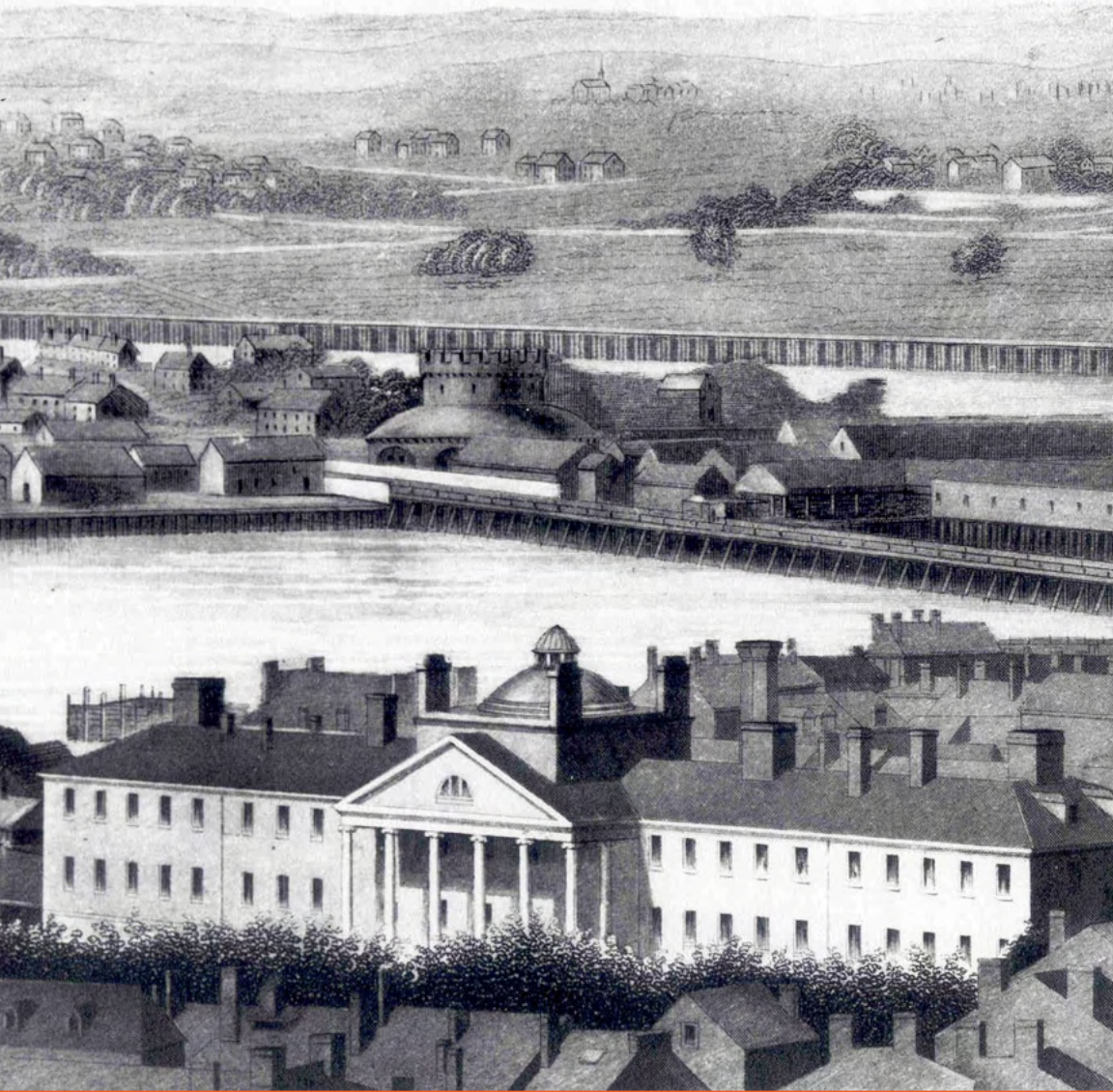




Stories *of the* Bulfinch

1821-2021

A SPECIAL **proto** PUBLICATION



MASSACHUSETTS GENERAL HOSPITAL



THIS PAGE: Nurses converse in the Ether Dome in 1972. COVER: An etching of 19th century Boston highlights Massachusetts General Hospital's Bulfinch Building.

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Before X-rays or digital medicine, the Bulfinch Building was still state of the art. The original building told a story of dedication and community service.

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The use of energy waves in medicine leapt forward with the contributions of two MGH pioneers.

