr. John J. Byrne in 1954, is the oldest still active society in Boston which is committed to stimulating interest in the profession's historical development.

Dr. Waterhouse, who was the first Professor of the Theory and Practice of Physic at Harvard Medical School, is best remembered because he was the first to introduce Dr. Edward Jenner's discovery of small pox vaccination to America, in 1799. The Society was named for Waterhouse because his widow had a special interest in the New England Female Medical College (founded in 1848), which became the Boston University School of Medicine in 1873. She established the Waterhouse Professorship of Anatomy at BUSM, and donated part of her husband's library to the school.

All BUSM students and faculty are welcomed as members of the Society, as are interested persons regardless of their affiliations. Membership forms are available from the Secretary-Treasurer, room L-601, BUSM.

Regular monthly meetings during the academic year begin with wine and cheese followed by a talk by a BUSM student or faculty member, or by an invited speaker from elsewhere.

In addition, the Society sometimes joins with other institutions, such as the Boston Medical Library, in sponsoring off-campus programs related to the history of medicine.



Withering, *Dignals*, 1793

**Medical History  
In The BUSM Curriculum**

Even the most modern tools and techniques of medical diagnosis and treatment, as presented in today's curriculum, can best be understood as the latest developments in processes that have been evolving since the time of Hippocrates. For this reason the development of concepts in many branches of medicine is an integral part of many courses in the required curriculum.

In addition, a number of elective opportunities for more detailed study of our professional background are offered to BUSM students:

1. SOCIO-MEDICAL SCIENCES, a required first-year course, offers among its many seminar tracks a series of lectures and discussions on medical history.
2. MEDICINE AND SOCIETY is an elective open to students in all four years. The course meets on Wednesday afternoons during the fall. Case histories in social aspects of drug use and abuse, and in pharmacology and medicine, are used to provide insights into the causes and consequences of change in medicine. (Further information is available in the Pharmacology Department.)
3. A BUSM IV ELECTIVE month in the History of Medicine can be arranged through faculty members of the Waterhouse Society. Historical research accomplished during this month can be expanded into a written Thesis as a second related elective. Students wishing to enroll in a History of Medicine elective should first consult the President or the Secretary-Treasurer of the Society.



Lacaze, *Stethoscope*, 1819



Paré, *Surgery*, 1579

Figure 4: BUSM Benjamin Waterhouse Medical History Society pamphlet. The society was founded by Dr. John J. Byrne in 1954 and was active for 25 years until 1979. Provided courtesy of A'Llyn Ettien and Boston University Alumni Medical Library.

BENJAMIN WATERHOUSE MEDICAL HISTORY SOCIETY MEMBERSHIP 1977-78  
 (Please PRINT all information requested below)

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

BUSM Class, if applicable: \_\_\_\_\_ DATE: \_\_\_\_\_

DUES ENCLOSED (check one):  Student, \$2.00  Other, \$5.00

ADDITIONAL CONTRIBUTION ENCLOSED: \$ \_\_\_\_\_

Please return this card and your dues to: J. Worth Estes, M.D.,  
 80 East Concord St, Boston MA 02118 (by Interdepartmental Mail,  
 to Room L-601, BUSM).

Figure 5: Benjamin Waterhouse Medical History Society Membership card, 1977-1978. Provided courtesy of A'Llyn Ettien and the Boston University Alumni Medical Library archives.

## Special Thanks:

We would like to give thanks to the Boston University Alumni Medical Library and Ms. A'Llyn Ettien, MLIS for providing the Benjamin Waterhouse Medical History Society pamphlet and membership card.

## About the Author:

Brian Fissel, M.S., is a 4th year medical student at Boston University School of Medicine and an Ensign in the U.S. Navy. Originally from Seattle, WA, Brian has a B.S. in Microbiology and Biochemistry from the University of Washington, as well as a M.S. in Medical Science from Boston University. Brian's interest in medical history began during his undergraduate studies, and led to him earning a minor in Medical History & Ethics, and has continued at BUSM through his involvement with the BUSM Historical Society, acting as a leader of the group and current co-editor-in-chief of ACESO. He will be continuing his medical career next year at Walter Reed National Military Medical Center in Bethesda, MD where he will be completing his internship in pediatrics.

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# The John Wade Professorship of Medicine

**Brian Fissel, MS**  
**Boston University School of Medicine**  
**Class of 2019**

**T**he Wade Professor is one of the first named professorships at the Boston University School of Medicine, and is held by the Chair of the Department of Medicine, which is currently Dr. David Coleman. This professorship is named after the Honorable John Wade, who bequeathed a large share of his estate upon his passing in 1858 to the New England Female Medical College. The New England Female Medical College would eventually merge with Boston University Hospital in 1874 to become the Boston University School of Medicine. This article will shed light on the life of John Wade, as well as the legal battle over his will that gripped the attention of the Boston press and ultimately led to one of the largest and most important endowments in the early history of the Boston University School of Medicine.

John Wade was born in Woburn, MA on April 3rd, 1780. Throughout his life, he became known to many as “Col. Wade” - despite having no history of military service - such that even the local newspapers referred to him by this nickname. In 1806, Col. Wade married Dr. John Page’s daughter, with whom he had one child, John, who was born in 1810. John studied at Amherst College and entered the profession of law, but unfortunately died in 1851 leaving a

widow but no children. Col. Wade’s wife passed away in 1826 and he remained a widower for the remainder of his life. (1)

At the young age of 22, with less than \$200, Col. Wade started his own business as a country trader in Woburn in 1802. He was noted to be a “trader of the old school, and with him a fair dealing was a matter of course.” (2) His keen talent and aptitude for commerce allowed him to accrue significant wealth and property before selling his business in 1825. Thereafter, he remained involved in the shipping business and also began to manage the properties he had acquired over the years. In his social relations, it was noted that “his friendships and dislikes were strong and undisguised. He made no pretense of regard where none existed; and those who enjoyed his esteem and confidence were made aware of the fact by acts and not by words.” (2)

Despite his significant accomplishments as a businessman, Col. Wade became most well-known for his political endeavors. He went on to hold various public offices for a longer period of time than any other man from Woburn. He was elected Chairman of the Board of Selectmen, the executive branch of town government in New England, for the town of Woburn. He held this position intermittently for a total of 14 years

between 1814 to 1835, as well as the position of town treasurer for 19 years intermittently from 1812 to 1834. He was also appointed Justice of the Peace by Gov. Sullivan and Postmaster under President Monroe in 1811, elected as State Senator in 1824 and served in the Massachusetts legislature for 21 years, and served as a delegate to the constitutional convention in 1820 when Maine separated from Massachusetts to become its own state. (2)

The cause of empowering women to enter the field of medicine was first brought to Col. Wade's attention at a public lecture in Woburn delivered by the Secretary of the New England Female Medical College in 1849, the year following the institution's founding. Col. Wade was not known for giving donations at such public gatherings, however when he donated one dollar at the public lecture it was considered proof of his interest in the cause. This prompted the Secretary of the New England Female Medical College to reach out to Col. Wade and the two remained in touch. Over the years, Col. Wade's interest in the New England Female Medical College persisted; he received annual institutional publications and was known to make regular friendly inquiries about the institution's happenings. (1)

In 1858, Col. Wade announced to the Secretary of the New England Female Medical College that he intended to leave a large bequest to the college, the income of which was to be used to provide financial assistance to women lacking the resources to obtain a medical education. He remarkably noted that "many of the best students would be those who had not the means to sustain themselves." Additionally, upon being asked if he would like to limit the beneficiaries to residents of Massachusetts, he said "Let them come from anywhere." (1)

During the illness that preceded his death, in stride with his strong character, it was noted that he both freely and frequently spoke in reference to his impending death and that he appeared to have no fear of his death. He ultimately died on July 9, 1858 at the age of 78, and on July 12, 1858 his remains were interred in Mount Auburn Cemetery. (2)

In the years preceding Col. Wade's death,



Figure 1. John Wade's gravesite at Mount Auburn cemetery. Photo credit: Brian Fissel.

the Annual Reports of the New England Female Medical College announced that the institution - a hospital for women and children with a stated goal of providing to women "accomplished and skillful physicians of their own sex" - had set a goal to raise \$50,000. (3) Having spent the previous 10 years of operations in rented spaces, this money would allow the school to purchase a larger, more permanent establishment from which to operate. (4) The reports also announced that donations of \$10,000 would be sufficient to create an endowment and professorship named for the donor, which would enable many students to attend the medical school tuition-free. (3)

Over the course of his life Col. Wade amassed a net wealth of some \$100,000, but as his only son had already passed away childless, Col. Wade's will was of intense interest amongst his surviving nieces and nephews. He left several thousand dollars to be divided between several parties, including his son's widow, a few family members, and - most contentiously - his lawyers and estate executors, J.P. and P.L. Converse. (5)

Will of John Wade, of Woburn.

Know all men by these presents, That I, John Wade, of Woburn in the County of Middlesex and Commonwealth of Massachusetts, Esquire, being in full bodily health, of sound and disposing mind, and memory, calling to mind the uncertainty of life, do make and publish this as my, and for my last will and testament, as follows, that is to say:

First. I direct my Executors to pay my just and legal debts, my funeral charges, and the charges of administering upon my estate.

Second. I give and bequeath to Mrs. Anna C. Wade of Woburn the sum of One thousand dollars.

Third. I give, and bequeath to Mrs. Rebecca Brooks, wife of Mr. James H. Brooks of said Woburn, the sum One thousand dollars.

Fourth. I give, and bequeath to Miss Nancy B. Wade of said Woburn, the sum of One thousand dollars, and all my stock in the Woburn Gas Light Company.

Fifth. I give and bequeath to Nathan Ayman of said Woburn the sum of Two thousand dollars.

Sixth. I give and bequeath to Brown Buckman of said Woburn the sum of One thousand dollars.

Seventh. I give and bequeath to John Flanders of said Woburn, the sum of One thousand dollars.

Eighth. I give and bequeath to Andrew Jackson Wade, of said Woburn, the sum of Five hundred dollars.

Ninth. I give and bequeath to the children of my brother Samuel Wade, the sum of One thousand dollars which sum is to be equally divided between them.

Tenth. I give my pew in the Unitarian Meeting House in Woburn, to Mrs. Rebecca Brooks of said Town.

Eleventh. I give and bequeath in equal shares, to Joshua P. Converse and Parker S. Converse both of said Woburn, all my right title, and interest in and to the note given to me by William D. Rice, and all my right and interest in, and to the mortgage which I hold upon his real estate in the Eastern part of said Woburn. I also give to the said Joshua P. Converse and

Parker S. Converse as aforesaid, in fee, a lot of land containing about four rods situated in the Eastern part of said Woburn adjoining the above named real estate.

Twelfth. I give to the said Joshua P. Converse and Parker S. Converse, and the survivor of them, and to their successors my real estate, consisting of the land and buildings thereon situated on Hanover Avenue in Boston, to be held by them upon the trust following, to wit: to take care of and manage said real estate, and after defraying the expense of repairs, insurance and assessments thereon, and the care and management thereof, to pay over annually the balance of the income thereof, to the proper officer or officers of the New England Female Medical College, for the support and medical education of worthy and moral indigent females.

Thirteenth. I give to the said Joshua P. Converse and Parker S. Converse, and the survivor of them, and to their successors, my real estate, consisting of the land and buildings thereon, situated on Main and Park streets in said Woburn, to hold by them upon the trust following, to wit: to take care of and manage said property, and after defraying the expense of repairs, insurance and assessments thereon, and of the care and management thereof, to pay over the balance of the income thereof to Miss <sup>Barbara</sup> Rebecca Brooks of said Woburn, during her life. After the decease of the said Barbara Rebecca Brooks, I give said last named real estate in fee, to the corporation of Tufts College in Lowellville.

Fourteenth. I give to the said Joshua P. Converse and Parker S. Converse and the survivor of them, and to their successors, all my real estate in said Woburn, not heretofore devised, and also my interest in a pew in the First Congregational Meeting House in said Woburn, together with all my horse, carriages and harness, my cow, and all the implements belonging to my barn and stable to be held by them upon the trust following, to wit: to take care of and manage the same, and soon, and in such manner as they shall deem best for the of my estate, to sell, dispose of, and convey the same, and after defraying the expenses thereof, and the repairs, insurance and taxes thereof, to invest the proceeds and income thereof safely; and when the same shall beyond the necessary dis-

Figure 2. Will of John Wade (pages 1 and 2). His will was the subject of a lawsuit by his nieces and nephews and remained in litigation for nearly 2 years before the case was settled. Provided courtesy of Tufts University Digital Archives and Collection. Historical Materials Collection, 1819-2012. Artifacts and ephemera, 1861-2012. Copies of wills and correspondence regarding wills and bequests, 1861-1890. Col. John Wade Will. UA136.001.001.00001. Tufts University. Digital Archives and Collection. Medford, MA.

However, Col. Wade instructed that the bulk of his wealth, which was tied-up in real estate he owned in Boston and in Woburn, was to be held in trust for the New England Female Medical College and Tufts College, respectively. According to the will, his six properties on Hanover Avenue in Boston, estimated to be worth over \$20,000 at the time, were to be given to his lawyers J. P. and P. L. Converse to be held in trust "for the benefit of the New England Female Medical College, for the support and medical education of worthy and indigent women." The net income from the these properties, which was anticipated to be about \$2,000 annually, would be paid to the school each year to constitute a perpetual scholarship fund. Col. Wade also left the school an additional \$10,000 for the purpose of endowing

a professorship in his own name. (6) Thus, his total contribution to the institution was estimated to be valued at around \$30,000 at the time. For perspective, \$10,000 in 1860 is equivalent in purchasing power to approximately \$300,000 in 2018, and according to the Ninth Annual Report of the New England Female Medical College, \$1,000 would be enough to provide free tuition to 40 students for one year. (3)

Just days after Col. Wade's passing, a lawsuit was brought against the legitimacy of his will by many of his surviving nieces and nephews who were left out of his inheritance. This led to a trial that would draw intense public interest and headline many of Boston's newspapers.. Some 30 nieces and nephews, residing from as far away as California and

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bursements and expenses amount to the sum of Thirty Thousand dollars to pay Ten Thousand dollars thereof to the New England Female Medical College, for the establishment of a Professorship therein, and Twenty Thousand dollars thereof to Tufts College aforesaid for the establishment of a Professorship therein.

Sixteenth. I give to Miss Caroline Rebecca Brooks, all my silver plate, and all my household furniture.

Seventeenth. I give to the said Joshua P. Converse and Parker C. Converse, and the survivor of them, and to their successors, the sum of Five Thousand dollars, upon the trust following, to wit; to invest the same in land and buildings for a home for Bernard Nash, and to permit said Nash to occupy the same for from rent, during his life, provided he shall pay the repair, taxes and insurance thereon, and the other expenses incident thereto. Upon the decease of said Nash, I direct said Trustee, to sell said real estate, and to hold the proceeds, and pay over the net income thereof to the New England Female Medical College, for the purposes mentioned in item twelfth.

Eightheenth. I give and bequeath, in equal shares, to Parker C. Converse and Alpha C. Thompson, both of Hologory, my stock in the Fireman's Insurance Company in Boston.

Nineteenth. I give the net residue and remainder of my property, not hereinbefore given or devised, to Joshua P. Converse of Hologory.

Twentieth. I hereby constitute and appoint the said Joshua P. Converse and Parker C. Converse, the Executors of this, my last will and testament, and in case of the death of either of them, I appoint the survivor, sole Executor.

In witness whereof, I the said John Wade, do hereunto set my hand and seal, this Nineteenth day of June, in the year Eighteen hundred and fifty eight.

Signed, John Wade [Seal]

Signed, sealed, published and declared by the said John Wade, as and for his last will and testament, in our presence, who in his presence, at his request, and in the presence of each other, subscribe our names hereto as witnesses, on the day and in the year above written.

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Signed, John Johnson, E. P. Pratt, Chas. P. Atwell.

Codicil.

I John Wade of Hologory in the County of Middlesex and Commonwealth of Massachusetts, do make and publish this Codicil to my last will and testament heretofore made and published, by me, which said will I hereby ratify and confirm in all respects save as the same may be changed by this instrument.

Whereas by writing dated 12<sup>th</sup> June 1858, I have appointed United Crocker my agent for completing my lot in Hologory and erecting a fence, monuments &c. thereon, as in said writing is set forth; now therefore, in case of my decease before the said Crocker shall have executed the powers conferred in said writing, I hereby direct my Executors named in said will to cause the said lot to be completed, and the said fence, monument &c. to be erected under the direction of said Crocker and in said manner and at such expense as he shall determine, having full confidence that he will observe and carry into effect, as far as may be, the wishes and suggestions which I have heretofore expressed in writing aforesaid, and in conversation with him on the subject, and I hereby authorize and direct my Executors to pay out of any portion of my estate not required for the payment of my debts, such sums of money as at such times as may be required by said Crocker for the purposes aforesaid.

In witness whereof I have hereunto set my hand and seal, this twenty sixth day of June in the year of our Lord Eighteen hundred and fifty eight.

Signed, John Wade [Seal]

Signed, sealed, published and declared by the said John Wade as and for a codicil to his last will and testament in the presence of the three several persons whose names are hereunto subscribed, as witnesses, which three persons do hereunder subscribe their names at the request and in the presence of the said John Wade the presence of each other.

Signed, John C. Page, Harrison Barnes, Will. H. Crocker.

Figure 3. Will of John Wade (pages 3 and 4). Provided courtesy of Tufts University and Tufts Digital Archives and Collection. Historical Materials Collection, 1819-2012. Artifacts and ephemera, 1861-2012. Copies of wills and correspondence regarding wills and bequests, 1861-1890. Col. John Wade Will. UA136.001.001.00001. Tufts University. Digital Archives and Collection. Medford, MA.

