ACESO

Journal of the Boston University School of Medicine Historical Society
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Contents

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Aceso:

Journal of the Boston University School of Medicine Historical Society

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About the Cover

Engraving of Boston University School of Medicine

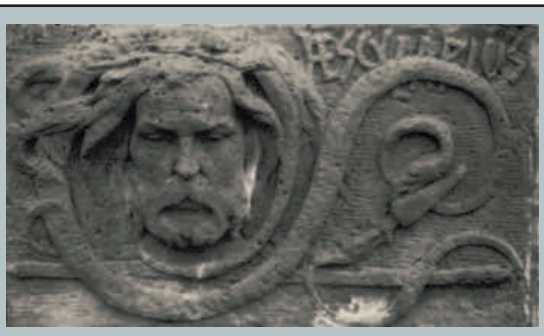
Until late in the 19th century, illustrations in books and periodicals were engravings rather than reproductions from photographs. This frequently reproduced 1878 view of the Boston University School of Medicine would be familiar to virtually every person who has attended our school. The building on the left, later known as "Building C," was originally built in 1870 by the New England Female Medical College, with an addition by BUSM in 1874. The building on the right was the Massachusetts Homeopathic Hospital, built in 1876, and still standing on our campus today as the central section of the Talbot building. This engraving, only 4 x 7 inches, is from King's Handbook of Boston, an illustrated guide promoting the city, its sites and institutions, and carrying the advertising of various businesses. Enormously popular, it was first published in 1878 by Moses King and reissued yearly for over a decade, always containing this engraving.

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. Design Editors and graphic designers create the cover, layout the format, and manage the artwork of Aceso. This position requires either some art or design experience.

If you are interested in applying for one of these positions, please email us at **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 Editor

It is our pleasure to publish the fifth iteration of ACESO: Journal of The Boston University School of Medicine Historical Society. As editors-in-cheif, we are proud to bring you a collection of papers from students, faculty and illustrious alumni. This issue brings forth topics in medical history ranging from the struggles of women in medicine, to the birth of neurosurgery, to the historic role of motorcycles in patient care.

ACESO has a proud history of providing articles that enrich the historical knowledge base of both healthcare providers and students. Boston University School of Medicine has a rich and diverse history which has fostered several ACESO articles over the years relating to the promise and shortcomings of Boston City Hospital and The Boston University School of Medicine.

Our faculty advisor, Dr. Robert Beazley, assistant Dean for Student Affairs and Professor of Surgery, Emeritus, has once again been instrumental in the publication, promotion and charitable donation that allows for these issues to be published year after year. Additionally, we would like to thank Dr. Brust, who has year after year been a generous supporter of ACESO and of The Boston University School of Medicine's Historical Society.

Boston University School of Medicine Historical Society is a student group that provides four to six lectures every year on the history of medicine. These events cultivate opportunities where individuals can appreciate and contemplate on the past, and perhaps even become fascinated by the advancement of medicine. In addition to these events, Aceso was created to further provide historical perspective on modern medicine. It is a medium where both writers and readers witness the marriage of humanities and science. It, once again, allows us to step away from our fast-paced lives, and reflect on the past.

The editors would also like to thank the past Boston University School of medicine Historical Society Co-chairmen, Stephen Reese and Teng Peng for their help in pulication of this issue.

We hope you enjoy the articles.

Nathan D. Barr
BUSM Class of 2019
Connor Baharozian
BUSM Class of 2019

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.

Boston City Hospital physicians and patients enjoy Thanksgiving Dinner in Ward "T" (1897)

The New England Female Medical College

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A'Llyn Ettien, MLIS, *is the archives librarian at BU Alumni Medical Library, where she is Head of Technical Services (the library catalog). Her enthusiasm for medical and BUSM history is only matched by her enthusiasm for PubMed.*

Dr. Robert Beazley, M.D., FACS *is the assistant dean for student affairs and works as a professor of surgery and endocrinology at Boston University School of Medicine. Dr. Beazley enjoys mentoring and advising medical students and has particular interest in anatomy and the history of medicine. Dr. Beazley serves as the faculty advisor of the Boston University School of Medicine Historical Society.*

Prologue

Introduction of women's medical education can be viewed in the context of rapid changes in the American social-economic climate which began in the first third of the 19th century.

The industrial revolution, essentially in the form of the British model, evolved in New England before the 1830's, propelled by abundant water power, Southern cotton and plentiful labor. Good pay ($2-3 per week) attracted large numbers of workers from the farms to factories such as those in the recently incorporated mill town of Lowell, Mass. By 1840, Lowell, "the City of Spindles", would employ 8,000 workers, two thirds of whom were women, giving women real earnings along with a previously unimagined degree of independence, thus beginning the Industrial Revolution and perhaps more importantly a social revolution.

A former "mill girl" recalled, "As late as 1840 there were only seven vocations, outside the home, into which the women of New England had entered. … teaching, needle work, keeping boarders, factory worker, type-setter, folding and stitching in book binderies" (Robinson, 4).

"At this date woman had no property rights. A widow could be left without her share of her husband's (or the family) property, a legal "incumbrance" to his estate. … A woman was not supposed to be capable of spending her own or using other peoples' money. In Massachusetts, before 1840, a woman could not legally be treasurer of her own sewing-society, unless some man were responsible for her. The law took no cognizance of woman as a money spender. She was a ward, an appendage, a relict. Thus it happened, that if a woman did not chose to marry, or, when left a widow, to re-marry, she had no choice but to enter one of a few employments open to her, or to become a burden on the charity of some relative" (Robinson, 68).

For the first time in the U.S., mill work gave woman's labor real money value. She had become an earner of money and a producer, but also a spender of money, a recognized factor in the political economy of her time. Women's earnings lifted mortgages on the family farm or homestead, provided modern improvements, maintained widowed mothers, educated children and sent young men to college. President Walker was reported to have estimated that a quarter of Harvard College students "were being carried by the special self-denial and sacrifices of women" (Robinson, 77).

A second and arguably more significant influence on the status of women was abolition. A small group of women began to take a serious interest in the abolition movement in the 1830's, only to quickly learn that it was "male dominated." Soon women established their own abolition societies and almost simultaneously recognized clear parallels between the status of female slaves and the institution of marriage.

The law took no cognizance of woman as a money spender. She was a ward, an appendage, a relic.

Dissatisfaction with their personal rights resulted in the 1848 Woman's Rights Convention held in Seneca Falls, New York. Their views were summarized in a discussion of the Report, "History up to the present times has largely been the story of powerful and the rich, and, necessarily the story of man……. women in the United States (as elsewhere) were vastly inferior in status to men; they could not vote, and played no role in political affairs of the country; they usually had no economic resources of their own and could not even control what they earned; married women had no legal existence apart from their husbands; generally women were under educated and considered intellectually deficient. The wives of more affluent citizens have benefitted from material comforts provided by their husbands, but they were subjected to a rigidly restrictive social code that made them among the most confined and isolated women in history. Yet, out of their frustrations and sense of oppression, the women's movement was born" (Papachristou 5-7).

The final report paraphrased the Declaration of Independence, concluding with twelve points petitioning for equal rights, social respect, and the vote (Report of the Women's Rights Convention). Over the next three quarters of a century there were many such conferences until finally the vote would be obtained August 18, 1920.

New England Female Medical College: The Beginning

Surprisingly, the individual responsible for the introduction of female medical education in Massachusetts was a man. Samuel Gregory was a Vermont native, a middle son in a farm family of six boys. He attended Yale, earning both a Bachelor's and a Master's degree while also reading anatomy, physiology, and medical history, although he had no interest in medical school. After graduation he became an itinerant grammar teacher, lecturer and pamphleteer focusing on personal hygiene and physiology. Gregory also took an interest in obstetrics and childbirth and was especially concerned that "man-midwives" were attending women during delivery.

Gregory considered this practice indelicate, indecent and offensive to the woman and strongly argued that women should be medically educated to attend women. For several years in the 1840's he lectured widely and circulated pamphlets (i.e. 1848's, "Man-midwifery exposed and corrected: or the employment of men to attend women in childbirth, and in other delicate circumstances, shown to be a modern innovation, unnecessary, unnatural, and injurious to the physical welfare of the community") proposing that women should be educated to provide both obstetrical and pediatric care. Medical doctors rejected his ideas and resented his assertions that the practice of women being attended by male physicians was inherently immoral, but his lectures and thousands of circulated pamphlets gained him strong support from the general public and his fellow parishioners at Boston's Park Street Congregationalist Church.

On November 1, 1848 he launched the Boston Female Medical School with two male faculty and twelve students, using the parlor of a Boston home. Three weeks after the commencement of instruction, Gregory established the American Medical Education Society to "promote female medical education and to secure funding for the medical school". The group was incorporated by the Massachusetts legislature in 1850 and the name changed to the Female Medical Education Society, as the original name "was extravagant in its scope and did not indicate that the entire purpose of the society pertained to women" (Waite, 20). The Female Medical Education Society published regular reports on its work beginning in 1850, including updates on the school that by the time of the 1852 report (the second published) was known as the New England Female Medical College.

In a lengthy footnote showcasing Gregory's essentially conservative motivation, the first report invokes common opposition to women's medical education, noting that a prospective female student at Harvard's medical school had been refused on the grounds, not that women had no right to such education, but that male students should not have to endure the sight of a woman "in places where her presence is calculated to destroy our respect for the modesty and delicacy of her sex." Rather than argue for women's inclusion in traditionally male spaces, the report states that "it must be obvious to every one, that the students were correct in their views," arguing that this proved the need for a female medical school to allow women to study without

offence to decency. Adding that "much more do these considerations require that females practice among their sex," the report further assured readers that it did not propose the sort of world where a man might risk being treated by a woman doctor (1850 NEFMC report, 15).

The report further assured readers that it did not propose the sort of world where a man might risk being treated by a woman.

The medical college had a peripatetic existence until the fall term of 1850, when the large Boylston Street home of local physician, Dr. Winslow Lewis (furnished and equipped with a medical library) became available upon his leaving to study in Europe for two years. Instruction was provided in two sessions of 12 weeks each per academic year.

Between 1848 and 1851, six semi-annual teaching sessions were held, with incomplete records indicating attendance that varied between 12 and 25 students, and certificates of proficiency in midwifery awarded to at least 20 individuals. One graduate, who practiced in Worcester beginning in 1849, was reported to have made 3,686 obstetrical deliveries in the 17 years before her death in 1866 (Waite, 24). Two students went on to receive MDs after studying under a preceptor, but most graduated and practiced as midwives.

The Female Medical Education Society in 1851 discussed a proposed merger with another women's medical school, the Female Medical College of Pennsylvania (FMCP), for a time shared faculty with the other school. The NEFMC and FCMP also shared an ongoing dispute over which could most justly claim to be the first female medical college in the U.S. The FMCP did not begin instruction until 1850, but argued that it had provided full courses before the NEFMC, and received its charter a month prior to that of the Female Medical Education Society. Arguing for the NEFMC's preeminence, Waite (a fair if not an objective observer) notes that "many institutions began by giving a partial course" and dated their foundation to this period; further, that professors were already teaching when the NEFMC's charter was granted, meaning that the date of foundation should not be the same as the date of the charter. He concludes that "[t]here is no doubt that … the New England Female Medical College, was the first institution in the United States to give instruction in medical subjects to women" (Waite, 27).

Dr. Winslow Lewis house, 75 Boylston St., seen from the Boston Common. Courtesy of Historic New England.

Male physicians, concerned perhaps for their incomes as well as the assertion of immoral behavior, openly resented Gregory's public questioning of their honor and credibility. Many rebuttals were published in newspapers and the Boston Medical and Surgical Journal (now the New England Journal of Medicine), whose editor, J.V. Smith, was particularly critical of NEFMC. However, as it became apparent that the NEFMC was surviving, the rhetoric from both camps grew milder. In fact, on March 3, 1854, as the first four MDs graduated, J.V. Smith, then the mayor of Boston, gave the commencement address.

In 1854, after several years of unsuccessful requests to the legislature for financial support, the Female Medical Education Society was granted an appropriation of $1,000 per year for five years to be provided in the form of scholarships given to residents of Massachusetts. In 1855, the Society was granted a further $10,000, with the stipulation that an equal amount must be raised from other sources. These successful requests indicate that despite a general suspicion of the idea of women physicians at the time, there was some support at high levels for the idea of the school.

Years of Growth

The 1857-59 depression sidelined plans for construction of a medical education building (the school, having vacated the Boylston Street house on its owner's return, was at that point located in a commercial building on Washington Street, above a carpet dealer). However, there was general improvement in faculty recruitment in this decade, with six professors as of 1853. Course sessions were lengthened to 17 weeks, and tuition raised to $75.

The Female Medical Education Society formally ceased to exist in 1856 with a new charter granted to the New England Female Medical College (whose trustees were the former directors of the Female Medical Education Society). The NEFMC continued to publish regular reports in its new role as a chartered institution. The 1856 report, explaining the change in administration, presented as evidence of the school's success the fact that while five years previous there had not been "a diplomatized female physician in Boston," there were no fewer than eight at the time of the report. A list of the 67 textbooks in the school's "nucleus of a library," with works on a wide range of

medical subjects (1856 NEFMC report, 14-15), also highlighted the Trustees' commitment to providing a thorough, 'real' medical education to students, modeled after that provided by established institutions.

In March 1859, Dr. Marie Elizabeth Zakrzewska (ZAK-shef-ska), a trained midwife from Berlin who had received an MD from Western Reserve College in 1856, was appointed Professor of Obstetrics and Gynecology at NEFMC and director of the small teaching hospital the trustees intended to establish. Dr. Zakrzewska, one of the founders of the New York Infirmary for Women and Children (which opened in 1857 as the first hospital in the U.S. for women and children), was a strong choice, but her relationship with Samuel Gregory was contentious from the start. She served only until 1862, when the NEFMC lost its lease on the building housing the 12-bed hospital (the second, and at that time the largest, hospital for women and children in the United States), with dispensary and pharmacy, where she had been resident physician.

At this point, Dr. Zakrzewska resigned from her position at the NEFMC and founded the New England Hospital for Women and Children in Roxbury, which she directed for over 30 years and which exists today as the Dimock Center of Beth Israel Deaconess Medical Center. Her departure and the loss of the hospital were a substantial blow for the school, since the lack of a teaching hospital made it very difficult for students to gain practical experience. Typical of local institutions, Boston City Hospital, which opened its 168 beds in 1864, refused to admit NEFMC students for clinical instruction.

The school did receive some major endowments in this period, starting with a $20,000 bequest in 1858 for an endowment of the Wade Scholarship Fund, with an additional $5,000 designated for the Wade Professorship in Medicine once it accumulated to $10,000. Today the Wade Professor is the Medicine chair at BUSM. The first endowed professorship to be actually established, in 1864, was the Waterhouse Professorship of Anatomy, also still in existence at BUSM.

