
# The Oslerian

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**President**
**James R. Wright, Jr.**
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## *A Message from the President*

### Michael Bliss and the Rehabilitation of JJR Macleod's Reputation

The story of the discovery of insulin is well known but poorly understood. In the late 19th century, it had been determined that pancreatectomy in dogs caused experimental diabetes mellitus (DM) and by the turn of the century, many believed that the pancreatic islets of Langerhans might be the source of a putative internal secretion. By the 1920s, hundreds of investigators had unsuccessfully tried to isolate it. On October 30, 1920, a young surgeon Frederick Banting read a paper which sparked an idea; convinced that previous failures were the result of the secretion having been digested by pancreatic enzymes during extraction, Banting postulated that ligation of the pancreatic duct in dogs would induce pancreatic atrophy while preserving the islets and their internal secretion. On November 8, Banting approached University of Toronto (UofT) Physiology Professor JJR Macleod (**Figure 1**) with his idea and some months later they designed a simple experiment to test Banting's hypothesis. It involved two groups of dogs; one group would undergo pancreatic duct ligations; several weeks later, pancreatic extracts would be made from the atrophic pancreata. The other group would undergo pancreatectomies and, once severe DM had been documented, would be treated with atrophic pancreas extracts and followed for glycemic improvement. Macleod provided the facilities, dogs, and two students trained by him to perform blood glucose measurements and other biochemical testing. Charles Best beat Clark Noble in a coin toss and became Banting's assistant. The first experiment began on May 17, 1921, with Macleod assisting Banting with his first pancreatectomy; a month later, Macleod left for Scotland for the summer. The study had been projected to take two months.[1]

***Fig.1:****JJR Macleod, c 1923 (Credit: Nobel Prize Organisation)*

Banting and Best toiled throughout the entire summer with mixed results, but by mid-August, they were convinced they had demonstrated the existence of the internal secretion. Macleod returned to Toronto on September 21st. While Macleod considered their results promising, he wanted studies repeated with additional controls. This angered Banting, who considered the results definitive. Banting and Best begrudgingly complied and also performed a "longevity" experiment (i.e., how long could extracts keep a depancreatized dog alive). Next, University of Alberta biochemist Bert Collip, on sabbatical in Toronto, made a purified extract of whole bovine pancreas which, on January 23, 1922, brought back young diabetic patient Leonard Thompson from the brink of death. Over the next year, Macleod, by focusing his laboratory's resources and personnel, made considerable progress towards characterizing insulin's action.[1-3] However, insulin extraction was inefficient, and it appeared doubtful that the supply could keep up with the exponentially increasing clinical demand. Macleod, being aware that teleost

*https://doi.org/10.64496*

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## President's Message (*Continued from page 1*)

(i.e., bony) fish have anatomical separation of their endocrine and exocrine pancreatic tissues, used extracts of piscine islets to prove unequivocally that islets were the source of insulin (n.b., the other extracts had been made from either atrophic or intact pancreas); Macleod, next showed that he could produce as much insulin from one gram of fish islet tissue as could be produced from a kilogram of beef pancreas; this observation led to efforts in Canada, the US, and Europe to explore commercial production of fish insulin. During 1923, some diabetic patients in Toronto were treated with cod insulin. However, by 1924, Eli Lilly had improved insulin production sufficiently that fish insulin was no longer needed.[4,5]

On October 25, 1923, Banting and Macleod were jointly awarded the Nobel Prize in Physiology or Medicine. Banting became angry at the inclusion of Macleod and had to be talked out of refusing the award. Banting split his cash award with Best, and Macleod with Collip.[1-3]

Insulin histories written before 1982 promoted a fairy tale-like "Banting and Best myth" -- essentially that a young war hero surgeon with a novel idea, but little research training, and a student discovered insulin while working unsupervised in a UofT physiology laboratory -- while the laboratory's director was on vacation. Banting and some highly influential friends unwaveringly promoted this narrative. Banting viciously maligned Macleod at every opportunity and, with Best's help, portrayed Macleod as a villain who had unjustly usurped credit for the discovery of insulin.

Oslerian Michael Bliss's *The Discovery of Insulin* tells a very different story; it showed that the work done by Banting and Best during the summer of 1921 was no more convincing than prior work done elsewhere, and that the Toronto breakthrough was successful treatment of Thompson with Collip's purified extract. It established that there were four discoverers, and that the roles of Macleod and Collip had not only been previously underestimated by historians but had also been actively suppressed by Banting and Best.[1] A decade later, Bliss published a scathing paper describing how Best, who had followed Macleod as chair of physiology at UofT, had rewritten the history of insulin, both increasing his own contributions and diminishing Macleod's.[6] In fact, Banting and Best had been so effective in maligning Macleod that, by the 1950s, the Nobel Committee believed that their predecessors had made a mistake in naming Macleod rather than Best as corecipient.[2,3] Ironically, 30 years later, Bliss showed that, of the four discoverers, only Best was not essential. Had the coin toss gone the other way, Noble could have provided the same skill set as Best.[5]

In 1928, Macleod, tiring of Banting's disruptive behaviors, accepted a position as Regius Professor at his alma mater the University of Aberdeen; as a parting shot, Banting refused to attend MacLeod's UofT farewell dinner but asked that a place be set for him so that it could remain conspicuously empty.[2]

Macleod, whose reputation was to remain sullied from the mid 1920s until1982, passed away in Aberdeen in 1935. After Mrs. Macleod's death in 1940, a copy of Macleod's account of the discovery that he had provided to UofT administration in September 1922 was found by her sister when emptying Macleod's house; a few copies were covertly circulated after this but the original in the UofT Archives has never been found.[2,3,7] Canadian medical historian and Honorary AOS Member, Lloyd Stevenson, who had published the first scholarly history of the discovery,[8] later approached the UofT President about publishing a copy he had obtained, and, at Best's insistence, the President told Stevenson that he would face legal consequences if he did. Best died on March 31, 1978, and Stevenson immediately published his copy of Macleod's long-lost account.[7] This was the first step in setting the record straight. The second was the publication of Bliss's *The Discovery of Insulin* in 1982. It received the AAHM's William Welch Award in 1984 and remains the definitive history of the discovery.[1]

While Banting and Best both remained at UofT and had institutes, buildings, professorships, and a department of medical research named for them, Macleod had been forgotten. After the publication of his book, Bliss convinced medical school dean (and new AOS Honorary Member) John Dirks that Macleod should be recognized and, on October 13,1990, a large lecture hall in the UofT Medical Science Building was named the JJR Macleod Auditorium. The opening was attended by 74-year-old Ted Ryder, who had been one of the first diabetic children to receive insulin in the summer of 1922. The foyer of the auditorium contains a fitting historical display. The building resides on the former site of the physiology department where insulin was discovered.

Banting and Best's efforts to malign Macleod had been so effective that he had also been forgotten in Aberdeen! In fact, Macleod's involvement in the discovery of insulin was unknown, even to Scottish diabetologists and diabetic patients. On September 22, 1988, Bliss was invited to speak at a meeting of the Physiological Society in Aberdeen; his lecture entitled "JJR Macleod and the discovery of insulin" was turned into a short paper.[9] Bliss's book and this lecture stimulated Michael J. Williams, an Aberdeen internist and diabetologist, to study Macleod further. Williams began by publishing a brief introductory paper[10] but was soon visiting archives in Aberdeen, Cleveland, Toronto, and elsewhere. He published his research as a now out-of-print 140-page-long stand-alone supplement to the *Proceedings of the Royal College of Physicians of Edinburgh* in July 1993. Ken McHardy, an Aberdeen diabetologist mentored by Williams, located Macleod's gravestone at Allenvale Cemetery and Williams convinced the local branch of the British Diabetic Association to have it restored (**Figure 2**); Williams' efforts also convinced the Aberdeen Town Council to place a plaque on the wall outside the house built by Dr. and Mrs. Macleod in 1930. In 2002, because of my ever-growing admiration for Macleod and to celebrate the 80th anniversary of the discovery of insulin, I published two papers on Macleod's fish insulin research,[4-5] which caused me to meet Williams, and he arranged for me to give a talk at the University of Aberdeen, Institute of


***Fig.2:****My photograph of Michael J. Williams standing next to Macleod's refurbished tombstone, Allenvale Cemetery, Aberdeen in August* 2002.

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**President's Message** (*Continued from page 2*)

***Fig. 3:****Michael Bliss with Aberdeen Diabetes Service Lead, Ken McHardy, after performing the official opening of the JJR Macleod Centre for Diabetes, Endocrinology and Metabolism in 2013 (Credit: NHS Grampian)*

Medical Sciences, on August 28, 2002.

As years passed, Williams handed the baton to McHardy and for over a decade McHardy has led a new wave of Scottish initiatives to honor Macleod. On November 1, 2013, Bliss returned to Aberdeen to open the JJR Macleod Centre for Diabetes, Endocrinology and Metabolism (**Figure 3**). Five days later, he gave the Douglas Guthrie History of Medicine Lecture at the Royal College of Physicians in Edinburgh.[11]

Unfortunately, Bliss, who had been greatly looking forward to celebrating the centennial, died May 18, 2017. The Toronto centennial celebration, originally planned for 2021, was postponed because of the Covid-19 pandemic. Williams died in 2022.

Across the pond, McHardy, the Aberdeen City Council, and other partners promoted a "100 Years of Insulin: The Aberdeen Pioneers Walking Trail," highlighting buildings and other sites around the city important in Macleod's life and to the life of Robin Lawrence (1892-1968), a young Aberdeen physician whose life was saved by the discovery and who founded the British Diabetic Association. https://www.aberdeencity.gov.uk/sites/default/files/2024-03/Insulin%20Trail%20update%20Feb%202024.pdf (updated version)

On May 3, 2022, the Toronto Medical Historical Club (TMHC) hosted a symposium entitled "Banting, Bliss, and Beyond: Insulin 100, A Century of Science and Care" (http://www.torontomedicalhistoricalclub.ca/insulin-100-symposium/program/ ). The date was selected as it was 100 years to the day after Macleod presented his team's results at the Association of American Physicians meeting in Washington, D.C.; this meeting proclaimed the discovery to the world and was the first public use of the term "insulin." Fortuitously, the Covid delay allowed Dirks and the TMHC time to rapidly arrange a second event specifically celebrating Macleod, utilizing a subset of the speakers recruited for the headline event. "J.J.R. Macleod, Co-discover of Insulin – A Historical Workshop" was held the next day and was video-recorded (http://www.torontomedicalhistoricalclub.ca/insulin-100-symposium/j-j-r-macleod-co-discoverer-of-insulin-a-historical-workshop/ ); Associated Medical Services (the Hannah Institute for the History of Medicine) provided a grant subsidizing open access publication of full-length papers as a special issue of the *Canadian Journal of Health History*.[3,12-16] A second centennial celebration, this one honoring the 1st Canadian Nobel Prize, was held at UofT on November 27, 2023; the video-recording provides interesting insights into the animosity between the two Nobel Laureates (http://www.torontomedicalhistoricalclub.ca/celebrating-the-100th-anniversary-of-the-nobel-prize-for-the-discovery-of-insulin/ ).