Louisiana, came to challenge their Uncle's will in hopes of earning a portion of his wealth. (5) From witness testimony by Wade's lawyer, J. P. Converse, in the trial held in the courthouse in East Cambridge, their absence from his will was apparently intentional on the part of Col. Wade, who allegedly said prior to the will being drawn up that "I've got no relations that I want to leave my property to - none that are worthy of it." He added: "It would do some of them no good if they had it." (7) The plaintiffs took exception to the fact that the document was drawn up in the handwriting of J. P. Converse and alleged that Wade was of "unsound mind" allowing him to be subject to undue influence by his lawyers, who were also large benefactors of his estates. (8)

After nearly 2 years of legal battles, the lawsuit was heard before the State Supreme Court in Lowell, where it was presided over by Chief Justice George Tyler Bigelow in May 1860. (9) He gave the case to a jury, who after 1 hour of deliberation returned a verdict sustaining all aspects of the will, including the sections pertaining to the properties left in trust to the New England Female Medical College. (10) Due to the drawn-out legal battle over his will, the New England Female Medical College would not begin to receive income from his donation until 1861. The Board of Trustees created the Wade Scholarship Fund in his name, which would provide aid to the amount of fees required of Professors and the Demonstrator at the school. The impact of his contribution, however, was both timely and substantial as

remarked in the Twelfth Annual Report in 1861. The financial state of the institution was not good at the time, and that year represented one of the worst years for collecting funds. Thanks to Wade's donation, it was one of the most fortunate financial years for the institution. (1)

While the Wade Scholarship Fund was intended to go into perpetuity, it unfortunately no longer exists, and it is unclear when it ceased to distribute financial aid to students. The Wade Professorship, however, continues to this day. It is currently held by the Chair of the Department of Medicine at Boston University School of Medicine, however this has not always been the case. While the Wade Professor was established by the Board of Trustees in 1858 upon the announcement of Col. Wade's will, it is unclear who the first Wade Professor was. The first identifiable Wade Professor is Dr. Reginald Fitz, who held the position from 1936-1939. The Wade Professor was subsequently held by Dr. Chester Keefer from 1940-1962 and then Dr. Robert Wilkins from 1963-1973. During Dr. Keefer's time as the Wade Professor, Dr. Robert Wilkins served as the Chair of the Department of Medicine, and when Dr. Wilkins became the Wade Professor in 1963, he remained the Chair as well. Since then, the Wade Professor has been linked to the Chair of Medicine. The Wade Chair has been subsequently occupied by Dr. Norman Levinsky (1973-1997), Dr. Joseph Loscalzo (1997-2005), Dr. Thomas Moore, ad interim, (2005-2006), and most recently Dr. David L. Coleman (2006-present).

Col. Wade's generous donation was one of the most significant contributions to the school in its early history, allowing the creation of the Wade Fund, a scholarship fund, and a professorship in his name. His donation was one of the first, if not the first, of such a large size to be dedicated specifically for a female medical college, and was a major boon to the school at a critical time both financially and in the cause of advancing women's participation in the field of medicine. He demonstrated that he was a man whose words were backed by his actions, and that his stated support of the ideals of the New England Female Medical College in educating female physicians was truly genuine.

### **Special Thanks:**

We would like to give a special thanks to the Tufts University Archives for generously providing a digital copy of John Wade's will, as well as to A'Lyn Ettien (Boston University Alumni Medical Library) for providing the cited newspaper articles.

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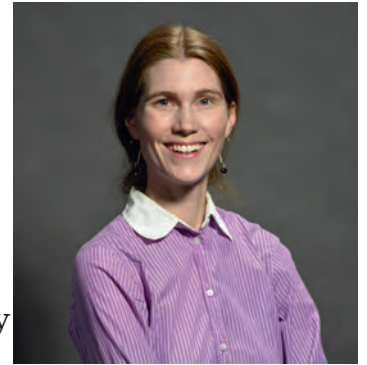
# The Trial of Tisdale Talbot



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**I**srael Tisdale Talbot, M.D. (1829-1899) is one of the most recognizable names in the history of the Boston University School of Medicine. A Harvard educated physician who later embraced a new theory of healing and became one of Boston's leading practitioners of homeopathy, he was Dean of the Boston University School of Medicine upon its founding, guided it for its first quarter century, and today is honored as the namesake of the beautiful Talbot building that has graced the BUSM campus since 1876. Little remembered, though, is Dr. Talbot's key role in a dramatic legal battle. When medicine-as-science was in its early days and the physician's practice was often little more than folklore, a battle between the Massachusetts Medical Society and the Society's homeopathic members found Dr. Talbot at its center.

The Massachusetts Medical Society (MMS) was founded in 1781, making it the oldest and longest standing medical organization of its type in the United States. At its inception, the Massachusetts legislature gave the society the duty of

examining and assessing the abilities of candidates who wished to engage in medical practice. In essence, the Society (like those in other states), had the power to "license" physicians. Organizations such as these were central to the formal practice of medicine.

It is important to note that this early period of medicine in the United States has been called the age of "heroic medicine" or "heroic therapy" (1). Doctors relied on "bleeding, purging and puking," (2) prescribing bloodletting, blistering, laxatives, emetics, irritants, and toxic agents like calomel (mercury chloride), all designed to rid the body of substances that were considered to be either innately harmful or present in excessive amounts. Though commonly accepted and even requested by patients -- who, if not actually healed, would certainly appreciate the forceful battle against illness -- these practices were generally ineffective and frequently as dangerous as the problems they were intended to address. It is unsurprising in this environment that new approaches to healing would develop in response to the drastic methods routinely



used by mainstream physicians.

The first alternative healing method to gain widespread acceptance in the U.S. was Thomsonianism, or Thomsonian Medicine (3). This was a botanically based approach proposed by Samuel Thomson (1769-1843), a self-taught botanist and herbalist from New Hampshire. Thomson had no medical education or training, but his technique had the advantage of being a relatively benign alternative to familiar heroic treatments. His various herbal remedies, though mostly mild, did include plant-based approaches on emetics and sweating (he advised lobelia for the first, hot foot baths and cayenne pepper for the second). To this extent, his methods showed commonality with the mainstream belief that disease arose from the presence or overabundance of substances in the body (4). Stressing commonly available herbs and the ability of individuals to treat themselves (5), Thomson intended his method more as more a self-help guide than a new form of medical practice, but he still popularized an alternative approach to healing. Thomsonians and other "irregular" practitioners were opposed to medical licensure laws, which restricted their ability to practice, and in the anti-monopolistic spirit of early 19th-century American, Jacksonian democracy, they successfully argued to have these laws repealed such that no license (or standardized skills or education) was required for the practice of medicine.

In this unregulated environment, possessing little real control over the practice of medicine in the Commonwealth, the Massachusetts Medical Society now faced an even more significant threat to conventional medicine: homeopathy. Unlike Thomsonianism, an outsider movement founded by a layman, homeopathic medicine was developed by a mainstream German physician, Samuel Hahnemann (1755-1843), and in its early days in the United States was taken up by conventionally trained "regulars" within the medical profession. Its proponents were

better educated than Thomson's, and continued to see themselves as gatekeepers of medical care rather than advocates of self-treatment. In addition, the homeopathic system had been developed with the use of experimentation and research in accordance with the standards of the time, giving it a claim to scientific validity (6). Homeopathic practitioners therefore represented a far more serious challenge to mainstream physicians.

Homeopathic medicine arrived in Boston in 1838, where it was first practiced by Dr. Samuel Gregg (1799-1872), a Dartmouth College graduate (7). From the beginning, there was no shortage of animosity between homeopathy and mainstream medicine in Boston. Only four years later, one of the era's most effective criticisms of homeopathy appeared. It was authored by Harvard Medical School professor Dr. Oliver Wendell Holmes (1809-1894). Known today better as a poet and writer than as a physician, the eloquent Holmes gave two lectures in 1842 that were published later that year as a pamphlet titled *Homeopathy and its Kindred Delusions* (8). Firm lines had been drawn between homeopaths and 'regular' physicians. But what official action, if any, would the Massachusetts Medical Society, the formal voice of the medical profession in the state, take against homeopathic practitioners?

Interestingly, it was not regular physicians in the Society who forced the issue, but rather one who had converted to homeopathy, Dr. Isaac Colby of Salem, who in 1850 petitioned to resign from the Massachusetts Medical Society. A panel of three MMS members, all on the Harvard faculty, was appointed to make recommendations regarding the request (9). Considering that Oliver Wendell Holmes was one of the three (along with George Hayward, first to perform a major operation under ether anesthesia, and J.B.S. Jackson, pathologist and anatomist who would later be Harvard Medical School dean), their recommendations were

surprisingly mild. They observed “that the subject is a delicate one:” on the one hand, it did not seem right that individuals who renounced and criticized the doctrines of the medical profession should be allowed to be members of MMS. On the other hand, they recognized “that some of the practitioners of homeopathy are men of talent and education, who have been well instructed in the commonly-received doctrines of medicine.” In deciding to embrace homeopathy, “they have done nothing to forfeit their good name [and] are acting conscientiously.” The committee even added that it would be doing “injustice to homeopathy if it were not admitted that the promulgation of its doctrines had, at least indirectly, been of some service to the cause of medical science. It may have taught us to place more confidence in the curative powers of nature and less in medicinal agents.” The final recommendation of the committee stipulated that current members like Dr. Colby who wished to resign could do so if they paid their back dues and that no graduates of homeopathic schools would be accepted for membership. However, current members of the Massachusetts Medical Society who had taken up homeopathy after training at traditional medical schools would not be subject to expulsion.

By this time, however, state societies were not the only organized medical groups. The American Medical Association, founded in 1847, had among its agendas the improvement of medical education, ethics, and practice. Given the contentious nature of the issue, dealing with the question of homeopathy was inevitable for the AMA. The first move came in the code of ethics established in 1847, which included the “consultation clause.” This rule, stating that “no one can be considered as a regular practitioner, or a fit associate in consultation, whose practice is based on an exclusive dogma, to the rejection of the accumulated experience of the profession, and of the aids actually furnished by

anatomy, physiology, pathology, and organic chemistry” (10), made it an ethical violation for a conventional physician to consult with a homeopath, regardless of the wishes of the patient or the clinical gravity of the situation.

Despite having established their rule preventing conventional and homeopathic physicians from cooperating with one another, the AMA at first was slow to enforce it. Not until 1855 did the national organization demand that all state and local societies adopt the AMA code of ethics containing the consultation clause, and not until the 1870s did it call for a purge of homeopaths from the ranks of organized conventional medicine.

Following the 1850 case of Dr. Colby’s resignation, the Massachusetts Medical Society had continued to allow homeopaths among its members, but that was to change dramatically in 1870. At that year’s annual convention of the AMA, two Boston physicians, John L. Sullivan and Horatio R. Storer, objected to the seating of the MMS delegation, contending they had violated the code of ethics by allowing homeopathic physicians to continue fellowship in their Society. After an investigation, the AMA ethics committee recommended that the Massachusetts Medical Society not be allowed representation in the national society unless it took “the necessary steps to purge itself of irregular practitioners” (11). The MMS now faced the prospect of having all its mainstream members excluded from the American Medical Association unless they expelled their homeopathic brethren.

Back in Boston, after a contentious meeting of the MMS, Dr. Sullivan offered a resolution to dismiss any members “who publically profess to practice in accordance with any exclusive dogma” (12). The resolution passed, but was quickly challenged on the grounds that it conflicted with the Society’s own charter in several ways. A detailed article in the Boston Medical and Surgical Journal pointed out

that the charter provided: first, that only individuals against whom specific charges had been made could be expelled; second, that expulsion could take place only after a formal trial; and finally, that any physician of “good moral character, having been found to possess the qualifications prescribed,” could be a member of the MMS, with no requirement regarding a specific approach to practice (12). At that point the MMS councilors decided to censure Drs. Sullivan and Storer for making criticisms to the national organization without first raising the issue at home and to boycott AMA meetings until the AMA changed its stance. This was not meant as an endorsement of homeopathy by the Massachusetts Medical Society but rather as a recognition that expulsion of the irregulars en masse

would not only be against its own rules but would also discredit the MMS in the eyes of a substantial portion of the public who embraced these sectarian approaches.

Continuing in the atmosphere of ambivalence that seemed to envelope them, in early 1871 the MMS councilors passed resolutions “expelling” sectarian and dogmatic practitioners, but did not actually remove any members. Instead, they sent a letter to the AMA explaining that the Massachusetts Medical Society was a public institution that could not legally expel sectarian members and that “more mischief will result to the profession and to medical science” by forcibly removing rather than “quietly ignoring” the homeopaths (13). But

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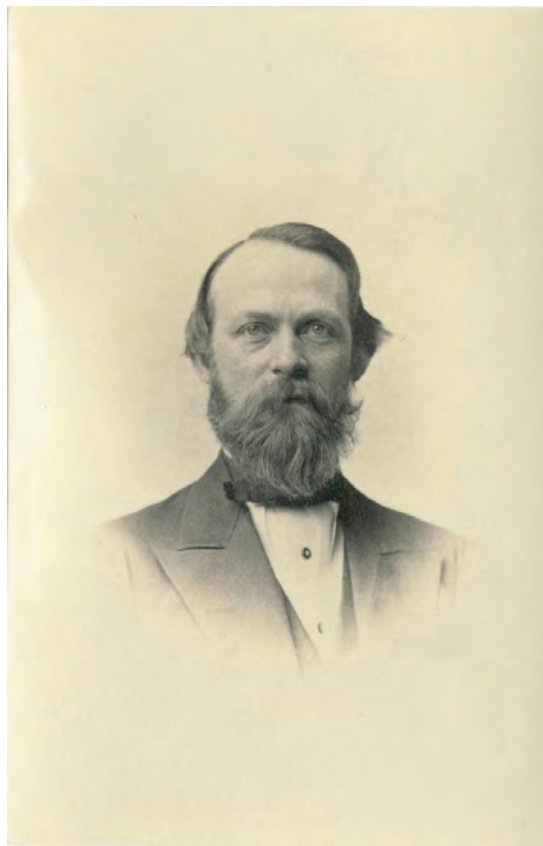


Figure 1. Israel Tisdale Talbot (1829-1899). Graduate of the Homeopathic Medical College of Pennsylvania (1853) and Harvard Medical School (1854). Joined MMS in 1854. Twice secretary/treasurer of the Massachusetts Homeopathic Fraternity (1854 and 1856) he was a charter member of the Massachusetts Homeopathic Medical Society at the time of its founding in 1856 and served as its president in 1867. First Dean of the Boston University School of Medicine.

the American Medical Association stood firm in its demand.

For over twenty years the Massachusetts Medical Society had examined its relationship with homeopathy, criticized it, and threatened to expel its proponents, but the MMS had never actually done so. Now, faced with the AMA’s ultimatum, the MMS finally had to act. (14) Eight homeopathic members were summoned before a board of trial to investigate their mode of practice: Drs. William Bushnell, Milton Fuller, Samuel Gregg (15), H.L.H. Hoffendahl, George Russell, Israel Tisdale Talbot, David Thayer, and Benjamin West. The proceedings began on November 1, 1871, with considerable public attention and with the press largely on the side of the homeopaths. Early in the proceedings Dr.

Talbot was able to force the Society to acknowledge that the defendants were accused of practicing homeopathy specifically, but before anything else of substance could be determined, the trial was plunged into an unexpected and dramatic recess when the county deputy sheriff entered with an injunction forbidding the Society from expelling anyone.

In the lull that followed, as the MMS considered what to do next, things went well for homeopathy. The approach seemed to gain enhanced favor as a result of the trial’s publicity. A two-week fair held in April, 1872, raised a large sum of money for the city’s planned homeopathic hospital (the

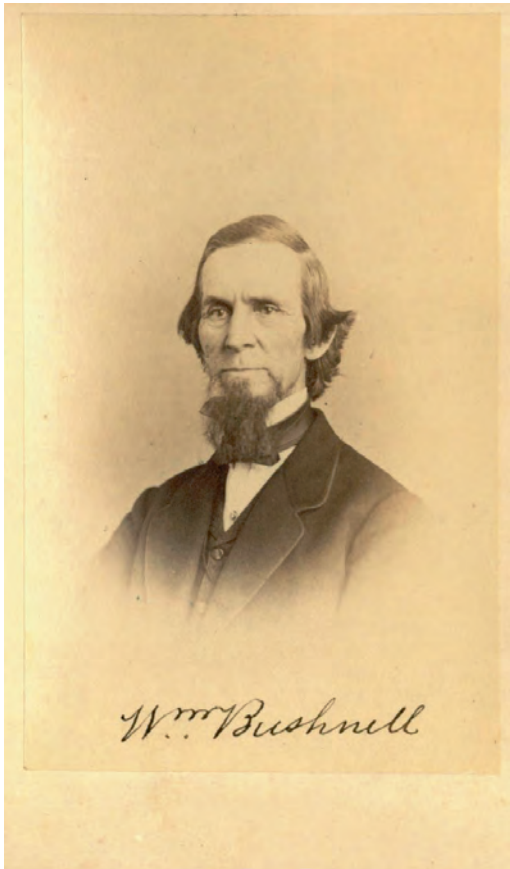


Figure 2. William Bushnell (1801-1879). MD from Pennsylvania University 1858. Joined MMS in 1856, MHMS in 1858.

