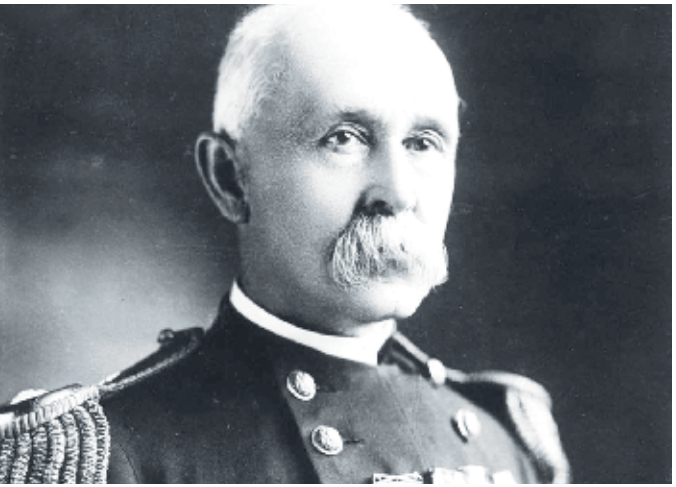
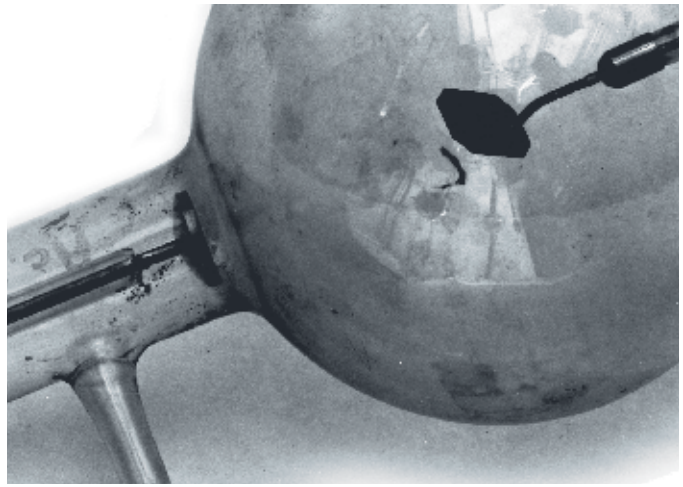
CHAPTER 2

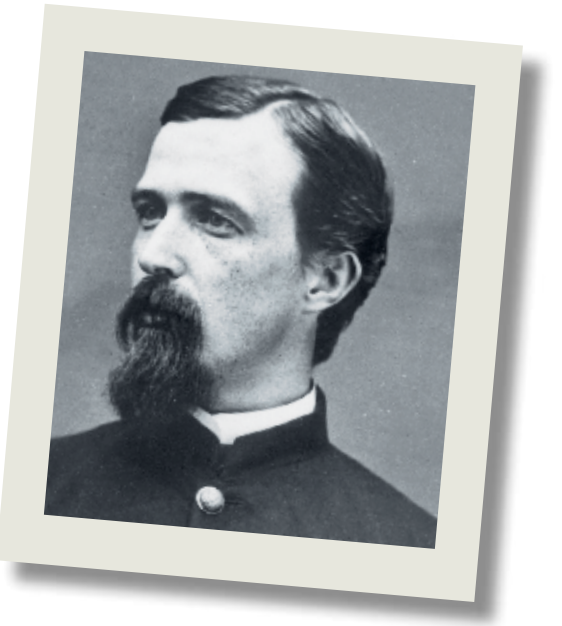




NEW HORIZONS, 1883–1918

As the Army Medical Museum entered its third decade of service to the nation, its shelves, cases, and storage rooms housed an ever-expanding collection of skeletal remains, mounted surgical specimens, anatomical examples, medical instruments, and volumes upon volumes of literature. To take advantage of the potential opportunities afforded by this expansion, the museum needed new leaders with inquisitive minds, innovative ideas, and the energy and enthusiasm to turn possibilities into reality. Enter Major John Shaw Billings and Major Walter Reed.