Simultaneously back in Aberdeen, local businessman John Otto, a type-1 diabetic patient who has now been on insulin for 52 years, and his partner Kimberlie Hamilton, noting that Macleod had been "airbrushed from history," established the JJR Macleod Memorial Statue Society and began fundraising. Her Majesty Queen Camilla even provided a letter of support for the project. On October 12, 2023, a bronze statue designed by Scottish sculptor John McKenna depicting Macleod sitting on a park bench was unveiled at Aberdeen's Duthie Park. The statue is interactive as one can sit on the bench with him (**Figure 4**), scan a QR code, and an app will call your cellphone and Jack Macleod talks to you. On the morning of September 6, 2024, which coincided with Macleod's 148th birthday, the Macleod's Corner site was further embellished with a new set of cast bronze plaques commemorating Banting, Best, Collip, and Macleod ("the Toronto Four"). A small contingent from the TMHC (John Dirks, Peter Kopplin, Gary Goldberg, Chris Rutty, and Alison Li), Erling Norrby (former Nobel Committee member and now its historian), Ken McHardy, John Otto, and I spoke at a "Toronto Four Symposium" held at University of Aberdeen's beautiful King's Auditorium. The event was punctuated at its halfway point with a break for tea, birthday cake, and a champagne toast to Macleod. That evening, the speakers had a private dinner at Craigievar in Bieldside (i.e., Macleod's former home), hosted by the home's current owners. Before returning to Canada, we were able to view Macleod's Nobel citation and medal.

***Fig. 4:****Jim Wright sitting with his friend Jack at Macleod's Corner, Duthie Park, Aberdeen in September 2024.*

Fittingly, Macleod, Williams, and McHardy's educational pedigrees are similar; all attended Aberdeen Grammar School and were University of Aberdeen Medical School graduates. McHardy is currently leading an uphill process of turning Williams' long masterpiece article on Macleod into a book that will hopefully be published sometime soon by Aberdeen University Press.

Insulin is often considered to be one of the greatest medical discoveries of the 20th century. The 1923 Nobel Committee got it right, as both Banting and Macleod were necessary and neither was sufficient. Banting's unwavering belief in his great idea, which was physiologically unsound,[3] and his dogged determination got the ball rolling. Macleod gave him the opportunity to explore his idea, provided sage advice along the way, recognized the potential of the work by the end of 1921, refocused his lab on it in 1922-1923, provided early physiological insights into insulin's action, looked for other insulin sources, and orchestrated potential business alliances and local/international administrative structures to safely and optimally use insulin in North America, Britain, and around the world.[1-16] Macleod's reputation is worthy of restoration and this presidential message highlights the roles of Oslerians and Aberdonians in this reclamation project.

***See References on page 11.***

# Looking Forward to American Osler Society Meeting Toronto, Canada May 1-4, 2026

William Osler was born and spent his formative years in Canada West (previously called Upper Canada and now called Ontario) – more specifically in towns just west of Toronto (**Figure 1**). As a young man, he had two primary mentors, Reverend William Arthur Johnson and Dr. James Bovell. In January 1866, as a 16-year-old, Willie entered Trinity College School, a preparatory school founded by Johnson in Weston, which is now a neighborhood in Toronto. In addition to being an Anglican minister, Johnson was a naturalist. Johnson and Bovell jointly introduced Osler to microscopy and how it could be utilized to see microorganisms in water samples.

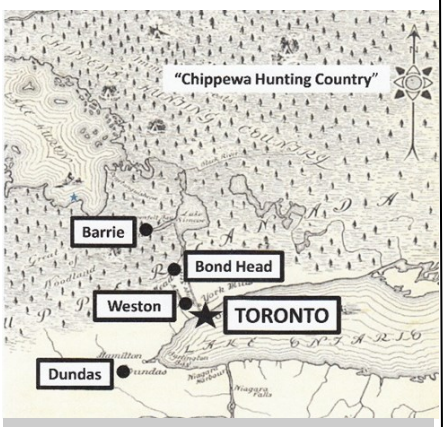


**Figure 1.** Young William Osler's homes and schooling sites. Credit: *Sir William Osler: An Encyclopedia* (Charles Bryan, editor).

The AOS has twice previously met in Osler's old stomping grounds. Our 11th annual meeting was held in 1981 at McMaster University in nearby Hamilton, which is near his childhood home in Dundas (which is still extant). Our 28th annual meeting was held in Toronto in 1998, where recently-elected member Michael Bliss presented an abstract simply entitled "A Work in Progress" that previewed his intensive research for *Osler: A Life In Medicine* published the following year. It has clearly been a while, therefore, since we last met in the region of Canada that shaped and meant so much to Osler. It is fitting and exciting to hold the 2026 AOS meeting in Toronto on May 1-4, dates carefully selected to not conflict with the meetings of the American Association for the History of Medicine and the Canadian Society for the History of Medicine or with Mother's Day.

Our meeting will be hosted by the 102-year-old Toronto Medical Historical Club (TMHC), under the direction of John Dirks and Peter Kopplin. The TMHC has always had close ties to Osler, whose nephew Norman B. Gwyn even fashioned the Club's meeting gavel from the timbers of the old rectory in Bond Head where Osler was born. Eric Linell, Club Secretary and likely Canada's first fulltime neuropathologist, led the TMHC's efforts to purchase a small plot of land at the former site of Featherstone Lake Osler's church where the memorial cairn that celebrates William's birthplace was built using stones from the foundation of the old parsonage (**Figure 2**). The cairn is now maintained by the TMHC and the local municipal government. The TMHC has recently hosted several successful symposia celebrating the centenary of the discovery of insulin as well as Canada's first Nobel Prize .

**Figure 2.** Osler's Cairn, Bond Head, Ontario. Credit: Peter Kopplin, Toronto Medical Historical Club

The 2026 Toronto AOS meeting will be held at the DoubleTree Hilton (108 Chestnut St). On Friday May 1, our registration desk will be open from 1-5 pm. The Frank Neelon Literary Gathering will be held from 3-5 pm. The Board of Governor's meeting will be held that evening. Members with free time on Friday may want to visit Craigleigh Gardens, the former estate of Sir Edmund Boyd Osler, one of William's older brothers (**Figure 3**). Edmund, a Toronto businessman and Canadian Pacific Railroad governor, helped subsidize William's medical education. A bronze plaque at the site explains how Edmond's children donated Craigleigh Mansion to the City of Toronto with instructions to demolish it and turn the estate into a 13-acre park.

**Figure 3.** Sir Edmund Boyd Osler's former Craigleigh Mansion, now the site of Toronto's Craigleigh Gardens Park (credit: https://americanaristocracy.com/

On Saturday May 2 and Sunday May 3, meeting sessions will be held from 8-5 pm with breaks for coffee and lunch. The John P. McGovern Lecture will be held immediately before lunch on one or the other day depending upon the speaker's availability. A reception will be held on Saturday evening; the banquet and Presidential Lecture will be held on Sunday evening. A lunchtime session on the utilization of primary historical sources is planned for one of the two days.

On Monday May 4, those with busy work schedules may depart first thing in the morning. For those with more leisurely schedules, we will visit the University of Toronto's impressive Thomas Fisher Rare Book Library (**Figure 4**) from 9-11:30 am. A special exhibit is being organized by Natalya Rattan (Fisher Library Archivist), Alexandra Carter (Science & Medicine Librarian), Tys Klumpenhouwer (Head, University Archives), and Chris Rutty, one of Michael Bliss's former Ph.D. students and current adjunct professor in the University of Toronto's School of Public Health. Chris, an active TMHC member, planned the exhibit for the centennial celebration of Banting's and Macleod's Nobel Prize (http://www.torontomedicalhistoricalclub.ca/celebrating-the-100th-anniversary-of-the-nobel-prize-for-the-discovery-of-insulin/). Likely the AOS exhibit will include many of the Nobel Prize centennial displays, including Banting's Nobel Medal. A selection of rare antiquarian books will be featured. The library holds the materials Michael Bliss used when writing his Osler biography and materials related to Bovell and Johnson. We also plan to have displays about Trinity College School, Trinity College, and Toronto School of Medicine where Osler began his studies. For those with additional availability, there will be an optional guided Insulin Walking Tour on the University of Toronto campus (2-4 pm) led by Peter Kopplin. Peter will be joined by TMHC members John Dirks, Alison Li, and Chris Rutty who will expound further on various important sites and Torontonians in this fascinating story.

**Figure 4.** Thomas Fisher Rare Book Library, University of Toronto. Credit: Paul Terefenko, photographer

For those with even more schedule flexibility, we are exploring the option of offering on May 5 a full-day bus tour of important Osler sites outside of Toronto, including the Bond Head cairn as well as a tour of Banting House National Historic Site in London, Ontario (https://bantinghousenhs.ca/ ). For this extra tour, those interested would need to sign up and pay an additional fee in advance (so that we can know what size bus we need to rent to drive us around).

It is easy to get to Toronto since more than 50 airlines operate direct flights to and from Pearson International Airport (YYZ). Some attendees may also be able to fly into the Billy Bishop Toronto City Airport (YTZ), just minutes from downtown Toronto. The weather in Toronto in early May is usually pleasant but may be cool (average daily high, ~62°F). If you have a few days free before or after the meeting, you may also want to visit the Hockey Hall of Fame and see the Stanley Cup, attend a Major League Baseball Toronto Blue Jays game, view Canadian Group of Seven paintings at the Art Gallery of Ontario or the McMichael Canadian Art Collection, or explore the Royal Ontario Museum (Canada's largest museum). You can enjoy fine dining slowly rotating at 1,141 feet above the ground in CN Tower 360 Restaurant, where daredevils can take an EdgeWalk, "the world's highest full circle hands-free walk."