After his college years Gregory had been an itinerant lecturer who often taught English grammar, and he remained a "grammarian" throughout his life. In 1863, he created the title "Doctress of Medicine" (to be abbreviated Drss.), believing that women's titles should indicate their sex. NEFMC graduates from 1864 through 1866 received this title on their diplomas: Rebecca Lee, the first black female MD in the United States, was awarded a Doctress diploma. However, the title proved unpopular with students, and it was abandoned in 1867.

Still pursuing the goal of a dedicated building for the school, in 1865 the Trustees purchased from the City of Boston a 40,000 square foot parcel of land valued at $30,000, sold at half price provided construction was started within three years. The site was directly across Concord Street from Boston City Hospital, see as an excellent location given that the Trustees still hoped to have their students admitted there for practical study.

The financial stars did not align to support construction within this time period, however: in September of 1865, the Trustees, in response to a petition from some donors, appointed a committee to investigate negligence in managing funds, both donations and legislative grants. A judiciary committee reporting to the Massachusetts Legislature ultimately concluded that culpability rested chiefly with the Secretary and General Agent, Samuel Gregory. As a result the Board of Trustees was dissolved, new Trustees appointed, and new by-laws adopted, but in the end Gregory and a number of his closest advisors survived. Nevertheless, the unfavorable press regarding the investigation made fundraising difficult. To make matters worse, this was a difficult financial time in general, following a depression and the Civil War.

In 1866, there were 6 professors on the faculty, an addition of one to the teaching staff of the previous 11 years. In spite of this show of confidence by the Trustees, attendance did not rise in the late 1860s, as it did in other medical schools after the Civil War. This was likely due in large part to the lack of clinical teaching facilities following the loss of the hospital in 1862: by 1868, a number of other female medical schools had opened, each with an affiliated hospital, offering additional choices to students who likely preferred to attend a school that could promise practical experience (Waite, 63-64).

Fortunately, although the instructional building had not been started during the three year period from the time of the grant, the Trustees were able to obtain an

Image of "the new College Building," from cover of 1870 NEFMC Report.

extension and on November 2, 1870, the newly completed building was finally dedicated. Mortgages had been taken on the land and the carpenter and mason each made significant loans to the school.

Transition

At this point, just when things appeared to be heading in the right direction, the school entered into a death spiral. First, Samuel Gregory died of tuberculosis at the age of 58 in March, 1872. He had been a dominant and controlling figure in the school, the institutional leader and primary fund raiser, and his passing was devastating. Without his fundraising ability, the Trustees concluded that given the school's debt and the difficult financial climate, an affiliation with another educational institution might be a reasonable solution.

On May 29, 1872 the Trustees wrote to Harvard to test their interest in an affiliation. On September 25, the Harvard Board Overseers reported they had no objections to affiliation as long as there were funds to support the NEFMC's Trust for continued operations. On November 4, the NEFMC Trustees received a clarifying message from Harvard's President Eliot stating that affiliation was possible provided the Trustees could put up $50,000 on top of the $40,000 in endowment monies. Already a challenge, this option was dealt a death blow five days later, on November 9, 1872, by the Great Boston Fire, which burned 65 acres of the city's commercial district at a loss of 80 million dollars, of which only two thirds was covered by insurance. Thirteen of the sixteen NEFMC Trustees were men engaged in Boston businesses, and their ability to support the school was all but wiped out. Donations dried up and 1872 was another period of general economic depression—all at a time when the school had serious outstanding debt.

On January 13, 1873 the Trustees approached Harvard University with dwindling hope for an affiliation between the two institutions. On March 1, 1873 Harvard's Board of Overseers announced that they were sticking by their initial offer. The NEFMC would need to raise $50,000 if the affiliation were to be realized.

Four weeks later an NEFMC committee announced consummation of an affiliation with the new Boston University, founded in 1869 and interested in forming a medical school to be affiliated with the nearby Massachusetts Homeopathic Hospital (opened in 1871, and housed, after 1876, in what is currently the Talbot Building, conveniently near the completed NEFMC building).

BU agreed to pay all the NEFMC's debts in exchange for the transfer of the school's property. The Trustees approved the property transfer by a nine to one vote. Such an action required a legislative bill which arrived in April 1873-- too late for that legislative year, and therefore held over until the January 1874 session. In the interim, BU used NEFMC facilities under contract until the bill was signed by the Governor in May, 1874.

Although the formal agreement between the two institutions stated that BU would retain and use the name New England Female Medical College, this did not occur in practice, and the class of 1874, including one NEFMC student as well as four male students from BU's existing medical department, officially received their diplomas from the Boston University School of Medicine.

The Medical Department of Boston University was homeopathic, making NEFMC the first school to transition from allopathic or traditional medicine to homoeopathy. BUSM was a homeopathic school until 1918, when it formally abandoned "sectarianism" and adopted a standard medical curriculum. The building constructed for the NEFCM remained in use, receiving additions over the next decades, until it was demolished in 1969 after the opening of the current BUSM educational building.

Medical school building seen with the then-Evans Building (now called the A Building) from 1930 BUSM Yearbook.

Ninety-eight women received medical degrees from the NEFMC between 1854 and 1873. Their influence was felt beyond New England: graduates went on to found women's hospitals in Chicago and in San Francisco, while two became medical missionaries in India and several took further training in Europe.

Some Notable Graduates of the New England Female Medical College

- Anna Inman, 1857: chair of obstetrics at NY Medical College for Women
- Emily Belden, 1858: resident physician and physiology teacher at Mount Holyoke Female Seminary

1864-68 (this school became today's Mount Holyoke College in 1893)

- Mary (Brown) Homer, 1859: first official resident physician at Mount Holyoke, 1860-64
- Alida Avery, 1862: resident physician and teacher of physiology and hygiene at Vassar College, leader of women's suffrage societies in Colorado and California
- Mary Thompson, 1863: started a women's hospital and medical school in Chicago, where she had a successful practice as a physician and surgeon
- Rebecca Lee, 1864: first black woman to receive an MD in the U.S., published a book of medical advice in 1883
- Angeline Giles Wetherbee, 1866: practiced medicine in Charlestown for at least 28 years
- Eleanor Howe, 1867: a founder of Detroit Women's Hospital, involved in women's suffrage and Temperance movements
- Lucy Waterman Southmayd, 1867: resident physician and physiology teacher at Mount Holyoke, 1868-69
- Etta Payne, 1868: graduated from Mount Holyoke in 1863 (perhaps inspired by NEFMC grads working there), practiced in RI
- Emma Callendar, 1869: resident physician and physiology teacher at Mount Holyoke, 1869-73, first woman admitted to Vermont State Medical Association
- Martha Bucknell, 1872: a founder of the Pacific Dispensary for Women and Children in San Francisco (merged with Pacific Medical Center in the 1990s, and still providing care today), one of the first woman members of the California Medical Society
- Elizabeth Carleton, 1872: founded Home for Aged Couples in Roxbury, where she served as consulting physician from 1884-1924

In addition to the work of its graduates, NEFMC's legacy must include strengthening BUSM's commitment to providing medical education for women at a time when few institutions would do so. It is probable that Boston University's medical school would have accepted women even without this influence (the BU School of Law accepted women from its inception in 1872), but the formal agreement with the NEFMC must have been an ongoing reminder of the importance of this policy.

As detailed in a previous Aceso article, 759 women graduated from BUSM in the years from its initial 1874 commencement to 1975, when the establishment of Title IX had opened all professional schools in the United States to women. These women surely owe their acceptance in part to BUSM's genesis from the New England Female Medical College, the first female medical college in the U.S.

Over the years, and with the aid of visible institutions such as the NEFMC, the public became more comfortable and accepting of women physicians. Levels of obstetrical, maternal, and child care were upgraded through the establishment of educational standards, and the role of women in society was broadened as educational doors opened. In its own way, and despite Samuel Gregory's lack of interest in what we would consider women's equality, the NEFMC represented a small step on the path towards women's suffrage.

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War & Pandemic

A Brief History of Women Physicians' Campaign for Military Commission and Professional Equality

Yedi Koule Hospital, Istanbul (Old Constantinople), Turkey. Wards for refugees have been maintained by the American Women's Hospitals at this institution for the past decade (1933).

Andrea Foster

Boston University School of Medicine

From 1914 to 1918, the First World War ravaged Europe and the Anatolian peninsula leaving behind only a gangrenous remnant of the surrounding Mediterranean and beyond. Though often credited for many advances in medicine – most notably motorized ambulances, use of antiseptic, and dramatic changes to anesthesia [1] – World War I is often underappreciated for its role in catapulting the advancement of women physicians from second choice providers to commissioned military officer and into historically masculine specialties. At the start of World War I, the US Army Medical Department still directly barred women from receiving commission to serve in their official capacity as physicians.[2,3,4] Previously, women physicians within the US were largely constrained to caring for women and children because those specialties upheld the valued Victorian feminine character.[5] Women who practiced in masculine fields such as surgery were often only accepted in overseas US hospitals as anesthetists under civilian contracts.[5,6,7] Determined to serve in war relief efforts, women physicians thus created the American Women's Hospital, eventually partnering with the Near East Relief, and began a series of historical accomplishments extending past World War I into the 1918 flu pandemic, the Greco-Turkish War, and World War II before legislation for their commission as military physicians passed at the end of the Korean War. The service of these women in many theaters of war, both within and outside the constraints of the military, publically portrayed their ability to excel in any specialty along aside men as military officers.

Among the first American women to travel to France to deliver medical care was Dr. Anne Tjomsland. As the World War I began, Dr. Tjomsland was starting her internship at Bellevue Hospital in New York City – the first female intern at Bellevue along with fellow intern Dr. Geraldine B Watson.[3,4] Despite sneering remarks and near sabotage by male colleagues,[8] both women worked until they were respected by their fellow interns and were fully integrated into their team.[3,8] Still, while her male colleagues were commissioned as Army physicians, Dr. Tjomsland was signed as a contract civilian surgeon and was denied military rank, pay, and benefits. Even though the "nation stood ready to provide transportation, buildings, medical and hospital supplies, rations, rank, salary, insurance and well-fitting shoes"[2] to men, Dr. Tjomsland signed her civilian contract, serving in the Hotel Carlton surgical department caring for wounded American and French soldiers as one of eleven female contract surgeons serving overseas.[3]

Many women who signed military contracts did not practice in their field of training; the military delegated the more prestigious fields to men. Drs. Jessie Southgate, Isabelle Gray, Esther Edna Hill Leonard, Dora Horn, Elizabeth Van Cortlandt Hocker, Edith Stir Smith, and Martha Peebles, though all surgeons by training, signed contracts with the army as anesthetists and became Anesthetic Unit No. 1.[5] Despite being denied commission and being forced to practice outside of their field, women physicians continued their exemplary work. Dr. Frances Edith Haines, an anesthetist at a Base Unit Hospital at Limoges, France, provided the anesthetic care for the entire 1,500-bed hospital [5] and, in her efforts to conserve ether, dramatically changed the infant field of anesthesia.[1,5] Dr. Alice Weld Tallant left her professorship at the Woman's Medical College of Pennsylvania to serve with the Smith College Relief Unit.[4] She was denied a position at the American Army Hospital in France but was welcomed by the French Army Hospital, which immediately granted her one military stripe and the permission to give orders.[4]

Tensions rose between women physician and the US Army as their offers to serve were rebuffed and the war continued at unfaltering pace.

US surgeons Louisa Garrett Anderson and Flora Murray arrived at the French Embassy in Paris in with little but surgical skills and rusty French.[9] With £2,000 raised by L'Union des Femmes de France – a division of the French Red Cross – Drs. Anderson and Murray created the Women's Hospital Corps, a fully equipped surgical unit.[9] They ran two military hospitals for a year while in France.[9,10] In 1915, they moved to London where they ran a 573-bed hospital staffed and administered entirely by women.[10] There they saw nearly 30,000 patients and performed over 7,000 major operations before they closed their doors in 1919.[10] Inspired by these women and others, women physicians continued to arrive at war fronts across the globe.

Dr. Mary Merritt Crawford was the first female ambulance surgeon at Williamsburg Hospital in Brooklyn and had become chief surgeon by the time she decided to go to France in 1914.[4] Despite her stellar career, she was also unable to find work as a surgeon in France, eventually becoming employed as an anesthetist after a fluke left Dr. Joseph Blake without one. Within a year she was running four wards with revered skill, prompting ample praise from Dr. Blake: "I wish to heaven you could teach these young fellows to work the way you work and do the things you do."[11] The following week he hired a new male intern from New York as Dr. Crawford's senior, saying he would "never put a woman over a man."[11] Dr. Crawford promptly left for a French hospital.[4]

Tensions rose between women physicians and the US Army as their offers to serve were rebuffed and the war continued at unfaltering pace. At the second annual Medical Women's National Association (MWNA, now AMWA) meeting in 1917, Dr. Esther Pohl Lovejoy charged that the group should "adopt a naïve resolution calling upon the War Department for a square deal regardless of sex, color, or previous condition of servitude."[4] Their charges were largely unacknowledged by the US Military. Undeterred by the lack of resolution, women went anyway; the American Women's Hospitals Service (AWH) was born, registering over 1,000 women physicians in its first year.[12]

The AWH initially struggled to raise funds, but a campaign headed by Dr. Gertrude Walker was able to raise $192,800 in less than a year.[13] In March 1918, the Red Cross agreed to sponsor woman doctors' travel to France, with the first AWH group departing that June.[12,13] AWH entirely financed and conducted their first hospital out of Neufmoutiers in Siene-et-Marne, France under Dr. Barbara Hunt, but the building was mostly destroyed by July.[2,12] Dr. Hunt and the AWH continued to have open dispensaries and daily ambulance services to nearby villages until September, when they moved Hospital No. 1 to Luzancy-sur-Marne.[2,12]

Luzancy did not just serve as a flu hospital: their surgical department worked tirelessly to treat the neglected disease and injury of the surrounding villages.[2] Dr. Charlotte Fairbanks, chief surgeon at Luzancy, performed 852 surgical cases [2] before the Hospital No. 1 moved to the "bad lands" near Aisne in 1919 where the need was even greater.[2,12] In the face of their dedication, the US Army continued to deny military commission to the women physicians serving in France.

There they were met by the typhoid epidemic [2] which lasted roughly three months and was rapidly followed by one of the most calamitous pandemics in recorded history.[2,14] The 1918 flu pandemic, known mostly as the Spanish Grippe, was horrific enough to contribute to a swift armistice before the end of November.[14] The women of AWH stayed at Luzancy despite the end of the war, admitting 3,206 patients during the month of October.[2,12] Luzancy did not just serve as a flu hospital: their surgical department worked tirelessly to treat the neglected disease and injury of the surrounding villages.[2] Dr. Charlotte Fairbanks, chief surgeon at Luzancy, performed 852 surgical cases [2] before the Hospital No. 1 moved to the "bad lands" near Aisne in 1919 where the need was even greater.[2,12] In the face of their dedication, the US Army continued to deny military commission to the women physicians

Dr. Effie Graff and Esther Lovejoy outdoors with patients at a favus clinic in Armenia, 1922.

serving in France.