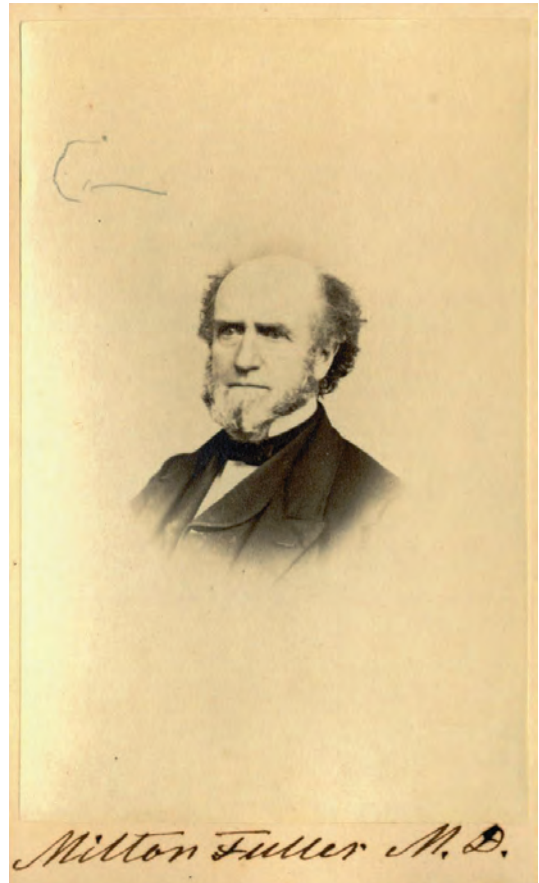


Figure 3. Milton Fuller (1799-1885). Born in New Hampshire. Studied medicine in Boston with another physician and began practicing in Scituate in 1823. Took up homeopathy in 1841, taking over for Samuel Gregg in Medford, MA. Joined MMS in 1842, and MHMS (which he served as president in 1860) at its inception in 1856.



Figure 4 (Left). Samuel Gregg (1799-1872). Graduated Dartmouth College in 1825. First homeopathic practitioner in New England. Joined MMS in 1831: a founder of the Massachusetts Homeopathic Fraternity in 1841, which became the Massachusetts Homeopathic Medical Society in 1856. President of MHMS in 1856.



Figure 5. H[erman].L.H. Hoffendahl (1830-1881). Born in Mecklenburg, Prussia. Harvard Medical School graduate in 1852. Joined MMS in 1854, and MHMS in 1857.

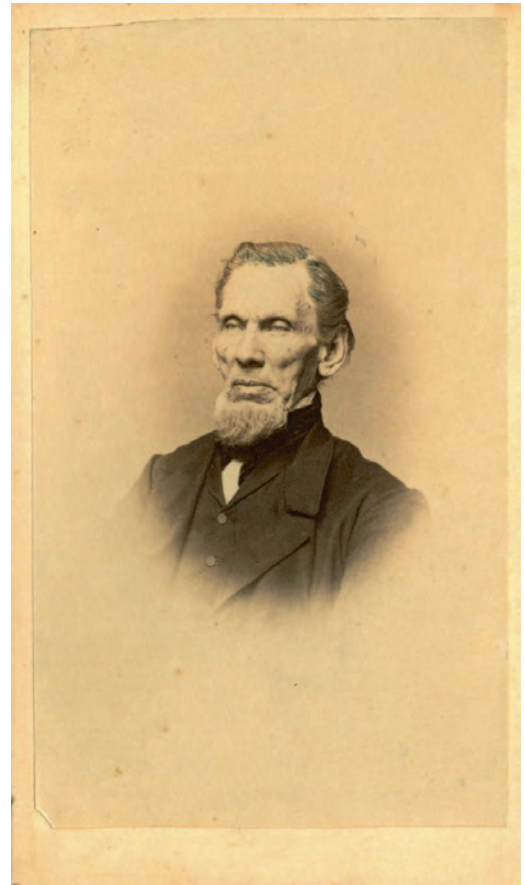


Figure 6. George Russell (1795-1883) Born in Lincoln, Massachusetts and educated at Harvard Medical School (1820), he adopted homeopathy in 1839. Joined MMS in 1825: charter member and 1859 president of the MHMS. Practiced in Boston from 1845 until his death.



Figure 7 (Left). David Thayer (1813-1893). Born in Prussia. Joined MMS in 1845, and was a charter member of MHMS at its inception in 1856 and president in 1862. In addition to homeopathy he was "active in all anti-slavery movements," and was one of the original faculty members of the Boston University School of Medicine.

Massachusetts Homeopathic Hospital, one of the predecessor institutions of what became today's Boston Medical Center), and in February of 1873, the trustees of Boston University asked the homeopathic community to organize their new medical school, with Dr. Israel Tisdale Talbot, personal physician to University founder Isaac Rich, as Dean.

Also in February 1873, however, the state supreme court ruled that the Massachusetts Medical Society did have the power to expel members. As MMS prepared to resume the trial, Oliver Wendell Holmes, now over thirty years removed from the rhetoric of Homeopathy and its Kindred Delusions, urged caution. He felt that the threat of losing AMA recognition for Massachusetts physicians must be weighed against the likelihood that expulsion would turn the public even more in favor of the martyred homeopaths. However, even the articulate and admired Holmes could not stem the tide.

On April 29, 1873, the trial continued against seven remaining defendants, as Samuel Gregg had died the previous year. The formal charge was "Practicing or professing to practice according to an exclusive theory or dogma, and belonging to a Society whose purpose is at variance with the principles of, and tends to disorganize the Massachusetts Medical Society." Initially left vague but clarified following Dr. Talbot's earlier argument was the fact that the "theory or dogma" in question was homeopathy and the "Society" was the rival Massachusetts Homeopathic Medical Society (16). Dr. Talbot, acting as counsel for Dr. Bushnell, asked that the press be admitted since the proceedings were of public interest. That was rejected, as was his next demand that a "phonographic reporter" be obtained to avoid transcription errors that had occurred in the 1871 proceeding. Requests to be allowed legal counsel and for a recess to prepare proper legal defense were also denied. Dr. West added that the 1871 rulings expelling irregular practitioners

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Figure 8. Seal of the Massachusetts Homeopathic Medical Society: a presentation example in red wax on silk, two inches in diameter. It depicts a bust of Samuel Hahnemann surrounded by the Society's motto: *Certiorem medendi usum malui*, meaning "Prefer the more certain method of healing" [i.e. homeopathy].

were *ex post facto* and therefore unconstitutional. As the newspapers criticized what they saw as an unfair proceeding, the board of trial did agree to a two-week recess.

When the court reconvened, Tisdale Talbot rose in his own defense. He asserted the superiority of homeopathy and denied that its Society was in any way opposed to the state Society. He argued that his cause was only helped by the "narrow and malignant attacks" launched against it. He further noted: "Already we have proof that the coming generations will have reason to be thankful for the unsuccessful assault upon us last year. The cordial sympathy and world-wide notice it got for us, poured into our hands the means to found and most liberally endow a homeopathic hospital, to relieve the sufferings of future generations." The result of the current trial "will be to give us still larger and kinder support. A second wave of public sympathy will found a university for the study of our system. . . . If you, gentlemen, can afford to contribute thus lavishly to our success, we surely should not quarrel with the

prominence and popularity you give us” (17). Despite Talbot’s skillful oration, the Board announced on May 19, 1873 that the defendants had been found guilty, and they were duly dismissed from the Massachusetts Medical Society. The MMS was subsequently allowed to retain its affiliation with the American Medical Association.

In the absence of licensure laws (not passed in Massachusetts until 1884), the ability to practice was not tied to membership in the MMS, so the expulsion had limited impact on the ability of these men to continue to work as physicians or, in Dr. Talbot’s case, as the Dean of a new medical school. With many ups and downs along the way, however, homeopathy itself faded and largely disappeared as an academic discipline as the age of truly scientific medicine dawned in the 20th century. Many homeopaths -- drawn as much to the mildness of the discipline compared to heroic medical practices, as to homeopathy’s specific principles -- readily incorporated new and effective mainstream therapies. Accordingly, the number of physicians practicing strictly according to homeopathic doctrine dwindled (18).

However, much as Talbot predicted, the remainder of the 1800s would be a good era for homeopathy in Boston. With the opening of the Boston University School of Medicine in 1873 and the adjacent Massachusetts Homeopathic Hospital in 1876, homeopathic medicine had an academic campus in the shadow of the Boston City Hospital. The homeopathic faculty that built up and nurtured BUSM, which included education in standard medical subjects as well as homeopathic theories, did a fine job. In the first decade of the 20th century, the AMA’s Council on Medical Education asked the Carnegie Foundation for the Advancement of Teaching to survey medical education in the United States. The result was the influential Flexner Report, published in 1910, which rated every medical school in the United States. The Boston University School of

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Medicine received more words of praise from Flexner than any other homeopathic school and, in fact, compared favorably in some areas to standard schools (19). This in turn paved the way for the conversion to nonsectarian medicine in 1918 and ultimately the excellence of the Boston University School of Medicine today. For those of us at BUSM, Tisdale Talbot and his homeopathic colleagues remain a fascinating part of our history, and, cast in the best light (surely a prerogative of his scholarly descendants) remains exemplary of what has become a long tradition of prioritizing patient care according to the best understanding available at the time.

### **About the Authors:**

James S. Brust, M.D., BUSM 1968, Associate Clinical Professor of Psychiatry at the David Geffen School of Medicine at UCLA, is a psychiatrist in private practice in San Pedro, California. Dr. Brust is an independent historian with a wide range of interests. He serves as president of the George Dock Society for the History of Medicine at the Huntington Library in San Marino, California, and has been an active supporter of medical history at BUSM, lecturing on the school’s history, and donating historical artifacts to the library, a number of which appear in this article. Dr. Brust has contributed to every issue of ACESO.

A'Llyn Ettien, MLIS, manages the archives at BU Alumni Medical Library, where she is the Collections Management Librarian. Her enthusiasm for the history of medicine in general, and of the BU Medical Campus in particular, is matched only by her enthusiasm for PubMed and for thorough and effective literature searches.

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14. [Unless otherwise cited, our description of the legal proceedings between the eight homeopathic physicians and the Massachusetts Medical Society, including specific comments, is taken from Kaufman, Homeopathy, 79-85.]

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# Historical Vignette: The James Utley Professorship of Surgery

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The “Chair of Surgery” position at Boston University School of Medicine and University Hospital was first occupied by Dr. Reginald Smithwick in 1946, and followed by his successors, Drs. Richard Egdahl, John Mannick, John Benfield, Lester Williams, Peter Mozden, Robert Hobson, Edward Spatz, James Becker, Gerard Doherty, David McAneny, and most recently Jennifer Tseng. During my research for the presentation “Surgical Heritage of University Hospital 1855 to 1983,” given at the April 23, 1983, Grand Rounds,” I became acutely aware that no archival material or conversations with previous individuals who held this chair could unlock the mystery, “Who was James Utley, M.D., the man?” (Figure 1)

This historical sketch is an attempt to unravel this mystery and to explain the endowment for this named professorship of surgery. Archival material was non-existent and despite honest effort, I was not privy to any information regarding letters or documents relating to this endowment from Boston University.

James Utley was born in Marlboro, Massachusetts, on July 13, 1840, the son of Rev. Samuel Utley, who was the nephew of Col. Knowlton of Bunker Hill fame. He obtained his education at Williston Seminary and Hudson



Figure 1. Portrait of Dr. James Utley from his obituary in the Newton Graphic on March 22, 1907. BUSM Surgery - Historical Archives - Photos <https://www.bumc.bu.edu/surgery/about/history/archives/historical-photos-people/> Image enhanced with the help of Mr. David Keough, BUMC Media Relations.

Academy, and spent his early career in the practice of dentistry. The desire to broaden his field of professional work led him to study medicine, graduating from the medical department of Bowdoin College in 1874 in New Brunswick, Maine, and from Hahnemann

Medical College of Philadelphia, a homeopathic school, in 1875. He subsequently settled in Newton, MA where he opened an office at 497 Center Street off Newton Square and across from the Elliott Church in 1876. He lived and worked in this home-office building alone at first and then with his only son, Edward R. Utley, M.D., until his death on March 15, 1907, which was attributed to "gastritis" and subsequent "starvation".

During the 1880's, according to the Tercentenary of Newton 1630-1930 by Henry K. Rowe, the town contained its usual quota of professional people: eighteen ministers - not including the faculty of the Newton Theological Institution, four lawyers, one dentist and sixteen physicians (ten allopaths, four homeopaths, one hydropath, and one eclectic). These men practiced their medicine and performed surgery, as was the custom, in their patients' homes as well as in their offices. The need for a hospital arose in 1881 and a charter was obtained for the Newton Cottage Hospital, now Newton-Wellesley Hospital, which finally opened its doors in 1886. One of the founders and first members of the surgical staff at Newton Cottage Hospital was Dr. James Utley.

During this period of medicine, there was great hostility and bitterness between allopathic and homeopathic practitioners. Homeopaths were tossed out of established allopathic medical societies and banned from old school hospital staffs. It was during this period that Dr. Utley became a member of the Massachusetts Homeopathic Medical Society. Between 1887 and 1888 he was listed in the Boston University School of Medicine bulletin as a lecturer in minor surgery, splints, and bandaging. A Boston University medical student's notebook from this course can be found in the rare book section of the Harvard Countway Library.

The history of the Massachusetts Homeopathic Hospital (now Boston Medical Center), the Boston University School of Medicine, and the Massachusetts Medical Society attests to the bitterness between medical sects. The Newton Cottage Hospital, however, was unique and foresighted in its established charter. When the charter opened its doors in

1886, each school of medicine, homeopathic and allopathic, was represented on the medical-surgical staff as two separate services. These services included six physicians, two surgeons, two consulting physicians, and specialists as appointed. Despite the unfavorable criticism from outspoken individuals in the community regarding this representation on the hospital staff, the hospital prospered. Patients were admitted to rooms on opposite sides of the wards if possible, and each division was designated so as to avoid confusion.

According to his obituary in the Newton Graphic, March 22, 1907, Dr. Utley was one of the best-known and most respected physicians in the city. He set the first broken leg, amputated the first leg, and performed the first laparotomy in the history of the hospital. After spending thirteen years at the hospital, his health compelled him to resign.

One of Dr. Utley's published papers was of particular interest. This was a re-operation done on a woman who had a right oophorectomy for a tumor some weeks before by the famous Dr. John Homans. Despite Dr. Homan's efforts, the woman continued to have "profuse vaginal bleeding." In March of 1886, Dr. Utley diagnosed a "cystic tumor" of the left ovary and at exploration a "massive 20 lb. tumor containing 2 to 3 quarts of gelatinous fluid" was extirpated. His son assisted him with the procedure, which involved washing out the abdominal cavity with a bichloride of mercury and previously boiled water. According to Dr. Utley's report, the operation was difficult and required 1½ hours under ether anesthesia. Antiseptic principles were followed, but instead of using the carbolic spray during the procedure, the operating room was "fumigated with sulfur." He used Lister's carbolized silk for suture. Dr. Utley's personal records further state that Drs. Hunt and Loring, "members of the old school of medicine," were present for the surgery. Although there may have been a formal division on the wards with respect to patients of the old or new school, the doctors presumably worked together and learned from each other. The patient was discharged one month later on April 2, 1886, "without any evidence of

suppuration.”

Despite his listing as a homeopath, Dr. Utley demonstrated up-to-date surgical technique and antiseptic principles at a time when many allopaths still sang the praises of “laudable pus.” He was as versatile as any general surgeon could be within the limits of biological and technological knowledge of the era. Successful both as a physician and surgeon, Dr. Utley was known for his “genial disposition, his buoyancy, his happy smile, his living and Christian countenance, and the warm hardy grasp of his hand.” All this was accompanied by his in-borne faculty of investigating the disease and applying the necessary remedial agent, whether it be medicinal, surgical, hygienic, or plain old good honest advice. His early years of religious training grounded his faith in the Christian Church. He was a member and strong supporter of the Elliott Church in Newton. In addition, he was a member of several Masonic bodies and held high office in several lodges.

In 1861, at age 21, Dr. Utley married Miss Martha Dunlap who gave birth to Edward Roswell Utley in Taunton, Mass. on Aug. 18, 1862. Edward resided in Newton during his boyhood and was educated in the Newton schools. He received his A.B. in 1885 and his A.M. in 1888 from Amherst. In 1891, he graduated from Harvard Medical School. After his Harvard graduation, he took a post-graduate course at Boston University School of Medicine. He then spent a brief year at Worcester City Hospital as house surgeon. Soon after graduation, he started sharing an office and residence with his father – an arrangement that lasted for fifteen years. Also in 1891, Dr. Edward Utley was appointed both prison physician for Middlesex County District and “City Physician of Newton.” The position of City Physician was established to save money paid previously to expert witnesses who earned high fees in special court cases. The Mayor required that the office be held by a graduate of an allopathic medical school, which the city newspaper of 1898 deemed a “wise provision.” In this position, Dr. Edward Utley’s made a salary of \$1200 per year and gained valuable exposure to the medical-legal aspects of medicine, which ultimately

became a pillar of his career.

Dr. Edward Utley went on to marry Edith Sanger Wood. The couple produced no heirs, so when Edward Utley died in 1944 a trust was set up for his wife. Upon her death, which did not occur until 1960, the estate and trust would then be distributable. Under the terms of his will, handled by the State Street Bank and Trust Company of Boston, one quarter of the trust went into Newton Hospital as follows: “25% thereof of the Newton Hospital of Newton, Mass., of which my father, James Utley, was one of the founders of the original surgical staff to be known as the “Utley Surgical Fund.” In 1960, the market value of holdings in the trust was \$588,000 and \$147,000 went to the Newton Wellesley Hospital. The remainder, \$441,000, was given to Boston University, and two professorships were endowed, the James Utley professorship in the School of Medicine and the Edward R. Utley professorship in the School of Law.