Our pan-Ontarian Local Organizing Committee look forward to organizing a superb meeting and seeing you in Toronto! The LOC members are John Dirks (TMHC), Peter Kopplin (TMHC), Jackie Duffin (Emerita Hannah Chair of the History of Medicine, Queen's University), Susan Lamb (Hannah Chair of the History of Medicine, University of Ottawa), Vivian McAlister (retired surgeon and adjunct professor of medical history, Western University), and me, James Wright (University of Calgary).

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YOUNG OSLERIAN VIEWS

# Art and Medicine in Italy

*By Michael Stanley*

One casualty of the scholastic stricture of medical curricula in the USA has been the loss or half-hearted appeals to professional subjects that "the finer qualities of heart and head that count so much in life," which, "on account of the intimate personal nature of his work, the medical man, perhaps more than any other man, needs that higher education of which Plato speaks." And while the American medical student or doctor gets so little exposure to medical life beyond his borders, the world (for now) still walks through his waiting room, wherein today's doctor continues "working among all sorts and conditions of men, many of whom are influenced as much by his general ability, which they can appreciate, as by his learning which they cannot measure." Simply put, "One cannot practice medicine alone…and hope to escape the malign influences of life. … The practitioner needs culture as well as learning. … In no profession does culture count for so much as in medicine." With such ossified timelines, there is not the diastole to 'diligently dally' in Somewhere Else's medical ways which improved and perfected many of America's 19th and early 20th century healthcare worthies.

Osler encouraged travel, and one of the main ways that today's medical trainees can receive some kind peripatetic pedagogy is through the study-abroad offerings. I had the pleasure of joining just such a program as a "Professional-in-Residence," giving two lectures on the relationship between art and medicine for Missouri Southern State University art history professor Christine Bentley and biology professor Victoria Rhodes course: *Roots of Science- Art & Anatomy in Italy.* Their semester-long course concludes with a trip to Florence, Venice, Bologna, and Rome to see firsthand the Renaissance's effects on medicine and art. Almost twenty undergraduates, mostly pre-medical students and many of whom are already confirmed early admission to medical school *via* a special relationship MSSU has with University of Kansas School of Medicine. Students were expected to demonstrate an understanding of the impact selected scientists and artists has had on current scientific knowledge and its impact on society, discuss the scientific concepts associated with each scientist and artist as evidenced in the literature by and about them, and describe the historical and societal conditions impacting each scientist and artist. This is no Spring Break!

In Venice students were exposed to sites of early public health responses, including the creation of *lazzaretti* (quarantine islands like Lazzaretto Vecchio) to control plague outbreaks in the 14th and 15th centuries. A day's excursion from the city of Venice to the island of San Servolo introduced students to a common enough pattern in sites of medical care: an evolution from sacred to medical to educational use. The island's over 250 years as a mental institution is well-documented in its Museum of Madness, preserving rare medical artifacts, documents, and treatment records. One could step inside a series of rings in which inmates would have been pummeled by forced-water as part of hydrotherapy before seeing a reconstruction of their anatomy room with preserved brains from the patients, but also see the beautiful works of art and crafts, even music, that inmates were encouraged to engage in as part of their treatment. The tensions of Psychiatry's history could be taught in that one room. Students returning to the city spent time in an interactive museum devoted to Da Vinci drawings, including constructions of some of his machines. These objects served as subjects to be sketched as part of a series of interpersonal and professional-development training workshops, proving a creative way for students to reflect upon how humanity and medicine enrich each other and hone their skills in observation and communication. Students then saw how Renaissance artist's schematics meshed with

***Image of Lazzaretto Vecchio***

***Da Vinci's Fetus in utero***

medical anatomical and medical drawings and depictions while visiting the Scoula Grande di San Marco (Medical History and Ancient Pharmacy Museum & Medical Library).

Another key objective of the class is for students to appreciate how changes in technology allow both the artist and the scientist to advance the kinds of questions they seek to answer and worlds they wish to explore. Students are expected to see, handle when able, and understand how the lab and artistic equipment available to each scientist and artist was used and its relationship to today's medical equipment. Anatomical models, surgical instruments, and medical books were the technologies we explored. In Sienna, students met with the anatomy teacher of the medical college at University of Sienna to see their Museo Anatomico. In Italy today, it is extremely difficult if not impossible to donate your body for medical education. Pieces are purchased (yes, there's still a trade in bodies!), and students largely observe a prosector rather than engage in dissection themselves. This is in stark contrast to Sienna's history of being a major influence on the study of anatomy, and students remarked at the contrast between the rich holdings of 19th century plasticized anatomical materials and the poverty of cadavers to learn from. Later that day, physician and medical historian Dr. Orsini of the Fisiocritici (Museum of Medical Instruments) showed us the remarkable full-scale anatomical drawings from the 18th and 19th century, as well as wooden and wax replicas of choicely dissected comparative anatomy, and then concluded our visit in a recently discovered Baroque chapel (yes, only discovered 2 years ago when he pushed aside boxes that obscured a door leading into it), where he had artfully arranged the medical instruments in harmony with the ecclesiastic environment. This complemented our visit to the Santa Maria della Scala, now a museum celebrating its proud tradition of charity hospital work. The docent told us how when she was a young woman the emergency room still sat beneath the impressive renaissance and frescoes and how strange but pacifying it was to heal beneath so beautiful a work of art.

***Museo –Anatomica, Sienna, Italy***

In Florence we saw Galileo's mummified finger preserved like a holy relic next to his compound telescope lenses set in silver like an adoration host. We crossed the ponto Vecchio to see a small crucifix carved by Michaelangelo given to a padre of a church in gratitude for letting him anatomize and sleep in the church (Christ's body looks adolescent because that was the age of the body Michelangelo was studying). And on the last day we toured the eerily nearly-animate wax bodies of La Specola, one of the world's oldest scientific museums, developed by Grand Duke Peter Leopold of Lorraine to assist the teaching of human anatomy through the Francesco Calenzuoli, Luigi Calamai and Clemente Susini. The intricate and delicate waxworks allow spectators to different organ systems separately or as they parallel and integrate in different layers and compartments, but they are posed with gestures as evocative as a sculpture of Michelangelo.

For most of the students it was their first time leaving the USA, and on the strolls over Venetian bridge or an espresso ringside of a Florentine palazzo the students reflected upon how the act of traveling in distance and time had deepened and broadened their understanding of what a doctor is and what the art of medicine is all about.

College courses like *Roots of Science- Art & Anatomy in Italy,* just like The Bernadett Family International Medical Student Scholarship Award of the American Osler Society should be proud of the herculean effort to promote the kind of cultural exchange and examination that Osler felt was vital to the making of a doctor.

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YOUNG OSLERIAN VIEWS

# Osler Society at the University of Western Ontario is 100 years old

*By Vivian McAlister*

A century ago, University of Western Ontario faculty member, Dr. James Crane, was a mentor to colleagues and students alike. In 1919, he organized members of faculty into a dinner cum continuing education group. Members suggested that they call themselves the Osler Club, but demurred fearing it implied that Osler was dead. So they took the name the Harvey Club instead. In 1923, Crane visited Lady Osler in Oxford. When medical students, whom he was mentoring, suggested that they form an Osler Society in 1925, Crane agreed. Norman Gwyn, Osler's nephew, supported the endeavor. They did not secure Lady Osler's permission nor have a written constitution until 1927. Since 1931, the society has been using a gavel made from wood from Bond Head that was presented by Norman Gwyn. The Osler Society has been enriching the medical school experience of students for 100 years. Many members joined the Canadian Forces during the Second World War and many veterans joined the Osler Society when they entered medical school. Today the Osler Society supports Western medical students in their efforts to learn more about the world and the history of medicine. The late Paul Potter, 1999 McGovern lecturer, and the current Hannah chair, Shelley McKellar, continued Crane's tradition of mentorship. Osler members have won many student awards from AOS and Canada's History of Medicine Days in Calgary. An exhibition called *Dare We Dream* was mounted to celebrate the first 100 years of Western's Osler Society (https://verne.lib.uwo.ca/s/osler-exhibit/page/oslersociety). More information is available from *vmcalist@uwo.ca.*


**Osler Society 1925**

**Osler Society 2024-2025**

# Humanities

## POETRY CORNER

**From Confidence therein seek Humility**
*By Sharon Vaz*

In the realm of medicine, confidence is key
Science begets the answers
Solutions wrought from expertise

Yet we must remember, every diagnosis is uncertain
Each patient unique, no surety determined
Despite our capabilities, humility unburdens

For we are guides, not all-knowing
True wisdom within our limits,
And learning ongoing,
Respecting both the science and the human spirit

**From Humility therein seek Confidence (Poem Reversed)**

Respecting both the science and the human spirit
And learning ongoing,
True wisdom within our limits,
For we are guides, not all-knowing

Despite our capabilities, humility unburdens
Each patient unique, no surety determined
Yet we must remember, every diagnosis is uncertain

Solutions wrought from expertise
Science begets the answers
In the realm of medicine, confidence is key

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One of Sir William Osler's most captivating reflections "Medicine is a science of uncertainty and an art of probability"[1] served as the inspiration for this poem.

When read from top-to-bottom, the poem begins with the notion that medicine surely stands on its own two feet, firmly grounded in both scientific knowledge and the expertise of all who contribute to the field of medicine. However, our confidence in the scientific method and our own capabilities must be tempered with both humility and uncertainty when treating patients. For "the good physician treats the disease; the great physician treats the patient who has the disease."[2] The "great physician" strives to fully understand their patients in their unique circumstances and context. Medicine rarely answers in absolutes and perhaps in acknowledging one's limitations is where true wisdom lies.