Dr Billings had served as librarian for the Office of the Surgeon General for nearly 30 years before becoming the fourth curator of the museum in 1883. The library he had built became a new museum-library division. As the new curator, Billings continued the campaign for a new building. In what was typical Washington fashion even then, he identified the most influential congressmen and wrote to physicians in their districts, asking them to lobby for a new structure. By 1885 Congress had approved funding for the new landmark Army Medical Museum and Library building, to be erected at what is now 7th Street and Independence Avenue, SW, in Washington. Working with architect Adolph Cluss, Billings helped with plans and specifications to ensure that the structure would fulfill his vision of a multifunctional facility that could incorporate exhibits, research, and education. By late 1887 the laborious process of moving into the new museum had begun. The building would eventually earn the affectionate title "Old Red Brick" by those who worked there during the next 80 years. In 1888, shortly after the new museum was fully occupied, the initial



Dr John Shaw Billings, famed librarian and fourth curator of the Army Medical Museum, 1883–1893. (MIS 60-5419-2)

rationale for the museum's existence came to fruition when the sixth and final part of the monumental *Medical and Surgical History of the War of the Rebellion* was published.

Once in the new building, Curator Billings changed the museum's emphasis. While continuing to develop the comparative anatomy, human anatomy, and anthropological collections, Billings moved the museum into a more historical direction by collecting and exhibiting the material culture of medicine. Under his direction, the museum's collection policy was influenced by both American and European scientific and scholarly trends, yet linked to the research strengths (microscopy and photomicrography) of the Surgeon General's Office. Billings's collections encompassed human anatomy and embryology, pathology, numismatics, ethnography and physical anthropology, comparative anatomy, specimen preparation, and the further development of the microscope. On display in the new museum was a collection of microscopes started by Billings in 1884 with 17 instruments obtained in Europe. Toward the end of his tenure he collected medical instruments and military artifacts, including equipment and supplies, with the goal of building a national museum with a broad encyclopedic reach. But his clearest vision for the future was stated in the *Medical News* of Philadelphia in 1886:

1. To illustrate the effects, both immediate and remote of wounds and of the diseases that prevailed in the Army.
2. To illustrate the work of the Army Medical Department; models of transportation of sick and wounded, and of hospitals; medical supplies; instruments, etc.
3. To illustrate human anatomy and pathology of both sexes and of all ages.
4. To illustrate the morphological basis of ethnological classification, more especially of the native races of America; including anthropometry and craniology.
5. To illustrate the latest methods and apparatus for biological investigations and the various methods of preparing and mounting specimens.[1(p84)]

Billings further wrote that he envisioned an institute of pathology with "earnest and well-trained students" working with the museum's collections to advance the field. "Sooner or later we shall have half a dozen or more of specially trained men busy in the laboratories and work-rooms of the museum, each engaged on his own problems, and the whole for the common good."[1(p88)]

Billings's collection policies and vision for the museum's future paved the way for the next curator to explore even wider horizons. In 1893 Major Walter Reed became the fifth curator of the Army Medical Museum. Building on efforts begun by Billings, Reed organized and taught the first class of the recently established Army Medical School—a 4-month course of instruction to be offered each year at the museum. At nearly the same time, Brigadier General George Sternberg, Surgeon General of the Army, published *A Manual of Bacteriology*,[2] the first American textbook on the subject. Under Sternberg and Reed, the Army's interest in pursuing bacteriology, epidemiology, and immunology grew, as did interest in new medical discoveries. Reed was particularly aggressive about obtaining an apparatus for and experimenting with X-rays following Wilhelm Roentgen's discovery of the radiation in January 1896.

Reed is most famous for his achievements from 1898 to the end of 1900. During three tremendous years he wrote imperishable pages in the history of medicine. First, as president of an Army board of medical officers set up to investigate the typhoid fever epidemic in camps within the United States, he helped broaden understanding about the ways in which typhoid spreads— an essential step in the eventual triumph over that disease in the next decade. Reed was then called upon to head another board to investigate infectious diseases in Cuba—a group of medical officers who would discover and prove beyond a doubt the method of transmission of the most dreaded diseases of the tropics: yellow fever. And although Reed died suddenly in 1902 from appendicitis, his 10-year tenure as curator had permanently shaped the future course of the Army Medical Museum.