MEDICAL HISTORY IS A SERIES OF STORIES—the detective work of John Snow in pinpointing the source of cholera in London, or how James Lind pioneered the clinical trial with sailors at sea and a barrel of citrus fruit. Here at Massachusetts General Hospital, each October on Ether Day we are proud to tell the story of the first successful public demonstration of anesthesia, the quantum advance in surgery that has since led to so many saved lives.

But not all of medicine's stories have been repeated as often. The contributions of so many pioneers—women, people of color, people of marginalized faiths and sexualities—have been left out of the mainstream histories. Those accomplishments have often been foundational, and we are all stronger for knowing of such people and their work.

As the Bulfinch Building celebrates 200 years since the admission of its first patient, it's good for all of us to remember the extraordinary people who have built this hospital's great legacy. They include not only medical pioneers we hear about so often but also the

teams of technicians, nurses, administrators, scribes, social workers, researchers and education and outreach specialists that make this work possible and connect us to the world outside. Their stories are also something to celebrate.

Former chief of Psychiatry Thomas P. Hackett once wrote that the Bulfinch Building was "a classic of design and yet as simple as a shoebox famous and strong but not forbidding." We celebrate this marvelous home for care and innovation, and we look forward to its next 200 years.

PETER L. SLAVIN, M.D.
President
Massachusetts General Hospital

COVER: ETCHING FROM A HISTORY OF THE MASSACHUSETTS GENERAL HOSPITAL, 1851, COURTESY MGH ARCHIVES

ABOVE: SPENCER GRANT/GETTY IMAGES. ALL PHOTOS COURTESY OF MGH EXCEPT WHERE NOTED. ALL ILLUSTRATIONS BY KATIE VERNON.

The Great Pox

Syphilis brought the very first patient to the hospital—and the disease drove some of the most important moments in medicine.

By Anita Slomski

A modern case of syphilis ends with a quick shot, but that treatment came only after centuries of discovery. The disease first tore through Europe in the 15th century, and from the very beginning it pushed forward each new era of medicine. Its modern name came from a poem by Girolamo Fracastoro, a 16th-century Italian whose work on syphilis helped establish one of medicine's most important ideas—that germs, not bad air (“miasma”), could cause disease.

One reason syphilis drove so many advances was the misery it caused. The very first patient to be treated in the Bulfinch Building was a 30-year-old saddler with syphilis. The disease had caused ulcerations in his nasal canal and “several portions of bones were discharg'd through the mouth and nose,” according to the medical record. The only treatment his physicians could offer was mercury salts, which caused constant diarrhea and “gripping pain in the bowels.”

In the 20th century, many investigations finally bore fruit. The parasitic bacterium that causes syphilis, *Treponema pallidum*,



Papular plantar syphiloderm (Mraček).

ATLAS OF SYPHILIS AND THE VENEREAL DISEASES, INCLUDING A BRIEF TREATISE ON THE PATHOLOGY AND TREATMENT, BY PROF. DR. FRANZ MRAČEK/WELLCOME COLLECTION

A hallmark of secondary stage syphilis is tell-tale red spots on hands and feet—shown here in a 1898 medical illustration.

Through the Years

The evolution of the Bulfinch over two centuries



| 1811 |

As prominent Bostonians raise funds, the Massachusetts Legislature grants a charter of incorporation. The hospital will admit its first patient in 1821.





was discovered in 1905, the Wassermann blood test for syphilis became available the following year, and in 1910, the arsenic-based treatment Salvarsan was introduced. Salvarsan was the first “magic bullet” cure in medicine and the world’s first blockbuster drug.