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# Evans Today: 110 Years Later

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**A**s part of a series of articles highlighting the lives of some of the most prominent figures in Boston University School of Medicine's (BUSM) past, we present on the following pages an article, written by Dr. Franz J. Ingelfinger, about Robert Dawson Evans and the illness that brought him to the Massachusetts Homeopathic Hospital in 1909, resulting in his untimely passing. After his death, Mrs. Maria Antoinette Evans, made one of the largest donations in the history of BUSM, establishing the Evans Memorial Department of Clinical Research on June 19, 1910 in honor of her late husband. The intent of this endowment was to create a research department of medicine that would investigate the cause, prevention, and treatment of disease. In 1975 the Evans Medical Foundation was founded by faculty of the Evans Department of Medicine as a non-profit corporation, allowing the newly formed foundation to use generated revenue to enhance patient care and support medical education and clinical research at Boston University Medical Campus. The department established the Evans Center for Interdisciplinary Biomedical Research in 2009 to promote interdisciplinary research. (1)

The university established the first Evans building in 1929 to house the Evans Department of Medicine, and the growing department moved into a new Evans building in 1942. (2) The current Evans Building was dedicated in 1971 and contains over 100,000 square feet of research laboratories and offices for department staff. The department currently includes 435 faculty, including over 250 funded investigators with a total research budget of \$120 million. The Evans Endowment has had an immeasurable impact on the Department of Medicine over the years, allowing important

investments in research faculty, infrastructure, and program development, and helping to establish the department as a nationally prominent research-intensive department. (1)

The presented article was written by Dr. Franz J. Ingelfinger for the December 1955 edition of the Boston Medical Quarterly. Dr. Ingelfinger, himself another prominent figure in the school's history, was born in Dresden, Germany in 1910 and immigrated to the United States with his family in the 1920s. He went on to attend college at Yale University and earn his medical degree from Harvard Medical School in 1936. (3) Dr. Ingelfinger had a distinguished career as a faculty member at BUSM. He made a name for himself as a world-renowned researcher and physician in the field of gastroenterology, serving as president of the American Gastroenterological Association, and Editor of the New England Journal of Medicine. (4) He was also an editor of the journal from which the presented article was published, the Boston Medical Quarterly. As its name suggests, the Boston Medical Quarterly was published quarterly from 1950-1966 by BUSM and the Massachusetts Memorial Hospitals, now Boston Medical Center.

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## Case No. 45809

In the mid-day heat of July 4, 1909, an emergency case was admitted to the Massachusetts Homeopathic Hospital. A record — No. 45809 — was duly made out, but the situation appeared so desperate that there was no time for history or physical examination. Within minutes of his admission, Case No. 45809 was in the operating room. The history, in any case, was brief and might be put down somewhat as follows by an intern of today.

Male, 65, white, married. Though acutely ill, patient gives clear and accurate history. Four days p.t.a., while patient was riding through the Beverly woods, his horse suddenly stumbled. The patient was thrown violently to the ground. After a few minutes, although there was considerable pain in his chest and side, the patient picked himself up and walked for a distance while supporting himself on his horse. Eventually he remounted the horse and rode back to the stable.

An L.M.D. diagnosed two broken ribs and advised bed rest. For two days the patient's progress appeared to be satisfactory, but yesterday he became nauseated and abdominal distention developed. He was unable to expel gas or feces. Because of these rapidly advancing signs of intestinal paralysis, the patient is now admitted as a private case of Dr. H. Packard for the purpose of exploratory incision and colostomy.

Past history is noncontributory. The patient was twice wounded at the second battle of Bull Run, and his appendix has been removed. Otherwise his health has been excellent. His wife is living and well. One son, his only child, died at age of five. Since the patient is known as an expert rider, his fall is somewhat puzzling, but it is possible that he has been preoccupied with other matters. In particular, President Taft is expected in Beverly within three days to occupy Stetson cottage, one of the houses on the patient's estate. The patient therefore has been very much concerned about putting the summer White House into immaculate

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condition. According to his family, the patient was in fact on an inspection tour of the grounds when he sustained his fall.

The hot trip from Beverly must have been agonizing and tedious for Case No. 45809. Yet it is unlikely that he complained. His mood was probably one of vexation and annoyance, the vexation and annoyance of a successful man suddenly thwarted by the uncontrolled whims of sickness. If he was doubly annoyed, he could not be blamed, for it was not fate but someone's unbelievably stupid negligence that was forcing him to exchange the forceful role of Presidential host for the helpless confinement of a hospitalized patient: at least three days before the accident, he had ordered removal of the very stones over which his horse had stumbled.

The results of the operation were disappointing:

*July 4, 1909, 12:15–2:00 P.M. —*

*Incision in the median line for the purpose of exploration disclosed both small and large intestine uniformly distended and containing a quantity of fluid. The mesentery at several portions of the small intestine was found very soft and friable. A loop of intestine was drawn out through the skin opening made at the site of an old appendix wound and the peritoneal surface of the intestine and the parietal peritoneum were sutured by interrupted fine Pagenstecher sutures. There was an opening made into the bowel. Some gas and colored fluid escaped. Before closing the median abdominal wound, an opening was made into the small intestine and a metallic tube passed through which a large quantity of fluid and gas escaped.*

*A rubber rectal tube was inserted into the rectum and some gas of a similar nature also escaped. The abdominal wound was closed with No. 4 catgut in peritoneum and posterior sheath; No. 4 catgut in the anterior sheath, zero catgut in the skin. Cross stay sutures of coarse Pagenstecher, silver wire capillary drains.*

What thoughts whirl through the mind of the toxic patient? Do the scenes of one's life flash, waver and fade like searchlight beams on a cloudy night? Perhaps that is why some mutter, some fight imaginary battles, and some smile mysteriously to themselves. When Case No. 45809 returned from the operating room, he was quiet and his face composed. Perhaps he was dreaming of his first job. At the age of 20 and one month after being mustered out of the Union Army because of the injuries sustained at Bull Run, he had gone to W. W. Burr's rubber store and asked for a job. In the back office, where he was interviewed, he had said his name was Robert Evans, that his father, a sea captain out of St. John, New Brunswick, had been killed at sea when he, Robert, was but a few years old, that his mother, two sisters and a brother had then moved to Boston, that he had gone to Boston English High, and that, immediately thereafter at the outbreak of war, he had enlisted in Company A, of the Thirteenth Regiment of Massachusetts Volunteers. Were these the sum total of his qualifications? Well, he wanted to work and he thought rubber was a coming thing. They gave him the job—at \$10.00 a week.

*July 4, 1909, 2:05 to 3:50 P.M. —*

*Oxygen given.*

*4:00 P.M. —*

*Temperature 97.6 Pulse 120*

*Brandy given by hypo.*

Case No. 45809 felt better now and he was stimulated to think of his many fights and his practically equal number of victories. The first important one had to do with a rubber manufacturer called Charles Clapp. After working for Clapp for a few years, Evans became his partner in 1870 to operate the Aetna Rubber Mills at Jamaica Plain, Mass. One of the firm's most lucrative endeavors was the manufacture of wringer rolls made under the Moulton patent, which Evans had managed to acquire. Clapp, however, was unhappy; powerful business groups in New York were attacking the patent, and Clapp feared that it could



Robert Dawson Evans

not be sustained. Case No. 45809 saw the scene vividly: Charlie Clapp arguing for the safe, the easy, the little course; and Evans, confident and enthusiastic, determined to fight it out. Neither could persuade the other and the partnership was dissolved. Evans then formed his own company, the Eagle Rubber Co., kept right on making wringer rolls on the Moulton patent, hired a battery of A-1 lawyers, and won the patent litigation to boot. So successful was the Eagle Rubber Co. that Evans soon organized a jobbing concern to sell his products. In 1877 the two companies consolidated under the name of The American Rubber Co. Starting with a capital of \$200,000, it made rubber footwear, mackintoshes and carriage cloth in large factories located in Cambridgeport.

*July 4, 1909, 8:00 P.M. —*

*Nutritive enema given.*

*Teaspoonful of food given at hourly intervals.*

Case No. 45809 did not want the food and the nutritive enema distressed him, but recollections of the past dulled the pain of the moment. The rubber industry in 1877 was still young and its future uncertain. There were many Cassandras, some merely cautious, others frankly envious. They predicted that the nat-

ural supplies of rubber would fail; they said that the vast number of secret processes and patents would continue to confuse rubber manufacture; they even argued that "rubber weather" (i.e. bad weather) might become less prevalent. In short, a short life was anticipated for The American Rubber Co. Three years later, in December of 1881, the subconscious wishes of these voices of gloom received an unexpected assist from fate — the factories at Cambridgeport burned to the ground. The American Rubber Co., it was obvious to all, was done; even the superintendent and foreman deserted and accepted positions with a competing manufacturer.

That is, it was obvious to all except the president of the American Rubber Company; Evans had faith in rubber — supplies would be ample, methods of manufacture could be improved, and, above all, consumer demand would mushroom. Impelled by this faith which he implemented with extraordinary executive skill, Evans rebuilt his factory and had his wares once more on the market within a year of the fire. Ten years later, the American Rubber Company had acquired a capital and surplus of \$3,500,000. It employed 1500 hands on a weekly payroll of \$14,000. Under full draft, it could put out 18,000 pairs of boots and 1,500 mackintoshes daily.

July 5, 1909, 5:00 A.M. —

Temperature 100.2 Pulse 120

Patient was nauseated all night. Vomited about a teaspoonful of brown fluid at a time. Stopped giving food by mouth at 12M. Rectal feeding ev. 4 hrs. retained.

Already the victim of massive abdominal distention, Case No. 45809 found the enemas nearly intolerable. He wished he could manage his insides as he had managed the congested and disorganized rubber industry in 1892. By that time there were no more doubts about the need for rubber; everybody wanted it, the housewife, the druggist, the electric wire manufacturer and the tennis player. Even Presidents, if one can believe advertisements appearing in the trade journal, *The India Rubber World*, were enthusiastic:

"I always wear Colchester Boots when duck hunting" — Benjamin Harrison"

"Nothing gives the American people so much Protection as the Colchester Spading Boot" — Grover Cleveland"

Nothing was wrong with the market, but it was the object of bitter competition among

some 15 major and a host of minor concerns. Faced with this situation, President Evans of The American Rubber Company varied the usual strategy. He decided to unite and conquer. The result, which rocked the business world of 1892, was the United States Rubber Company. It included a dozen major rubber manufacturing companies. Its capital of \$50,000,000 made it the largest trust that had been incorporated in America at that time. And its president was Robert Dawson Evans.

Sick as he was, Case No. 45809 almost smiled as he remembered the outraged cry of those not included in the combine. In particular he saw the figure of Joseph Banigan as clearly as if it were still 1892. Banigan is president of the Woonsocket Rubber Co., one of the few major rubber plants that remain independent. To show his independence, Banigan publishes a page-sized cartoon in the December 15, 1892 issue of the *India Rubber World*. It shows a portly capitalist labelled "Trust" approaching a young king perched on a throne erected on Reliability, Good Goods, Honesty and Thrift. But the young king, — obviously the Woonsocket Rubber Company — will have none of Mr. Trust and sends him on his way, "You see we have held this position so long that it would be very foolish for us to join you now. — See the point?"

In March of 1893 rumors are wild and rubber drops four points on Wall Street, for Banigan is seen in New York near the offices of the United States Rubber Co.; but his position, as quoted in the *India Rubber World* of April 15, is solid as a rock: "The Woonsocket Rubber Company is not with the United States Rubber Company and nothing has taken place looking toward our amalgamation with it that I have deemed important enough to report to our stockholders, or even to the directors of our company. I am ready to sell anything I have except my family and my friendship, but up to the present my rubber business has not been sold. There is nothing in the reports." — Hardly a proper introduction for headlines carried nine days later by the *Providence Telegram*; "President Banigan Tells Why He Has Sold His Plant"; but though Banigan gives elaborate and erudite explanations why the stockholders of the Woonsocket Rubber Company will benefit by joining the United States Rubber Company, he does not tell the real reason. At the annual meeting of the United States Rubber Company (*India*

*Rubber World*, June 15, 1893) a new list of officers is announced:

1893 — President and General Manager:  
Joseph Banigan  
1st Vice President: Robert Dawson  
Evans

The minutes of the annual meetings of 1895 and 1897 conclude the Banigan story:

1895 — President: Joseph Banigan  
1st Vice President and General  
Manager: Robert D. Evans

1897 — President and General Manager:  
Robert D. Evans  
Resigned: Joseph Banigan.

Who can blame Case No. 45809 for smiling as he thought of Joseph Banigan?

July 5, 1909, 9:00 A.M. —  
*Apomorph*  $\frac{1}{30}$  given *hypo*.  
*Hiccough* at times.

11:00 A.M. —  
2 tablespoons food

The nausea was so overwhelming that Case No. 45809 could not forget it. Instead it made him think of other times when he felt similarly nauseated — the day, for example, he was shown the editorial in the *N. Y. World*. "The Rubber Trust — Now is the Time to Smash It!" screamed Pulitzer's paper, "it is a monster of at least two heads, clearly defined and most forbidding of aspect." The *India Rubber World* lost no time in rushing to the defense of the United States Rubber Co. and heaped scathing words on the *N. Y. World's* "Young-Man-Without-Brains" who had written the editorial. The issue, however, went deeper than hot journalistic words. Like John D. Rockefeller's Standard Oil Company, after which it was frankly modeled, the United States Rubber Company was under the attack of those who feared the evils of monopoly. Even before the company was formed, the Sherman Anti-Trust Act of 1890, though ineffective, had shown that this fear was not limited to a few; and Justice Harlan had warned that the country was facing "a new kind of slavery, namely the slavery that would result from the aggregation of capital in the hands of a few". To Robert Evans such opinions appeared either far-fetched or malicious but he was not insensitive to either public weal or public opinion. The president of a rubber company, who in 1884 had given up, as a matter of scruple, his staunch Republican leanings and had joined the mugwumps to support Cleveland, could hardly ignore the rising public

sentiment against trusts 10 years later. Even attacks in the *New York World* hurt. Finally, when a revolt of United States Rubber Company stockholders threatened his policies, Evans made a prompt decision. In a coup as dramatic as any of his assumptions of power, he suddenly divested himself of his controlling interests in the American Rubber Company and severed connections with the rubber industry forever.

July 5, 1909, 6:00 P.M. —

*Champagne*, oz. II

*Hot compress* applied and changed ev. 10 and 15 min.

10:00 P.M. —

*nutritive enema*

*Hiccoughs* severe at times

*Sleeps* in short naps and is quite restless 12 midnight —

*Electricity* applied over abdomen and spine

*Pulse* 122, intermittent

For Case No. 45809 fancy and reality were losing their sharp distinction. The golden champagne had made him think he was standing on the banks of the Yuba River in California. In the center of the stream, steaming and clanking dredges were bringing up bucketsful of gold. But they appeared disorganized and working inefficiently in a hit-or-miss fashion. He reached out his hand to help — and came back to reality as the nurse asked him what he wanted. The fantasy seemed natural enough. Immediately on leaving the rubber business, Evans became interested in copper mining, and the career he created for himself in this new field proved to be, in its broader aspects, a fantastically close replica of his career in rubber. First, he took a shaky business, the U. S. Mining Company which was operating in Utah, put it on its feet, and turned it into a dividend-paying concern. Second, he became president of the company. Third, after seven years of success, the U. S. Mining Company merged with other companies to form the U. S. Smelting, Refining and Mining Company. In this company, Evans was a director and held 150,000 shares of common and preferred stock. Fourth, the policies of the company did not develop along lines that had Evans' approval. Fifth, he retired spectacularly from copper mining by selling 100,000 of his shares for a tidy lump sum of nearly five million dollars.

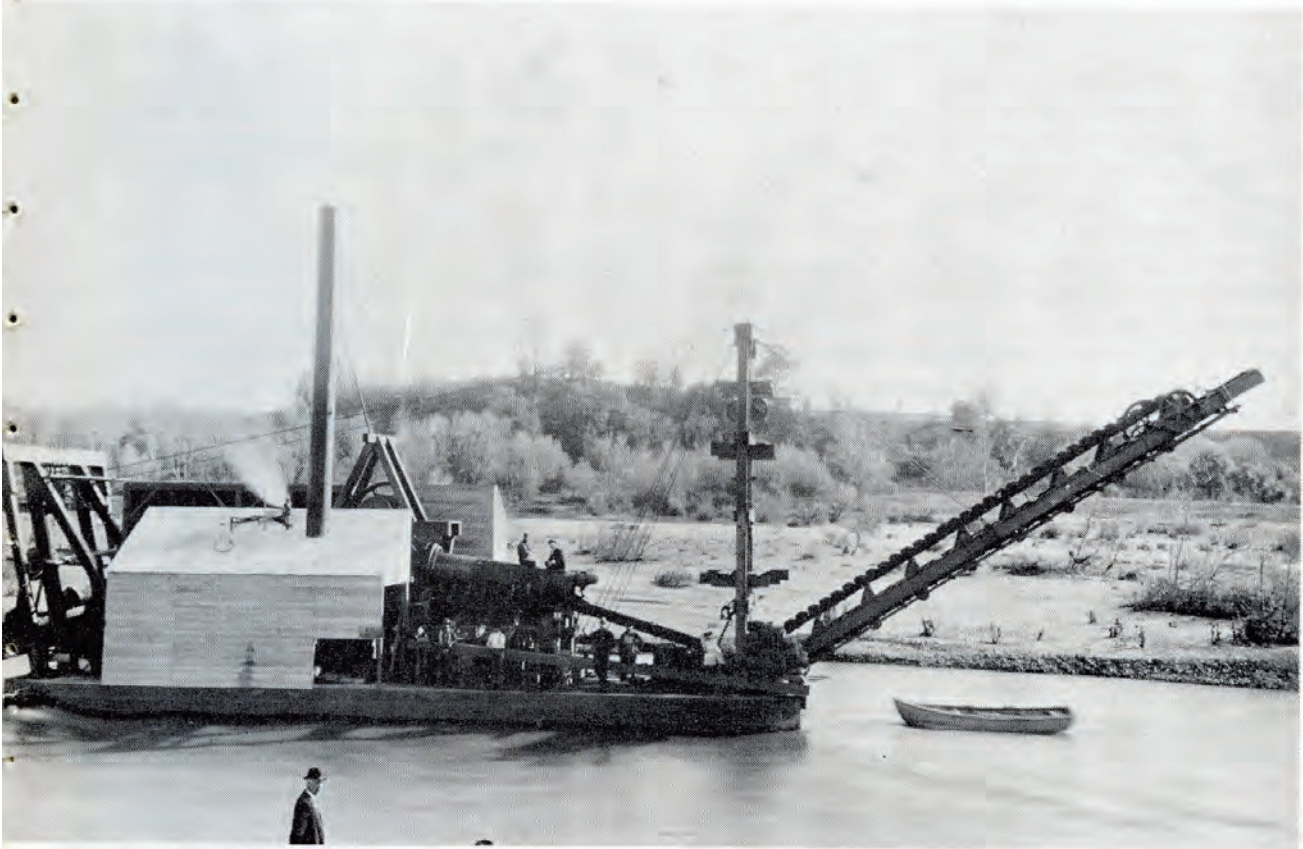
One day, however, shortly after the turn of the century, Evans and his summer neighbor



on the North Shore, John Hays Hammond, had talked gold. The day of the forty-niner and his pan had long passed in California, and even those who dug the veins were becoming disappointed, but mining engineers like Hammond knew that gold was still abundant in the run-off area draining the Mother Lode in the foothills of the Sierra Nevada. The problem was how to get it, for the metal was buried in river bottoms for depths exceeding 120 feet. Some dredges imported from New Zealand had been tried, but by and large the cost of operating these machines had exceeded the value of the gold gleaned from the gravel laboriously brought to the surface.