When read in the reverse direction, from bottom-to-top, the poem emphasizes that it is only with humility can science be advanced. As Osler has mused, "The philosophies of one age have become the absurdities of the next, and the foolishness of yesterday has become the wisdom of tomorrow."[3] Scientific advancement requires one to accept the possibility of being wrong and to continually search for other answers. The "great physician" undertakes the commitment to lifelong learning to inspire confidence both in themselves and their patients. For "a man must have faith in himself to be of any use in the world."[4]

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# OSLERIAN VIEWS


***Sir William Osler looks down at the author, who is holding his new toy, a model of the* William Osler *Pullman sleeper car purchased from the Atlas Model Railroad Company. An advertisement for the model (second panel from the top) shows the car as it would have appeared on a track with a hillside in the background. Removal of the model's top (third panel from the top, left) reveals paired seating areas. At night these were converted into upper and lower berths separated from the center aisle by heavy curtains, and from the next section by a thin wall. A photograph of the* William Osler *(third panel from the top, right) confirms the two-tone gray color. Another model railroad manufacturer made a prototype* William Osler *sleeper car that is painted olive green rather than the original two-tone gray (second panel from the bottom). A photograph of the* William Osler *taken in December 1962 (bottom panel) suggests that age had darkened the original two-tone gray, or that the car might have been repainted.***

## *Journal of an Oslerian:*

**The William Osler Pullman car:**

At the 1999 AOS meeting in Montreal, Marilyn Fransiszyn of McGill and I separately presented papers on the SS *William Osler*, a World War II Liberty ship that was later converted into an army hospital ship and renamed the USAHS *Wisteria*.[1] I closed my presentation with a quip that my next AOS paper would concern the *William Osler* Pullman car.

I knew that the legendary Osler devotee Ester Rosencrantz (1876−1950) had ended her magisterial paper on posthumous tributes to Osler by stating, "Among the unusual tributes is the Pullman car 'William Osler,' regularly operating as a part of the train known as the 'West Coast,' on the Los Angeles to Portland service of the Southern Pacific Railroad."[2] Was there more to be learned?

Recently, on a whim, I Googled "William Osler Pullman car" and was thrilled to learn that a scale model was available for purchase (Figure). I then learned a lot about Pullman cars in general, and about the *William Osler* in particular. I had always assumed that all Pullman sleeper cars were like the ones on the Seaboard Air Line Railroad that took me northwards from Columbia, South Carolina, during the 1950s and 1960s.

The heyday of Pullman car manufacturing occurred during the mid-1920s and featured high-end and low-end configurations to meet the expectations and budgets of various travelers. The author of a book chapter on "naming the cars" observes that Pullman car manufacturing became "a steely-eyed, cold-hearted economic enterprise at the same time it was naming cars *Petunia*, *Buttercup, and Kickapoo*." Moreover, "named cars humanized and personalized what had become a large, frightfully efficient corporation." More than 21,600 names of Pullman cars are included in a compendium.[3]

The *William Osler* was a low-end Pullman car. It was a 14-section sleeper built according to Pullman Plan 3958, designed for the budget-minded passengers willing to give up privacy for a lower fare. During the day, passengers occupied fourteen paired seating areas (*see* overhead view in Figure, third row from the top). As night fell, these were converted into upper and lower births separated from the center aisle by curtains and from the adjacent sections by thin walls. There were no private lavatories.

The *William Osler* was completed in March 1927 as one of twenty 14-section sleepers in lot 6054, intended for general service.[4] It was among the cars retained by the Pullman Company after a court ordered the divestiture of most of its cars by December 31, 1948.[5,6] In 1966 the *William Osler* was sold for scrap to the Hyman-Michaels Company, one of the leading scrap-metal operations in the U.S. during the postwar era.[6,7]

The *West Coast* was, as Ester Rosencrantz noted, a through train that went back and forth between Los Angeles and Portland. It began in 1924 and received the name *West Coast* in 1927, the same year the *William Osler* was built. By one account, the *West Coast* ran by way of the San Joachin Valley; by another account, the routes varied. It was discontinued north of Sacramento in 1949 in favor of two other trains. In 1960, operation of the *West Coast* between Los Angels and Sacramento was discontinued.

The *William Osler* was a "heavyweight sleeper," and may have been dropped from the *West Coast* in favor of the newer lightweight sleepers since, according to one source, "by 1953, there was no regularly scheduled Coast Route train using heavyweight sleepers."[5] A website listing the composition of the *West*

# OSLERIAN VIEWS

*Coast* during 1946 does not show a 14-section sleeper.[8]

My model is two-tone gray. A blogger who goes by Night Owl Modeler suggests that Walthers, another model train manufacturer chose the name "William Osler" for its 14-section sleeper "because the car lasted into 1966 and was not repainted into the Southern Pacific dark olive green."[9] I was unable to find a Walthers *William Osler* on the company's website. A 1962 photograph (Figure) suggests the original two-tone gray paint on the *William Osler* had darkened or that the car might have been repainted.

The quest continues. Meanwhile, my *William Osler* Pullman sleeper car sits atop a bookcase flanked by a William Osler mug and a bottle of Osler beer brewed by the Johns Hopkins Osler medical house staff.

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## Notice of Publication of The Journal of the Young Oslerians

With this issue of the August *Oslerian Newsletter,* is published a Supplement, *The Journal of the Young Oslerians.* The dream of publishing a journal supported by the American Osler Society has been contemplated for a number of years. The reality of doing so has been elusive due to the expense and challenges of publishing such a dream. In lieu of attempting to publish a hard copy journal, a proposal to publish an online version as a Supplement to the *Oslerian Newsletter* was approved by the Board of Governors as an experiment to tip-toe into the water of publishing a journal. The intent of this Supplement is to solicit manuscripts from medical students, residents, and young physicians who had their abstracts accepted and presented at the most recent AOS Annual Meeting. Authors of those abstracts were solicited to submit a manuscript . Of the 20 or so presentations by students at the AOS Meeting only 3 students submitted manuscripts. Of those 3, all were deemed worthy of publication and are available for your viewing in the attached Supplement. I hope you enjoy the work of these Young Oslerians..

*Michael Malloy*
*Editor*

**The President's Message (continued from page 3)**

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***The* AMERICAN OSLER SOCIETY *exists to bring together members of the medical and allied professions, who by common inspiration are dedicated to memorialize and perpetuate the just and charitable life, the intellectual resourcefulness, and the ethical example of Sir William Osler, who lived from 1849 to 1919. The* OSLERIAN *is published quarterly.***

**We're on the Web!**
**√ us out at: www.americanosler.org**

# Looking Forward to Toronto

The 56th meeting of the American Osler Society (AOS) will be held in Toronto, Canada, from May 1-4, 2026. We enthusiastically await your arrival. The weather in Toronto is usually perfect at this time of year. Save the date now!

## Call for Abstracts for Annual Meeting in Toronto, Canada, May 1-4, 2026

**Abstracts are to be submitted via an online application process**. The online site will become available at https://www.americanosler.org/ from **Oct 1 to Nov 15, 2025**. Abstract submission is restricted to currently enrolled medical students, residents, fellows, active and retired physicians and members of the AOS**. The abstract title should be followed by the author(s) name(s), affiliations, and biographical sketch (limited to 80 words).** The biographical sketch is a description the moderator can use when introducing you. We will print exactly what you write here in the program. You should write in the third person, e.g., if you were William Osler, you could say, "Dr. William Osler is Professor of Medicine at the newly opened Johns Hopkins School of Medicine. He is the author of The Principles and Practice of Medicine, recently published by D. Appleton and Company. Dr. Osler has held previous academic appointments at Penn and McGill in Montreal."

**The abstract should be no longer than 370 words**. The text of the abstract should provide sufficient information for the Program Committee to determine its merits and possible interest to the membership. The problem should be defined and the conclusions should be stated. Phrases such as "will be presented" should be avoided or kept to a minimum. **Only one abstract per person will be accepted**.

Three learning objectives should be given after the abstract **(limited to 12 words each)**. Each learning objective should begin with an active verb indicating what attendees should be able to do after the presentation (for example, "list," "explain," "discuss," "examine," "evaluate," "define," "contrast," or "outline"; avoid noncommittal verbs such as "know," "learn," and "appreciate"). The learning objectives are required for Continuing Medical Education credit.

Each presenter will have a 20-minute time slot, which will be strictly enforced. Presenters should rehearse and time their papers to 15 minutes, in order to permit brief discussions and to be fair to the other speakers. Although 20 minutes might seem quite short for a paper in the humanities, our experience with this format has been overwhelmingly favorable.

**AOS Members —** *Please forward to the editor information worth sharing with one another as well as "Opinions and Letters".* - MHM (mmalloy@utmb.edu)

# The Journal of The Young Oslerians

*A Supplement to the Oslerian Newsletter*

A publication of
THE
AMERICAN OSLER
SOCIETY
*James R. Wright, Jr., President*


*A publication dedicated to the advancement of medical student, resident, and young phiysician scholarship.*

**Volume 26 - Issue 2 - August 2025: Supplement 1**

# Journal of the Young Oslerians

**Volume 26 — Issue 2 — August 2025 : Supplement 1**



## CONTENTS

### Original Articles

*Journal of the Young Oslerians, 2025,26(2),Supplement 1:15-18*
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**Original article**

# The Moral Responsibility of the Medical Professional: Religious Lessons from Thomas Browne's *Religio Medici*

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As Sir William Osler (1849-1919) laid in his coffin in 1919, atop of him was a copy of Sir Thomas Browne's (1605-1682) *Religio Medici ("The Religion of a Doctor")*– a beloved piece of literature (1). Today, Osler is regarded as an astute clinician. He not only relied on history gathering and physical exams to diagnose his patients, but Osler also emphasized the importance of patient-centered care– one that considered the well-being of an entire person beyond their physical ailments. Despite being regarded as a religious skeptic by the end of life, Osler's ethical view can be traced back to Browne's deeply reflective writings. *Religio Medici* blends science, spirituality, and ethical inquiry in a way that continues to resonate today.

This article explores the historical development of public health in the United States and examines how Thomas Browne's medical ethics, filtered through the life and legacy of William Osler, laid the groundwork for a moral approach to medicine that includes—but also transcends—clinical care. It argues that today's physicians, inspired by Browne's call to moral responsibility, have a vital role to play not only at the bedside but also in the broader public health arena.