Dr. Lovejoy continued ardent speeches on the commission of women physicians saying:
This relief agency [AWH], which was inaugurated while the United States was mobilizing for war, is the outgrowth of the desire of American medical women for their share of the work they were qualified to perform. Our government provided for the enlistment of [female] nurses, but not for women physicians. This was a mistake. It is utterly impossible to leave a large number of well-trained women out of service in which they belong, for the reason that they won't stay out.[4]

Her charges were unheard but the AWH was still undeterred. In 1919 AWH opened Hospital No. 2 at La Ferte-Milon to supplement the now largely surgical services at Luzancy.[2] Though there was a large influx of new staff to both hospitals, many of the original physicians continued their historical work in the United States and overseas. Dr. Crawford returned to the US where she founded the Medical Department of the Federal Reserve Bank.[2,4] Dr. Tallant also stayed in France through the end of the flu pandemic in 1920 and received France's Croix de guerre and a personal medal from the citizens of Aisne.[4]

Unfortunately, conflict between the Turks, Armenians, and Assyrians intensified across the Mediterranean since the armistice disrupted the Ottoman Empire. As the Armenian and Assyrian genocides began, the AWH sponsored Dr. Mabel Elliot to partner with the Near East Relief in 1919.[15,16] At her post in Constantinople (Istanbul), she cared specifically for the young girls and women displaced from Turkey.[16] She soon transferred to a hospital in Turkey in Marash (Kahramanmara) abandoned by Germans during the first World War to develop a purely refugee hospital under the protection of the French army.[16] However, Dr. Elliott and her hospital were not spared the reality of war.[16] In January of 1920, the Turkish Nationalist army attacked Marash in a three-week siege. Exposed by the consequential retreat of the French army, Dr. Elliott led 5,000 refugees on foot roughly fifty miles through a blizzard to safety in Islahai (Islahiye).[15] One-third of the party reached safety.[15] Dr. Elliott returned to the United States briefly to recuperate from the journey but returned before the end of 1920 to continue her work in the peak of the Greco-Turkish War.[17] By September of 1921, she was the Medical Director of the Near East Relief supervising fourteen hospitals even though at times she was the only physician to serve a city.[15,17] When Turkish Nationalists burned the city of Smyrna in September of 1922, Dr. Elliot met thousands of refugees as they arrived in Rodosta and set up an emergency hospital and two clinics within weeks.[2,16,17] She did not return to the United States again until late 1923 after assembling seven hospitals, a quarantine hospital, and innumerable clinics.[2,16,17]

In Smyrna at the time of the fire, Dr. Lovejoy from the MWNA arrived to assist in the "cruel spectacle" that was the evacuation.[2] She was greeted by 300,000 people huddled in ruins at the waterfront, nearly all of whom were evacuated to Greece between September 24th and September 30th.[2] The brutalities committed by Turkish soldiers, detailed in Dr. Lovejoy's many letters and records, created widows out of wives and orphans out of children. She described her work in the evacuation simply as preventing the sick from dying on the pier,[2] and is said to have delivered a dozen infants at the waterfront.[4,12] Dr. Lovejoy returned to Constantinople the following month, where she met again with Dr. Elliot before returning to the United States to secure funds for the AWH.[2,12] Within four months, she had raised the appropriate funds and returned to Greece to continue her labor.[2] Most of the children arriving in Greece were orphaned, and the Near East Relief and AWH soon created an official partnership: the Relief was responsible for orphaned refugees' food and shelter while the AWH assumed full responsibility for their medical care.[2,12] The AWH

Page from Clara Dickinson scrapbook: Two photographs of Dr. Alice Tallant with African-American and caucasian mothers and babies in front of Barton Dispensary. Two shots of Woman's Medical College of Pennsylvania faculty.

Two uniformed women with American Women's Hospitals Services ca. 1918.

saw to the medical care of thousands of people daily, with Dr. Elliott at the helm until August 1923.[12] For decades, AWH continued to serve Europe, the Mediterranean, and Soviet Armenia and expanding into Russia, Japan, and China by the mid-1930s.[12]

When the US entered World War II in late 1941, the American Army was still denying commission to women physicians[19]. In 1943 US general officers and enlisted men launched the slander campaign,[20] which focused on the "deviant" female troops, and even regularly discussing their underwear in press conferences,[20] was launched by The number of women physicians in the US had been slowly increasing since World War I, and many chose to avoid the gendered discrimination of the military to practice unhindered as civilians in fields that may have otherwise been elusive, but welcomed them after male doctors received commissions.[5] Other women physicians continued to fight for their commission even though the military continued to be an institution in which "widely disseminated cultural images of gender [were] invented and reproduced."[21] By building on the momentum that had been gathering since the start of the first World War, the American Medical Women's Association – previously MWNA – successfully lobbied Congress for legislation allowing for their commission.[5] Unfortunately, the Sparkman-Johnson Bill passed in 1943 was temporary and written to only last the duration of World War II plus six months.[5] Seventy-five women received commission under this bill but most were relieved from duty to make room for male physicians returning home.[5,22] Four women retained their commissions until the automatic repeal.[5]

Dr. Charlotte Fairbanks in the Children's Ward, Luzancy Hospital.

Conflict in Europe escalated again in the late 1940s with growing concerns over communism, prompting the involvement of the United States.[5] There was again a need for physicians. Surgeon General Raymond Bliss began to ask for the commission of women physicians,[5] provoking Congress to pass the Women's Armed Services Integration Act. He was disappointed to learn that the Act allowed only for nonmedical women, nurses, and medical support; women physicians were excluded.[5,23] Desperate for physicians, the Navy modified its preexisting Women Accepted for Volunteer Emergency Service (WAVES) program in 1948 to allow women physicians to be commissioned in the reserves while staying under Congressional radar.[4,5] The following year the House of Representatives passed a bill allowing for women physicians' commission, but it was later blocked in the Senate.[5] By the start of the Korean War in 1950, there was such an enormous shortage of physicians that the armed forces resorted to drafting male physicians.[5] Temporary legislation again allowed twenty-three women physicians to serve under commission.[5,22] It became increasingly clear that women physicians could no longer be excluded, and President Truman and Congress passed permanent legislation in 1952 allowing for the commission of women as full military physicians [5] and the charges made by Dr. Lovejoy and the American Women's Hospitals in 1917 finally became reality.

Photograph of the outside archway of the AWH Hospital No. 1 in Luzancy, France ca. 1918.

War, abhorrent and yet ubiquitous, is solemnly regarded for its role in accelerating advances in medicine and science, but its role in promoting acceptance of women as physicians is still often overlooked. Women's roles in wartime medicine overseas was not only incredible and invaluable, but it also clearly demonstrated their equal abilities as doctors without regard for traditional gender roles. Women, historically thought best only to manage the complaints of women and children [5], were becoming more widely regarded as talented physicians able to perform surgery, provide anesthesia, and care for men. If women physicians could excel in the main theaters of war and pandemic, there could be no specialty outside their reach. By creating their own relief organizations, establishing hospitals and medical units, and repeatedly demanding military commission,

women ultimately received the right to commission as military physicians and excel in specialties without concern for their perceived femininity. Today, women are increasingly applying into historically male specialties such as surgery,[24,25] but gender-based discrimination still affects some medical students' choice of specialty.[26,27] Evidence indicates that a strong surgical role model may help mitigate those effects,[25,28,29] and the next generation of supervising surgeons may facilitate gender parity in the specialty as they will likely reflect the now near equal prevalence of doctors matriculating into general surgery training programs.[30] A century has passed since the conception of the American Women's Hospitals, and yet the masculinity of many specialties lingers like an abscess improperly drained. Nevertheless, women physicians persist.

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Medicine & Medical Humanities

"Wherever the art of Medicine is loved, there is also a love of Humanity." - Hippocrates

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Since the 1960s the medical field has witnessed a growth in medical humanities programs, in which future doctors are introduced to literature, music, arts, film, philosophy, history, religion, anthropology, cultural studies, psychology and sociology with a goal to "re-humanize" medical education. With the emphasis on professionalism, social accountability and the goal of nurturing empathy through reflexivity, medical humanists have promulgated for more than half a century a point of view that health practitioners not only fight a disease but treat sick patients with stories of illness.

The question remains: should medical students read William Carlos Williams or Anton Chekhov during their training? Is it a waste of allotted valuable time? Debates about the impact of the humanities in medical education and the methods of evaluating the contribution of humanities to the medical community can only enrich both the traditional humanities and the medical humanities as an interdisciplinary examination of the role of narrative in the personal experiences of doctors and patients. Although there is no consensus in the medical community about this relatively new field, everyone shares the values of empathy, compassion and caring toward the sick. Communication and observational skills are essential to professional development. From a medical humanist's perspective, the theoretical, critical and practical insights into the nature of meanings of medical practice through the prism of subjective and ambiguous answers to why we suffer, how we cope with illness and how we reflect on clinical encounters offer a novel method of addressing an ancient philosophical question: "What is a good doctor?"

The Evolution of Medical Humanities

The founding father of the modern scholarly discipline of the history of science, George Sarton coined the term "medical humanities" in the 1940s. "Come to think of it, that is natural enough, for what would be the use of Greek ideals in a bad society, or even in a mechanical society, however comfortable and antiseptic it might

prove to be?" he wrote, "What would be the sense of ideals in a society which would lack humanities?"[1]

The critiques of the traditional structures of science and medical education were not unique to the second half of the twentieth century. However, it was during the socially and politically tumultuous decade of the 1960s, including the feminist movement and the civil rights movement in the United States, that the medical humanities movement emerged from the meetings of physicians, theologians, philosophers and historians seeking to challenge C.P. Snow's prominent argument that the gulf between "the two cultures" (i.e. the sciences and the humanities) had become insurmountable. The leadership of Samuel Banks, Ronald McNeur, E.A. Vastyan, George Harrell and Edmund Pellegrino resulted in the organization of the Society for Health and Human Values (SHHV), which was merged with the Society for Bioethics Consultation and the American Society for Bioethics to form the American Society for Bioethics and Humanities in 1998.[3]

With the emphasis on professionalism, social accountability and the goal of nurturing empathy through reflexivity, medical humanists have promulgated for more than half a century a point of view that health practitioners not only fight a disease but treat sick patients with stories of illness.

Founding dean of the medical colleges at the University of Florida and Pennsylvania State University, Dr. George T. Harrell advocated for the inclusion of the humanities in the education of medical students. In 1967, for the first time the Humanities Department was established at Pennsylvania State University's College of Medicine. Subsequent initiatives in the United States included the founding in 1973 of the Institute for the Medical Humanities at the University of Texas, Galveston, and the launch of The Journal of Medicine and Philosophy (1976), The Journal of Medical Humanities and Bioethics (1979) and Literature and Medicine (1982). In the 1980s and 1990s the field of medical humanities became a worldwide intellectual trend. It was marked by Dr. Eric Cassell's Hastings Center commissioned report The Place of the Humanities in Medicine (1994), the first medical humanities conference The Science and Art of Medicine (New Zealand, 1994), and the first medical humanities conferences in the United Kingdom (1998-1999).

In the first half of the 21st century, the humanities are increasingly introduced into pre-medical and medical education programs. The topics include patient-doctor relationship, the lived experience of disease, empathy, aging, death, domestic violence, homelessness, healing, religion and spirituality, medicine and the visual arts, medicine and music, and many more. The New York University School of Medicine's The Literature, Arts and Medicine Database (LitMed) offers a comprehensive historical perspective on the teaching and scholarship in the field of Medical Humanities. In MEDLINE/Pubmed a search phrase "medical humanities" returns more than 2,000 articles, and a search using MeSH indexed terms "Humanities" AND "Education, Medical" results in more than 16,000 articles. Many peer-reviewed medical journals, including JAMA, Academic Medicine, Family Medicine, Lancet and Annals of Internal Medicine, publish reviews, editorials and opinions in the sections like "History of Medicine," "Medical Writings," "On Being a Doctor," "Improving Patient Care," "A Piece of Mind," "Book and Media Reviews," "Perspectives," and "Law, Ethics and Medicine."

Medical Humanities at Boston University

Students at Boston University have traditionally been actively involved in the interdisciplinary, humanistic and cultural study of illness. For the last 30+ years, Dr. Michael Grodin and Dr. George Annas have been at the forefront of promoting medical humanities at Boston University. With BU medical students enhancing observational skills through trips to the Exhibition Gallery at The Countway Library of Medicine (Harvard University) and the Museum of Fine of Arts in Boston, the teaching of medical humanities has been an integral part of Dr. Grodin's and Dr. Annas' pedagogy. Led by Dr. Mary Annas, Dr. George Annas and Dr. Michael Grodin, the School of Public Health at Boston University has offered to the BUSM community an annual Literature and Medicine Luncheon Seminars series.

The decade of the 1990s was particularly important for the popularization of medical humanities within the BUMC. In 1991, Dean Aram Chobanian and Dr. Herb Kupchik established Art Days, a campus-wide event that fosters the support and growth of creative arts at the BUMC community. Students, faculty and staff have been exhibiting paintings, sculpture, needlework, photos, and poetry with the help of the Creative Arts Society, founded in 1995 by former BU medical students Margaret Lee and Tri D. Do. Since then the Creative Arts Society has produced regular events at the BU Medical School, such as Kick Back Kafe, open mic nights, and the publication of Whorl literary magazine. In 2004, Dr. Keith Tornheim took over as faculty advisor for Art Days. Today, Dr. Tornheim and Dr. Lee are advising the Creative Arts Society, a creative and talented group of medical students who continue to advocate the importance of arts and humanities among medical students and medical practitioners.

In the last two decades, medical humanities events have become an essential part of BUMC. At the Annual Memorial Service for Anatomy Donors medical students reflect on the meaning of human life through the appreciation of music and poetry. Book club discussions are held in small groups in informal settings

FIGURE 1: Anton Chekhov was a Russian medical doctor who is known for his contributions to the medical humanities. Dr. Chekhov was a magnificent writer, publishing both Russian short stories and plays. Throughout his life, Chekhov created several classic plays that would help revolutionize theatre.

FIGURE 2: William Carlos Williams served as a physician while becoming a famous poet. Dr. Williams demonstrates the intersection of medicine and the humanities. His passion for poetry and painting was balanced by his work as chief of pediatrics at Passaic General Hospital.

and at the Medical Humanities student group meetups. Advised by Dr. Keith Tornheim, medical students and organizers of the Medical Humanities group events lead discussions and workshops on fiction, medical essays, and student writing. And, they are not alone – another active student group, the BUSM Historical Society, advised by Dr. Robert Beazley, aims to cultivate interest in the history of medicine, public health and related fields, as well as commemorate the historical legacy of BUSM, BMC, and Boston City Hospital. Since 2011, the BUSM Historical Society publishes ACESO: Journal of the Boston University School of Medicine Historical Society. Also in 2011, the brainchild of Dr. Rafael Ortega, a professor of Anesthesiology and Associate Dean of Diversity & Multicultural Affairs, the BUMC Band was born to foster interpersonal relations at BUMC through the enjoyment of music from every tradition.