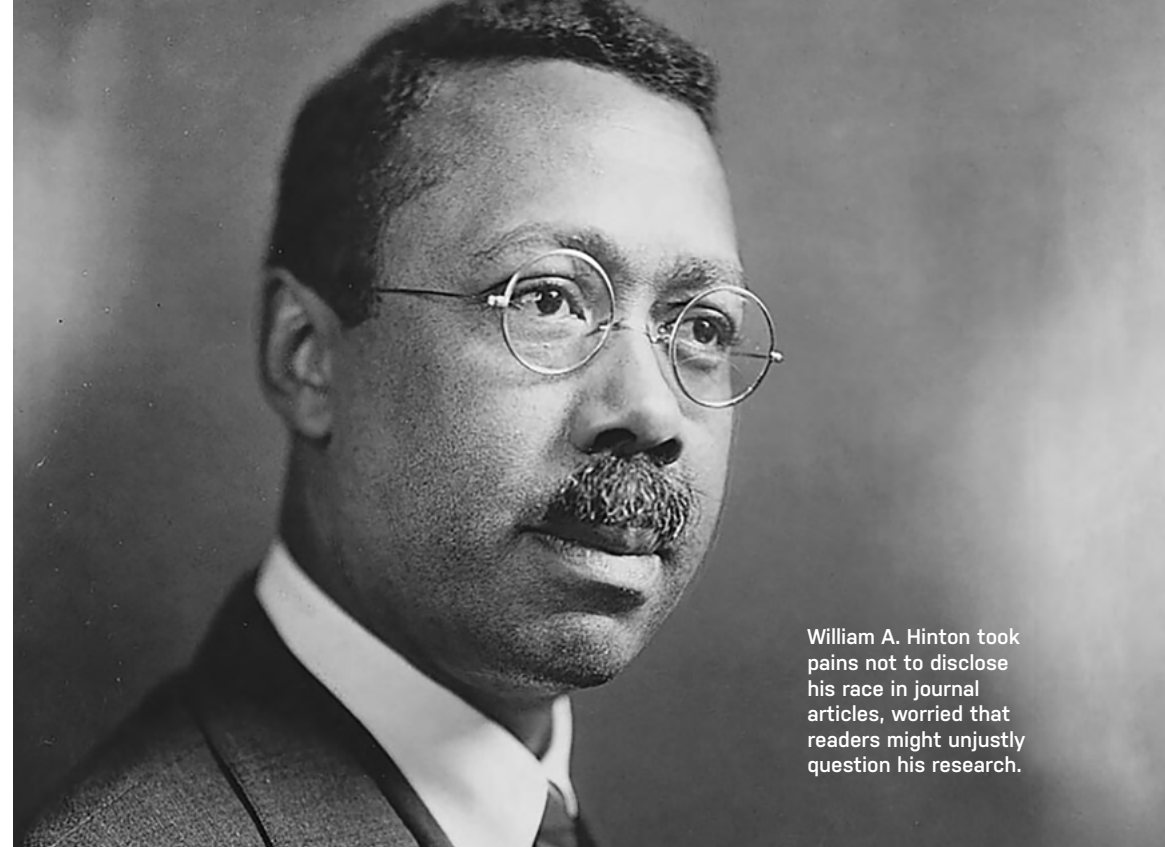
Into this context came the extraordinary physician William Augustus Hinton. The son of enslaved people, Hinton graduated from Harvard College in 1905 and got his medical degree, with honors, from Harvard Medical School in 1912. He was the first Black physician at Massachusetts General Hospital, and, while he was not allowed to practice medicine, for three years he worked as a volunteer assistant in the Pathology Department, performing autopsies on patients who died of suspected syphilis. He used what he learned to develop the Hinton test for syphilis, which became the standard diagnostic test used worldwide. Hinton’s *Syphilis and Its Treatment*, published in 1936, was the first medical textbook authored by a Black person.

Throughout his education and career, Hinton was determined to succeed on the merit of his work alone. He refused scholarships reserved for Black students and declined the 1938 NAACP Springarn Medal out of concern that his research would not be taken seriously if other scientists realized he was Black. For the same reason, he stayed away from medical conferences.

After more than 30 years of serving on the faculty and just a year before retiring, he finally became a tenured professor—Clinical Professor of Bacteriology and Immunology—in 1949. “Dr. Hinton was the first African American professor, not just at HMS, but at Harvard University,” said Edward Hundert, HMS Dean for Medical Education, in a




This poster from the U.S. Public Health Service was printed in the 1940s, well after the first cures for syphilis had been found and administered.



William A. Hinton took pains not to disclose his race in journal articles, worried that readers might unjustly question his research.

recent statement. “His public health and biomedical advances in the diagnosis of syphilis helped untold numbers of patients, and his writing on the role that socioeconomic factors play in health outcomes make him as relevant today as when he wrote those works almost a century ago.”

After World War II, physicians at the MGH believed that the introduction of penicillin and other microbial agents would eliminate infectious diseases forever. But they failed to take into account that human sexual behavior hasn’t changed in centuries, and today, MGH treats plenty of patients with sexually transmitted infections in its Division of Infectious Diseases—which has offices in the Bulfinch Building. 

“Syphilis is a disease which creates ... symptoms which imitate almost every other disease.”

— William A. Hinton, interview with the *Boston Daily Globe* in 1952

LITHOGRAPH AFTER FELLNAGEL, 1940/WELLCOME COLLECTION
DIGITAL COLLECTIONS AND ARCHIVES, TUFTS MEDICAL CENTER (TIMELINE: (BULFINCH) ARCHITECT OF THE CAPITOL; (ETHER GLOBE) INTERPHOTO/ALAMY

1817



A building committee holds an architectural competition for the design of the hospital. The \$100 prize goes to architect Charles Bulfinch on Jan. 25, 1818.

1828



Patients are safely removed after a fire ravages the eastern wing of the hospital.