In 1910, the Army Medical School, which had increasingly encroached on space used for exhibits and research, moved out of the museum and into its own building on Louisiana Avenue, SW. By the time the United States entered World War I, the Army Medical Museum, although still a popular tourist and educational attraction, had become more of a research-focused entity, concentrating on pathology. The museum was reorganized into two main sections: the Pathology Department and the Instruction Laboratory.

The Pathology Department was a new function, and the size and scope of World War I required that new procedures for collecting, preserving, and cataloging thousands of new specimens be

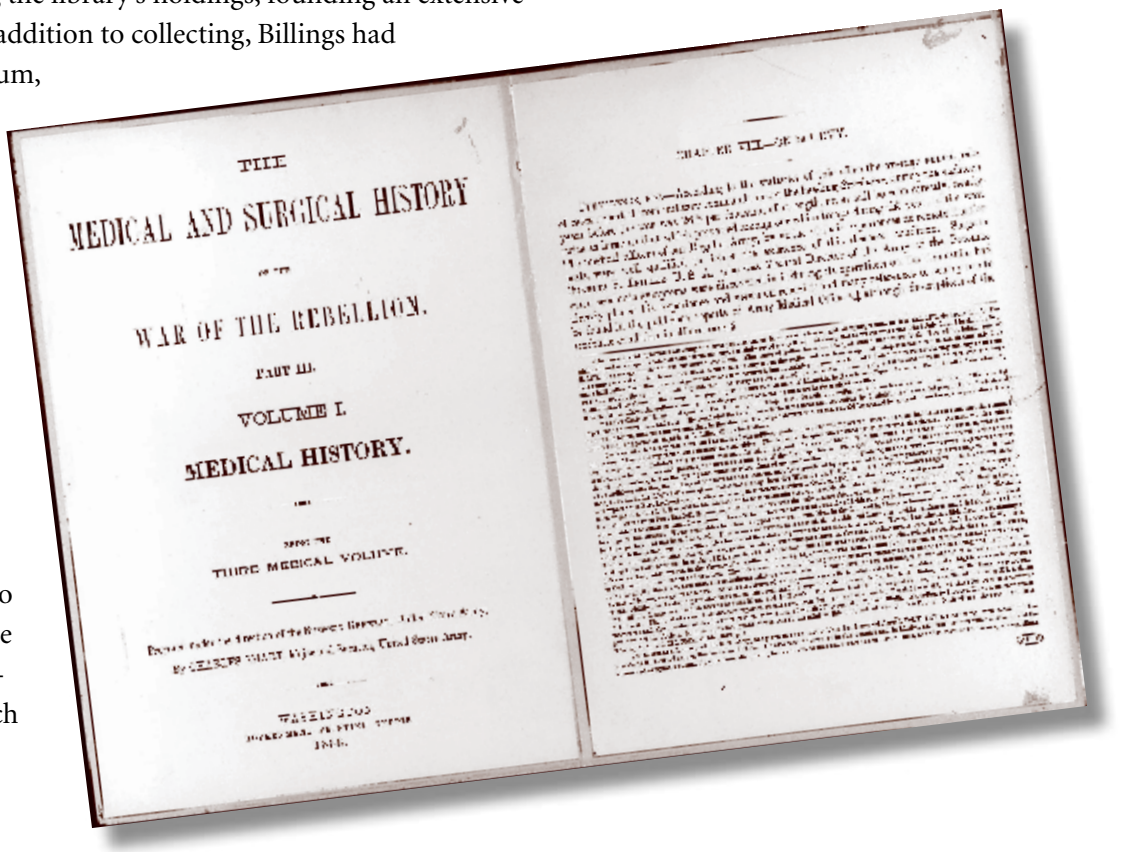
established. Under the Instruction Laboratory were the departments of Motion Pictures, Still Photography, Wax Modeling, and Anatomical Art.