Sir Thomas Browne was a physician, writer and philosopher. His first love, medicine, prompted him to study at Oxford and the Universities of Padua, Montpellier and Leiden and eventually practice medicine for 40 years (2). Fascinated by science as well as theology, Browne sought out to investigate the question of morality, religion and the human condition as it pertained to suffering. *Religio Medici* became a literary escape for Browne and a way to express his thoughts as well as explore the interplay between his Christian faith and his professional identity as a physician(1). What started out as an introspective essay that Browne never intended to publish, went on to become a paper with profound literary and philosophical influence. *Religio* was published in 1643 and was seen as a bit heretical for Browne's time. His reflections on death, human suffering, the soul, and the physician's moral obligations would go on to influence generations of medical thinkers—including Sir William Osler, who considered it one of the most spiritually rich works ever written by a doctor.

During the 17th century, medicine was evolving but it was also tethered to the mainstay theological and classical philosophies of the time. Physicians had to find a way to intertwine their faith, as most were Christians, with sound empirical judgement. However, given the tragedies of the time such as the Great Plague of the 1660s, Browne as well as other physicians were burdened with understanding morality and human vulnerability. Though *Religio Medici* was written at a time marred by grave human suffering, it was not a grim text but rather one that is contemplative, hopeful, and infused with a sense of reverence for both divine creation and human dignity.

Many times throughout *Religio Medici,* Browne asserts that physicians bear a spiritual responsibility to not only heal but also advocate, serve, and elevate the human condition. He wrote, "I have resolved to pray more and to do more good," a sentiment that reflects a calling beyond diagnostics. Browne recognized that health is not solely a bodily state, but a condition that "runs through all degrees and estates of men," one that medicine alone cannot fully reach.

This began to set the stage for the public health school of thought that health is not solely dependent on physical wellbeing or merely the absence of disease in an individual but rather, it must be viewed as a collective, societal pursuit. Browne's writings, though far preceding the official birth of the public health discipline, illuminated the core values of the field: prevention, equity, and service to the under-

served. His religious convictions led him to see each patient as a reflection of the divine, thus rejecting any form of social or moral neglect. This shift was most evident in Sir William Osler and his legacy as a great clinician and compassionate physician. In his youth, Osler was committed to the Christian faith with hopes of even entering Christian ministry. Although Osler ultimately chose medicine, he applied lessons from his faith and Browne's teaching to his practice. His life's work represented a secularization of Browne's religious vision, preserving the essence of moral responsibility while adapting it to a pluralistic and increasingly scientific world.

The fundamental principles of Oslerian medicine include providing compassionate, personalized medical care that emphasizes the patient-physician relationship; a sound scientific basis for care; and professionalism. Osler summarized this with the statement, "The good physician treats the disease; the great physician treats the patient who has the disease (4)." Like Browne, Osler emphasized that the physician's duty extended beyond the clinic—into the community, into public service, and into advocacy for the vulnerable. Yet, Osler did so through a lens of secular humanism rather than religious doctrine. In his article *The Faith that Heals,* Osler states, "Never before in a history… has so monstrously puerile a belief [Christian Science] been exploited. To deny the existence of disease, to deny the reality of pain, to disregard all physical measures of relief… in a return to Oriental mysticism– these indeed, expressed a revolt from the materialism of the latter half of the nineteenth century at once weird, perhaps not unexpected, and, to a student of human nature, just a bit comic"(5). This quote clearly exemplifies Osler's declaration that ignoring sound scientific discovery for a purely religious understanding of medicine is strange and quite comical. However, the moral core remained. This interplay between medicine and religion defined by Osler helped embed moral duty into a physician's identity.

To fully understand the physician's role within public health, the history and relevant context of the field must be examined. Public health, at its core, is focused on preserving the health of populations and communities rather than the sole individual. It emphasizes the importance of collective responsibility to promote better physiological, psychological, emotional and social health. This is in direct contrast to traditional medicine that focuses on the individual and restoring health in that one person. This moral and civic vision of health has deep historical roots in the United States, emerging long before public health became a formal profession and was surprisingly – begun by physicians.

In colonial America, infectious diseases ran rampant. Outbreaks of smallpox, yellow fever, and the plague riddled cities like Boston and Philadelphia showing people that there was a need to not just protect individuals but the larger community. By the 19th century, America had ushered in the Sanitary Movement. As the country grew, overcrowding and lack of disease control perpetuated a continuous state of sickness in America. In response, reformers like Lemuel Shattuck called for a more structured approach. His 1850 *Report of the Sanitary Commission of Massachusetts* advocated for comprehensive public health systems: clean water, waste disposal, vaccination programs, and systematic data collection through vital statistics. Though largely ignored at the time, the report became a foundational document, shaping the development of state and local health departments as well as laying the groundwork for population-level prevention (6).

By the late 1800s, public health had begun to institutionalize. The Marine Hospital Service, established in 1798 to care for sick seamen, gradually evolved into the U.S. Public Health Service (USPHS), taking on responsibilities like quarantine enforcement and disease surveillance. Breakthroughs in bacteriology and germ theory transformed sanitation from a purely moral imperative into a scientifically grounded public health strategy. The long-held belief that "cleanliness is next to Godliness" shifted from a focus on individual hygiene to a community-wide initiative, catalyzing the growth of health departments and expanding immunization efforts nationwide.

During the Progressive Era (1900–1930s), public health expanded to address the social determinants of disease. Reformers, mostly physicians, focused on improving maternal and child health, workplace safety, and housing conditions. This era focused on the country's most vulnerable– the poor and immigrant communities– and developed programming and organizations that were rooted in social equity and ethical concern, echoing Browne's insistence that health and dignity are inseparable. By the mid 20th century, the advent of the Centers for Disease Control and Prevention (CDC) in 1946 marked the federal government's commitment to disease surveillance, outbreak response, and immunization on a national scale. Out of this came victories such as the polio vaccine and widespread dissemination of penicillin championed by individual physicians who saw the importance of public health. Throughout its evolving history, public health has maintained a clear ethical through-line: a commitment to justice, prevention, and the dignity of all people. These principles are not new. Long before public health became a codified field,

Thomas Browne's writings reflected this same ethos. In this light, Browne stands as an early moral architect of public health thought, his legacy continuing in the hands of physicians who see beyond the clinic to the wider world in need of healing.

Fortunately, there are many physicians heeding to the call of Sirs Browne and Osler to cater to the "collective well-being." During the COVID-19 pandemic, for example, doctors served not only as frontline caregivers but as scientific communicators, advocates for vaccine equity, and leaders in policy reform. Many used their platform and position in society to speak out publicly against misinformation. In the world of social media, physicians have used this unconventional, yet profoundly influential, mode of communication to spread awareness about different policies that affect patients, different advancements in healthcare, and to inform the general public with sound medical advice.

Internationally, physicians are also harking to the call from Thomas Browne to put the patient's needs above their own. Specifically, the Yemen Famine crisis demonstrates how extreme famine, breakdown of systemic protections, and warfare can quickly become a public health emergency, necessitating the moral vision of a physician. In Yemen, more than 24 million people, including 13 million children, remain in need of humanitarian assistance. Physicians have dedicated themselves to not just treating the disease, but treating the patient. In addition to addressing infectious diseases like cholera, physicians have, through organizations like Doctors Without Borders and the International Medical Corps, formed the backbone of the country's emergency health response. They have helped reestablish basic vaccination services, and conduct nutritional surveillance for at-risk populations all contributing to preventing disease rather than just reacting to it. These physicians champion public health by addressing water contamination, coordinating contact tracing and advocating for food, water, and medical assistance from world superpowers. The commitment of these physicians and other healthcare professionals in these settings clearly represents an extension of Thomas Browne's belief that a physician's duty is not limited to physical healing but includes moral and social stewardship. In Yemen, health is not only about restoring function to the individual body but restoring justice, infrastructure, and dignity to entire communities.

The love story of public health and the physician does not have to end there. The current healthcare landscape has become increasingly more complex. Populations are growing and living longer resulting in more individuals with chronic diseases. Thanks to technological advancement and discovery, diagnosing and treating a plethora of conditions has become more sophisticated and attainable. Despite physicians' capabilities to treat patients when they present in hospitals and clinics, the growing burden of preventable disease, structural inequities, and global health crises has made it increasingly clear that modern physicians must also be public health advocates. Physicians trained exclusively in hospital-based or outpatient care may not always be prepared to tackle the broader determinants of health: food insecurity, housing instability, racism, pollution, or legislative neglect. A 2019 survey of Chicago physicians—serving a population heavily impacted by social determinants of health—found that only 45% had interacted with public health in the past two years, and just 46% were aware of local public health organizations (7). This may be partly attributed to medical curricula that often lack sufficient emphasis on public health. While recent advancements—such as dual MD/MPH programs—reflect growing efforts to integrate public health into medical education, a significant gap remains. In practice, many physicians face the difficult choice between focusing solely on traditional clinical care or incorporating broader public health approaches into their work—often without clear guidance on how to effectively bridge the two. Additional solutions may include administration buy-in to encourage a multidisciplinary approach to healthcare that optimizes care for all aspects of a person's life.

The physician's duty has always extended beyond the body and the four walls of the patient room. From Thomas Browne's spiritually grounded vision of care to William Osler's humanistic ethics, medicine has been understood not simply as a science, but as a moral calling. In today's current healthcare climate where misinformation runs rampant, preventable chronic diseases have plagued millions, and there is an ever-growing divide between physicians and public health officials– there needs to be an evolution in the boundaries of medicine. The modern physician cannot be content with a reactive approach to illness. Rather it is imperative physicians incorporate a public health centered approach to medicine. The writings of Thomas Browne, particularly *Religio Medici*, offers hope and guidance as to how physicians can heed to the call to preserve life as opposed to just preserving health. Similar to public health, Browne underscores the ethical duty of doctors to "place the patient's interests above his or her own self-interest."(1) Osler's reinterpretation of Browne's ethos into a secular, professional identity demonstrates how such moral commitments can flourish even outside of religious contexts.

To address this challenge, seamless and significant inclusion of public health curricula into medi-

cal education can serve as a stepping stool to prepare future physicians to bridge this divide. Public health courses should not just be optional add-ons, but rather a core of one's education. Institutions must support and reward physician engagement in advocacy, policy, and community outreach. Similarly, for practicing physicians, they must push and advocate for public health initiatives to be heavily integrated into healthcare systems. These initiatives must then be celebrated and rewarded by administration to encourage even more physicians to continue to serve their patient populations.