In 2012, the Boston University College of Fine Arts initiated a partnership with BUMC through the Arts|Lab @ Med Campus in which BU CFA student-artists envision and implement artistic projects aiming to enrich, honor and transform the highly diverse and vibrant community at BUMC. Special landmarks of this initiative are the 2013 musical response to Marathon bombing, in which the Arts|Lab mobilized a city-wide artistic force that provided three daily performances for injured patients, family members and staff until the last patient left the unit; the 2014 flash mob which brought a symphonic orchestra composed by BU CFA and Med students to the Menino overhang; and the yearly Neurology concert "When Patients Heal You," which brings a group of talented patients from the BMC Epilepsy program to collaborate with CFA students in a concert dedicated to the care team, friends and family. At the present time, the Arts|Lab @ Med Campus carries on 13 art projects on campus.

Our BUMC community is vibrant with medical humanities events that inspire and impact the lives of practitioners and patients. These range from the displays of works of art in the lobbies and waiting rooms to the unique community events that bring us together, such as the painting of the colorful mural depicting circus themes at the Pediatric Inpatient Unit. Organized by Clara Zhu (class of 2018) in the winter of 2015, School of Medicine students and faculty, BMC pediatrics staff, and the BU Arts Initiative collaborated

on a project that brought smiles and created a healing environment for the youngest patients.

William Carlos Williams "The Practice"

"It's the humdrum, day-in, day-out, everyday work that is the real satisfaction of the practice of medicine; the million and a half patients a man has seen on his daily visits over a forty-year period of weekdays and Sundays that make up his life. I have never had a money practice; it would have been impossible for me. But the actual calling on people, at all times and under all conditions, the coming to grips with the intimate conditions of their lives, when they were being born, when they were dying, watching them die, watching them get well when they were ill, has always absorbed me.

I lost myself in the very properties of their minds: for the moment at least I actually became them, whoever they should be, so that when I detached myself from them at the end of a half-hour of intense concentration over some illness which was affecting them, it was as though I were reawakening from a sleep. For the moment I myself did not exist, nothing of myself affected me. As a consequence I came back to myself, as from any other sleep, rested." [2]

BUSM Humanities Timeline

1970s:

- Modular Medical Integrated Curriculum (MMIC) was founded in 1977 as a collaborative effort between the College of Liberal Arts (now College of Arts and Sciences) and the School of Medicine. MMIC allows limited number of qualified undergrad students who have completed two years of study to start integrating medical and liberal arts courses at BUSM.
- Today, in 2017, undergraduate students in the MMIC Program can select from courses such as Pluralism and Healing in the United States: A History, World Religions and Healing, Medical Anthropology and the Culture of Biomedicine, and The Cultural Formation of the Clinician: Its Implications for Practice.

1980s:

- Families of donors to the Anatomical Lab are invited to attend a service at the Pinehill Cemetery in Tewksbury, MA. Starting in 2008, the donor families began to receive invitations to the memorial service at the BUSM. Today, the memorial service which celebrates lives of the deceased includes poetry readings, musical performances, and candlelight ceremonies.
- In 1984, the George Sherman Union Art Gallery exhibited works of medical students, scientists, physicians and staff of Boston University's Medical Center. The exhibit was organized by a second-year medical student Kate Phaneuf.
- In 1986, the first Literature and Medicine Luncheon Seminar is led by Dr. Grodin and Dr. Annas

1990s:

- ART DAYS: established in 1991 by Dean Aram V. Chobanian and Dr. Herb Kupchik as faculty advisor. In 2004 Dr. Tornheim took over as faculty advisor.
- Creative Arts Society, founded in 1995 by Margaret Lee and Tri D. Do, produces regular events at the Medical School such as Kick Back Kafe, open mic nights, a publication of Whorl literary magazine, and many more.

2000s:

- In 2009 Dr. Linda Barnes founded the Master of Arts Program in Medical Anthropology & Cross-Cultural Practice (now a Master of Science Program). MACCP is part of the Division of Graduate Medical Sciences at Boston University School of Medicine.

2010s:

- BUSM Historical Society (student group) founded in 2012
- Arts | Lab @ Med Campus of the College of Fine Arts: When Patients Heal You, a concert featuring a group of six performers, also neurology patients successfully treated at BMC2013
- Teaching the Body: Artistic Anatomy in the American Academy, from Copley, Rimmer, and Eakins to Contemporary Artists - Exhibition by Naomi Slipp at Boston University Art Gallery, January 31-March 31, 2013
- Medical Humanities (student group) founded in 2014 - 2015 with a mural at the Pediatric Department

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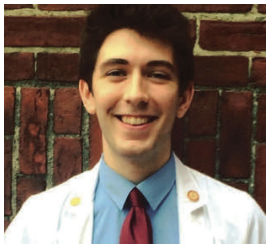
Dr. Robert Witzburg

An Historical Take on a Career in Service

Liam Conway-Pearson

Boston University School of Medicine



Liam Conway-Pearson *is a current 2nd year medical student at Boston University who grew up in Boston, MA. He completed his undergraduate degree at Northwestern University, majoring in History and Biology.*

In the spring of 2017, Dr. Robert Witzburg announced his plans to retire after spending 44 years as an integral member of the Boston University School of Medicine community. Most students graduating today probably know Dr. Witzburg best from his passionate speeches on Interview Day and preceding the White Coat Ceremony, when as the Associate Dean and Director of admissions since 2002, he often addresses BUSM's entrenched history of social justice. What many students may not know is that unlike many of his colleagues in the medical profession, Dr. Witzburg is unusual in that he has spent the entirety of his career practicing medicine and teaching on the BUSM campus and its affiliated hospitals. Not only did he graduate from BUSM in 1977, but he completed his residency training here as well, joining the faculty in 1981. He watched Boston City Hospital (BCH) and the area in which it is situated grow and change into the largest safety net and level I trauma center in New England, Boston Medical Center (BMC), a change in which he played an essential role as Director of the Combined Residency Program in Internal Medicine. He also participated in the founding of and co-led the Neighborhood Health Plan, which greatly expanded opportunities for medical care for vulnerable populations in Boston. Now at the end of a four and a half decades-long career, Dr. Witzburg is in a unique position to offer advice on what is being done well, in addition to areas of modern medicine that need work. Dr. Witzburg grew up in New Jersey, only about a half an hour away from New York City. From a young age, he had a clear idea that he wanted to become a doctor, an idea that he spent his high school and undergraduate years investigating and confirming. He even toyed with some alternatives such as becoming a high school biology teacher, or going into public service, but eventually the goal of serving those in need by providing medical care resonated with him the most. Looking back, he reflects, "I kept coming back around to this idea that I liked to think about what made organizations tick, and how to make them work better, but I also really liked to think about what made people tick and how to help them feel better about themselves

and about life, and just do better." As an "entirely unapologetic child of the '60s," Dr. Witzburg was heavily steeped in the ethos of the Social Security Amendments of 1965, that is, the birth of the Medicare and Medicaid systems, the nation's first concrete attempt to ensure quality health care for its most at-need citizens. These programs were central to President Lyndon Johnson's so-called "Great Society" initiatives and were designed to mitigate healthcare costs for the poor and elderly by providing basic health insurance for those who could not otherwise afford it.[1] These amendments were of momentous importance for a public hospital like BCH, which had always had the express mission to care for exactly the patients that Medicare/Medicaid were intended to help. Boston City Hospital had been founded in 1864 with the mission of providing medical care to the poor and underserved citizens of Boston; the first public hospital in the nation. The City Council had approved the plan three years before, earmarking $100,000 for the endeavor. Due in some part to donations from a wealthy South End resident, Elisha Goodnow, it was decided that the hospital would be constructed in its present location.[2] By 1930, doctors and medical students from all three of Boston's medical schools worked in the hospital, with each school operating semi-autonomously, like "three hospitals under one roof," in the words of Dr. Ephraim Friedman, Dean of BUSM from 1970-1974.[3] In 1973, however, BUSM was given the sole responsibility of staffing the hospital with attending physicians. This decision was made, in part, reduce the administrative costs of the shared responsibility of staffing among Tufts, Harvard, and Boston University Medical Schools. Medicare and Medicaid were leveraged to help pay for the already growing costs of modern medicine with an eye to maintaining BCH's mission of serving those in need, and a rededication to serving the local communities.This was exactly the kind of institutional commitment that had attracted Dr. Witzburg to BU in the first place. As an undergraduate applying to medical school in the spring of 1972, Dr. Witzburg immediately knew that he was among like minds at Boston University School of Medicine – when asked how he made his choice, he said, "The leading issue was that I learned something about the history of the medical school, this idea of offering opportunity where none may exist elsewhere and that just spoke to me." In his first year of medical school, Dr. Witzburg had one particularly instructive lesson in the importance of the patient interview while working with an internist (a BUSM alumnus) he was assigned to shadow. An otherwise healthy former nurse had recently fainted for no clear reason and, without the help of laboratory tests or any expensive technology, the internist managed to diagnose hyponatremic dehydration caused by an overzealous purging of sodium from her diet. Dr. Witzburg said, "It was such a vivid lesson in what we try to teach ever day; it's all in the history, in the patient's story. Just let the patient tell you the story and you will learn the diagnosis. I will never forget that experience because it was so vivid and so real." Taking this lesson with him, he went on to earn his medical degree in 1977 and then began his residency in Internal Medicine at BCH. After the conclusion of his residency and chief residency in 1981, Dr. Witzburg stayed on at BCH, eventually taking over as Residency Program Director for the Department of Medicine. The field of medicine was changing rapidly as the 1980s wore on – technology became increasingly central to work of healthcare, and costs began to skyrocket. For example, Dr. Witzburg said, "An early CT scanner cost $2 million, and $2 million was the entire capital budget of BCH in the year in which we were looking at purchasing a scanner." The practice of medical imagining, now so central to our practice, was then just beginning to take off, and its tools were expensive. CT scans were invented in the mid-1970s and began to appear in hospitals shortly thereafter. MRI scanners, requiring powerful super magnets, came into common use in the 1980s, requiring ever more powerful, and thus more expensive, magnets all the time.[4,5] Over the same time period, computers went from being room-filling monstrosities – useful mainly for scientists – to becoming essential for patient care. Additionally, doctors struggled to incorporate this new wealth of technological resources into their already time-constrained visits. As a public hospital, BCH had a difficult time continuing to provide the best care possible to its patients, and it wasn't alone. Public hospitals all around the country were shutting their doors in the 1980s, unable to keep up with rapidly rising healthcare costs. Among urban public hospitals in particular, as many as 6.6% closed down between the years 1987 and 1993.[6] At the same time, University Hospital, the other clinical facility on the BU Medical Campus, was also struggling to find its niche in an increasingly competitive healthcare market. To attempt to alleviate the situation, in 1992 then-Mayor Thomas Menino and his staff, working with the Commissioner of the Department of Health and Hospitals for the City of Boston, Judith Kurland, and the clinical leadership on the BU Medical Campus, developed a plan to merge Boston City Hospital with University Hospital, creating the nation's first publically-chartered, private, not-for-profit, teaching hospital.[7] It took several more years to complete the process, but before the full merger of the hospitals went ahead, their training programs – as well as that of BUSM's other affiliate, the Boston VA system – were merged. Dr. Witzburg stayed on in his role as Residency Program Director for the new combined program, playing an important part in this step forward within the merger process. Then, in 1996, the City Council of Boston finally approved the merger in its finished form. Had they not, according to a New York Times report at

"It's all in the history, in the patient's story. Just let the patient tell you the story and you will learn the diagnosis."

the time, the hospital would have been $140 million in debt before 2000.[8] The merger worked well, in Dr. Witzburg's opinion, because "there were synergies. The populations served were different, the services were different, the resources were different, the volumes were different, but we shared the medical school and the teaching mission." In this way, Boston Medical Center was born.

Dr. Robert Witzburg, M.D.

Over the next several years, Dr. Witzburg worked part time at the hospital, stepping out of his role in selecting applicants for the residency program, and contributed to the founding of the Neighborhood Health Plan, becoming that program's medical director, a role that he filled from 1992 to 1997. This project had the goal of expanding the insured patient-base for BMC and the affiliated community health centers, especially among challenging patient populations overlooked by growing commercial managed care plans. After spending time in this role, Dr. Witzburg came to miss the aspects of his work that involved his interactions with those just beginning their careers in medicine. In 1997, he returned to the campus full-time as Vice Chair for Community Affairs in the Department of Medicine devoting considerable time to patient care and clinical teaching. In 2002, when the position became vacant, he applied for and became Associate Dean and Director of Admissions for Boston University School of Medicine. He was especially drawn to "this concept of helping young people find themselves in the profession, and I could go even further upstream and think about students, rather than post-graduate trainees. The more I thought about it, the more exciting it became." Within this role, he continued to further his lifelong goal of making institutions work better for people by innovating and implementing a policy of holistic review in considering applicants.[9] Dr. Witzburg is now in his 16th year in this role. Now entering the final stage of his career, Dr. Witzburg has the perspective to look back and reflect on the positives and negatives of the changes in the profession and institutions over the years. In particular, he worries that technology, despite all the wonderful contributions it makes to patient care, has a way of distancing doctors from their patients. In his words, "Technology was adjunct; it is now central. And if I had one regret in my 45 years in medicine, it is that we as a profession have been pulled ever further away from just getting a patient's story. I [spoke] about my first shadowing experience and watching a very well trained and skillful internist make a difficult diagnosis just by listening to the patient. In 2017, how many of us have, or take, the time in 2017 to do that?" Yet still, to this day, what excites him most about his work is his relationship with his patients. "In 45 years at BUSM, I have never had an uninteresting day and I still look forward to coming to work every morning. What a gift!"

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A Brief History of the Roles of Motorcycles in Medicine

Nathan D. Barr
Boston University School of Medicine
Boston University Questrom School of Business

Nathan Barr, *is currently in his 4th year of the dual degree MD/MBA program at Boston University School of Medicine and Boston University Questrom School of Business. He enjoys retooling motorcycles and outdoor adventure.*

The sense of urgency one feels when a patient is in dire need is a visceral, heart-felt drive. In hospitals today, our patients are typically only steps away, with nurses, aids, and other team members within arms reach. This was, however, not the case for American physicians at the turn of the 20th century, such as Dr. Bashmore, a physician with a "considerable country practice" in rural Pennsylvania.

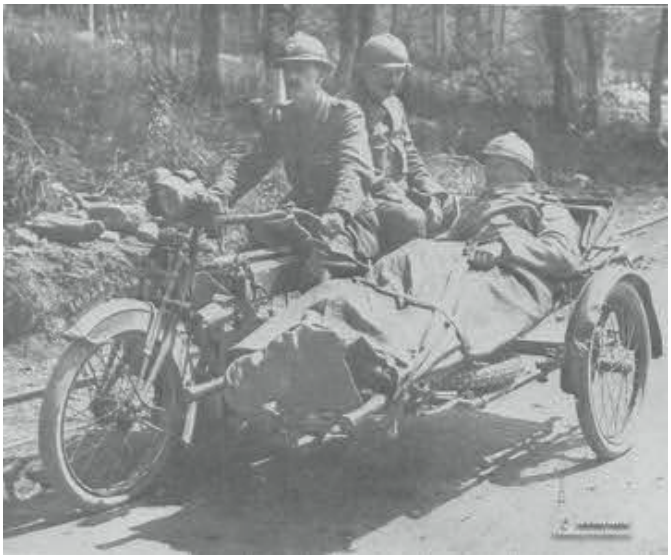
This article attempts to place you in the life of a rural physician circa 1900, and in the interest of example, imagine yourself as Dr. David Bashmore:

You hear the brass bell ring inside the call box downstairs. Slipping out from beneath the covers of your bed, you find your feet stretching toward the floor. The coarse wood steals a night's worth of warmth from the soles of your feet as you take your first blind steps through the darkness towards the staircase. You guide yourself down the narrow, winding stairs to the kitchen, where you run your hand along the dry, cracked wallpaper directing each step towards the persistent ringing. Your freshly awakened fingers abut the smoothly sanded hardwood that encases the call box. Your hand glides across the seamless intersection of the oak boards at the side of the box until you feel the cool, solid brass of the earpiece.