To Evans and Hammond the problem appeared soluble by a basically simple formula: form a syndicate with sufficient capital to build bigger and more efficient dredges. With his

usual well-considered vigor, Evans went to work and obtained options on a dredging tract of about 3,000 acres in the Yuba River Valley of California. The bottom of the river was as auriferously rich as its exotic name suggests; test borings showed gold aplenty. In August, 1904, two dredges ordered by Evans and capable of digging at depths of 60 feet — the previous maximum had been 30 feet — started to dig up Yuba river gravel and dump it on the banks. They also brought up enough gold to give Evans the “green light”. The Yuba Consolidated Gold Fields company was formed with a capital of \$12,500,000, two million and a half shares being sold at \$5.00 each. Soon twelve dredges costing about one and a half million dollars were working a seven-mile stretch on the Yuba. Evans’ and Hammond’s formula had been right: the dredges moved



Dredging for California gold in the days when Evans organized the Yuba Consolidated Gold Fields.

rock, minerals, earth and water so efficiently that Evans' annual income from this enterprise alone was \$650,000.

July 6, 1909 — 3:00 P.M. —

*Complains of being very tired*

4:00 P.M. —

*Champagne*

5:00 P.M.

*Hypo of Brandy*

6:00 P.M. —

*Champagne and Vichy water*

*Compresses changed often and kept hot.*

As exhaustion overtook Case No. 45809, the phantasmagoria lost continuity and order. Fragmentary glimpses of men, women and places came and passed without giving meaning. Yet one theme was recurrent and happily tranquilizing. Within a heavy gilt frame, all burnished and filigreed, a succession of noble figures and scenes passed in review. Bold against a background of somber brown, a lady posed aristocratically erect. Her handsome face was too proud to show emotion, but her billowy lace and her shimmering silk, white and aquamarine, sparkled with life. Case No. 45809 knew her well. Often as he had looked at Gainsborough's portrait of Mrs. Edward M. Pleydell hanging in his paneled study, his momentary cares had faded before her perpetual patrician calm. But now she proved ephemeral for Case No. 45809, and her place in the great frame was taken by others — by Romney's Cumberland girls sitting demurely under a tree; by Georgia pines glowing in an Inness landscape; by Raeburn's portrait of a confident Charles Hope; and by Madame Lebrun's very pretty young daughter flashing her brown eyes at him from under a jaunty straw bonnet.

Over the years, Evans had filled the rooms of his brick and brownstone mansion at 17 Gloucester Street with notable paintings. He had become friendly with a New York art dealer named Blakeslee, and together they had assembled some sixty pictures for Evans' private collection. All were by or attributed to masters. The English school predominated, but this was because Evans liked their subjects; nearly half the oils were portraits of spirited women, dashing and gowned. Nudes were absent and semi-nudes inconspicuous. Landscapes were plentiful; about 20 of them — including Turners, Corots and a Ruysdael — decorated the walls. As usual, some had sneered that the pictures were no more than



In the period during which she painted Marie Antoinette of France seventeen times, Madame Lebrun did this portrait of her daughter. It now hangs in the galleries of the Boston Museum of Fine Arts, but before that enlivened the walls of 17 Gloucester Street. (Courtesy, Museum of Fine Arts, Boston.)

a rich man's vanity, but a man who made a business of practically learning a new business overnight could not collect art and remain ignorant of its history and attributes. So genuine was Robert Evans' interest that he considered his election as a trustee of the Boston Museum of Fine Arts one of his greatest honors.

Mrs. Pleydell and the other elegant beauties of eighteenth century England had no cause to look down their noses at the decor of their early twentieth century home on Commonwealth Avenue. In the great entry hall, two objects immediately arrested the eye. One was a stained glass window, softly illuminated and banked with tiers of flowers. The other was a pair of massive wooden doors on which some ancient Italian had carved a knobby tangle of heads and leaves. These doors served as a discreet barrier separating the part of the house that Mrs. Pleydell knew from the elevator well and other utilitarian but homely essentials.

From the entry hall, the gleaming parquet of the floor led into three *salles* — "rooms" is

hardly an adequate word. The walls of the well-lit drawing room displayed Evans' most famous paintings. The walls of the music room, by contrast, were hung with silken tapestry that set off the pure white woodwork covered with gold-leafed geometric patterns and crossed fiddles and bows. The room glittered, and the glitter was doubly reflected in a huge mirror suspended over the fireplace. The motif of the dining room was somber. Dark wooden panels with rich inlay reached to the mellow gold leaf of the ceiling. To one side, a passage led to an hexagonal breakfast room cheerfully bright with a mural of pastel blues and greens. But where was the entry for that indispensable dining room essential, the food? The hungry dinner guest might well wonder until an apparently solid panel would suddenly swing open to admit a silver platter and its bearer.

The inner workings of the house, though less ornate, were distinguished by solid craftsmanship. In the butler's pantry, ceiling-high stacks of drawers opened and closed with noiseless ease. A silver vault of bank-like proportions stored the service in velvet-lined security. To provide the people and the portraits of the mansion with proper atmosphere, four intake towers in the back yard sucked in air and passed it through moistened muslin filters before it was warmed and distributed to the important first and second floor rooms.

Amid these splendors, Robert Evans lived with his wife, her mother and her two unmarried sisters, the Misses Abby and Belle Hunt. Because of his natural inclinations, and in keeping with his position as one of the Hub's leading financiers, Evans and the ladies of his household led an active and, at times, exacting social life. The master of the house, however, was not without his means of escape. If he came home tired and irritable from his office at 50 Congress Street and wished to avoid the visitor in the drawing room or the conclave in the *salle de musique*, he merely pressed a release, and one of the black marble panels lining the vestibule between the outer and inner front doors would open silently. On the other side of the panel, a spiral iron staircase gave him unobserved access to the second floor. There, in a large and cozy study adjoining the master bedroom, he might relax in slippered ease and sink into a reverie of pleasant thoughts. Some men might dream with little purpose, and some might relive the

triumph of bygone moments, but Robert Evans planned. Like a chess player considering possible moves, his imagination arranged and rearranged the pieces of his business world — with proper care, rubber could be planted and grown in Mexico — that foreman on Yuba dredge No. 7 was an energetic fellow and should be advanced — the North River Lumber Co. could double its profits if transportation were improved — perhaps he should sell his holdings in Etna Portland cement and invest in oil. Advance here, retrench there, improve and expedite — this is the life!

July 6, 1909, 7:20 P.M. —

Morph.  $\frac{1}{4}$  given hypo.

10:20 P.M. —

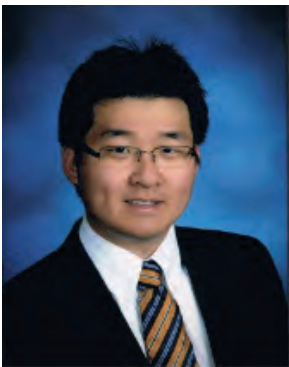
Died.

On July 7, 1909, the *Boston Evening Transcript* headlined "Robert D. Evans Dead — He Came To Boston A Poor Boy and Amassed A Fortune Of \$12,000,000." Among the many obituaries, the account I like best appeared in the *India Rubber World*, which, a decade after Robert Evans' withdrawal from the rubber business, was able to regard him with a dispassionate eye. "Robert Evans", it says, "was built for battle; like a high-mettled horse he fretted constantly under the curb". Certainly the characteristic that strikes one on every page of Evans' life is his persevering will to get things done as he wanted to have them done.

The name of Robert Dawson Evans is now known chiefly because of two Memorials established by his widow, Mrs. Maria Antoinette Evans. One of these is the huge North wing of the Boston Museum of Fine Arts, the colonnaded building that faces the Fenway. In its galleries, a number of the paintings owned by Evans are on display. The second is the Robert Dawson Evans Memorial, the institution which means so much to the Massachusetts Memorial Hospitals, to Boston University School of Medicine, to you and to me. In part we are still living on Mr. Evans' money and a portion of the gold brought up by the huge dredges still working the Yuba river goes to support some Evans laboratory. It would not hurt us, however, to seek spiritual as well as financial inheritance from our benefactor. As we go past the Hospital, or the Museum of Fine Arts, or the house that still stands at the corner of Gloucester and Commonwealth, let us think of Robert Dawson Evans and perhaps by subtle osmosis gain some of his enterprising will.

# History of Surgery

## A Brief History of Surgery of the Hand and Wrist



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Charles Bell once wrote, “We have seen that the system of bones, muscles, and nerves of this extremity is suited to every form and condition of vertebrate animals; and we must confess that it is in the human hand that we have the consummation of all perfection as an instrument.” From the creation of art and music to the act of performing surgery, the hand is critical to human expression and identity. Although anatomists and physicians have

studied this alluring and intricate structure throughout history, the surgical sub-specialty dedicated entirely to the hand is relatively young. In fact, it was not until 1946 that the American Society for Surgery of the Hand (ASSH) was first established (with founding members including the legendary Dr. Sterling Bunnell). The establishment of this field, however, represents a culmination of centuries of study and advancement by some of medicine’s most recognizable names.



Figure 1. **ASSH Founding.** The initial meeting of the American Society for Surgery of the Hand, held at the Blackstone Hotel in Chicago in January 1946 was attended by 26 of the 35 designated founders. A portion of that group is pictured to the left.  
<https://www.assh.org/About-ASSH/About-Us/ASSH-History>

Left to right: Darrel T. Shaw, Joseph H. Boyes, Lot D. Howard, S. Benjamin Fowler, Sterling Bunnell, Arthur Barsky, Donald D. Slocum, Walter C. Graham, J. William Littler, William Metcalf, Richard H. Mellen, Gilbert Hyroop, Donald R. Pratt, William F. Frackelton, Robert L. Payne, Jr.

## The Early Years

Modern medicine began in the 16th century with the systematic study of human anatomy by Andreas Vesalius and his students. At this time, the art of surgery lay outside the scope of scholarly medical pursuits. Yet with the introduction of Guttenberg's printing press just one century prior, the academic environment was ripe for discovery and progress.



Figure 2. **Vesalius Illustration of Hand Anatomy.** Andreas Vesalius, *De humani corporis fabrica libri septem*. Bazel, Joannes Oporinus, 1555: p. 141

In the 17th and 18th centuries, anatomists and physicians first described the anatomic landmarks and clinical principles upon which the modern-day subspecialty of hand surgery is based. In fact, several historical eponyms persist today as a tribute to the groundbreaking work of these individuals. Notable examples include Peter Camper's chiasm of the finger. The term "Camper's chiasm" refers to the decussation of the flexor digitorum superficialis (FDS) tendons, through which the flexor digitorum profundus passes from the dorsal to volar aspect of the FDS. Similarly, "Heberden's nodes" were named for William Heberden who described the bony

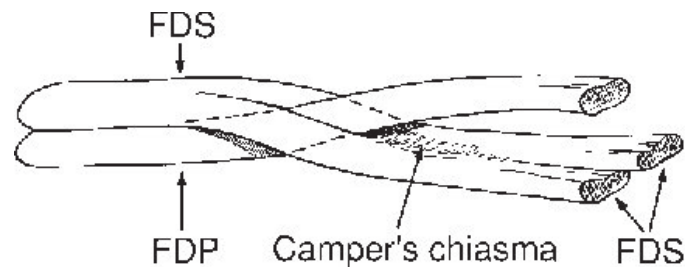


Figure 3. **Camper's Chiasma.** Early in the flexor sheath, the FDS tendon divides and passes around the FDP tendon. The two portions of the FDS tendon reunite at Camper's chiasma. Strickland. "Flexor Tendon Injuries: I. Foundations of Treatment." *The Journal of the American Academy of*

swellings of the distal interphalangeal joints as sequelae of osteoarthritis, and Abraham Colles described the classic volar angulation deformity of distal radius fractures now referred to as "Colles fracture." Notably, Colles also accurately characterized the natural history of a malreduced wrist, which includes persistent deformity with gradual improvements in wrist motion and pain. Impressively, Colles' work predated the invention of radiographic imaging by a century.

## The 19th Century

The discovery of new technologies and



Figure 4. **Abraham Colles Portrait.** Comrie, John D. (1932) *History of scottish Medicine*. Volume 2. Wellcome Historical Medical Museum, London.

paradigms during the 19th century paved the way for tremendous medical and surgical progress. Particular highlights of this era include the popularization of aseptic technique by Lister and von Bergmann, as well as the advent of the surgical subspecialties. Emboldened by improved outcomes and a deeper understanding of anatomy, surgeons sought to expand their indications and techniques.

Pivotal 19th century inventions contributed to improved understanding of nerve function. In particular, the emergence of electric and electromagnetic testing allowed for systematic investigation of the nervous system. Initially pioneered by Ernst Heinrich Weber and his sons, this technology was later utilized by Duchenne and Erb to elucidate the underlying anatomic level and etiologies of neurogenic disorders. A decade later, Augusta Klumpke described brachial plexopathy affecting lower cervical nerve roots. Beyond nerve testing, the 19th century also saw the novel application of microscopy to the fields of anatomy and physiology, as Theodore Schwann, Filippo Pacini, Georg Meissner, and Friedrich Sigmund Merkel discovered their now-eponymous microstructures. Additionally, Augustus Volney Waller linked experiments in electrophysiology and microscopy to pioneer the concept of Wallerian degeneration and the stages of nerve healing.

Surgical interventions for the soft tissues of the extremities accompanied these discoveries. In 1836, Georg Friedrich Louis Stromeyer performed a subcutaneous tenotomy of the Achilles tendon on William John Little, who presented with a contracture secondary to a nerve palsy sustained during a childhood febrile illness. Little later became a pre-eminent pioneer of tenotomy surgery and deformity correction, alongside his associate at the Royal Orthopedic Hospital of London, William Adams. Tendon surgery also piqued the interest of Sir James Paget (known for Paget's diseases of the bone and of the breast), who investigated the role of the tendon sheath in directing the healing of new tendon. Among his many achievements, Paget was a pioneer of peripheral nerve pathology and surgical management of acute

nerve injuries. Importantly, surgeons of this era recognized the healing potential of re-approximating acutely transected nerve fibers, a concept that underlies modern-day nerve repair techniques.

The mid-19th to early 20th centuries were marked by several major military conflicts that fueled the evolution of surgery in the extremities – aptly illustrated by Hippocrates' teaching: "War is the only proper school for a surgeon." During the American Civil War (1861-1865) and the Franco-Prussian War of 1870, new antiseptic techniques allowed limb salvage to be considered a viable surgical alternative to amputation for extremity injuries sustained on the battlefield. Notable Civil War physicians included Silas Weir Mitchell, a neurologist who characterized the natural history of wartime peripheral nerve injuries in his book *Gunshot Wounds and Other Injuries of the Nerves*. Physician Richard von Volkmann also conducted research on extremity injuries during this time. Volkmann's work focused primarily on the etiology of an ischemic contracture of the forearm, which now bears his name. He determined that the claw-like Volkmann

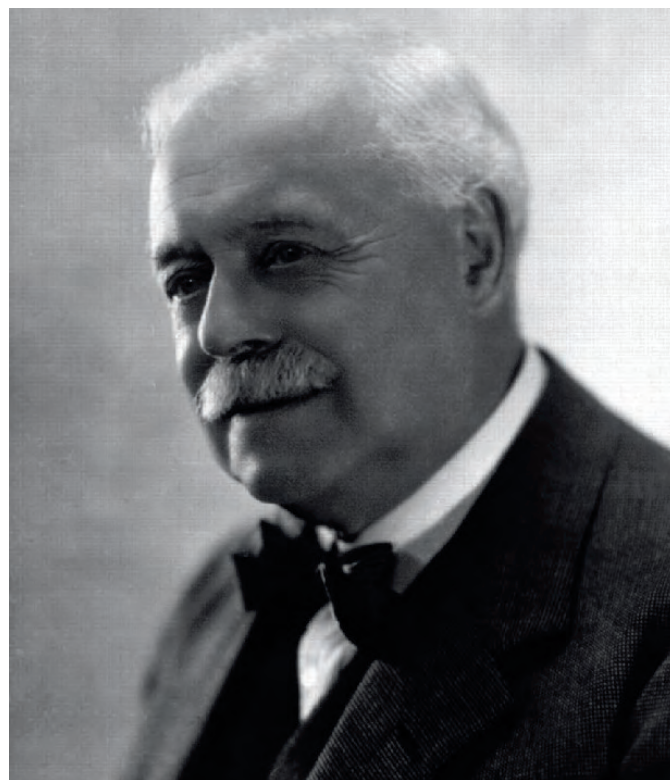


Figure 5. **Sir Robert Jones Portrait.** Morrey, B. (2005). The influence of Sir Robert Jones on the founding and development of orthopaedic surgery at the Mayo Clinic. *The Journal of Bone and Joint Surgery. British Volume*, 87(1), 106-7.

contracture resulted from muscular compression of vessels, leading to transient arterial blockade and venous stasis. This etiology lies in stark contrast to the late paralysis associated with embolic events and gangrene.