Ultimately, the health of a community is the true measure of medicine's success. If we are to live up to the highest ideals of our profession, we must embrace the truth that healing is not only an act of care—but of courage, conscience, and collective responsibility. In the spirit of Browne and Osler, modern physicians are called not just to treat the sick, but to shape a world in which fewer people become sick to begin with, because as Sir William Osler put it, "to serve the art of healing, one must love mankind (8)."

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**Biography:**
Clara is a third-year medical student at the University of Texas Medical Branch in Galveston, Texas. She attended Vanderbilt University in Nashville, Tennessee, majoring in Medicine, Health, and Society with minors in Business and Psychology on the Pre-med track. She was originally born in Ghana, West Africa but relocated to the United States at the age of 1. In medical school, Clara has served as the 2024-2025 UTMB Student National Medical Association (SNMA) Chapter president, the Pan African Student Society (PASS) co-president, a Vesalius Osler Student Society Coordinator, an intern on the St. Vincent's Student Clinic Admin Committee, a Student Ambassador for the Office of Admissions, a peer tutor, and the Treasurer of the Emergency Medicine Interest Group. Clara is very passionate about medicine, community, and addressing disparities that exist within various communities. She hopes to pursue a career in Emergency Medicine or General Surgery, joining the U.S. healthcare industry's first line of healthcare providers. ***Cldokyi@utmb.edu***

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**Original article**

# Nunca Vamos a Rendirnos: The Enduring Legacy of Dr. José Celso Barbosa in Medicine and Social Justice

Guadalupe Jose Rodriguez

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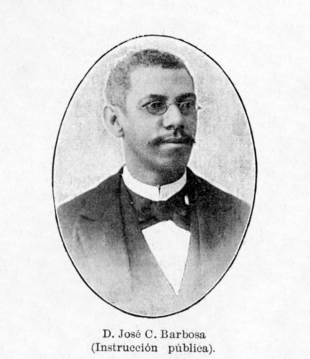


***Portrait of Dr. José Celso Barbosa Alcalá, May 30th, 1898. (Public domain image)***

## Introduction

In the grand tapestry of Puerto Rican and Afro-Latinx history, Dr. José Celso Barbosa Alcalá (1857-1921) stands out as a figure of unyielding determination, intellectual brilliance, and moral courage. Widely recognized as the "Father of Puerto Rican Statehood," Barbosa's life intertwined medicine, social justice, and political advocacy in unprecedented ways.

Born in 1857 in Bayamón, Puerto Rico, during a period when slavery was still legal on the island, Barbosa grew up amidst the hierarchical structures that Spanish colonialism created and which placed Black Puerto Ricans at the bottom of social, economic, and educational systems. Despite this, he was exceptionally intelligent and demonstrated a fierce commitment to challenging these limitations early on. His rise from poverty to become the first Puerto Rican to graduate from a U.S. medical school, and later one of Puerto Rico's most influential political leaders, illustrates the transformative potential of education, perseverance, and moral conviction.

This manuscript explores Barbosa's biography beginning from his early life under Spanish colonial rule and his educational struggles in the United States to his contributions to public health and his leadership in Puerto Rican politics.

## Growing Up in Colonial Puerto Rico

José Celso Barbosa Alcalá was born on July 27, 1857, in Bayamón, Puerto Rico, during a time when slavery remained legal and racial hierarchies structured daily life. He was the son of Hermógenes Barbosa, a brick mason and overseer of the San Antonio sugar mill, and Carmen Alcalá, a seamstress (1).

Barbosa's birth occurred during the height of sugar plantation economies that dominated Puerto Rico and the Caribbean. More importantly, slavery was not abolished in Puerto Rico until March 22, 1873, therefore Barbosa spent his formative years witnessing firsthand the dehumanizing effects of slavery and

racialized systems. As a Black child born free but surrounded by enslaved people, Barbosa lived at the intersections of racial caste systems that defined social mobility in the Spanish colonial empire. While his access to advanced education was limited by his family's poverty, his maternal aunt, Lucia Alcala, whom he called "Mama Lucia", ensured he would not be confined by these limitations. Her unbreakable faith in his potential and the sacrifices she made for his schooling became the foundation that shaped his life.

**Seminary Education Amidst Racial Hierarchies**

In 1870, at the age of thirteen, Barbosa enrolled in the Seminario Conciliar de San Ildefonso in Old San Juan, the only secondary institution on the island. He broke a longstanding racial barrier in an institution traditionally reserved for the white criollo elite by being the first mulatto student admitted (2). Although he overcame the challenge of being admitted to this institution as a Black Puerto Rican, his years there were marked by social isolation due to pervasive racism and a society that did not recognize the right of the children of workers to become professionals (3). Teachers and classmates frequently belittled him for his dark skin and poor background, reinforcing the colonial caste system that sought to limit the aspirations of Black Puerto Ricans.

Despite this hostile environment, Barbosa excelled academically, mastering subjects such as Latin, philosophy, rhetoric, and classical literature. He graduated in 1875, at the age of eighteen, with honors. These formative years convinced him of the power of education as a tool for liberation and personal dignity. Yet they also made him acutely aware that intellectual achievement alone could not erase the entrenched racism of colonial society, a tension that would remain central throughout his life.

**Facing Racial Discrimination in Higher Education**

After graduating, Barbosa saved enough money to pursue a higher education in the United States by working as a private tutor for the children of Mr. José Escolástico Berríos, owner of the San Antonio Sugar Mill (3). On October 19, 1876, he traveled to New York City and enrolled at the Fort Edward Collegiate Institute to master English. He was initially inspired to pursue a degree in Law or Engineering by Puerto Rican intellectuals who advocated for legal reforms against Spanish colonialism (4). However, his plans changed after suffering through a severe case of pneumonia. His physician, Dr. Wendell, recognized Barbosa's analytical mind and relentless desire to serve others and suggested he pursue medicine.

It was this pivotal moment which led Barbosa to apply to Columbia University's College of Physicians and Surgeons in 1877. Despite his academic brilliance and recommendations, Columbia rejected his application solely due to his race. The minutes from a faculty meeting discussing Barbosa’s application stated, “Resolved, that from this date forward this College will decline to receive ‘colored’ applicants for matriculation,” (5). This blatant discrimination exemplified the exclusion African and Latinx students faced in American educational institutions, a legacy that continues to impact underrepresented minorities today.

Undeterred, Barbosa applied to the University of Michigan Medical School. After initial hesitation, the institution accepted him, marking him as its first Puerto Rican student and one of its earliest Afro-Latino medical students (6). His admission received mixed reviews but surprisingly a student publication, *The Chronicle*, praised his admission and emphasized merit over racial background, stating, “We have no hesitancy in saying that Mr. Barbosa will have the right hand of fellowship extended to him from every side…young gentlemen of sufficient ability are admitted on equal footing irrespective of complexion. It not being the amount of pigment matter deposited in the skin that is sought after; but the quantity and quality of the brains in the cranium” (5).

During his years from 1877 to 1880, Barbosa excelled academically despite enduring racial segregation in housing and social life. On July 1st, 1880, Barbosa graduated as valedictorian, becoming the first Puerto Rican to earn a U.S. medical degree and solidifying his place as a pioneer in Afro-Latinx medical history.

**Returning to Puerto Rico: Contributions to Medicine and the Structural Barriers**

Upon his return to Puerto Rico in late 1880, Dr. José Celso Barbosa faced three immediate barriers to practicing medicine. The first was being a working-class man, the second was being the first black physician, and the third was holding a diploma from an American university (3). Spanish colonial authorities refused to recognize his U.S. medical degree, asserting that only European credentials were valid for licensure. It was only through direct intervention by the American consulate that Barbosa's degree was eventually recognized, allowing him to begin clinical work (4).

Once he was allowed to practice medicine, Barbosa immediately established his own medical practice in San Juan which focused on Afro-Puerto Rican and impoverished communities that were historically excluded from healthcare systems. He quickly gained recognition for his innovative treatment protocols, particularly during a smallpox epidemic where his American-based vaccination and isolation practices saved countless lives. It was at his clinic where patients, regardless of their ability to pay, were treated with dignity and received the care they desperately needed. Barbosa recognized that healthcare was a human right and this strong conviction to provide care for all patients, regardless of social or economic status, was what drove his professional life.

His contribution to healthcare did not stop at his clinic. Perhaps his most revolutionary contribution to public health was his advocacy for employer-supported health insurance. Under this model, employers paid a fixed fee in advance to cover future medical care for their workers and families. This concept, introduced decades before similar systems in Europe and the U.S., reflected Barbosa's vision for structural solutions to health disparities (2).

Barbosa also advanced medical education in Puerto Rico by joining the faculty at the Ateneo Científico y Literario. He taught natural history, anatomy, obstetrics and midwifery, fields central to public health and maternal-child care at the time (1). His lectures integrated American clinical innovations with local traditional knowledge. His insistence on rigorous science coupled with community-centered ethics left a lasting mark on generations of Puerto Rican physicians.

**Early Political Involvement: Liberal Reformist and Autonomist Movements**

Barbosa's involvement in politics began in 1883 with the Liberal Reformist Party, advocating for moderate reforms within the colonial government. He later joined the Autonomist Party, working alongside Puerto Rican intellectuals who sought greater local governance while still under Spanish rule (7). In 1897, Barbosa co-founded the Orthodox autonomist party which believed in expanding autonomy while rejecting political compromises that helped the Spanish maintain dominance. Although Barbosa understood that colonial rule denied many of the goals of the Orthodox Autonomist Party, he continued to argue for policies which would uplift Puerto Ricans economically and socially (1).

**Founding the Republican Party and Advocacy for Statehood**

The U.S. invasion of Puerto Rico in 1898 during the Spanish-American War presented new possibilities and contradictions. On December 10, 1898, the Treaty of Paris was signed effectively bringing the end to the Spanish-American War. With this, Puerto Rico was acquired by the United States along with Guam, the Philippines and Cuba from Spain. For Puerto Rico, this marked the beginning of a new prolonged struggle to secure democratic rights and political representation under the United States. While the American Republican system held its own racial flaws, Barbosa believed it offered a pathway to civil rights and social advancement for the people of Puerto Rico. Therefore, he founded the Republican Party of Puerto Rico on July 4, 1899 to advocate statehood as the path to constitutional rights and full political participation for Puerto Ricans (7). As Barbosa declared, "We aspire to be another State within the Union in order to affirm the personality of the Puerto Rican people" (7). This was not a call for assimilation but rather a demand for full constitutional rights and political power for Puerto Ricans (7).