"Dr. Bashmore." You speak, feeling the night's dryness slip out of your throat.
"Doctor, Stephen is sick again." A woman says frantically and without pause "His breaths are fast, and I can't seem to calm him. His face is getting white, and I don't know wha.." she clears her throat, "I don't know what to do."
"I'll be there as soon as I can." you assure her.

You find the bracket for the earpiece to end the call. You know your patient is an 11 years-old boy with worsening asthma and a propensity for exacerbation in the spring and summer months. It's May and the roads are dry from too much heat and too little rain this year. He's almost 30 miles away by common road and 25 at a minimum if shortcuts are taken through neighbors' pastures and the fortunately sparse woods that separate them.

The last time his mother called was one summer past, and Stephen was blue in the face by the time you arrived. His mother sounded even more panicked this time; he must be in a bad way.



French Soldiers Transport wounded man during WWII

You are, however, reassured as to his prognosis, as you have a new trick up your sleeve: the newly assembled and freshly trialed motor bicycle you purchased this Spring.

Dr. Bashmore was one of the first physicians to utilize the motor bicycle for medical care and the first to analyze the cost efficacy of such a vehicle. In his 1904 article he describes having "studied the various paths, byways and rough and narrow roads over which [his] practice called [him]" and found them to be cumbersomely accessibly by horse, and utterly inaccessible by automobile.

He describes the heat and the dust of the summer and the effect these natural factors have on his horses ability to navigate the difficult terrain of the Pennsylvania countryside. He describes occasions in the heat of the summer months where his horses succumbed to the heat's influence, "eventually being put out of commission entirely". These tumultuous trotting experiences are exacerbated with rain, mud and a sense of urgency that could exhaust his four-legged transport soon after departing on routinely distant treks to his patients. Dr. Bashmore remarks on the reliability with which he can now tend to his patients, stating, " a physician cannot ask for a more convenient means of attending his practice"

While times have certainly changed with improved reliability and conveniences of four-wheeled automobiles, the motorcycle has served many patients and physicians over the interim.

The military in particular has long used the motorcycle as a means of transporting physicians, medics and supplies to areas not easily travelled by car. During World War I, the United States military purchased over 80,000 motorcycles from the two primary motorcycle manufacturers at the time: Indian and Harley Davidson.

While some of these motorcycles were used for artillery purposes with mounted munitions, many were fitted with stretcher side-cars and medical supplies (figure 1). The nimble and narrow stance of these vehicles made it easier for medics to access patients in the field and to transport them to mobile clinics when possible.

The role of motorcycles in WWII was further expanded with one motorcycle being issued to every medical

Workers assemble Harley-Davidson motorcycles during the war effort of 1918.

detachment team. Each infantry regiment of approximately 800 soldiers was provided one of these detachment teams for medical services. These teams were responsible for “first echelon medical service" which included medical care during combat situations, field treatment, removal of battle casualties and establishment of aid stations.[4] Given the broad service range provided by these detachments, the newly issued motorcycles were fitted with steel side cars, allowing for safer travel for patients, while still allowing passage through narrow and difficult terrain.

While the use of motorcycles in the military is still commonplace, the placement of motorcycles beneath healthcare workers is somewhat of a rarity today. There are still areas of the United States that use motorcycles within rapid response teams. These teams are highly effective in congested traffic areas; an example of this is Miami-Dade County, where motorcycle bound first responders led to a reduction in response time of over 50%.[3]

There are obvious concerns, however with using motorcycles in medical care. The dangers associated with motorcycle collisions alone are enough to dissuade counties from considering utilizing these vehicles as a means of providing immediate care.

The days of the need for a nimble, narrow vehicle with substantial ground clearance to access patients is all but gone in the United States. And as physicians’ realm of healthcare is more focused to the hospitals in which they aide their patients, we see a change in the mechanism by which patients access their care.

While todays four-wheeled ambulances are safer, and likely more effective, I will leave you with Dr. Bashmore’s conclusion from 1904, “Though primarily my choice of a motor bicycle was due to business reasons, and it has been used chiefly in the pursuit of my profession, let no man suppose that I have extracted no pleasure from it, for I count every ride one of pleasure.”

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Holding History in Your Hand

Historical Artifacts in the Archival Collection of the Boston University Alumni Medical Library

Objects illustrated courtesy of the Boston University Alumni Medical Library. All except the carte de visite album were gifts of Dr. James Brust.

James S. Brust, MD

Associate Clinical Professor of Psychiatry at UCLA David Geffen School of Medicine

Boston University School of Medicine Class of 1968

A'Llyn Ettien, MLIS

Archives Librarian at Boston University Alumni Medical Library

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, *is the archives librarian at BU Alumni Medical Library, where she is Head of Technical Services (the library catalog). Her enthusiasm for medical and BUSM history is only matched by her enthusiasm for PubMed.*

Traditionally, libraries and archives in institutions of higher learning have functioned as repositories for important items from their past, and the Boston University Alumni Medical Library has a rich collection of historical artifacts relating to our school's history. However, in this era of computers and digital screens, even recently published books are rarely held in the hands of library users, let alone historical volumes, manuscripts and pictures. There is no question that the computer age has improved all educational functions in near miraculous fashion, but there is still a significant place in learning and research for study of physical objects. Sometimes they contain information that is overlooked on computer catalog entries or not visible on scans. Less tangible but also of value is the connection to an object and its creators gained by holding it in your hand.

I. Carte de Visite photograph album of the members of the Massachusetts Homeopathic Medical Society

Carte de visite photographs became very popular in the 1860s, when this album was assembled. They were the first popularly priced photographs, mounted on small cards (4 x 2 ½ inches). Inexpensive and printed in multiples, they allowed individuals of modest means to have their picture taken, then exchange prints with family and friends, and store them in specially made albums. Albums were also used to compile images of the members of professional or other groups: such was the case here. This album contained 108 identified photographs of members of the Massachusetts Homeopathic Medical Society, though sadly, a large number of the photos are now missing. We illustrate the title page and seven portraits relevant to the Boston University School of Medicine.

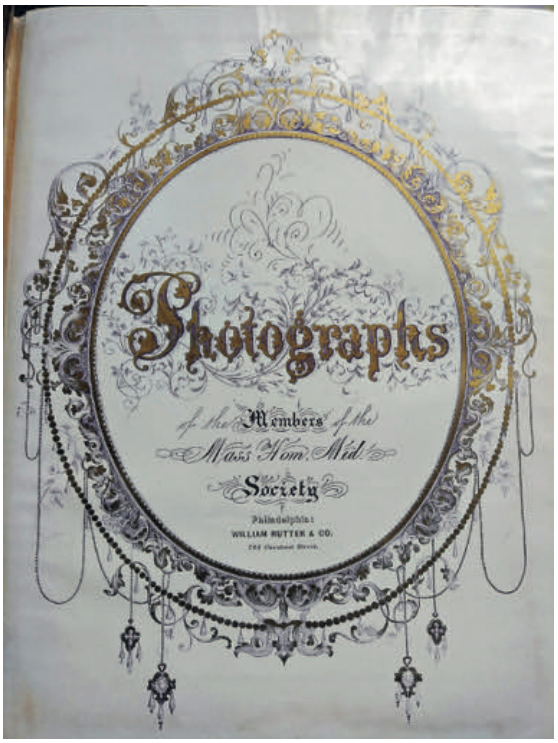


FIGURE 1: Title page. This was a stock album, commercially produced by William Rutter & Co., a Philadelphia dealer, then customized with a handwritten title in calligraphy: "of the Members of the Mass[achusetts] Hom.[eopathic] Med.[ical] Society."

FIGURE 2: Israel Tisdale Talbot, M.D. (1829-1899), a leading homeopathic physician in Boston, became the first dean of the Boston University School of Medicine at its inception in 1873, and served until his death in 1899. He was also Professor of Surgery. Detailed biographies are beyond the scope of this article, [1] but he was one of the most important figures in our school's history and namesake of the Talbot building on campus. Photos of him as an older man are familiar at BUSM; this younger image is far less commonly seen.

FIGURE 3: Conrad Wesselhoeft M.D. (1834-1904). Like Tisdale Talbot, a leading homeopathic physician in Boston and original BUSM faculty member, serving as Professor of Materia Medica and Therapeutics. He belonged to a large homeopathic medical family, many of whom were associated with BUSM. His best known patient, author Louisa May Alcott, dedicated her final novel, Jo's Boys, to him. Here he appears at a younger age than he is usually seen.

FIGURE 4: David Thayer, M.D. (1813-1893). Another original BUSM faculty member, Thayer was Professor of the Practice of Medicine. Dr. Thayer was at one time president of the Massachusetts Homeopathic Medical Society, and along with Dr. Talbot, was one of eight leading homeopathic physicians threatened with expulsion from the Massachusetts Medical Society for their homeopathic practice, a high profile case that dragged on for many years.

FIGURE 5: Henry B. Clarke, M.D. (1827-1888). Also an original BUSM faculty member, Dr. Clarke was Professor of Clinical Medicine.

FIGURE 6: Francis H. Krebs, M.D. (1823-1904). Born in Prussia, Dr. Krebs was another original BUSM faculty member, Professor of Obstetrics.

FIGURE 7 & 8: Samuel Gregg, M.D. (1799-1872). Gregg was the first homeopathic practitioner in New England, and founder of the Massachusetts Homeopathic Medical Society. As such, he was a figure of importance in homeopathic medicine in Boston, but he was not directly connected with the Boston University School of Medicine, having died a year before it was formed. He is included here not only for his pivotal role in homeopathic history, but because Figure 7 has often been mistakenly identified as Samuel Gregory, founder of the New England Female Medical College, forerunner of BUSM. With similar names, it is an easy error to make, especially since an oval mat in the album partially obscures the inscription. Examination of the actual item leaves no doubt that the signature reads Samuel Gregg, not Gregory. Figure 8 confirms the identity -- a second photo of the same person, it also bears an inscription, in the same handwriting: "Respectfully your friend, Samuel Gregg." [2] The mistaken association of this image with Samuel Gregory is an example of the value and importance of being able to examine the actual object.

II. Engravings of the Boston University School of Medicine from King's Handbook of Boston

FIGURE 9: Until late in the 19th century, illustrations in books and periodicals were engravings rather than reproductions from photographs. This frequently reproduced 1878 view of the Boston University School of Medicine would be familiar to virtually every person who has attended our school. The building on the left, later known as "Building C," was originally built in 1870 by the New England Female Medical College, with an addition by BUSM in 1874. The building on the right was the Massachusetts Homeopathic Hospital, built in 1876, and still standing on our campus today as the central section of the Talbot building. This engraving, only 4 x 7 inches, is from King's Handbook of Boston, an illustrated guide promoting the city, its sites and institutions, and carrying the advertising of various businesses. Enormously popular, it was first published in 1878 by Moses King and reissued yearly for over a decade, always containing this engraving.

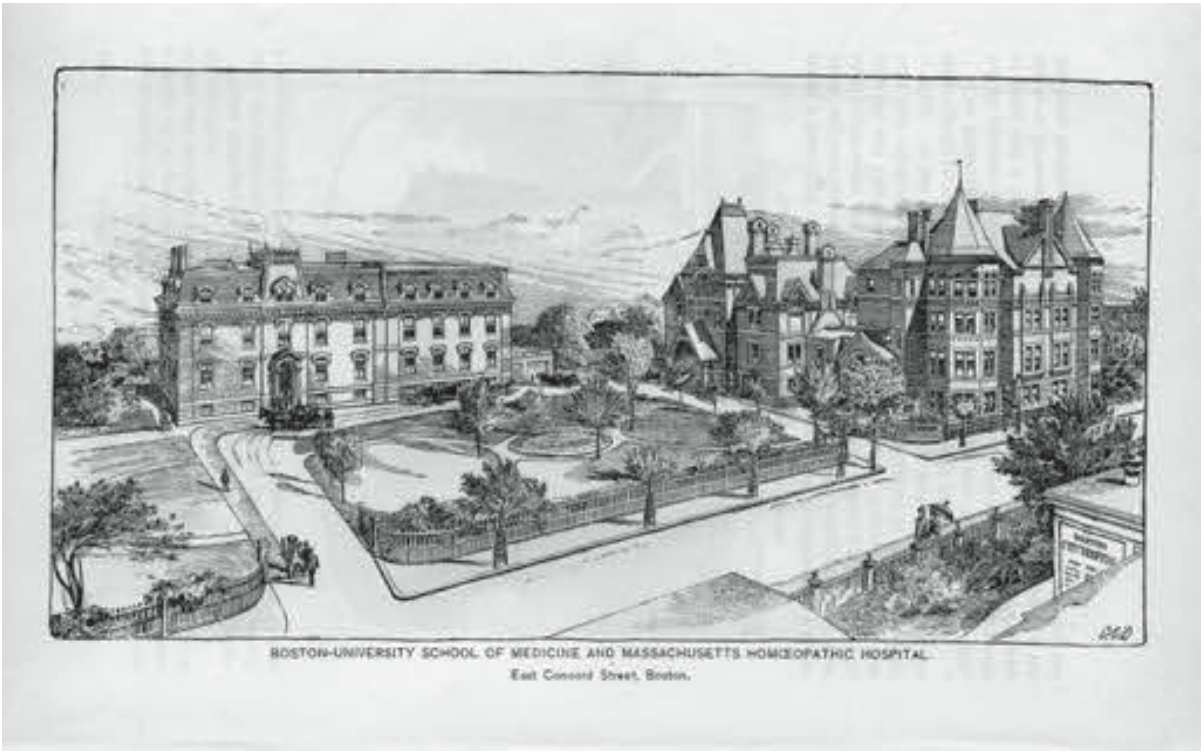
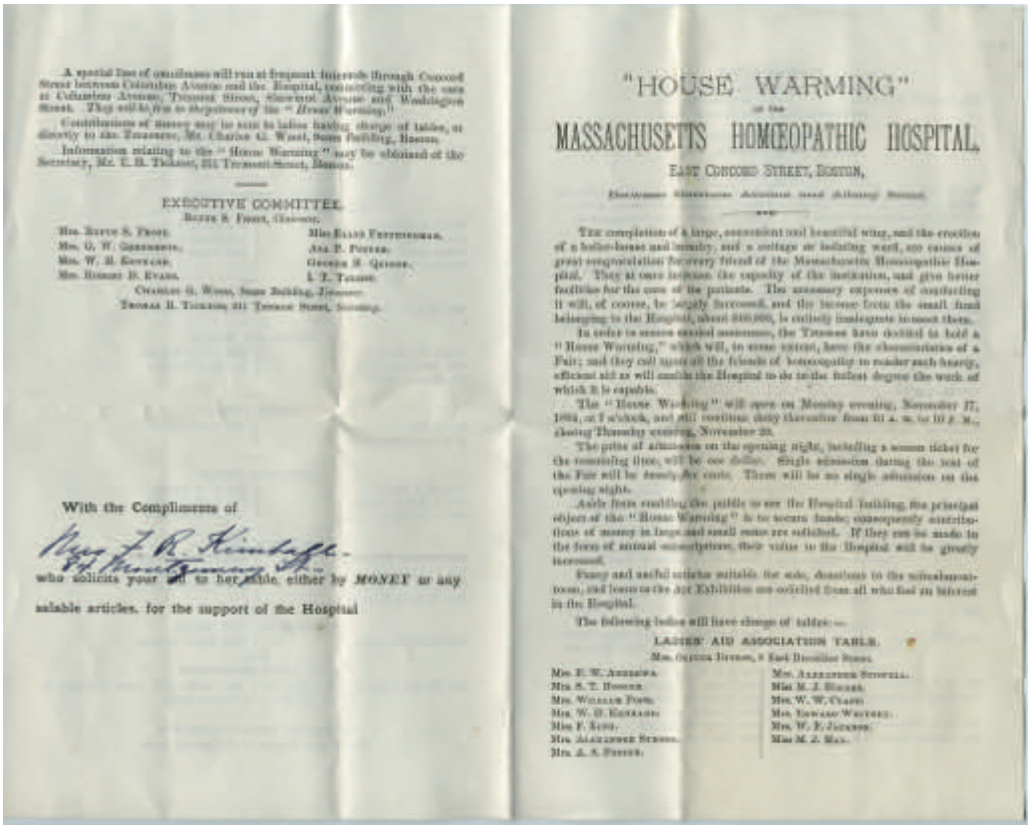