Circular letters were sent to Army medical staff in both the United States and France requesting material. Circular No. 42, sent to the American Expeditionary Forces in France on July 27, 1918, requested "pathological specimens, bacteria, animal parasites, missiles, armor, instruments, apparatus, casts, models, paintings, drawings, diagrams, charts, statistical tables, cinema films, photographs, lantern slides, and other things pertaining to the preservation of the health and the prevention and treatment of disease of United States soldiers, or the history of the Medical Department of the Army."[1(pp182,183)] Also, seemingly for the first time, the value of autopsies was recognized. Writing in 1918, the surgeon general said that an autopsy "almost invariably yields information which is instructive and of great value and importance in the treatment of the living," and that "great good to the service and (to) medical science would result" if it were "practicable to hold post-mortem examinations after all deaths." While the number of actual autopsies performed was low, the military's belief that such procedures could help fight disease was strengthened and solidified in official documents.[1(p162)]

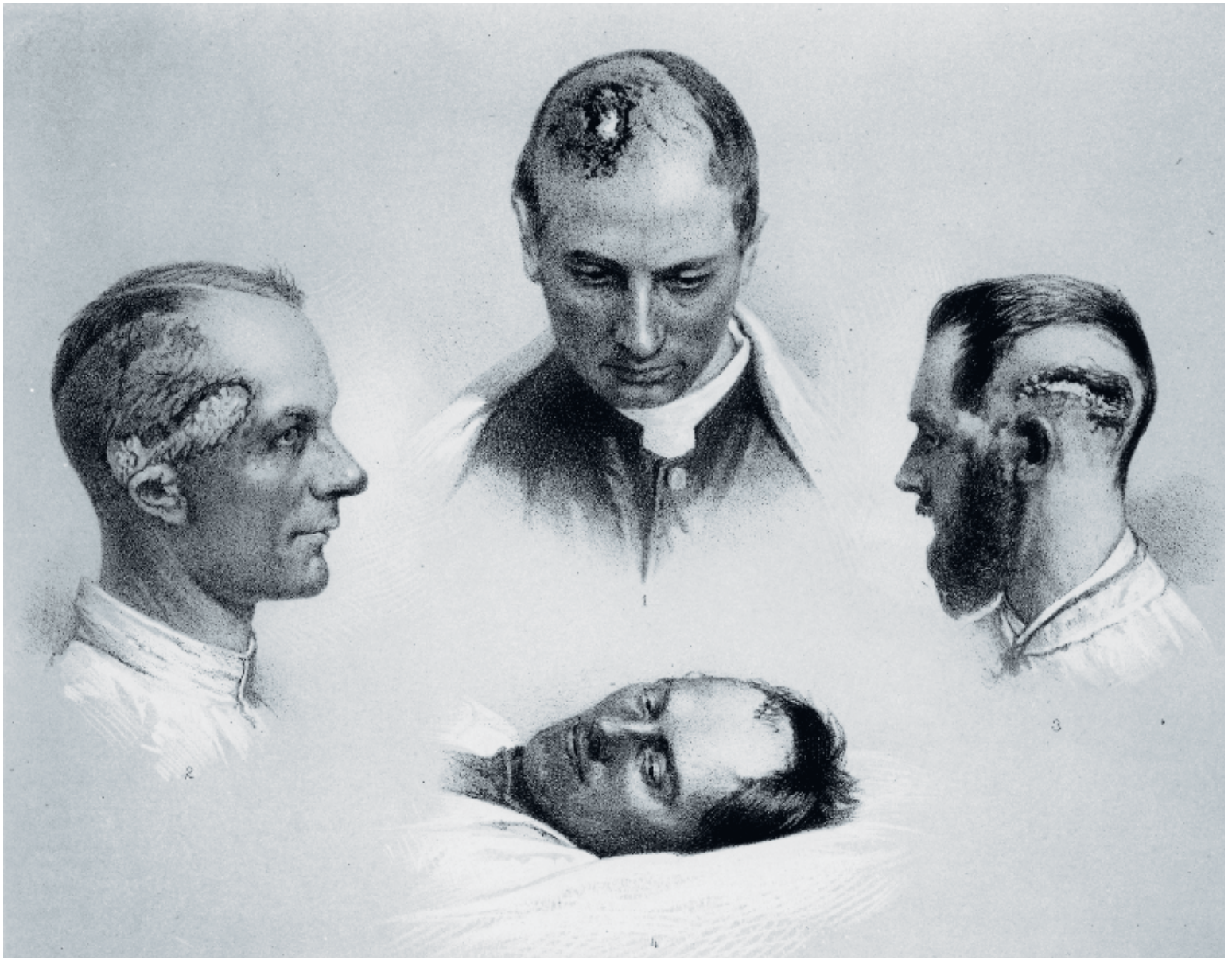
Unlike the Spanish-American War, which had yielded little in the way of specimens, World War I brought the museum 9,960 accessioned specimens, together with 12,700 autopsy protocols. The specimens included 600 sections of lungs of soldiers who died from the 1918 Spanish influenza—specimens used much later by an AFIP scientist, Jeffrey Taubenberger, who successfully unlocked the mysteries of that disease in 2005. Writing in 1919, Dr James Ewing, who served with the Army as a contract surgeon during the war, said of the museum: "The variety of diseases represented was surprising and the opportunity of illustrating the developmental stages of common and even of rare diseases, with their complications, was far greater than the writer has ever before enjoyed. Hence the value of an extensive museum collection was very completely demonstrated. . . . The value of a comprehensive pathological museum for teaching students, clinicians and pathologists, and for research in the etiology and pathogenesis of disease is probably underestimated even by most confirmed pathological anatomists."[3]