On the eve of the x-ray's invention, multiple clinicians examined the natural history of bony lesions. For example, in 1878 Otto Wilhelm Madelung described congenital subluxation of the distal radius and ulna. Later, this condition was recognized as a growth disturbance affecting the inferior volar aspect of the distal radial physis. Just four years later, in 1882, Edward Halloran Bennet characterized intra-articular fractures of the proximal first metacarpal. This pattern of injury still bears his name. In addition, Bennet developed the hallmark orthopedic paradigm of restoring anatomic articular surfaces to prevent later pain and disability from arthritis.

Simultaneously, the fields of orthopedic and hand surgery began to emerge as distinct surgical subspecialties in their own rites. Sir Robert Jones was an early proponent of this movement. During World War I, he organized specialty care centers for wounded soldiers and eventually created a 30,000-bed orthopedic division among the British and American war offices. In addition, after the War, he founded the British Orthopedic Association. Jones is further renowned for having developed the four basic rules of tendon transfers in 1921, which state that: 1) the joints must be as mobile as possible, 2) muscle and tendon must have sufficient strength to carry out their action, 3) muscle and tendon must traverse a straight course from origin to insertion, not obliquely or around an angle, and 4) the transplant must be attached under slight tension. These rules remain the foundation for tendon transfers executed today.

### **The Modern Era**

The late 19th century marked the transition to the modern era of orthopedic surgery— a period characterized by the earliest clinical applications of x-ray technology. Initially popularized by Wilhelm Röntgen's early experiments with x-rays in 1895, radiographs ultimately revolutionized the evaluation and

diagnosis of orthopedic conditions. Take Robert Kienbock, who used this new technology to describe his now-eponymous condition, Kienbock's disease, in 1910. This condition was initially characterized by "lunatomalacia" observed on radiograph, which has since been determined to be a sequela of avascular necrosis. Kienbock later helped to found the Radiology Department at Vienna General Hospital. He is today considered an early pioneer of radiology.

Technology continued to play a critical role in the development of modern surgery through the early 20th century. The work of legendary neurosurgeon Harvey Cushing was of particular importance towards achieving optimal surgical hemostasis. Amongst his many accomplishments, Cushing played an integral role in the invention of the pneumatic tourniquet. Bovie electrocautery, and surgical suction. Another surgical technology that emerged during this period was the small caliber steel wire for bony fixation. Pioneered by Martin Kirschner in 1909, these thin, pliable wires allow for temporary fixation of complex fracture patterns, direct manipulation of fracture fragments with minimally invasive surgical technique, and percutaneous fixation of small bony injuries. The utility and simplicity of these wires is such that they remain a mainstay of modern-day orthopedic surgery.

The modern era was also characterized by improved clinical assessments of the hand and wrist. In 1895, Fritz De Quervain characterized his eponymous stenosing tenosynovitis of the first extensor compartment of the wrist and described successful treatment of the condition with surgical release. Approximately two decades later, Allen Kanavel characterized the deep spaces of the hand and tendon sheaths using radiographs and injection of radiopaque materials. These experiments yielded a consistent pattern of spread from tendon sheaths to deep spaces and ultimately allowed Kanavel to characterize the hallmark signs of flexor tenosynovitis, which now bear his name. This knowledge also contributed to the development of effective treatment methods for infections of the deep spaces of the hand. In 1912, the same year as Kanavel's findings,



Figure 6. Allen Kanavel Portrait. <https://www.facs.org/about-acs/archives/pasthighlights/kanavelhighlight>

William Darrach identified management of distal ulnar pathology by subperiosteal resection of the distal ulna. Darrach originally described this procedure for a patient with an anterior dislocation of their distal ulna, and – more than one hundred years later – this surgery remains a viable option for refractory ulnar-sided wrist pain. In particular, this procedure is often used to treat patients with residual positive ulnar variance after mal-reduction of a distal radius fracture.

During World War II, Sterling Bunnell pioneered the concept of dedicated upper extremity care. Generally considered the Father of modern hand surgery, Bunnell established medical centers focused solely on the treatment of orthopedic conditions - similar to those founded by Sir Robert Jones during World War I. Bunnell's contributions ultimately led to the establishment of hand surgery centers internationally. His accomplishments also include an eponymous operation to restore thumb opposition in low median nerve injuries. The procedure itself involves the division and transfer of the ring finger FDS tendon through a

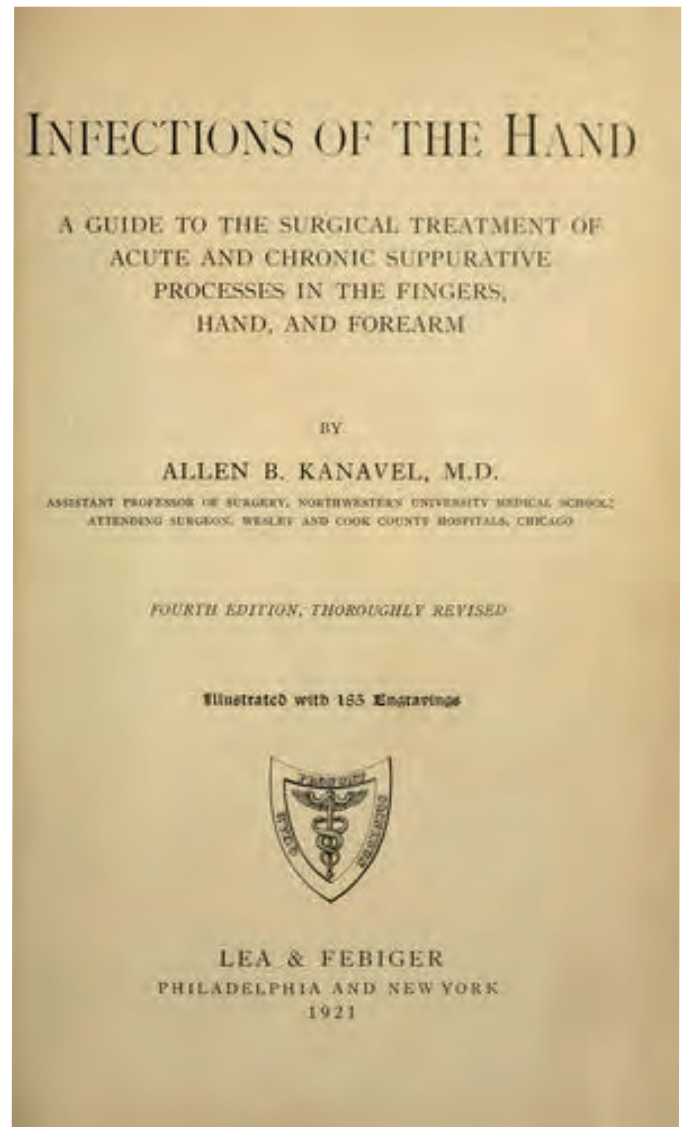


Figure 7. Allen Kanavel Infections of the Hand Cover. Kanavel, A. (1933). Infections of the hand; a guide to the surgical treatment of acute and chronic suppurative processes in the fingers, hand and forearm(6th ed., thoroughly rev., illustrated with 216 engravings.. ed.). Philadelphia: Lea & Febiger.

looped strip of flexor carpi ulnaris, which allows for optimal line of pull. This operation highlights a key principle of modern hand surgery: the goal of surgery is not necessarily to restore the action of a single muscle, but rather to address a patient's biomechanical deficits. Also of note, Bunnell created a method of tendon suture repair, developed the pull-out wire technique for tendon-to-bone fixation, and wrote a landmark textbook: Surgery of the Hand.

Despite its relative youth as a surgical subspecialty, hand surgery has evolved dramatically throughout the history of medicine. Incremental discoveries of the past, from anatomical landmarks to radiography, are the foundation upon which this field continues to build a more sophisticated understanding of





Figure 8. **Sterling Bunnell Portrait.** K. A. Egiazaryan, & D. A. Magdiev. (2012). ALLEN BUCKNER KANAVELFOUNDER OF HAND SURGERY. *Travmatologîa I Ortopediâ Rossii*,(1), 137-139.



Figure 9. **Sterling Bunnell Examines Soldier's Hand.** Photo of Sterling Bunnell, MD, examining a soldier's hand, courtesy Sterling Bunnell Memorial Hospital/Peter Carter, MD, Collection/Texas Scottish Rite Hospital for Children [http://www.aaos75.org/stories/physician\\_story.htm?id=5](http://www.aaos75.org/stories/physician_story.htm?id=5)

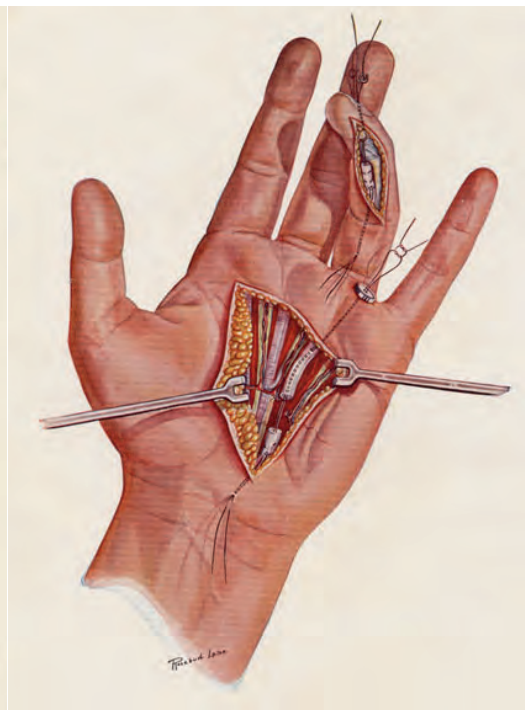
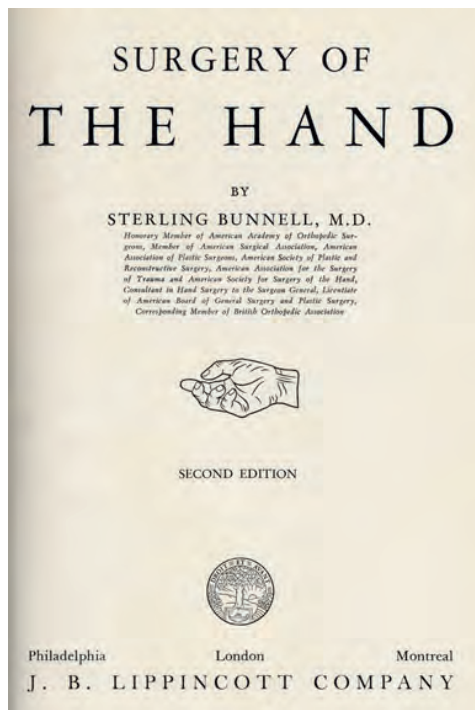


Figure 10. **Sterling Bunnell Surgery of the Hand Cover/Illustration.** Bunnell, S. (1948). *Surgery of the hand*. (2d ed.). Philadelphia: J. B. Lippincott.

biomechanics and anatomy. While some methods of clinical assessment and surgical intervention remain unchanged from their historical inception, continued advancements in technique and technology have improved surgeons' ability to alleviate pain and restore optimal function of their patients.

#### **About the Authors:**

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**Andrew Stein, M.D.**, is an Assistant Professor at Boston University School of Medicine. After earning his medical degree from Cornell University Medical College, he completed his residency at St. Luke's Roosevelt Hospital Center and a hand surgery fellowship at Tufts Combined Hand Fellowship Program. He was also awarded the AO International Trauma Fellowship in Switzerland. Dr. Stein has extensive experience in all aspects of hand surgery, including reconstructive surgery and trauma.

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# Dr. Ignaz Semmelweis: Historic Discoveries and Modern Problems



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Boston University School of Medicine  
Class of 2021

The story of Hungarian born Ignaz Semmelweis is both exotic and familiar. Despite studying archaic diseases in nineteenth century medical institutions, Semmelweis navigated through very modern challenges. Known to many as “the savior of mothers,” and to others as “the father of infection control,” one may easily categorize Semmelweis as an eccentric genius. Yet Semmelweis actually led a life of professional struggle and personal discontent. Perhaps echoing the oft-sensationalized tale of the “man ahead of his time,” Semmelweis battled institutional issues, academic politics, and underwhelming professional attention. Nonetheless, Semmelweis made tremendous strides towards resolving one of medicine’s most critical and enduring challenges. Although he garnered no appreciation for these achievements in his lifetime, Semmelweis’s contributions to modern medicine are now far-reaching and deeply engrained. For this reason, the story of Dr. Ignaz Semmelweis remains pertinent today – nearly 200 years after his time.

Ignaz Philip Semmelweis was born the fifth of ten children on the first of July 1818 in the Taban region of Buda, Hungary to grocers Josef and Teresia Muller Semmelweis.[1] At this

time, Europe was rebuilding and realigning following the Napoleonic wars. Though Hungary remained firmly under Austrian rule, the Austrian empire itself was transitioning into an era of social and political conservatism. These traditionalist and repressive domestic policies swept through the Austrian empire just before Semmelweis’s birth and were firmly established in the national consciousness by his formative years.[2] This strict system, however, was far from universally accepted. Progressive demonstrations, particularly in the universities of the great cities of the empire, were a regular feature of life in this time. These protests eventually led to legislation that restricted the right-to-assembly of students and university personnel and also established a strict system of censorship designed to quiet the political unrest.[3] These efforts succeeded in reducing protesters from fervent demonstrators to reserved critics, but revolutionary sentiments persisted below the surface of public consciousness. This conflict between conservatism and progressivism simmered over the next three decades, nowhere more clearly demarcated and sharply contested than in universities.[2] It was in this environment that Semmelweis matured, learned, and formed his



Figure 1. Postage Stamp Portrait. Best, M., & Neuhauser, D. (2004). Ignaz Semmelweis and the birth of infection control. *Quality & Safety In Health Care*, 13(3), 233-234.

understanding of the world.

Semmelweis was first exposed to the dichotomy between conservatism and progressivism at the age of eleven while attending classes at the Catholic University School in Buda. Following completion of his secondary schooling at Cistercian Szent István school in 1835, he returned to higher education and pursued a degree in Art at the University of Pest against his father's wishes. By the time he was nineteen, Semmelweis had completed his degree while immersed in a world of protest and suppression. Like many young men in the Austrian empire, he was now eager to make his mark on the world.[4]

Semmelweis embarked to Vienna, the great cosmopolitan capital of the Austrian empire, in search of a professional education. Competent enough in German, experienced in academia, and with legal ambitions, Semmelweis enrolled in the Faculty of Law at the University of Vienna in the fall of 1837.[1] This foray into law and city life did not last long; for reasons lost to history, Semmelweis abruptly dropped out of school just one year into his

education.[1] He returned to his native Hungary that same year, likely displeased with his Viennese excursion. Having attempted and failed a career in law, Semmelweis turned to medicine. He began studies at the University of Pest, his familiar alma mater, just across the river from the city where he was raised and where his parents still ran their grocery.[4]

Semmelweis spent two years in Pest before returning to Vienna to complete his medical studies. He eventually earned a doctoral degree in medicine from the University of Vienna in 1844. Despite his degree, Semmelweis was unable to secure a clinical position in medicine and was again forced to readjust his ambitions. He returned to the University of Vienna a third time to begin a specialty in his fourth career: obstetric surgery.[4]

After completing his surgical degree Semmelweis applied for a position in obstetrics. On the first of July 1846, his 28th birthday, he was appointed as the assistant to professor Johan Klein in the First Obstetric Clinic of the Vienna General Hospital. His tasks included "preparation of the professor's rounds" and maintenance of "office records." Although not the most prestigious of positions, in this post Semmelweis found a stable point in his tumultuous professional life.