**Service in the Executive Cabinet and Senate**

In 1900, the Foraker Act established a civil government in Puerto Rico, marking a new chapter in

the island's political landscape. Under this system, Dr. Barbosa was named by President William McKinley to serve as part of an Executive Cabinet under U.S-appointed Governor Charles H. Allen. In this role, he oversaw public health, education, and county administration (8). Once again, his experience was marked by tension, this time by Americans and local elites who were skeptical of Puerto Rican leadership and threatened by his advocacy for Afro-Puerto Rican rights.

In 1917, the Jones-Shafroth Act granted U.S citizenship to the people of Puerto Rico and restructured the island's government. The act established a bicameral legislature composed of a Senate and a House of Representatives, and divided the government into executive, legislative, and judicial branches. Dr. Barbosa would be elected as a Senator and became the first minority leader in the Puerto Rican Senate, a role he held until his death in 1921. During his time in the Senate, he focused on universal suffrage, public education, healthcare expansion, and labor protections.

**Final Years and Death**

Dr. José Celso Barbosa passed away on September 21, 1921, in San Juan, while still serving as a Senator. He made such an immense effort to make change that his loss was felt by supporters and opponents alike, who recognized his lifelong dedication to Puerto Rico's advancement (2). Newspapers across political lines published obituaries commemorating his contributions as a physician, educator, and leader.

Dr. José Celso Barbosa was survived by his wife, Jacinta Belén Sánchez Jiménez De Barbosa (1863-1928), who together had eleven children, several of whom followed paths in education, medicine, and public service (4). Their daughter Pilar Barbosa de Rosario (1898-1997) emerged as a leading figure in Puerto Rican intellectual and political life, becoming the island's first female Official Historian in 1993 and a lifelong advocate for statehood and civic education (4). Among their sons, Robert C. Barbosa (1895-1984) pursued a career in dentistry, and Guillermo H. Barbosa (1889-1972) became a surgeon (4). While detailed records of their remaining eight children are limited in the historical archive, the Barbosa family reflects a legacy of service, professionalism, and commitment to the values Dr. Barbosa championed throughout his life.

Today, Barbosa's memory is honored through a public holiday on July 27th which is declared José Celso Barbosa Day and his childhood home in Bayamón which serves as a museum to preserve his achievements. Additionally, there are several named sites such as highways (PR-53), Third Millennium Park, schools and public buildings, as well as a U.S. Post Office appointed under Public Law 109-253.

**Critical Reflections on Barbosa's Views of Race and Meritocracy**

Barbosa actively supported racial equality, but his approach was rooted in meritocracy. He strongly believed that Afro-Puerto Ricans could overcome prejudice through education, moral character, and professional achievements. He stated, "Black! Black! Black! I am proud of being a Negro. Nor have I ever tried to beg tolerance from anyone. Superiority is not proved by color, but by the brain, by education, by willpower, by moral courage" (5).

Modern scholars argue that while his focus on individual excellence challenged stereotypes, it did not address the structural issues of racism at a systemic level (6). His life thus reflects both an inspiring model of Afro-Latinx achievement and of using an approach like colorblind meritocracy in dismantling racial hierarchies.

**Why His Legacy Matters Today**

Barbosa's journey displays the experiences of Afro-Latinx students who continue to navigate a system and institutions that were historically structured to exclude them. Barbosa was listed merely as a "Negro man" at the University of Michigan Medical School, erasing his Puerto Rican identity in official records despite his academic excellence (6). Afro-Latinx students today continue to experience racial microaggressions, systemic bias, and remain underrepresented. Barbosa's life demonstrates that an individual can challenge stereotypes within a society, but true equity requires transformation at a systemic level.

Moreover, Barbosa's rejection from Columbia University on the basis of his race reflects barriers that persist in elite academic institutions. Afro-Latinx scholars continue to advocate for equity in admissions, inclusive curricula, and anti-racist policies to dismantle legacies of exclusion that date back centuries. Barbosa's perseverance despite the barriers he faced remains an everlasting model of resilience, but it highlights the moral need to change systems so that resilience is not required for marginalized students to succeed.

**Public Health Leadership and Structural Interventions**

Barbosa's vision for employer-supported health insurance prefigured modern concepts of occupational health coverage, a model that expanded globally in the 20th century (2). His work continues to make an impact by challenging current healthcare systems to design policies that not only address treatments but also places an emphasis on prevention and social determinants of health. His approach aligns with modern ideas of competency within medicine, which calls on physicians to not only have knowledge of the complexities of the diseases which afflict their patients, but also to understand how socioeconomic systems create and perpetuate these diseases.

His dedication to serving Afro-Puerto Rican laborers, who were disproportionately affected by infectious disease outbreaks and poor working conditions, remains relevant today. Afro-descendant populations continue to face disproportionate burdens of chronic illness, infectious disease, and limited access to culturally competent care. Barbosa's integration of clinical innovation with community advocacy serves as an example of how effective public health requires addressing the root cause of these inequalities within medicine, education, and labor practices.

**Political Status Debates, Decolonization, and Racial Democracy**

There continues to be debates about Barbosa's advocacy for Puerto Rican statehood and the island's political future. His vision of using statehood as a pathway to civil rights was rooted in his belief that American Republicanism would offer greater constitutional rights. However, modern scholars critique his vision as they believe he underestimated the racism of the U.S. as well as imperialism within the states. Statehood could theoretically secure rights for Puerto Ricans, but at the cost of assimilation without addressing the colonial exploitation that Puerto Ricans underwent. (1).

Furthermore, Barbosa embraced racial democracy believing education and moral character could overcome racism. This was a reflection of ideas common amongst Black leaders in this time, such as Booker T. Washington. Yet his vision did not fully address the extent to which racism was embedded within the law, economics, and political institutions. Today, movements directed towards dismantling racism build off his work while also recognizing that there needs to be change within oppressive systems to combat racism.

**A Call to Medical Professionals**

For current and future physicians, Barbosa's life offers a framework of inspiration. His story exemplifies the power of perseverance, education, and advocacy to drive social change and improve community well-being. His work as a clinician, politician, and public health advocate serves as a blueprint for holistic care within medicine. His journey cautions us from relying on meritocracy as a solution to systemic issues and allows us to incorporate competency, humility, and advocacy to transform healthcare systems that continue to marginalize poor, black, Indigenous, and immigrant communities.

**Conclusion**

"Nunca vamos a rendirnos" translates to "we will never surrender". This statement is an embodiment of Dr. José Celso Barbosa's life. His journey is a testament to how intelligence, compassion, and resilience can overcome the barriers of oppression. Yet his story also reminds us that true justice is never fully achieved through individual success alone; it demands collective action to dismantle structural racism, economic injustice, and colonial domination.

In the words of Sir William Osler, "The practice of medicine is an art, not a trade… a calling in which your heart will be exercised equally with your head" (9). Dr. José Celso Barbosa experienced this truth in his daily life. He saw medicine not merely as a career but as a calling to advance justice, to empower the disenfranchised, and to build institutions that protect and uplift human dignity.

At a time when healthcare inequities continue to affect marginalized communities and Puerto Rico struggles for political and economic justice, Barbosa's enduring legacy calls for each of us to take action. May his life and the path he paved for us give us the courage to challenge oppressive systems, instill in us the compassion to heal beyond the bedside, and fill us with conviction to create a more equitable world.

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**Biography:**
Guadalupe Jose Rodriguez was born and raised in Houston, Texas. He completed his undergraduate education at the University of St. Thomas where he majored in Cell and Molecular Biology and a minor in Psychology with a focus on pre-medical studies. Inspired by the healthcare and socioeconomic challenges his community faced, he pursued a career in medicine to maximize his efforts towards bringing change.

Guadalupe is currently a second-year medical student at the University of Texas Medical Branch in Galveston. At UTMB, he is actively involved in organizations that support underrepresented minority students in medicine and aims to promote diversity in healthcare leadership. His long-term goal is to become a physician who not only practices medicine but also shapes healthcare policy to better serve marginalized populations. He aspires to integrate public health advocacy with clinical practice and is especially passionate about reducing disparities in Latino communities across Texas and the nation. ***guadrodr@utmb.edu***

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# The Untold Life of Anna Morandi Manzolini: The Mother of Anatomy

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Historical narratives have traditionally reflected predominately male perspectives and exploits (1). This, unfortunately, has led to the overlooking and minimizing of women's contributions, a phenomenon particularly evident in academic settings (2). Historian Margaret Rossiter (1944-present) describes this historical erasure of women as the "Matilda Effect" (3). Yet even in these restricted spaces, many women overcame the barriers to join the ranks of scientists, artists, and more. Anna Morandi Manzolini (1714-1774), hereafter referred to as Morandi, was one such figure. By reconstructing Morandi's story from the limited sources available, we can appreciate her profound contributions to the field of anatomy, a critical part of the foundation for modern medicine.

Anna Morandi lived during the Enlightenment Period, an intellectual and cultural movement in seventeenth- and eighteenth-century Europe that emphasized reason, science, individualism, and skepticism of traditional authority. The Enlightenment also sparked reform movements beyond Europe, influencing developments in Russia, China, Japan, and the Ottoman Empire. While France is often regarded as the heart of the Enlightenment, just southeast of France lies Bologna – a northern Italian city that emerged as an intellectual hub.

At this time, Italy was made up of numerous independent states and territories, with much of the central region, including Bologna, governed by the Papal States (4-5). The Catholic Church maintained a complex and often tense relationship with the Enlightenment and the novel ideals and philosophies emerging from it; many of these directly challenged the Church's authority. In response to the rise of secular thought, the Church condemned various philosophies and upheld the *Index Librorum Prohibitorum* (Index of Forbidden Books) (6-7). This conflicted stance persisted throughout the Enlightenment era. Bologna, as part of the Papal States, had a strong presence of the Church, yet it still flourished during the Enlightenment, primarily due to the work of Pope Benedict XIV (1675-1758) (8-9). He was a strong supporter of both the city of Bologna and scientific advancement. In opposition to the Church's views, he argued against the creation of the *Index Librorum Prohibitorum.* The unsuspecting city of Bologna advanced under Pope Benedict's guidance, as he promoted a series of reforms and innovations (8-9).