Ewing's assessment, as well as other records of the museum and Surgeon General's Office during the first two decades of the new century, made it clear that by 1919 the stage had been set for the institution's transformation from a traditional museum to a diagnostic facility concerned with patient care via pathology.

Having worked as a surgeon during the Civil War, and then with the Surgeon General's Office as its librarian since 1865, Billings was an overwhelming favorite to take charge of the newly-merged Army Medical Museum and Library. He inherited an institution that had already enlarged its focus from collecting specimens of military medicine and surgery. Three initial collections (medical, surgical, and microscopical) had been reorganized and increased with sections for pathological, anatomical, and comparative anatomy specimens, as well as miscellaneous objects, such as instruments and equipment. Billings began increasing the museum's collections with the same energy he had devoted to building the library's holdings, founding an extensive collection of historical microscopes. In addition to collecting, Billings had the responsibility for running the museum, including exhibiting the collections and compiling a catalog. He also oversaw completion of the sixth and final section (which comprised two volumes) of the *Medical and Surgical History of the War of the Rebellion.* Each of the six sections is massive in itself, averaging nearly 1,000 pages of text, with an average of 40 full-page plates, many in color, plus scores of black-and-white woodcuts. Perhaps most importantly, during his tenure Billings was able to convince Congress to fund construction of a new home for the museum, allowing the aggressive expansion of both collections and new research in science and medicine.


THE
MEDICAL AND SURGICAL HISTORY
OF THE
WAR OF THE REBELLION.
PART III.
VOLUME I.
MEDICAL HISTORY.
FORM OF
THIRD MEDICAL VOLUME.

Pages from one of the six volumes of the Medical and Surgical History of the War of the Rebellion. *(NCP 17026)*



A page from the Medical and Surgical History of the War of the Rebellion *depicting gunshot scalp wounds and contusions of the skull. (MIS 62-1019-4)*

The "Evolution of the Microscope" exhibit at the Army Medical Museum. Several of the microscopes in the collection were obtained by Billings and are still on display at AFIP's National Museum of Health and Medicine. (MIS 60-4223-11)