This respite did not last long however. Just months after beginning at the Vienna General Hospital, Franz Breit, the Austrian whose vacant position Semmelweis had filled, returned to Vienna such that Semmelweis was fired from his position to accommodate Breit.[4] This minor position, which amounted to the only professional success of Semmelweis's shaky academic career, was lost to hospital politics. As a Hungarian in a very Austrian city, Semmelweis was left feeling lost. He began to study English, intending to leave the Austrian empire entirely and start anew in Dublin.[4]

Before enacting this plan however, Franz Breit accepted a position as the head of Obstetrics at the University of Tübingen. Semmelweis was again invited to fill Breit's vacant post. Recognizing an opportunity to rekindle his career, Semmelweis accepted the position. Yet the callous and disingenuous treatment he had received from the hospital

## Monthly Mortality Rate from Puerperal Fever

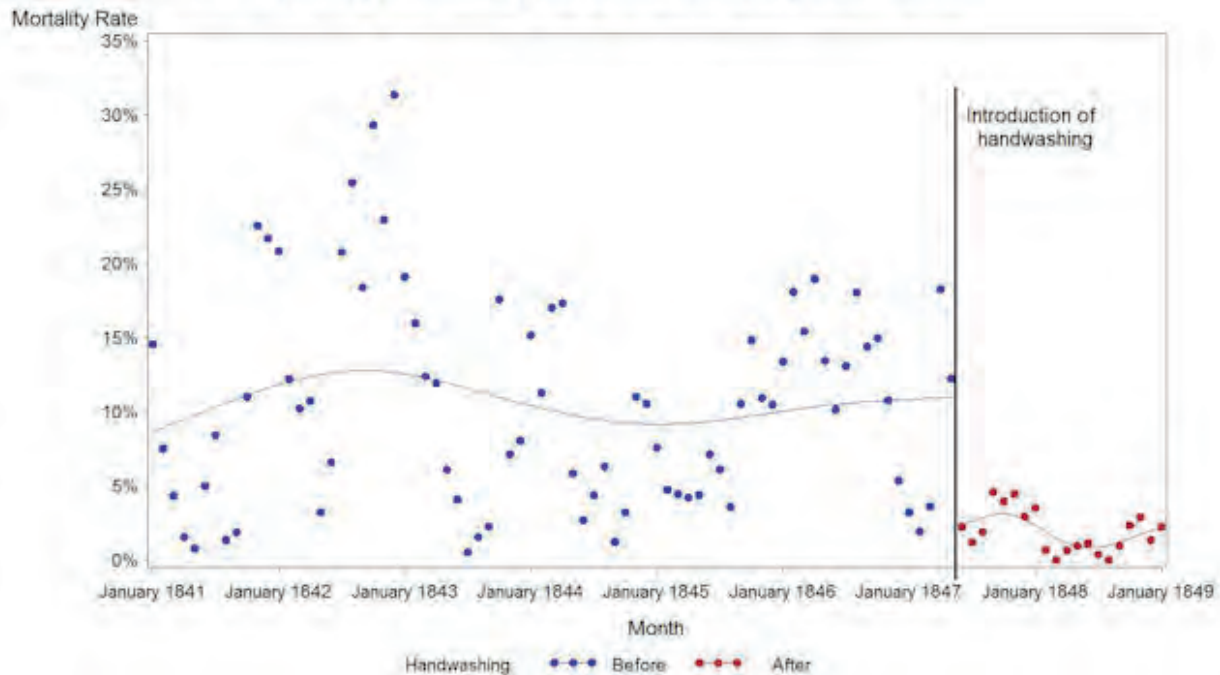


Figure 2. Maternal Mortality Rate from Puerperal Fever. La Rochelle P, Julien A-S (2013). How dramatic were the effects of handwashing on maternal mortality observed by Ignaz Semmelweis? JLL Bulletin: Commentaries on the history of treatment evaluation (<http://www.jameslindlibrary.org/articles/how-dramatic-were-the-effects-of-handwashing-on-maternal-mortality-observed-by-ignaz-semmelweis/>)

authorities was never forgotten.[4]

Semmelweis's unheralded return to academic medicine in 1847 would prove to be both fortuitous and fateful. It was in this renewed position that Semmelweis studied and eventually acted upon his intuitions surrounding puerperal fever, the work for which he is remembered today. His groundbreaking discoveries with this disease, a form of sepsis that was commonly known as "childbed fever," would set the stage for the advancement of germ theory and the recognition of hygiene.

Almost immediately upon starting work in Obstetrics at the Vienna General Hospital, Semmelweis noticed troubling trends in the maternity wards. Puerperal fever was a devastating disease that was prevalent in maternity hospitals throughout Europe. At a time when three in ten women who gave birth in a hospital died, the vast majority of these fatalities were due to puerperal fever. Semmelweis was on the front lines of this crisis and was distraught over the loss of life in his clinic, writing that he felt "so miserable that life seemed worthless." Prevailing sentiment at the

time, held by all medical authorities – including Semmelweis's superiors at Vienna General – was that puerperal fever was an unpreventable risk of childbirth.[1.6]

The Vienna General Hospital Obstetric Clinic was a public institution, providing free care to the indigent. It occupied two nearly identical wards of the hospital. When patients arrived at the clinic they were assigned to one of these two wards. Each ward received all patients admitted on a given day in an alternating fashion, such that today's patients would all be assigned to the first ward and tomorrow's patients would be assigned to the second.[1] The mortality rate of puerperal fever of the first ward was two to three times as high as that of the second ward. This fact was well known, even amongst the general population. As such, many expectant mothers attempted to avoid giving birth on days that admitted to the first ward, sometimes even choosing to give birth on the street and report to clinic the next day. Remarkably, even the women who gave birth in the street and then entered the second clinic experienced lower rates of puerperal fever than

those giving birth in the first ward. This discrepancy perplexed Semmelweis, and he began to search for an explanation despite strong protests from authorities within the hospital.[1,6]

Semmelweis carefully and systematically began to eliminate discrepancies between the two wards, even controlling for religious practices.[1] Yet Semmelweis was only able to appreciate one difference between the two wards: the staff itself. Medical students attended the first ward, whereas midwifery students attended the second. Semmelweis considered this distinction inconsequential, as both groups received the same training and oversight. It is unclear what motivated Semmelweis to continue his seemingly fruitless investigations despite heavy pushback from the hospital authorities. It is likely that his dedication to his patients' health, his intellectual curiosity about a seemingly unexplainable phenomenon, and his revolutionary spirit propelled him forward; His curiosity evolved into a compulsion that would not allow him acquiesce to his superior's desires. Whatever the reason, Semmelweis persisted in his research and tensions with authorities continued to rise.

In 1847 Semmelweis took a break from his work. Drained by his lack of progress and the daily reminders of the deadliness of puerperal fever, he travelled to Venice on vacation. While abroad, Jakob Kolletschka, a professor of forensic medicine, a fellow non-austrian in Vienna, and one of Semmelweis's few friends, died from a wound he received while performing an autopsy. One of Kolletschka's students had accidentally cut Kolletschka with his scalpel. The wound became infected, and Kolletschka died of what we now know to be sepsis.[1,4] Upon his return to Vienna, Semmelweis examined the case notes and autopsy report. He reached a startling conclusion: Kolletschka had died of a disease that bore remarkable similarities to puerperal fever. Semmelweis came to the groundbreaking realization that Kolletschka had become infected as a result of the autopsy accident. If this interaction with a cadaver had caused his friend's infection, Semmelweis hypothesized

that similar interactions with cadavers could be responsible for the disproportionate rates of puerperal fever at his own institution. Medical students, the staff attending to patients in the first ward where the incidence of childbed fever was so high, performed autopsies before clinic, thereby exposing themselves and their patients to "cadaveric materials." Midwifery students staffing the second clinic did not.[4,6] Here was the unrecognized discrepancy between the two wards, which explained the differing rates of disease: something about the cadavers was responsible for the infections in the mothers and, worse, the medical staff were responsible for transferring the disease between cadavers and patients.

The idea that an infectious agent could be transferred from cadavers to living humans was very novel in Semmelweis's time. Further, the suggestion that physicians and medical students' contaminated hands were infecting patients would have been repugnant to other practitioners.[7] Aware of these realities, Semmelweis began to experiment with interventions in his own clinic to confirm his hypothesis. A bowl of water with chlorinated lime – the cheapest known disinfectant – was placed at the entrance to the first ward for students and physicians to clean their hands between performing autopsies and attending to births. The results of this relatively simple intervention were tremendous. Mortality rates in the hand-washing wing fell from 18.27% to 1.27%. In fact, entire months passed without a single death.[6] Rates of puerperal fever in the first ward dropped below even those of the second clinic attended by midwifery students. Perhaps most critical, however, the infection rate never reached zero. Semmelweis perceived this "failure" as evidence of a flaw in his theory.

Despite dramatic drops in the infection rate of a clinic overseeing roughly 7,000 deliveries a year, making it the largest in Europe at the time, Semmelweis refused to publish his findings or advocate for his methodology.[7] Semmelweis still had not forgotten the failures and humiliations endured prior to securing his position, nor had he forgotten the loyalty of his superiors. After years of struggle, Semmelweis

was acutely aware of how tenuous his place in the world of medicine was. He refused to risk his reputation, even for a potentially momentous finding, on an imperfect theory. Semmelweis became obsessed with explaining every case of puerperal fever in order to refine and perfect his theories before presenting them to the world.[7]

Semmelweis simultaneously became more politically active. A liberal movement was gathering momentum across Europe, using young and educated individuals at universities as footholds in the strictly conservative Austrian empire. Semmelweis joined a liberal group, the Revolutionary National Guard, and began participating in events around Vienna.[4] These demonstrations would go on to inspire peaceful revolutions in Semmelweis's native Hungary that are still celebrated today as an important part of Hungarian independence.[8]

Maybe encouraged by this radical spirit and certainly urged on by his friends, Semmelweis gave his first public address detailing his findings in 1850 to the Association of Physicians in Vienna. The reaction to his address was everything that Semmelweis had feared: Fellow physicians were unhappy with his assertion that they might somehow be responsible for harming their patients, and the University of Vienna universally rejected his theories.[4]

One of the most vociferous and staunch critics of Semmelweis's findings was his superior Johan Klein.[4,5] Following Semmelweis's address, Klein passed him over for several promotions, denied his applications for more authority and resources, and prohibited him from working with cadavers.[4,5,9] For Semmelweis, this backlash would have been bitter. In particular, the stipulation that he not work with cadavers would have been reminiscent of the blunting censorship that his revolutionary colleagues had faced from the authorities. Disheartened and disappointed, Semmelweis faced the ire of his peers and superiors alike and reverted to a familiar pattern; Just five days after losing his work privileges, he abruptly left Vienna and returned to Pest.[4]

Safely back in his native Hungary, the

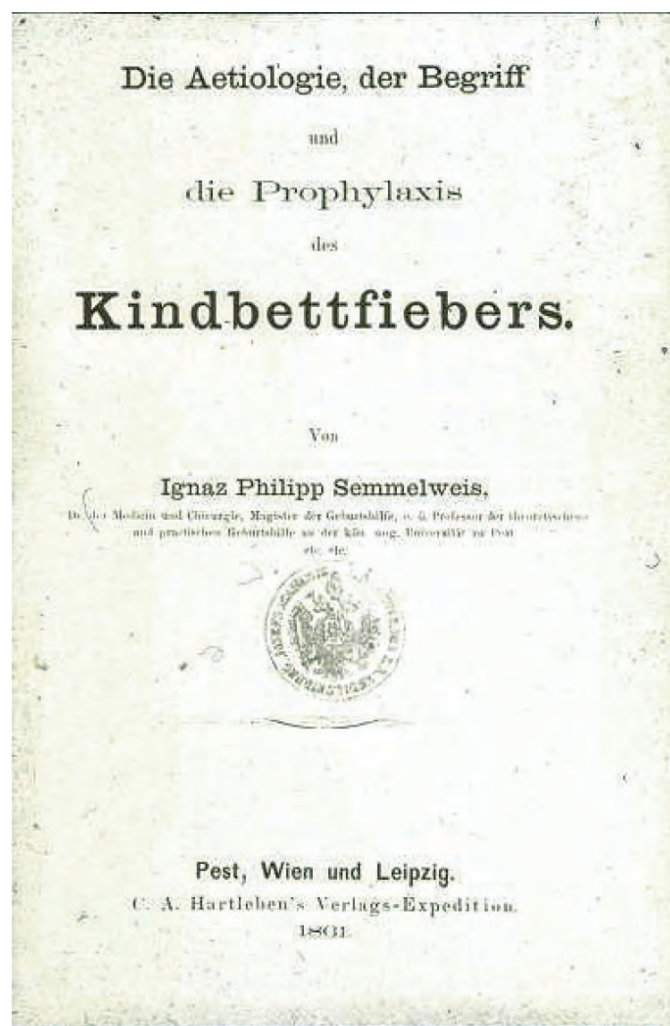


Figure 3. Pamphlet Cover. Pittet, D., & Allegranzi, B. (2018). Preventing sepsis in healthcare – 200 years after the birth of Ignaz Semmelweis. *Eurosurveillance*, 23(18), 2-6.

deflated Semmelweis took up a position as the head of the maternity ward in the relatively obscure Rókus Hospital. Semmelweis spent years in this position, continuing to meticulously experiment with hygiene in the prevention of puerperal fever in silence and isolation. Semmelweis was successful in this life, reducing the mortality rate of the maternity ward to less than 1% under his care.[4] He also married Mária Weidenhoffer in 1857, who he would go on to have five children with. Encouraged by his new wife and a number of his friends (including the editor of *Orvosi Hetilap* [Medical Weekly], Lajos Markusovszky), Semmelweis reattempted to circulate his findings.[4] In the fall of 1857, nearly ten years after his initial discovery, Semmelweis published a 500-page treatise on puerperal fever and hygiene.[7]

Public opinion, once again, went against Semmelweis, who had published more or less the same ideas that he had espoused nearly a

decade prior, only now from a self-imposed exile. Rejected a second time by the larger academic community, the embittered Semmelweis began a campaign in defense of his work. Disgruntled and past his idealistic youth, Semmelweis unleashed an increasingly aggressive and inflammatory series of attacks against his critics, culminating in two open letters "reviling his opponents in the most extreme terms." [7,9] , In 1865 Semmelweis was overcome by the fight for his already tarnished reputation and suffered a mental breakdown. He was admitted to the Viennese Mental Hospital in Döbling on the 31st of July, one month after his 47th birthday. [4,9]

Semmelweis's monumental work was never recognized for the advances it heralded in his lifetime, but it is the basis for the fundamental tenants of hygiene. Many celebrated minds of medical history like Joseph Lister credit Semmelweis for their own achievements. Semmelweis, however, went unappreciated by his contemporaries. [9] This is a familiar and often told story, but examining Semmelweis's life reveals a man whose legacy extends beyond his contributions to hygiene. Semmelweis was an early failure, overcoming disappointment after disappointment to obtain a position of minor respect from which he espoused controversial and inflammatory positions. Unable to withstand criticism from established figures or to navigate the politics of academia, Semmelweis retreated to the fringes of society. From there he continued to single-mindedly and ferociously defend his own ideas with base attacks on the character of his critics. Even today, it is easy to imagine a prickly fringe radical like Semmelweis facing a similarly unwelcoming reception. This problem is recognized and well-studied (the sociological phenomenon of rejecting a new idea because of its radical nature is even called "the Semmelweis reflex"), commonly understood, and yet still persists in modern academia.

Thirteen days after his institutionalization, on the thirteenth of August 1865, Dr. Ignaz Semmelweis died. While performing his last autopsy, Semmelweis cut a finger on his right hand. The wound became

infected, and Semmelweis was overcome by sepsis. Tragically, Semmelweis was killed by the very disease he had spent his life studying. He was even infected in the same way as his friend, Jakob Kolletschka, whose death had inspired his theories. [6] Nearly 200 years later, the life and death of Ignaz Semmelweis provide a poignant and important reminder of well-known perils and our continuing vulnerability to them.

#### **About the Author:**

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# The Story of the Face: The Social Organ



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**I**t is often stated that the medical marvels of our era come as we stand on the shoulders of giants. Whether this is a nod to either the dedicated physicians and scientists of years past or the altruistic patient pioneers remains for interpretation. This ambiguity highlights the process of medicine and the intersection of human nature when it comes to caring and being cared for. In the spirit of *Aceso*, the goddess of the process of healing, I dedicate this brief historium on the art of face transplantation to the students of medicine past, present, and to come.

“Let us first understand the facts, and then we may seek their causes.”

- Aristotle

To begin to understand the history of facial surgery, it may be best to know where we are now. The fact of this matter is that when it comes to restoring the form and function of the human face, there is no better therapeutic option available to us today than face transplantation.

The first face transplant was performed in Amiens, France by Professor Jean-Michel Dubernard and Professor Bernard Devauchelle in 2005.[1] Isabelle Dinoire, their patient, was a 38 year-old woman who suffered traumatic disfigurement of the lower two-thirds of her face after her dog attempted to revive her from an

attempted overdose. The tragic rescue left her abilities to eat, speak, and communicate through facial expressions severely impaired.[2] Two additional face transplantations followed Dinoire’s in 2006 and 2007, respectively. The former case involved reconstruction of the lateral face and nose of a man who was attacked by a bear in China,[3] while the latter involved a man in Paris, France with severe facial disfigurement related to his diagnosis of congenital neurofibromatosis 1.[4]

The acclaim and skepticism around face transplantation began to grow in proportion to the size of the defects that they addressed. The first face transplantation performed in the United States in December 2008 was significant for two reasons. First, the transplant recipient, who had lost his midface due to ballistic trauma, had previously exhausted conventional reconstructive methods after undergoing 23 operations. Second, this operation, conducted by Dr. Maria Siemionow and her team at the Cleveland Clinic in Cleveland, OH, involved the first osteomyocutaneous facial tissue allotransplantation.[5] The surgeons managed to address the absent midface by replacing it with donor maxilla and palate bone in addition to the overlying soft tissues transplanted in previous cases. Yet even this ground-breaking procedure was still considered to be only a partial face transplant.