FIGURE 10: This view of the Boston University School of Medicine and the Massachusetts Homeopathic Hospital replaced the one in Figure 9 beginning with the 1889 edition of King's Handbook of Boston. Redrawn with a wider field of view, it is nonetheless very similar. A glimpse of the Boston City Hospital is visible in the right foreground, but the main difference is the addition of a new wing to the Massachusetts Homeopathic Hospital between the original building and East Concord Street. Added in 1884, it is still standing today.

III. House Warming at the Massachusetts Homeopathic Hospital

When the new wing (mentioned above) was added to MHH in late 1884, the officials of the hospital held a "House Warming" --- a four-day event to celebrate, and to raise money, with many in the community donating time, refreshments, and theatrical talents.



EXECUTIVE COMMITTEE.

With the Compliments of

Mrs. J. R. Kimball.
84 Montgomery St.

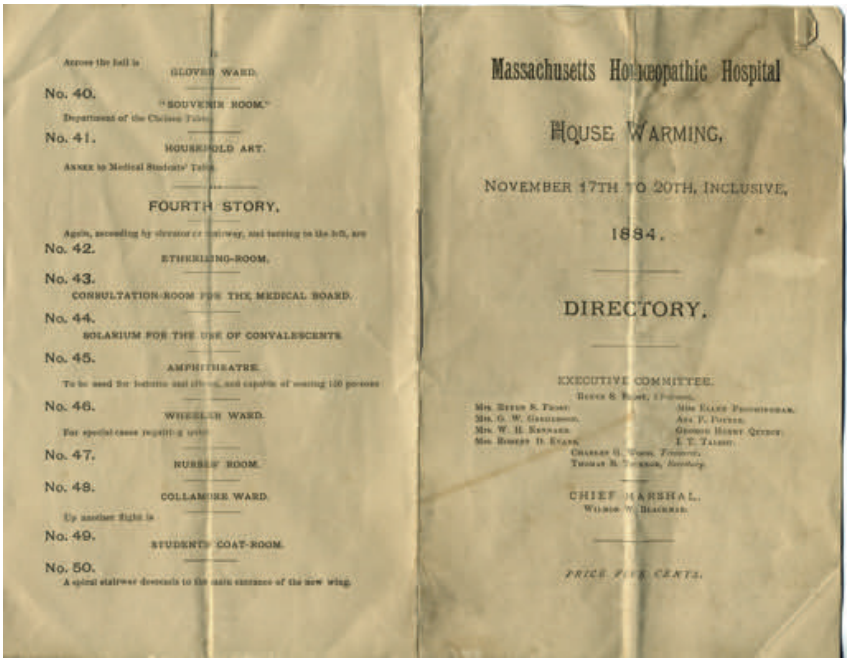
who solicits your aid to her table, either by *MONEY* or any

saleable articles, for the support of the Hospital

"HOUSE WARMING"
AT THE
MASSACHUSETTS HOMŒOPATHIC HOSPITAL,
EAST CONCORD STREET, BOSTON,

LADIES' AID ASSOCIATION TABLE.

FIGURE 11: An announcement of the "House Warming," held November 17 to 20, 1884.



Massachusetts Homœopathic Hospital

HOUSE WARMING,

NOVEMBER 17TH TO 20TH, INCLUSIVE,

1884.

DIRECTORY.

EXECUTIVE COMMITTEE.

CHIEF MARSHAL,

PRICE FIVE CENTS.

No. 40. GLOVER WARD.

No. 41. "SOUVENIR ROOM."

HOUSEHOLD ART.

FOURTH STORY.

No. 42. ETHERIZING-ROOM.

No. 43. CONSULTATION-ROOM FOR THE MEDICAL BOARD.

No. 44. SOLARIUM FOR THE USE OF CONVALESCENTS.

No. 45. AMPHITHEATRE.

No. 46. WHEELER WARD.

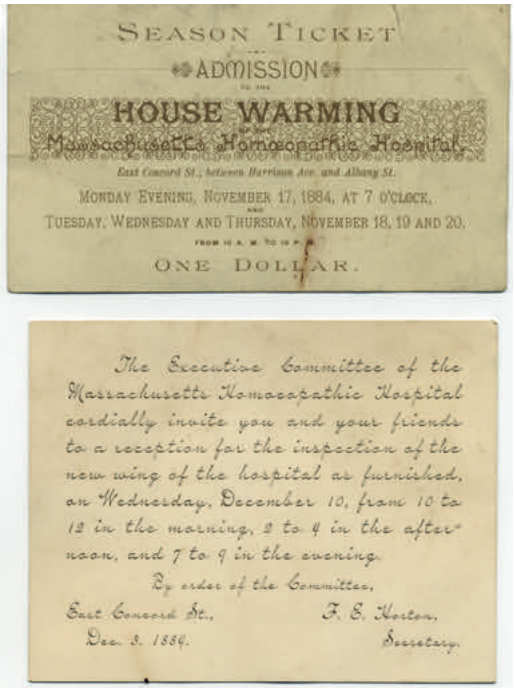
No. 47. NURSES' ROOM.

No. 48. COLLAMORE WARD.

No. 49. STUDENTS' COAT-ROOM.

No. 50.

FIGURE 12: Front and back cover of the directory of the "House Warming" events and notable sites within the new building.



SEASON TICKET

ADMISSION

HOUSE WARMING

Massachusetts Homœopathic Hospital,

East Concord St., between Harrison Ave. and Albany St.

MONDAY EVENING, NOVEMBER 17, 1884, AT 7 O'CLOCK,

AND

TUESDAY, WEDNESDAY AND THURSDAY, NOVEMBER 18, 19 AND 20,

FROM 10 A. M. TO 10 P. M.

ONE DOLLAR.

The Executive Committee of the Massachusetts Homœopathic Hospital cordially invite you and your friends to a reception for the inspection of the new wing of the hospital as furnished, on Wednesday, December 10, from 10 to 12 in the morning, 2 to 4 in the afternoon, and 7 to 9 in the evening.

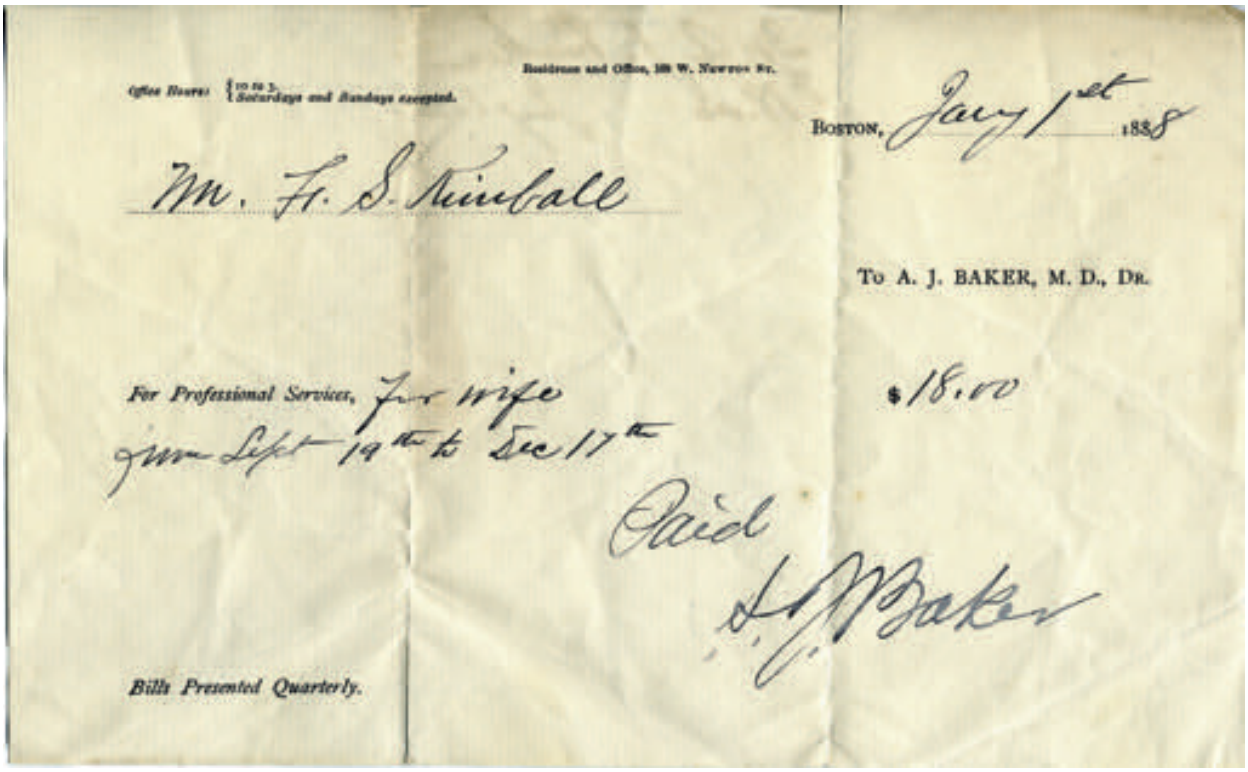
By order of the Committee,

East Concord St., Dec. 3. 1884.

F. E. Horton, Secretary.

FIGURE 13: Top, an admission ticket to the entire event; price one dollar. Bottom, an invitation to a related event, an inspection of the finished building on December 10, 1884.

IV. Receipt for medical care given by an early BUSM graduate



Residence and Office, 18 W. Newton St.

Office Hours: { 10 to 3, Saturdays and Sundays excepted.

BOSTON, Jany 1st 1888

Mr. F. S. Kimball

To A. J. BAKER, M. D., Dr.

For Professional Services, for wife $18.00

from Sept 19th to Dec 17th

Paid

A. J. Baker

Bills Presented Quarterly.

FIGURE 14: Receipt for $18.00 for medical care rendered to the wife of Mr. F.S. Kimball from September 19 to December 17, 1887, by A.J. Baker, M.D. The physician was Almena Jane Baker (1842-1914), an 1876 graduate of the Boston University School of Medicine, one of the first classes to receive MD degrees after the school's founding in 1873. This document is a fascinating insight into the real world of medical practice: the charging, billing and receiving of fees, her work hours, and the fact that her office was located in her residence. Also of interest are the non-gendered form of her name using only first initials, and the addition of "Dr." after "M.D." so there could be no confusion as to her profession.

V. BUSM Alumni Association Banquet, 1899

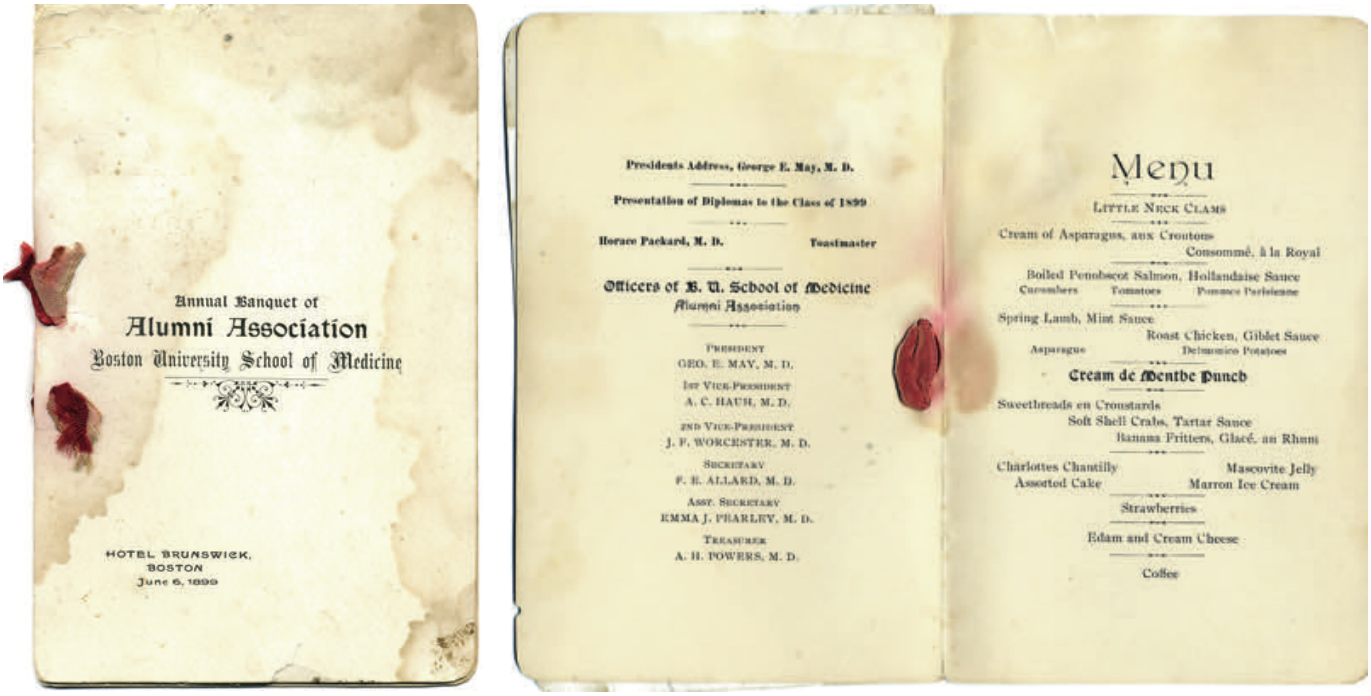


FIGURE 15 & 16: Cover and inside of the program and menu for the Annual Banquet of the Alumni Association of the Boston University School of Medicine, June 6, 1899, at the elegant Brunswick Hotel. [3] Interestingly, the diplomas were handed out to the graduating class at this event, though it is unclear if they had another graduation ceremony as well. And what a meal!