1840s



A statue of Apollo, god of the healing arts, is gifted by statesman and orator Edward Everett. It celebrates the institution’s mission of treating the poor.

1846



The first successful public demonstration of anesthesia takes place at the hospital, a milestone earning its surgical amphitheater the nickname “Ether Dome.” 



A graduating class in 1972 carries on a legacy of nurse training that began in the earliest years of the hospital.



SPENCER GRANT/GETTY IMAGES

The Nurses' Eyrie

The history of nursing runs throughout the Bulfinch Building—even up and into its iconic dome.

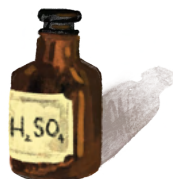
By Stacy Lu

Most people know the saucer-shaped Ether Dome as the place where surgical anesthesia was first demonstrated. Almost three decades after that event, however, the crown of the hospital played a very different role as dormitory for its nurses, who were vanguards of a movement to advance their profession.

In the earliest days, the hospital's nurses didn't receive much formal training, relying on simple "rules of thumb," as one early account reads. Even when Georgia L. Sturtevant started as an assistant head nurse in 1862, duties focused less on healing and more on housekeeping—washing "filthy clothing and foul dressings," carting patient meals, cleaning dishes and mopping wards, she recalled in a series of later essays.

For many medical practitioners at the time, sleeping on-site was a given. Many nurses bunked in attics above wards; others slept two to a bed in the Bulfinch Building's sitting rooms, folding

| 1846 |



A patent is filed for sulfuric ether as a surgical anesthetic. While rarely enforced, it was the first significant medical patent ever issued.

| 1848 |



Weekly expenses for a patient at the hospital average \$4.73. That translates to about \$161 in the currency of 2021.

| 1870s |



The hospital's new policy of providing board and lodging to the medical residents leads to six training doctors sharing one bedroom.





up their beds before shifts that started at 5 a.m. and ended at 9:30 p.m. The nurses dined using pewter utensils in a dingy basement that had once been the hospital's kitchen, next to its defunct brick oven.

Many nurses were eager to provide better patient care, yet "were blamed for their ignorance if they failed in some point and were reprimanded rather unpleasantly if they knew too much," Sturtevant wrote. But change was in the air: Florence Nightingale had just founded the world's first nursing school in England, and the U.S. Civil War thrust nurses into new prominence.

In 1873, the Boston Training School for Nurses launched at Mass General. One of the nation's first three nurse training programs, it faced opposition

from most of the hospital's doctors, some of whom fretted that a little bit of knowledge in the hands of nurses was perhaps a dangerous thing, according to Sarah Cabot, a school founder.

Linda Richards, who had graduated from the nation's first hospital nursing school, became superintendent the following year. Under her leadership, nurses had access to a textbook, a thermometer and scrub women to help with menial tasks. Nurses began wearing tidy uniforms of matching aprons and cuffs. Richards also started the practice of keeping bedside charts.

Nurses slowly began to work in every ward, and physicians, evidently impressed, lectured trainees and permitted them to attend rounds and assist with surgeries. The number of pupils grew, forcing some to sleep in the stifling heat

During the 1920s, nurses were also critical to the working of wards in which clinical research took place.



From left to right, a student nurse, a preliminary nurse and a graduate nurse at Mass General pose for the camera in 1922.



of the Bulfinch attic, where they could hear the clanging bells from the fire station across the street.

By the turn of the century, nursing education had spread widely and many MGH Nursing School alumnae were leaders in their craft. Sophia Palmer launched the *American Journal of Nursing* in 1878, and other graduates became superintendents of nursing in more than 160 hospitals.

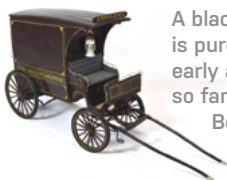
Perhaps the most telling measure of progress, however, was that by 1903, nursing students were administering ether. Just 40 years after bunking down in the birthplace of anesthetized surgery, nurses had become an integral part of that procedure and all patient care at the hospital. 📍

“I had a fixed purpose to devote my life to the work of caring for the sick and suffering.”

— Linda Richards, from *Reminiscences of Linda Richards: America's First Trained Nurse*

(TIMELINE: CARBOLIC ACID) UNIVERSAL IMAGES GROUP/NORTH AMERICA LLC/ALAMY; (FITZ) NATIONAL LIBRARY OF MEDICINE

| 1873 |



A black horse-drawn buggy is purchased to use as an early ambulance. It becomes so famous that it appears in Boston's 250th birthday parade in 1880.

| 1876 |



Joseph Lister tours the United States preaching antiseptic medicine. Surgeon J. Collins Warren experiments with carbolic spray and "Lister dressings," which halt infections.

| 1886 |



Pathologist Reginald Fitz pioneers the study and removal of the inflamed appendix, coining the term "appendicitis."

| 1888 |



Innovations at the Bulfinch Building give rise to the nation's first aseptic operating room, the Bradlee Operating Theater.