Working with Luigi Ferdinando Marsili (1658-1730), Pope Benedict helped establish the Institute of Science in Bologna just three months after Anna Morandi was born (9). He believed that Bologna's past glory could be revived through academic success, so he invested time and money into the creation of the Institute. Historically, Bologna had a strong presence of scientists and artists, creating the perfect environment for collaboration between the two. Reviving this glory allowed people who stood at the border between science and art to flourish, such as Anna Morandi. Her success, however, remained constrained by the social limitations placed on women during the Enlightenment.

While the world underwent dramatic evolution during the Enlightenment, women still had finite opportunities. Women were excluded from academic institutions, which remained exclusively male (10-11). Their roles were largely restricted to the domestic sphere, and many who contributed to intellectual life were marginalized and ultimately forgotten by history. Across all social classes, from the affluent to the working poor, the primary goal for women was to secure a suitable marriage (10). Consequently, their education was narrowly tailored to serve this end, focusing on letter writing, needlework, basic literacy, and art history to enable polite conversation with men. Women of higher social status typically received an expanded education, including the basic sciences, whereas women from lower social classes would

have had little to no formal education.

From humble beginnings, Morandi forged her path to become a preeminent artist and scientist. She was born on January 21, 1714, into the lower-middle-class family of Rosa Giovannini and Carlo Morandi. Little is known about her early life due to a lack of historical documents prior to her marriage in 1736. However, historians have found her referenced in other documents, letters, and articles. From these, her artistic talent is presumed to have predated her marriage, but the origins of her familiarity with science and anatomy are unclear. Given Morandi's social standing, she likely had some exposure to basic reading, writing, and the arts. One document from the Bolognese senator Marcello Oretti (1714-1787) indicates that Morandi was an artist before her marriage, as he references her early artwork as "storiated paintings and excellent copies of the masters" (9). Another source reports that she studied drawing and sculpture under local artists Giuseppe Pedretti (1697-1778) and Francesco Monti (1685-1768), in whose studio she met Giovanni Manzolini (1700-1755), her future husband (12-13).

Before the popularization of wax sculpting, anatomical illustration was the preferred method for recording dissections. Notable figures such as Vesalius (1514-1564) and Gerolamo Fabrici d'Acquependente (1533-1619) published numerous anatomical illustrations that guided dissections and were used to teach medical students (14-16). However, the complex history of surgery, coupled with widespread unease regarding the subject, caused many to completely discount the illustrations as well (17). Moreover, despite their realism, anatomical drawings could not replicate the spatial depth that three-dimensional models offered. Anatomical illustrators often relied on captions to overcome the limitations of their two-dimensional medium. In contrast, wax modeling, free from these constraints, gained recognition for its educational value, particularly at a time when the preservation of dissected tissue was not possible. In the late 16th century, the evolution from illustrations to sculptures began. Pope Benedict promoted the transition in Bologna by erecting wax sculptures created by Ercole Lelli (1702-1766) in the Institute of Science (9,13,18). Their partnership laid the foundation for anatomical sculpting in Bologna.

*Image 1. Anna Morandi, Apparto Genitale Femminile, 1746, Sistema Museale di Ateneo*

*Image 2. Anna Morandi, Feti Gemelli Nel Sacco Amniotico, 1746, Sistema Museale di Ateneo*

Following the revolution in wax sculpting, Pope Benedict launched a campaign to reform Bologna. He prioritized anatomy, of which Ercole Lelli was the most prominent sculptor. Working alongside Lelli was Giovanni Manzolini, Morandi's husband. Abruptly, Manzolini left the studio after a dispute over credit for a body of work (12-13). He then created a home studio that contrasted Lelli's stylized work by focusing on realistic pieces that emphasized educational accuracy. Anna Morandi became his assistant and student; this marriage served as a catalyst for her career. Working as partners, they gave lectures, public demonstrations, and created hundreds of sculptures for varying purposes. Medical students and curious bystanders were enthralled with their work as it was both beautiful and informative. With a focus on the reproductive organs, the Manzolinis worked with the obstetrician Giovanni Galli (1708-1782). They created 20 different models depicting the womb during an active birth, a one-of-a-kind collection that was displayed in Galli's school (9,19-21; Images 1-2).

As time passed, Morandi's natural talents for sculpting and teaching were increasingly evident, and she became the public face of their studio, while Manzolini worked in the background. Her skill as an orator was matched by her growing artistic precision, which enhanced her reputation. Hundreds flocked to the Manzolini home studio to witness the work of the "Lady Anatomist," whose talent, presence, and position as a woman made her a notable figure in Bologna.

Although her presence in a male-dominated field may initially have drawn attention, it was her technical expertise that ultimately established her in the field. Unlike many of her counterparts, Morandi prioritized anatomical accuracy. Anatomical sculpting lies at the intersection of art and science, yet artists commonly favored aesthetic interpretation over strict anatomical accuracy. Ercole Lelli serves as a typical example of this approach. In his eight-piece series depicting Adam and Eve, Adam is portrayed with a tall, muscular build and powerful posture, while Eve appears slender and reserved, positioned as if withdrawing from the viewer (Image 3-4). While anatomically accurate, Lelli depicted these idealized archetypes of

man and woman, favoring an aesthetic depiction. "The works by Ercole Lelli represented the artistic gold standard of the Bolognese wax modeling school, while those of Anna Morandi Manzolini attained an absolute anatomical accuracy" (23). Morandi's approach to anatomy allowed her to create pieces with precision and intricacy while maintaining their lifelike beauty. Together with her husband, they used human bones as a base for their sculptures, focusing on individual organs or body parts, which enabled them to create more precise renditions (9,22; Image 5-6). This allowed their wax re-creations to take on incredibly realistic forms. After a careful dissection, the bones would be cleaned and then used as a base for the multiple layers of wax. In some pieces, the bones were left visible to showcase specific intrinsic muscles (Image 6). This technique garnered the Manzolini studio fame in the medical and artistic community. Their studio became a place where individuals could witness informative dissections and learn anatomy from varying sculptures.

*Image 3. Ercole Lelli, Adam and Eve, 1742, Sistema Museale di Ateneo*

*Image 4. Ercole Lelli, Adam and Eve, 1742, Sistema Museale di Ateneo*

*Image 5 Anna Morandi, Avambraccio, 1775, Sistema Museale di Ateneo*

*Image 6. Anna Morandi, Avambraccio, 1775, Sistema Museale di Ateneo*

Morandi was exceptionally methodical, tediously dissecting each layer and recreating it as a lifelike sculpture. A fellow Italian scientist, Luigi Galvani (1708-1782), commented that her models "perfectly imitated nature" (13). To obtain this level of detail, she would focus on a single anatomical structure, adding depth and precision that mirrored surgical practice. Her sculptures included distinctive bodily features, such as veins and birthmarks, capturing the individuality of the human form. Due to her expertise, the University of Bologna asked her to lecture in her husband's place when he fell ill (9,12).

The 18th century was a time when women learned needlework, not dissection. Defying gender stereotypes, Anna Morandi forged a future for herself and helped pave the way for women in science. Her difficulties were compounded by tragedies in her family; only two of her eight children survived to adulthood, and upon the death of her husband, Morandi's financial circumstances sharply declined. Although Morandi lectured at the University, she was never granted the title of professor. No university offered her tenure, and positions at prestigious institutions were not available to her. Instead, she continued teaching students from her home and relied on private commissions.

Following her husband's death in 1755, Morandi was offered a position abroad but was reluctant to leave Bologna, so she appealed to Pope Benedict. Knowing her reputation and potential, Pope Benedict offered Morandi an annual salary of 300 lire to remain in Bologna and continue her work (19). Although this support allowed her to stay in her hometown, the modest compensation still left her in a con-

stant struggle against poverty. As the Lady Anatomist, Anna Morandi, gained recognition for her work, Pope Benedict granted her the title of *accademico d'onore* (honorary professor) at the University of Bologna (13). Additionally, she was awarded an honorary membership to the University of Clementine's Institute of Art and inducted into the Florentine Academy of Design (21-22). Notably, Morandi's positions were all 'honorary'. An official teaching role with proper compensation was never offered. Despite her international recognition and exceptional skill, Morandi remained constrained by the societal expectations of her time. Though she was permitted to engage with the scientific community, she was never regarded as an equal.

With her limited income, Morandi was unable to support herself and her two sons. Out of desperation, she entrusted her son, Giuseppe, to the Oratorio di S. Bartolomeo di Reno, a religious complex that functioned as a children's home. Giuseppe was later adopted by Count Flaminio Solimei (n.d.-1758), who sought an heir to continue his lineage (9, 12). Morandi's continued efforts to improve her financial situation led her to sell her sculpture collection to Count Girolamo Ranuzzi (1724-1784) and accept his offer to reside and work in his palace. He would eventually purchase her entire collection of wax figures, her library of anatomical atlases and texts, as well as her personal dissection and sculpting tools. Morandi continued lecturing in her new apartment and to notable international figures, including Joseph II, Holy Roman Emperor (1741-1790), Catherine II of Russia (1729-1796), and the Royal Academy of London, until her death in 1774 (9, 12-13). Shortly after Morandi's passing, her collection was scattered: sculptures were donated to the Institute of Science or the Bolognese Senate, others collected by her sons, and some lost to time.

Anna Morandi pioneered a new standard of precision in anatomical sculpture, profoundly shaping the future of medical modeling. Her work informed and educated medical students, physicians, and scholars, many of whom benefited from her expertise without ever knowing her name. Though her story remains largely untold, her legacy endures through the sculptures she left behind.

In her self-portrait, Morandi creates a striking image: she looks directly at the viewer, adorned in a pink gown and pearls while confidently wielding a scalpel over the brain–the body's most vital organ. This image captures both elegance and authority, standing as a powerful testament to her life and legacy as the Lady Anatomist.

*Image 7. Anna Morandi, Nessun Titolo, 1755, Opificia delle Pietre Dure, Florence*

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