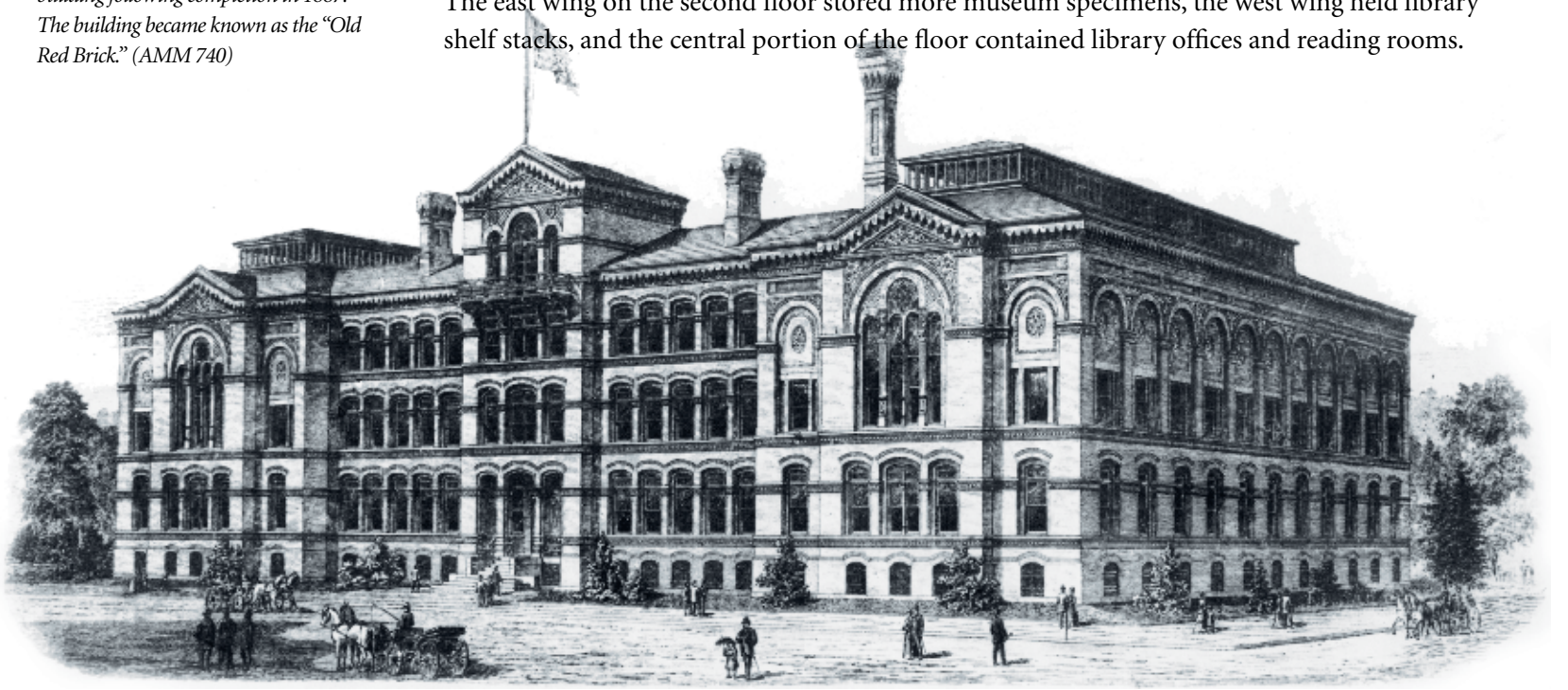
After many years of working in the cramped quarters of Ford's Theater, in 1887 the staff of the Army Medical Museum began moving into a new, spacious and attractive building more suited to its expanding collections and missions. The structure consisted of a center building, measuring 112 by 55 feet, with two 60-by-131–ft wings. In the courtyard, a 52-by-24–ft annex was connected with the rear of the center building by a covered passageway.

The central and western portions of the first floor were mostly occupied by the clerks of the Surgeon General's Office Record and Pension Division, while the east wing was given over to functions of the museum: a dissecting room, an anatomist's room, a darkroom, a room exhibiting the supplies and equipment for a post hospital, and a room for genitourinary specimens considered unsuitable for public display.

The east wing on the second floor stored more museum specimens, the west wing held library shelf stacks, and the central portion of the floor contained library offices and reading rooms.

[Bottom] *The fifth home of the Army Medical Museum, as depicted in architect Adolph Cluss's plans. (MIS 61-6440)*

[Opposite] *A photograph of the museum building following completion in 1887. The building became known as the "Old Red Brick." (AMM 740)*



The library and museum wings were built to form fireproof compartments separated from the other parts of the building. Both were open from the second story to the roof, forming halls 31 feet high to the eaves and 47 feet to the ridge of lantern skylights.