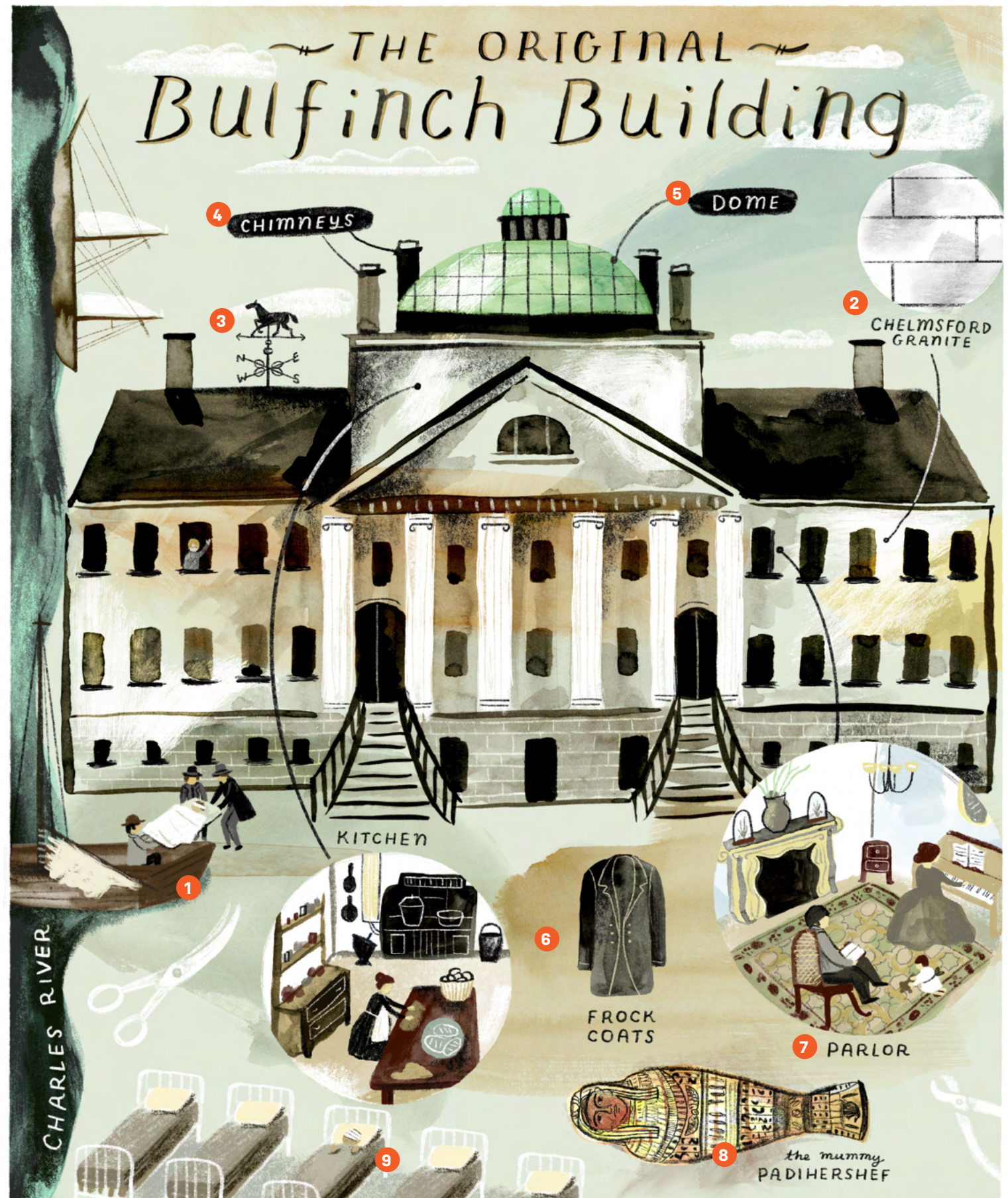




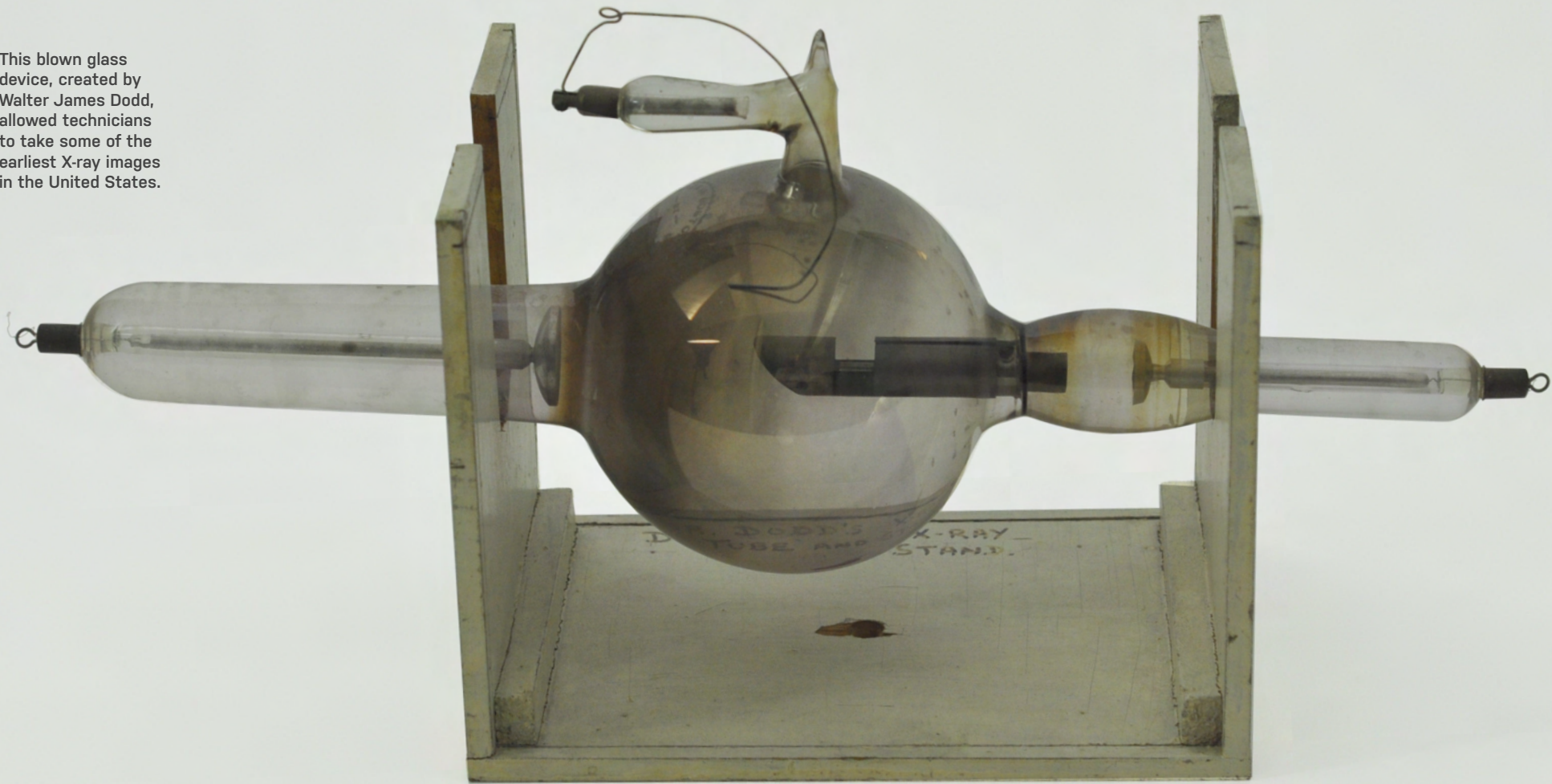
The Bulfinch Building, 1821

"It is unnecessary to urge the propriety and even obligation of succoring the poor in sickness ..." Those words in an 1810 fundraising letter led to the establishment of the first general hospital in Massachusetts.

- 1 The Bulfinch Building was built at the edge of the **Charles River**, with the idea that some patients could be brought in by boat.
- 2 For the façade, architect Charles Bulfinch chose **Chelmsford granite** instead of brick because it could better weather bad storms and the sea air.
- 3 The location was "accessible to the **air from the south, west and east.**" The medical wisdom of the day held that air circulation was important to prevent "miasmas," or airborne disease.
- 4 Interior ventilation was important, too. **The four chimneys** flanking the dome were part of a complex flue system that pumped hot air up from the cellar.
- 5 With its plentiful light, the **dome** was intended for lectures and surgery. Sounds coming from it were also partially insulated from the patients below—an asset in the days before anesthesia.
- 6 Beneath the dome was a **kitchen and laundry**. There were no scrubs, though—at the time, physicians operated in **frock coats of dark wool**.
- 7 The upper floors had **bedrooms and a parlor** for the resident physician and his family.
- 8 The **Egyptian mummy Padihershef** was also an early resident of the Bulfinch Building. He arrived in 1823 from the City of Boston.
- 9 The hospital had about **60 beds**. The last patient admitted in 1821 was a 21-year-old female who was discharged on Christmas Day.