VI. Anna Howard Shaw

Anna Howard Shaw (1847-1919) had already graduated from Boston University's School of Theology (1880) when she entered BUSM, where she received an MD degree in 1886. Her life's work, however, was neither as minister nor physician, but instead as one of the leading figures in the women's suffrage movement. Despite her choice not to make medicine her full time profession, she is considered one of our school's most distinguished alumni.

FIGURE 17: An original press photo of Anna Howard Shaw, taken on March 20, 1914, and used in conjunction with newspaper articles reporting that Dr. Shaw, in her role as president of the National American Woman Suffrage Association (NAWSA) had written to President Woodrow Wilson asking for establishment of a "Woman's Independence Day." This image has become well known because it appeared on the cover of her popular autobiography *The Story of a Pioneer*, [4] but this original photographic print is far sharper and clearer than the book's reproduction.

FIGURE 18: Glass lantern slide titled "Dr. Anna Howard Shaw, a Suffrage Leader," by Keystone View Company, which along with its parent company Underwood & Underwood, were major producers of popular photographs. Dr. Shaw's image appearing on a slide such as this, meant for projection on a large scale, confirms how important a figure she had become in the popular culture.

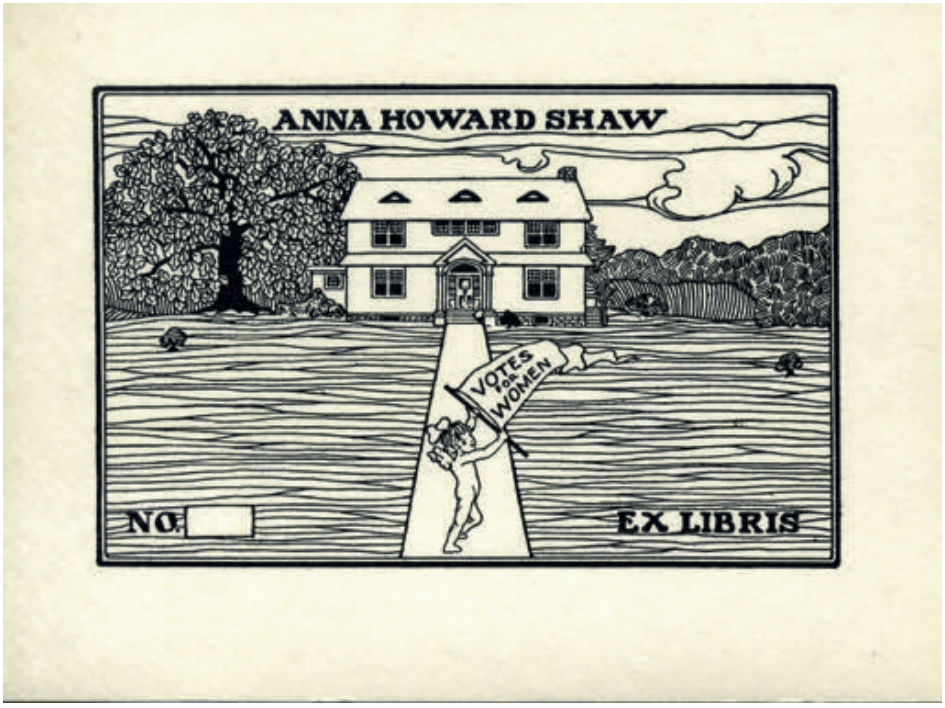


FIGURE 19: Anna Howard Shaw book plate. Even in the present, but more so in the 19th century, individuals who owned large, personal libraries would have individualized book plates printed to paste inside and identify their volumes. This is an example of a book plate Dr. Shaw used. It is possible that she had extras printed that she might have sold or given away to promote the woman's suffrage cause. With its unthreatening, homey setting and angelic young figure waving the flag of voting rights for women, this is an irresistible item.

VII. John Bean Brown, M.D.

John Bean Brown (1870-1925), from Raymond, New Hampshire, attended Dartmouth College before coming to the Boston University School of Medicine, graduating in 1900. He was a typical student of that era, but was singled out for archival attention by the acquisition of a large collection of original documents related to his education at BUSM. Presented are a few items giving a snapshot of what medical education was like at that time. Dr. Brown did receive his MD degree, and initially went off to Fergus Falls, Minnesota, working as a physician in a large mental hospital. He returned to New Hampshire and married 30 year old Mary Ingham in 1904. But it appears that poor health plagued both. The couple had no children, and Mary died in 1921. After an extended period of disability, John Bean Brown succumbed to a respiratory ailment (likely tuberculosis) in 1925 at age 55. He is buried in Raymond, N.H.

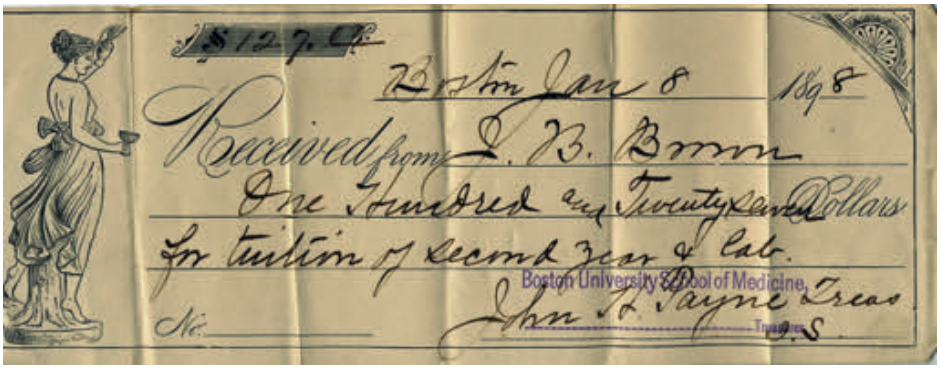


FIGURE 20: A tuition receipt for his second year of medical school, totaling $127.00 for the entire year, including lab fee. Another, similar, but not as decorative receipt for his third year reveals that $2.00 of that amount was for the "microscopical laboratory." When the Flexner Report was published twelve years later, one of the things for which BUSM received high praise was their laboratory. [5]

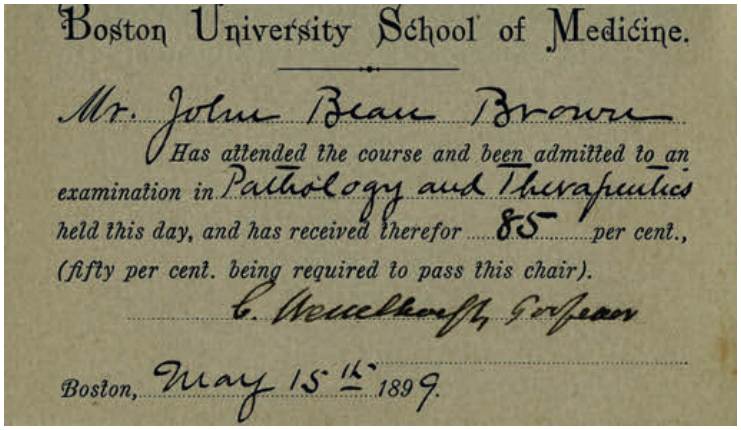


FIGURE 21: Schooling was arranged as a series of courses over the four years. At the end of each course, the student received a card, signed by the professor, documenting their attendance and grade. The collection contains over thirty such cards, so retaining them must have been a priority for students. We chose to illustrate this example because it bears the original signature of Conrad Wesselhoeft, then 65 years old, and one of the school's most distinguished physicians (see Figure 3).

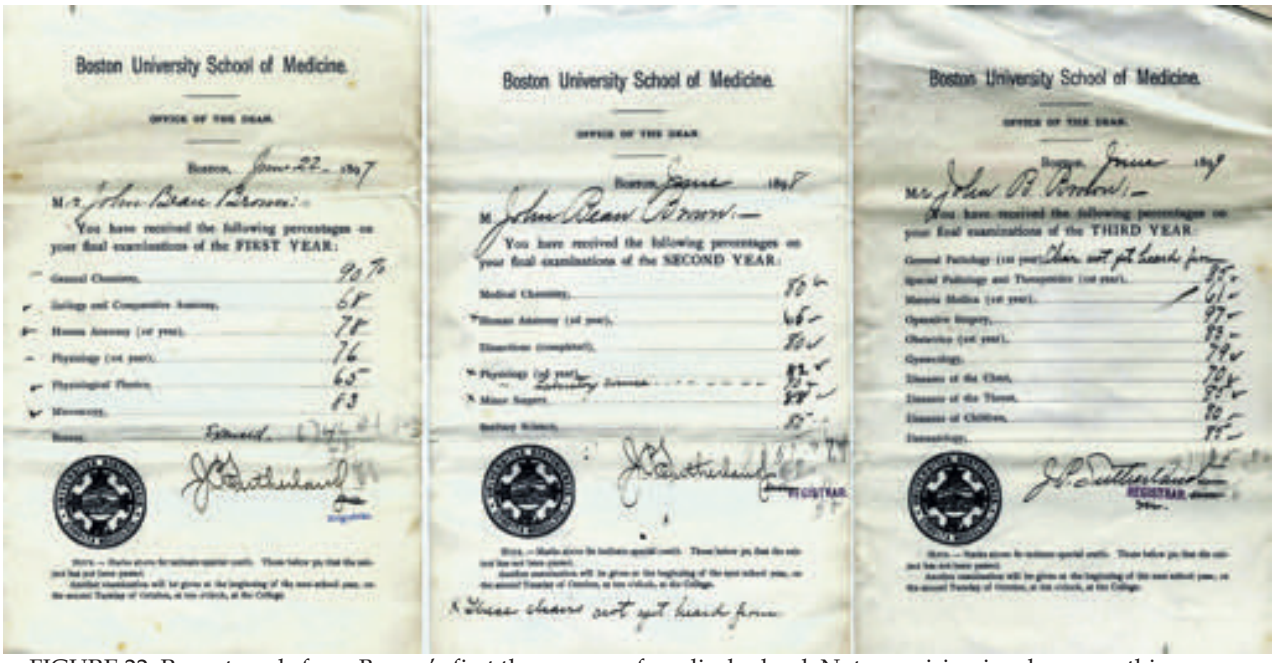
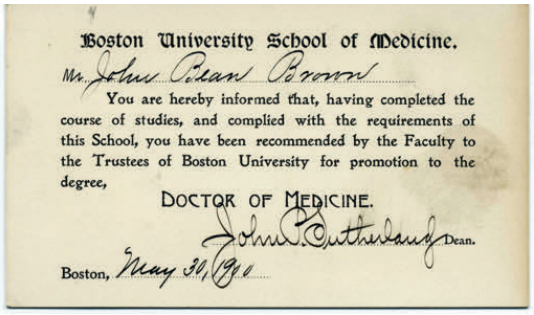


FIGURE 22: Report cards from Brown's first three years of medical school. Not surprising in a homeopathic medical school, there were some unusual courses, including botany (from which Brown was excused), and Materia Medica, (the homeopathic remedies), but the vast majority of the courses do not differ from medical school today.



Boston University School of Medicine.

Mr. John Dean Brown

You are hereby informed that, having completed the course of studies, and complied with the requirements of this School, you have been recommended by the Faculty to the Trustees of Boston University for promotion to the degree,

DOCTOR OF MEDICINE.

John J. Sutherland Dean.

Boston, May 30, 1900

FIGURE 23: This card informs about-to-be Dr. Brown that the medical school was recommending to the Boston University trustee's that he be granted the degree Doctor of Medicine. This will strike us as unusual today, but in that era medical schools often operated relatively separate from the university to which they were attached. [6]

VIII. Chester Keefer Serves the Nation

Chester Scott Keefer, M.D. (1897-1972) was arguably the most noteworthy physician so far associated with the Boston University School of Medicine. After coming to BUSM in 1940 from Harvard's prestigious Thorndike Research Laboratory at the Boston City Hospital, his teaching, research and recruiting skills helped elevate BUSM to new heights. But his importance reached far beyond our school. During World War II, Keefer was appointed Chairman of the National Research Council's Committee on Chemotherapeutics and Other Agents (COC), which gave him control of the entire civilian penicillin supply, earning him the nickname "Penicillin Czar." [7] After the war, Dr. Keefer continued government service at the highest levels, serving as a special assistant for health and medical affairs during the Eisenhower administration.

FIGURE 24: This original press photo was taken on April 22, 1955 and titled "Proud Moment," which it was indeed. Ten days after the announcement that the Salk polio vaccine had proved effective in the 1954 field trials, Dr. Salk and his family were honored at the White House. In the front row, left to right, are Basil O'Connor, president of the National Foundation for Infantile Paralysis (aka The March of Dimes) which funded the research, Jonas Salk, M.D., President Dwight D. Eisenhower, and Oveta Culp Hobby, HEW Secretary. Standing two steps up are Surgeon General Leonard Scheele and Mrs. Donna Salk, with the Salk's three sons (Peter, Darrell and Jonathan) standing in front of her. And finally, literally atop the entire proceedings, is Dr. Keefer. While serving as BUSM Dean from 1955 to 1960, Dr. Keefer continued to make regular trips to Washington, D.C. until at least 1959. [8]

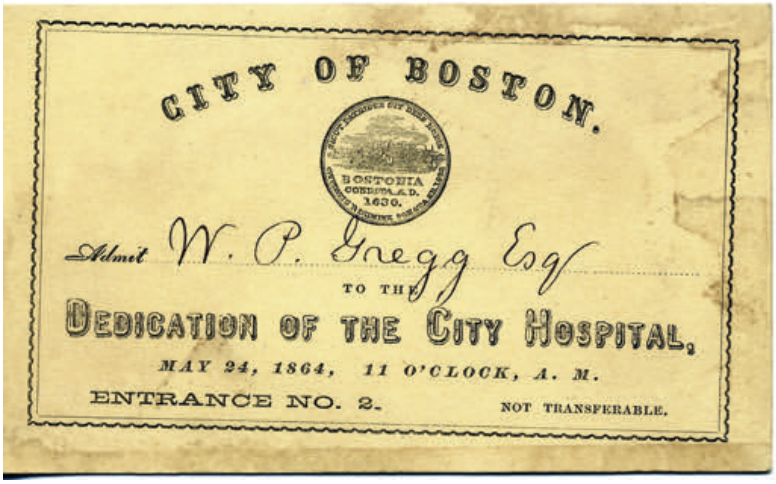
IX. Robert Wilkins, Award Winning Researcher.