Figure 1 - Photos of the first seven face transplants performed by Dr. Bohdan Pomahac at the Brigham and Women's Hospital in Boston, MA between 2009 and 2014. The top row shows the recipients pre-transplantation after conventional reconstruction. The bottom row shows recipients post-transplantation at maximal follow-up. (Kollar B and Pomahac P. Facial restoration by transplantation. *The Surgeon*. 2018; 6: 245 - 9)

The first *full* face transplant was harvested en block and performed by Dr. Juan P. Barrett in Barcelona, Spain in 2010 on a 30-year-old man who had suffered severe facial disfigurement secondary to ballistic trauma five years prior.[6] The harvested facial allograft included all skin and soft tissues of the face, facial muscles, lachrymal ducts, eyelids, floor of the mouth, lips, upper and lower teeth, hard palate, all cheek mucosa, the mandible, the maxilla, two-thirds of both zygomatic bones, the nose, turbinates, vomer, ethmoid bone, and the maxillary sinuses. The vascular pedicles included both external carotid arteries and external jugular veins, as well as the right anterior jugular vein and the left retromandibular vein. The nerves included all main sensory branches of the trigeminal nerve and four branches of the facial nerve, bilaterally. This was the 12th - and most extensive - face transplant at the time.

The first full face transplant in the United States was performed in 2011 by my mentor, Dr. Bohdan Pomahac, at the Brigham and Women's Hospital in Boston, MA. Dallas Weins, the recipient, was repainting a church in Fort Worth, Texas when he collided with a high-voltage power line. He survived the accident and emerged from a three-month long medically induced coma with complete loss of all facial features and both of his eyes. While the face

transplantation could not restore his vision, it restored his humanity and ability to live a normal life.[7] Dr. Pomahac and the team at the Brigham and Women's Hospital have performed a total of 8 face transplants, making them privileged to care for the largest single center living cohort of face transplant recipients in the world.

Forty-five face transplants have been reported to the public through academic journals and the lay media since the index case in 2005. But, what has resulted from these experimental procedures and where do these facts leave us?

The intricate shape and delicate structures that compose the human face enable it to have both personal and social functions. Conventional reconstructive methods, such as local, regional, and free-tissue transfer from other parts of the patient's body do not return a natural aesthetic or motor movement capability to the face. At most, they deliver a patchwork appearance over multiple trips to the operating room that occur over many years - years during which a person's social life does not stop because of their predicament. Living with facial disfigurement has been linked to having a poor social support network, to living under greater financial strain due to the inability to find or keep a living wage, and to being at an increased risk for mental health issues.[8] It becomes a challenge to partake in daily social life, as people

without normative facial features are frequent targets of ridicule and ostracism by others who see them as different.[9] All the while, individuals with facial disfigurement seek a dignified human experience to enjoy life like any other face in the crowd.

The support for face transplantation procedures, both in the public and professional spheres, may be repaid at greater than face value based on the long-term outcomes that are now evident. The restoration of independent motor movement, as well as protective and discriminative sensory function at as early as three months post-transplantation has been reported by various centers.[10–12] Recently, the possibility for facial emotional expression after face transplantation has been explored and found to be detectable using innovative facial recognition software.[13] When all of this is taken together with a face transplant's ability to restore a normal human aesthetic, this single like-for-like approach to facial reconstruction has returned the holistic function of the face. Compared to conventional reconstruction, outcomes suggest that for certain patients face transplantation is undoubtedly the best option to achieve societal reintegration [14] and a chance at a normal life.[15] The 40th face transplant worldwide was performed at the Cleveland Clinic in May 2017 and led by Dr. Francis Papay with the aim of reintegrating Katie Stubblefield into contemporary society.[16] Her story [17], which was beautifully written by Joanna Connors for the National Geographic magazine, captured the attention of a global audience. Stubblefield's story dived into the social causes of her depression, honestly presented her attempted suicide, and expressed the reality of our humanity. It also demonstrated the humanity restored by this procedure for people like Katie, as over 80% of face transplants have been indicated for self-inflicted gunshot wounds.[18] But what will the future hold for face transplantation? Will it become standard of care or will it remain an experimental endeavor? I suppose to have an idea of the future, we must first understand the origins of face transplantation and how the field has progressed to its present status.

“Declare the past, diagnose the present, foretell the future.”

– Hippocrates

### **Ideas of the Past**

The “Father of Medicine”, Hippocrates(b. 460 – 377 BCE) espoused the idea that medical therapies must rely on observation, experience, and rationale.[19] In his work *On Prognosis*, Hippocrates describes the vital importance of disease prognosis and the impact it has on the individuals involved – the patient, their family, as well as the physicians. Possibly the most prognostically useful eponym attributed to Hippocrates is the Hippocratic facies, a countenance often present once the patient has “moved into the atrium of death.”[20] The impact of this observation holds true to this day and is only one reason to skillfully observe our patients' faces – in life and in death.

Likewise, Aristotle (b. 384 – 322 BCE) was known to be a master observer of natural phenomena. Of greatest interest in our topic of the face is his moral philosophy. In *Physiognomics*, Aristotle links the beauty of the human face to a person's moral character. He believed that persons who possessed both beauty and normative facial features had good moral character, while ugliness and disfigurement were manifestations of an immoral nature.[21]

These two examples of ideas and beliefs about the human face demonstrate the importance of our countenance in the perception of our health and humanity by others. This buoys the notion of societal necessity for cosmetic and reconstructive procedures to repair any perceivable defect to the face. Interestingly enough, the earliest history of surgical reconstruction for facial deformity was recorded long before the remarks of these notable observationists.

### **The Art of Facial Reconstruction**

Reconstructive techniques summarily followed the same routes as trade goods and thus migrated to the various centers of human

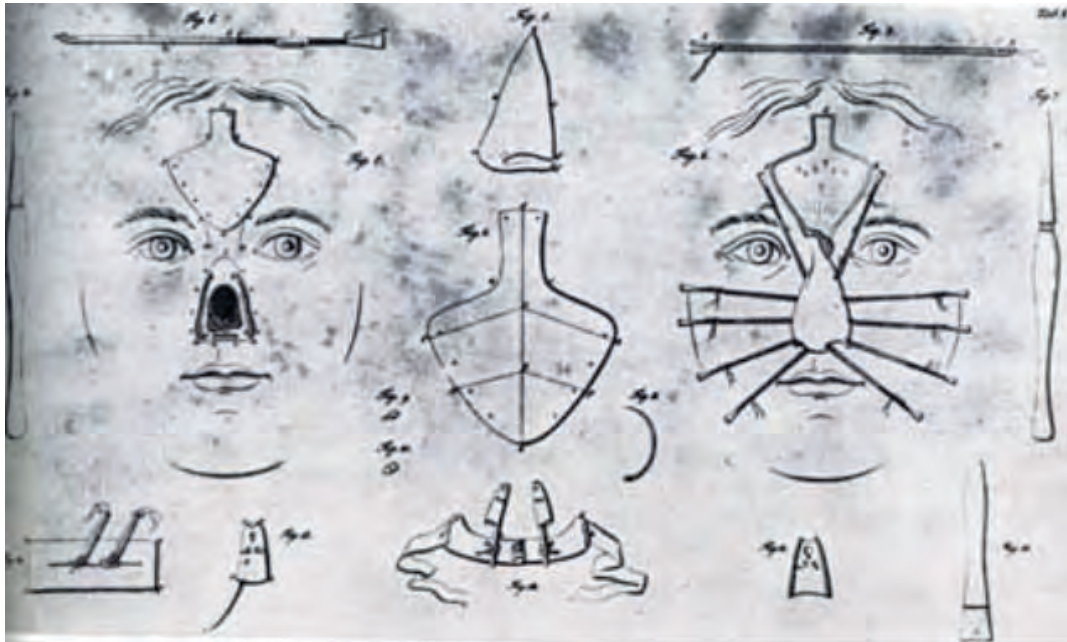


Figure 2 - The Indian Rhinoplasty technique as described by Sushruta around 600 BCE. (Saraf S. Sushruta: Rhinoplasty in 600 B.C. The Internet Journal of Plastic Surgery. 2006; 3(2))

trade. Two thousand years before Hippocrates, pharaonic surgeons from Ancient Egypt composed a 17-column surgical treatise detailing the management of 48 cases in 377 lines of alternating red and black cursive hieroglyphics.[22] The Edwin Smith Papyrus, purchased in 1862 by the American Egyptologist Edwin Smith, is believed to have been authored around 2400 BCE. In what constitutes the oldest surgical note extant, the papyrus contains twelve cases concerned with “flesh wounds” of the scalp, face, throat, shoulder, and breast.[23] It is remarkable that this manuscript advocates for the methods of surgical treatment we use today, like cauterization of tissues and coaptation of wound edges by stiches and adhesive plaster. These measures were adopted by Greek physicians and have become enshrined as valued therapeutic options by our profession.

Meanwhile, the earliest compendium of surgical reconstruction of the face using methods attributable to contemporary plastic surgery is believed to have come from India. Sushruta, who lived around 600 BCE, was a master surgeon who believed that knowledge of surgery and medicine were essential to a good doctor who otherwise “is like a bird with only one wing.”[24] Multiple methods and principles of plastic surgery can be attributed to Sushruta, who was the first to describe using skin grafts from the arm to reconstruct disfigurements of

the nose. He also described rotation of skin flaps for partial coverage of wounds and of pedicled flaps for complete coverage.[25] His most notable contribution to the field was a rhinoplasty procedure using a pedicled forehead flap, still commonly called the Indian rhinoplasty.[26]

The first text exclusively devoted to the art of plastic surgery came in the middle of the flourishing Italian Renaissance from Gaspare Tagliacozzi (b. 1545 - 1599 CE). Published in 1597, *De Curtorum Chirugia per insitionem* was the first text describing the scientific validity of plastic surgical operations and included Tagliacozzi’s improvements over prior methods. Highlighting this is his description of a delayed flap for nasal reconstruction which improved upon Sushruta’s work almost exactly a millennium after.[27] However, the term ‘plastic surgery’ was not used to describe this class of procedures until 1790 when French surgeon and anatomist Pierre Desault coined the term after using the Greek term ‘plastikos’ - meaning ‘to mold’ - to describe a procedure correcting a facial deformity.

This new professional label allowed the field of plastic surgery to grow by leaps and bounds, which became especially evident during World War I. Survivors of this new era of human warfare were less likely to have close-combat wounds from blades and the heavy blunt

weapons of old; instead, they suffered severe damage to bones and soft tissues due to ballistic trauma and shrapnel. This change demanded a revolution in operative management to provide facial reconstruction that not only addressed clinical wounds but the disfigurement that would hinder future social reintegration of the veterans of war.[28] Sir Harold Gillies realized that appropriate facial reconstruction required restoration of normal appearance, or form of the face, and function. He is referred to endearingly as the “Father of Plastic Surgery” for the advances he pioneered in using tubed pedicled flaps; such flaps reduced infection risk while increasing tissue vascularity to make it possible to address large defects in a staged fashion.[29] Although Gillies’ pioneering work was borne out of necessity in wartime, it laid the foundation for modern cosmetic and reconstructive principles of plastic surgery.

### **The Art of Transplantation**

This creativity and knack for surgical innovation has not only allowed plastic surgeons to impact their own field, but all of medicine as well. Dr. Joseph Murray, a plastic surgeon at the former Peter Bent Brigham Hospital in Boston, MA, pioneered organ transplantation in 1954. At the time, renal dialysis provided temporary relief to uremic patients. Dr. Murray believed that a more permanent treatment could be found and that his approach to the problem – with its unique complexity and defective physiology – begot a novel management strategy based on the core principles of reconstruction. The Holy Grail for plastic surgery is a like-for-like replacement of the missing or defective tissue. Combining the study of renal disease, skin grafting in twins, and the surgical determination of Dr. Murray and others at the Brigham, the first successful renal transplantation was performed on identical twins – a near perfect like-for-like replacement.[30] The invention of this treatment modality revolutionized our conception of disease management and invigorated surgeons, physicians, and researchers alike with a cautious optimism for the future.

Continued surgical innovation over the past 50 years has led to the successful development of procedures for transplantation of solid organs like the liver,[31] heart,[32] and lungs.[33] However, transplantation of human parts is limited in efficacy due to rejection of donor tissue by the recipient’s immune system. The first successful transplantation skirted the issue by transplanting a kidney between monozygotic twins.[34] Since 1954, advances in immunosuppressive medications have allowed for transplanted organs to improve quality and duration of life between related and non-related individuals. Yet the side effects of these drugs – which leave the recipient with an increased risk of developing oncologic malignancies, infections, metabolic complications like diabetes mellitus, and renal dysfunction – cannot be understated. However, the field of immunology has advanced symbiotically with the field of transplantation, and the prospect of achieving immunologic tolerance seems ever closer with successful transplantation of skin – the most immunogenic tissue of the human body.

### **Face Transplantation: The Present State of Facial Reconstruction and its Future**

Face transplantation has emerged as an inherently ethical endeavor adhering to the reconstructive principles of form and function championed by Gillies to manage severe facial disfigurement. When the first face transplant occurred in 2005, immunosuppression lay at the heart of the debate surrounding the ethical permissibility of the life-enhancing – but not life-saving – face transplant procedure. The life-long requirement of medical immunologic manipulation to prevent rejection of the facial tissue allograft places the recipient’s longevity at high risk. Discussion continues on what can be considered proper informed consent.[35] But I believe that for certain people who value the quality of their life over the quantity of years in their life, this reconstructive method is worth the risks of immunosuppression.

The ethical focus should shift to closely examine why this reconstruction is foundationally dependent on society to succeed.



Figure 3 - Photos of three patients who underwent facial reconstruction by Sir Harold Gillies. The top row is an example of massive whole facial reconstruction via a double tubed acromiopedicular flap. The middle row is an example of reconstruction of the nose when the forehead flap method is unavailable or undesired using the pedicle flap method. The bottom row is an example of acromiopedicular flap for nasal and upper lip reconstruction. (Gillies H. Practical Uses of the Tubed Pedicle Flap. American Journal of Surgery. 1939; 43(2): 201 - 215)

From the time and effort of the medical and surgical staff who meticulously care for their fellow person during the planning, reconstruction, maintenance and rehabilitation phases of a face transplant, to the network of friends, family, and community who provide priceless assistance and moral support, the reality is that it takes a village to restore the ability to rejoin our human community. The future of face transplantation will be determined by satisfactory outcomes and public opinion, necessarily so, because our profession derives the permission to do our work from the people who will benefit from it. I remain cautiously optimistic that face transplantation is here to stay - enough so to believe that advances will be made to adapt this reconstructive modality to the pediatric population.[36]

In the arena of health policy, the United States government in 2016 legally defined the face as a transplantable organ along with other vascularized composite allografts - organs like the hand and upper extremity, uterus, and penis.[37] This effectively supported the transplantation of these social organs, but without proper funding, momentum could dwindle. All face transplants in the United States have been performed using private institutional funds and government research grant money since it is considered an investigational procedure: that is, not amenable to medical insurance coverage. Face transplantation can cost millions of dollars when operative, nursing, and pharmaceutical costs are totaled. This is an understandably expensive cost to society when life-threatening diseases like cancer remain

without cure. However, life-saving therapies for cancer and life-enhancing therapies like face transplantation are targeting separate patient populations. Research and financial support for treatments should be proportionately allocated based on potential impact and not on whether a condition is fatal. A change in status to the standard of care is necessary, and maybe justified based on reported outcomes, to make face transplants more widely available to those who need it.[38] The most recent case performed by Dr. Eduardo D. Rodriguez at NYU Langone in New York City, NY, holds promising news as a third of it was covered by medical insurance – the largest fraction to date.[39]

This is the state of face transplantation in 2018 – thirteen years after the index case and more than four-thousand years since the first reported attempt at facial reconstruction. In our current society, it is a procedure that restores a social identity to a person encultured in a world where Facebook and selfies give a public face to our personal lives, interests, and social networks. Interacting with our external world can cause devastating facial disfigurement via accidents or self-inflicted wounds. This has always been the case, but with the advent of face recognition technology and a global spotlight on our appearance, the superior results of face transplantation in the technosocial era may be ethically obligated over conventional reconstruction.[40]

The prognosis of face transplantation's role in the future of facial reconstruction is in constant flux. There are skeptics who believe that this experiment will waste away due to our inability to either fight chronic rejection or pay for it. But like me, there are advocates who see that the vitality of this procedure presents itself in every smile it is able to restore. Sceptically, we may have opened a box that we cannot close – as the first face re-transplant was performed by Professor Laurent Lantieri in Paris, France during the Spring of 2018.[41] It is important to maintain the virtues of our profession – those of caring and advocating for people that seek out medical help – as the cynosure of reflective discourse on the future of this life-enhancing procedure. That means that we must continue to

learn from those who have altruistically braved the first steps into face transplantation even if it means subsequent re-transplants. This is because the history of plastic surgery is one of continual innovation focused on perfecting the care we can provide to our fellow person and learning from the sacrifices that these patients have made to better the care we provide to others.

“You cannot stop the human mind from working.”

– Dr. Joseph E. Murray

As I stated in the beginning, it is unclear who are the giants upon whose shoulders we stand. The inventions that have changed the world have arisen from necessity but also from serendipitous circumstance. If this brief history on face transplantation can teach us anything, it is that we are all giants whose storyline is woven into the history of medicine – be it as those who are cared for, or as those who observe, theorize, experiment and discover novel ways to provide such care.

#### **About the author:**

Miguel I. Dorante, M.A., was born in Caracas, Venezuela and raised in Palm Beach, Florida. He attended the Johns Hopkins University and graduated with a B.S. in Biomedical Engineering and minoring in Philosophy. His academic career continued at Boston University School of Medicine where he is a current fourth year student. Miguel took a year of leave from BUSM after his third year to simultaneously pursue a M.A. of Bioethics from Harvard Medical School, and perform research on vascularized composite allotransplantation at the Brigham and Women's Hospital. He is currently applying into Plastic and Reconstructive Surgery residency programs across the country where the niche fields of gender confirming surgery and reconstructive transplantation attract him.

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