This blown glass device, created by Walter James Dodd, allowed technicians to take some of the earliest X-ray images in the United States.



The Atom and the Adam's Apple

The use of energy waves in medicine leapt forward with the contributions of two Bulfinch pioneers.

By Timothy Gower

A handful of discoveries about radiation—why energy waves are produced by some processes and materials and the ways those rays might be used—would have a profound impact on science. In medicine, they would vastly improve how physicians diagnose and track disease and how they treat it, with two major milestones happening in the Bulfinch Building.

In 1896, Walter James Dodd worked in the hospital as a pharmacist and in-house photographer. News arrived about German physicist Wilhelm Conrad Röntgen, who had discovered a form of invisible light that he called X-rays. When directed at the human body, the rays could pass through flesh but be absorbed by bone and other dense materials.

(TIMELINE: (X-RAY) GEORGE EASTMAN HOUSE/GETTY IMAGES; (MEDAL) THYME/GETTY IMAGES)

| 1896 |



The first X-ray exposure in a Boston hospital is produced by Walter James Dodd, a photographer and apothecary.

| 1934 |



Fireproofing of the building nears completion, removing the open fireplaces that physicians of an earlier age called "cheerful and comfortable."

| 1941 |



An expanding campus means less of the hospital's work happens at the Bulfinch. But a major program launches in the building to study and care for "psychoneurotic" patients.

| 1946 |



On the Bulfinch Lawn, a reception is held in perfect weather for veterans who have returned from war.





That was of immediate interest to surgeons, who could use X-rays to locate a bone fracture or a bullet. So Dodd and his assistant, Joseph Godsoe, cobbled together a crude, hand-cranked version of Röntgen's device. By March they had succeeded in producing their first, faint X-ray image and by the next year, an X-ray department was established below the Bulfinch Building's front steps.

To determine whether vacuum tubes in the X-ray machine were adequately warmed up, Dodd would hold his hands in front of the device. That practice eventually led to painful, sunburn-like damage to his skin, and soon malignant tumors had formed, requiring the amputation of several fingers. The malignancies metastasized, and Dodd died—a martyr to his new field—in 1916.

One of Dodd's interests had been how to harness those rays to fight disease. Decades later, in 1936, Saul Hertz, a child of Jewish immigrants and director

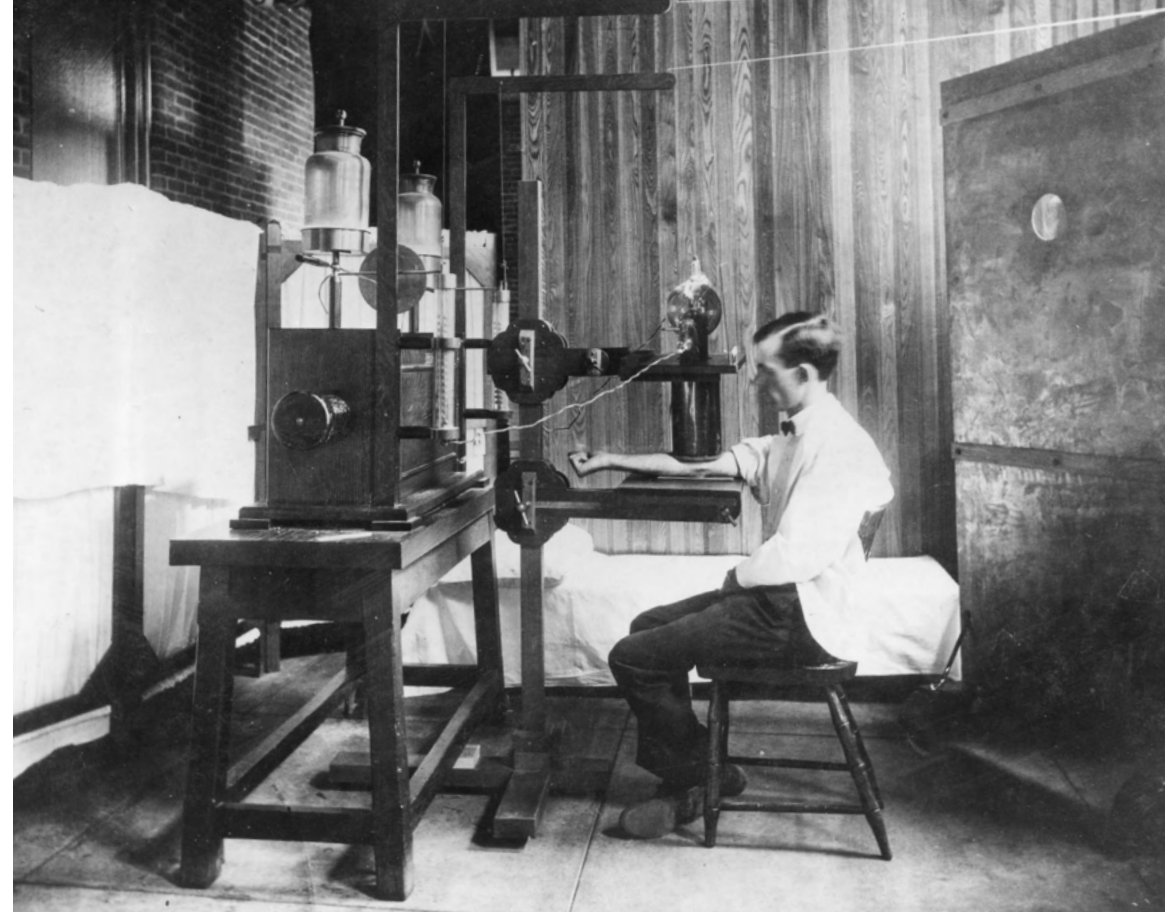
of MGH's Thyroid Unit, had the same question. Could iodine, which naturally accumulates in the thyroid gland, be made to emit rays of intense energy as a tool to treat thyroid disease? His colleague Arthur Roberts, a Jewish physicist at the Massachusetts Institute of Technology, produced the first radioactive iodine (RAI). After several years of laboratory work and animal testing, Hertz administered RAI to a woman in the Bulfinch Building on March 31, 1941. Then in a clinical trial, 29 patients with hyperthyroidism were treated with RAI. Of those, 20 were cured.