FIGURE 25: Recruited from Johns Hopkins to BUSM by Chester Keefer in 1940, Robert W. Wilkins, M.D. (1906-2003) was the first to identify safe and effective medication treatment for hypertension (rauwolfia/reserpine), an achievement that won him the prestigious Lasker award in 1958. In this press photograph taken on October 28, 1962, Dr. Wilkins (right) received the Gold Heart Award, highest honor granted by the American Heart Association, an organization which he had served as president in 1957-58.

X. Michael DeBakey visits BUSM.

FIGURE 26: Pioneering cardiac surgeon Michael E. DeBakey, M.D. (1908-2008), had become a nationally known figure beyond the world of medicine by the time he came to speak at the Boston University School of Medicine on November 5, 1967. This original press photo shows DeBakey (right) posed next to Richard Egdahl, M.D. (1926-2016), BUSM surgery chairman, in the lecture hall on the first floor of Building A (later remodeled and named Bakst Auditorium). One of the authors (JSB) was there that day, and recalls the excitement. Looking back through the window provided by this photograph, one notices that men, all wearing ties, outnumbered women, but in keeping with BUSM tradition, not by nearly as dramatic a margin as at many other medical schools at the time. And I remember being proud that so eminent a figure as Dr. DeBakey chose our school to visit.

XI. A Ticket to the Dedication of the Boston City Hospital


CITY OF BOSTON.

BOSTONIA CONDITA A.D. 1630.

Admit W. P. Gregg Esq

TO THE

DEDICATION OF THE CITY HOSPITAL,

MAY 24, 1864, 11 O'CLOCK, A. M.

ENTRANCE NO. 2. NOT TRANSFERABLE.

FIGURE 27: We close with an actual admission ticket to the ceremony dedicating the Boston City Hospital on May 24, 1864, a week before the official opening on June 1st. It was issued to W.P Gregg, Esq. [9] It is the oldest item in this study, and the only one not connected with the Boston University School of Medicine. However the Boston City Hospital, even though it excluded the female NEFMC students and then the homeopathic ones of early BUSM, eventually became a major training hospital for our school. It is remarkable that this ephemeral item has survived, and anyone who wants to "feel" history can now take it in their hand just as Mr. Gregg did over 150 years ago as he approached a brand new Boston City Hospital.

References:

[1] Good sources of biographical information include William Harvey King, *History of Homeopathy and its Institutions in America* (New York: Lewis Publishing, 1905), Chapter V, "The Boston University School of Medicine;" and John S. Haller, The History of American Homeopathy, The Academic Years, 1820-1935 (New York: Haworth Press, 2005).

[2] Should there still be any doubt as to the identity of the man in figures 7 and 8, there is another carte de visite album in the collection of the Countway Library titled *Samuel Gregg, M.D., & His Friends, 1870*, which has been viewed by the authors: https://collections.countway.harvard.edu/onview/items/show/6375 It contains several additional photographs of this same man, all identified as Samuel Gregg.

[3] The Brunswick Hotel, built in 1874, was located at the corner of Boylston and Clarendon streets in Copley Square. For a photo of the building see: https://www.loc.gov/resource/det.4a13540/

[4] Anna Howard Shaw, with the collaboration of Elizabeth Jordan, *The Story of a Pioneer* (New York: Harper & Brothers, 1915).

[5] Abraham Flexner, *Medical Education in the United States and Canada: A Report to the Carnegie Foundation for the Advancement of Teaching: Bulletin No. 4* (New York: Carnegie Foundation, 1910), 241.

[6] Of the fifteen remaining homeopathic medical schools in the United States, the Boston University School of Medicine received the most praise from Flexner, who was impressed with the physical plant, the library, the laboratories, the faculty, and the availability of both hospital and dispensary (outpatient) clinical teaching. The two things he criticized were the low entrance requirements, and the fact that "The University connection is nominal." Flexner, *Medical Education*, 241-242.

[7] Gianpaolo Carpinito and Danielle Elbe, "A Brief Era of Rational Therapeutics: The Trials and Regulations of Chester S. Keefer, M.D.," Aceso, *The Journal of the Boston University School of Medicine Historical Society*, 4, (Fall 2016), 8-15.

[8] Aram Chobanian, M.D. to James Brust, M.D., personal communication.

[9] W.P. Gregg was evidently a Boston attorney involved in medical matters. We found passing mention of him in the book *Statements, Supported by Evidence, of Wm. T.G. Morton, M.D., on his claims to the Discovery of the Anesthetic Properties of Ether* (Washington, 1853), 414. However we know little about Gregg or his role, if any, in the establishment of the Boston City Hospital. We assume he was not related to well known homeopathic physician Samuel Gregg (see Figures 7 and 8), since homeopathy was specifically excluded from BCH when it opened.

Medical Innovations Through Daily Observations

The Story of Sir Harold Ridley, Gordon Cleaver and the Development of the Intraocular Lens Implant

Connor Baharozian
Boston University School of Medicine
Boston University Questrom School of Business

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Working in Moorfields Eye Hospital, London in 1938, Sir Harold Ridley would observe World War II tragedies that would forever change the field of ophthalmology.

Sir Harold Ridley was born in 1906 to a naval ophthalmologist and grew up wishing to become a surgeon. Following his schooling at Pembroke College and St. Thomas' hospital, Ridley followed his father's footsteps, becoming an ophthalmologist at Moorfields Eye Hospital in London. [1] What he would observe at the beginning of his ophthalmic career would lead to dramatic improvements in eye care.

With World War II at its height, Ridley saw numerous soldiers with unique ocular trauma. [2] These cases were Ridley's first as an ophthalmologist on the surgical team for young pilots at Moorfields. [2] In this setting, Ridley's story became forever intertwined with that of a Royal Air Force member.

Gordon "Mouse" Cleaver was squadron leader for squadron number 601 in the British Royal Air Force. [3] Throughout his time in the military, Cleaver was part of eight World War II victories, most notable at Mons and the battle of Dunkirk. In these victories, Cleaver took down several enemy planes and would later be awarded Britain's Distinguished Flying Cross. [3] However, on August 15, 1940 Cleaver's Hurricane aircraft was shot down while fighting over Winchester, England. [3]

In this exchange, the metal and Perspex acrylic of Cleaver's aircraft canopy was riddled and splintered. Pieces flew throughout the cockpit, littering Cleaver's face and eyes. Cleaver was instantly blinded but survived the attack, bailing from the plane in a parachute. This trauma led to 18 facial and ocular operations at hospitals throughout England, including Moorfields Eye Hospital. [3] As a result of these operations, partial vision was salvaged in one eye though Cleaver remained blinded in the other.

Throughout his medical tribulations at Moorfields, Cleaver was observed by Dr. Harold Ridley. [3] Up to this point, Ridley had recognized that glass splinters in the eye resulted in a foreign body reaction and edema. This made using glass as an implant in the eye, impractical if not impossible. However, the acrylic lodged in Cleaver's eyes lacked this bodily reaction. For years, the acrylic splinters remained in Cleaver's blinded eye all while being well tolerated. [3] There was no surrounding inflammation and this fascinated Ridley. How could this be?

As World War II waged on, Sir Ridley remembered Cleaver, imagining how acrylic implants could apply to eye surgery. This was when another simple observation would spark an idea. While operating in 1946, Ridley was asked by an inquisitive medical student "why don't you replace the lens after removing it in cataract surgery?" [4] Up to this point, cataract surgery had simply been the removal of the clouded ocular lens without replacing it in any fashion. This question inspired Ridley to conceptualize the intraocular lens implant. [4] With this came the marriage of two observations: that of acrylic lacking a foreign body reaction and the need for lens replacement in cataract surgery.

Sir Harold Ridley, M.D.

Thus, at the end of World War II, Ridley commissioned Imperial Chemical Industries to create a Perspex acrylic lens using the exact material in Cleaver's Hurricane canopy. [5] On November 29, 1949, Sir Harold Ridley used this new acrylic lens during cataract surgery. [5] Though he was unable to keep the lens in the eye following the operation, it was the first big step in the development of modern cataract surgery. Several iterations later, an implant manufactured by Rayner Company became the first artificial lens to find a permanent home inside the eye on February 8, 1950. [5] This surgery was performed by none other than Sir Harold Ridley.

Like many with new ideas, Ridley was scorned. Those in ophthalmology and medicine did not accept his innovation. [6] This is not how cataract surgery is done, they said. This criticism lasted years until colleagues began to see the value of Ridley's creation. Soon enough, lens replacement with acrylic lenses would become the standard of practice. Today, even still, acrylic and silicon lenses are implanted during cataract surgery. [6]

Amazingly, at the end of Gordon Cleaver's life, he also benefitted from that learned during his own World War II medical maladies; having developed a cataract, he was operated on in 1987 and given a new artificial lens made of acrylic. [3] The culmination of horrific experiences and clever observations led to the modern technique in cataract surgery, the most common surgery in the United States. To date, Sir Harold Ridley is known as the father of modern cataract surgery.[7] Given his accomplishments and contributions to medicine, he was granted knighthood "for pioneering services to cataract surgery." Later in life, Ridley himself underwent successful cataract surgery, bringing his accomplishments full circle. [3]

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[4] admin. "Cataract Surgery Timeline." LASIK Eye Surgery & Cataract Surgery in New Jersey (blog), September 18, 2014. http://eyecare2020.com/blog/2014/09/cataract-surgery-timeline/.

[5] Letocha, Charles E., and Charles J. Pavlin. "Follow-up of 3 Patients with Ridleyintraocular Lens Implantation." Journal of Cataract & Refractive Surgery 25, no. 4 (April 1, 1999): 587–91. https://doi.org/10.1016/S0886-3350(99)80061-3.

[6] "The 10 Most Influential Ophthalmologists in the 20th Century." Accessed November 4, 2017. http://squintmaster.com/Great%20Ophthalomologist.htm.

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A History of Neuroscience and its Father, Dr. Donald Munro, M.D.

Melissa Chua

Boston University School of Medicine

Donald Munro, M.D.

Donald Munro was born in Boston on August 10, 1889 to a prestigious family. His father was a renowned general surgeon, earning the title of Surgeon-in-Chief at The Carney Hospital. His mother was the daughter of Dr. Edward Robinson Squibb, founder of the pharmaceutical company, E. R. Squibb and Sons. Munro graduated from Harvard College in 1911 and went on to attend Harvard Medical School where he graduated cum laude in 1914. He became the first surgical resident at Boston City Hospital, specializing in genito-urinary surgery under Dr. Paul Thorndike. Munro continued to train at the University of Pennsylvania Hospital in 1916 and served as a surgeon in France with the US Army Medical Department during World War I. Interestingly, Boston City Hospital was Base Hospital 7 during World War I and was mobilized in 1918. Dr. John Dowling, superintendent of Boston City Hospital at the time, was appointed commanding officer of the unit. The unit eventually sailed to Joue-les-Tours in France to aid the sick and injured in the war.

In 1919, Munro returned to Boston City Hospital as a general surgeon. At the time, neurosurgical cases were handled by the Third Surgical Service while diagnoses and localization of neurological defects were determined by neurologists. Spinal cord surgeries were solely performed by orthopedic surgeons. As a general surgeon, Munro began to gain interest in neurology and neurological surgery. He investigated outcomes and benefits of lumbar puncture in closed head injuries and eventually published a study, which led to greater acceptance of the technique and prompter recognition and treatment of head injuries such as epidural hematomas and skull fractures.

Neurosurgery in Boston at that time was largely dominated by Dr. Harvey Cushing at the Peter Brent Brigham Hospital and by Dr. W. Jason Mixter at the Massachusetts General Hospital. Cushing moved to Boston from Baltimore in 1912 where he was appointed Moseley Professor of Surgery, however the hospital was still under construction at that time. Cushing immersed himself in research, mainly on the pituitary gland and its related conditions, while he awaited the hospitals completion. The Brigham admitted their first surgical patient, a woman with varicose veins, on January 27, 1913. However, the Brigham was only formally opened on November 12, 1914.

In 1930, the neurology service at Boston City Hospital underwent reorganization and Dr. Stanley Cobb, Bullard Professor of Neuropathology at Harvard

Medical School was appointed as the new director. Dr. Abraham Myerson, chair of Neurology at Tufts Medical School, assisted Dr. Cobb in the reorganization of the neurology service. At the same time, Munro was appointed to organize and chair a brand new neurological service. Both services were closely integrated, with shared beds and residents who alternated between both services.

Munro emphasized the need to care for "all needs of a patient" and not solely focusing on their neurological problems.

Despite much skepticism from other general surgeons, the neurosurgical service was often inundated with patients and frequently experienced a shortage of beds and operating rooms. Within the first 26 years, the neurosurgical service had undertaken 9,900 admissions and 5,784 surgeries. As the service expanded, they began to take on patients with spinal cord injuries as well, the majority of whom were from Army and Veterans' hospitals. Munro's experiences in World War I made him especially interested in spinal cord injuries, particularly paraplegia. Mortality for patients with spinal cord injuries was around 80%, with patients largely dying from bed sores and urinary tract infections. Munro emphasized the need to care for "all needs of a patient" and not solely focusing on their neurological problems. Most likely influenced by his experience as a gentito-urinary surgeon, Munro utilized chest drains for bladder drainage – which Munro termed "tidal drainage" – this technique allowed him to study bladder activity in patients with paraplegia. More importantly, this technique also improved urinary function in these patients and also led to a decrease in incidence of genitourinary infections in patients with spinal cord injuries. Munro also recognized that bedsores were always preceded by pressure sores and sought to prevent such sores from forming by keeping patients dry and turning them every 2 hours. Munro emphasized the importance of first attempted to reduce fractures by gentle traction rather than using surgery as a first-line treatment strategy. He also understood the socioeconomic situations of his patients and that spinal injury has a high associated medical burden. He advocated for such patients and obtained funding from Liberty Mutual Insurance Company of Boston which covered the medical costs for patients in need. The first spinal cord unit in the USA was established in 1936 by Munro at Boston City Hospital. His contribution to the field of paraplegia has earned him the title of, the "father of paraplegia".

One of eight operating theatres at Boston City

In 1955, Munro retired from his position as chief of the neurological service at Boston City Hospital. Munro was awarded the Major General Leonard Wood Medal for Excellence in Care of Patients during his time at Boston City Hospital and also received the "Speedy Award" by the Paralyzed Veterans of America for his significant contribution to paraplegia. Munro also worked on many societies, including one term as President at the New England Surgical society, one term as President at the Boston Surgical Society, and one term as Vice-President at the Massachusetts Medical Society.

Boston City Hospital in 1864

Munro's life outside of his vibrant surgical career included his love for writing. He authored two books on head and spine injuries and published over 80 papers. He was also an avid reader, Les Miserables being his favorite book. It has been said that leading up to his passing on March 10, 1973, his wife read the book to him again and again.

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[5] Wegner W. Donald Munro, M.D., 1889-1973. NEJM. 1973; 288(19): 1022-1023.
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- Medical Education