This was pathbreaking work in a field that would later be called nuclear medicine, which uses small amounts of radioactive materials to see and treat disease. Unfortunately when Hertz left to serve in World

Walter James Dodd tested X-ray devices on his own hands. Later physicians have called him "a martyr to radiology."



Saul Hertz pioneered the field of nuclear medicine, in which radioactive materials are administered to detect, track or treat a disease.



(TIMELINE: (COMPUTER) PATRICK BOX/GETTY IMAGES)

War II, an MGH colleague took over the work and submitted a paper to the *Journal of the American Medical Association*, failing to credit Hertz and Roberts. The editor of *JAMA* then asked Hertz to submit a manuscript describing his study and took the extraordinary step of publishing both papers in the same issue.

Sadly, Hertz met an untimely death at age 45, but the fruits of his work continue. RAI remains a standard therapy for hyperthyroidism. More broadly, the applications of his idea continue to grow in the burgeoning fields of nuclear medicine and precision medicine.

“It might be advisable for the hospital to build up a new class of specialists.”

— Saul Hertz in a letter to Massachusetts General Hospital

1965



The Ether Dome, 144 years after its construction, is officially declared a National Historic Landmark.

1989



The Treadwell Library, originally located in the Bulfinch Building, becomes the first U.S. hospital library to have an online catalog.

2013



A CT scan on Padihershef, the mummy in the Ether Dome, reveals data about facial structure, which is then used to create a clay model.

2020



Smiling behind face masks, two epidemiologists marry in the Ether Dome during the coronavirus pandemic.



THE BULFINCH LAWN

The building's history isn't confined to the space between its walls. The grass lawns outside the Bulfinch Building have also played host to major events through the years, including overflow patients during wartime, celebrations and, in recent decades, protests for social and racial justice.



Spanish-American War Efforts
Tent wards were set up on the lawn, and there the hospital staff cared for volunteer soldiers who returned from the front lines.



Celebrating Anesthesia
The 1846 ether demonstration has often been commemorated on the lawn with pageants and speeches, especially on its October 16 anniversary.



Boston March for Science
In 2017, a rally was held to show support for the Boston March for Science and celebrate the contributions of the research community.



Gun Violence Protest Rally
A rally in 2018 sought to bring attention to the tragedy of gun violence. Staff wore orange to honor victims and raise awareness.



Racial Justice Kneel-In
In 2020, as the nation reeled from acts of police violence against its Black citizens, hospital staff staged a peaceful kneel-in on the lawn.



Coronavirus Vaccination Site
In chilly February 2021, patients began to receive their vaccinations in a tent on the lawn—with one man calling it an “uplifting experience.”

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