The third floor held offices, a microscopy room, and a room equipped for anthropometry. A fourth floor in the central building contained only the photographic gallery and several storerooms, two of which displayed examples of stretchers and other devices for transporting sick and wounded in combat. The anatomical and biological laboratory was located in the annex, which also contained the utilities and somewhat primitive sanitary facilities. This building would be home to the Army Medical Museum and its successors, the Army Institute of Pathology and the Armed Forces Institute of Pathology, for nearly 80 years.


MEDICAL ENTOMOLOGY
TYPHOID FEVER

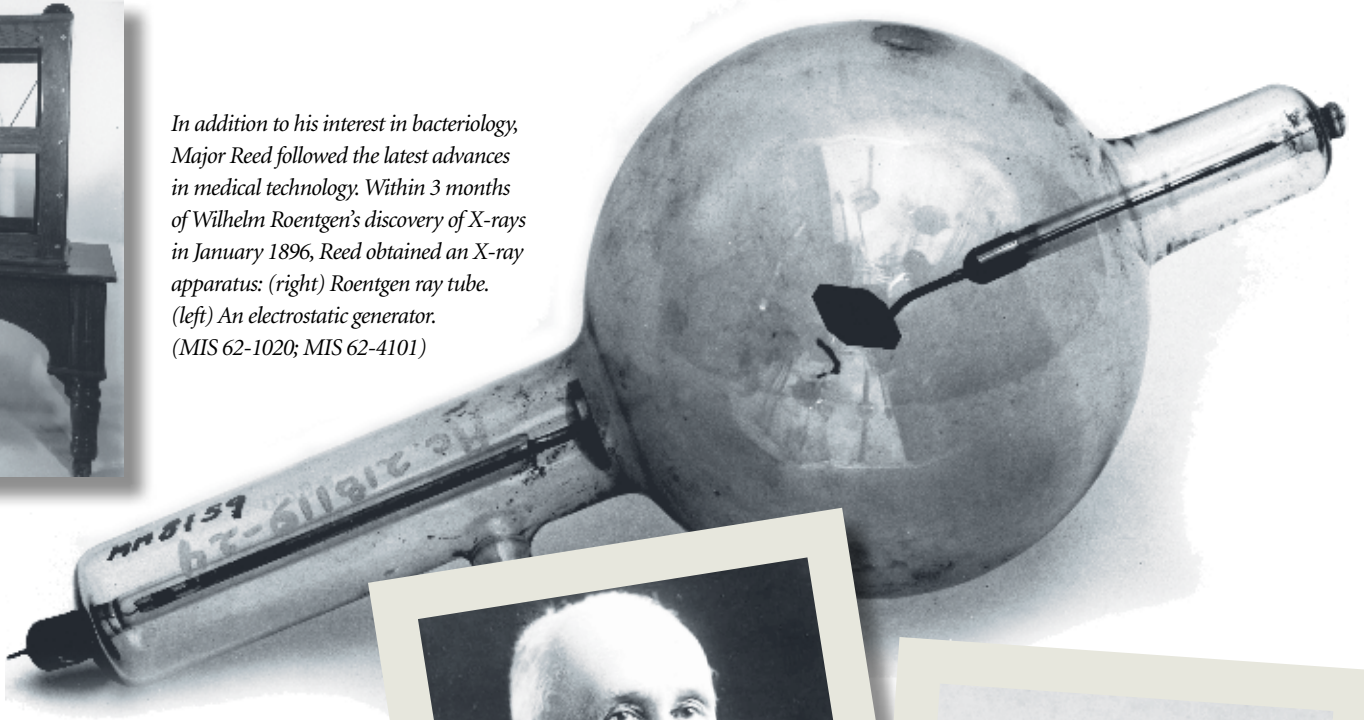
[Opposite] *The museum's main hall. In addition to its own operations, the museum often hosted professional meetings. A famous gathering occurred in 1907 when renowned physician and pathologist Dr Maude Abbott held a meeting at the museum to lobby for establishment of the International Association of Medical Museums. Over the next several decades this organization would evolve into what is now the International Academy of Pathology. In 2008, AFIP Director Dr Florabel G Mullick was named president of the Academy. (Reeve 30328)*

[Top] *Movement to a larger facility meant more room for laboratories and research, including the "Histo-pathology Room," shown here. (Reeve 30329)*

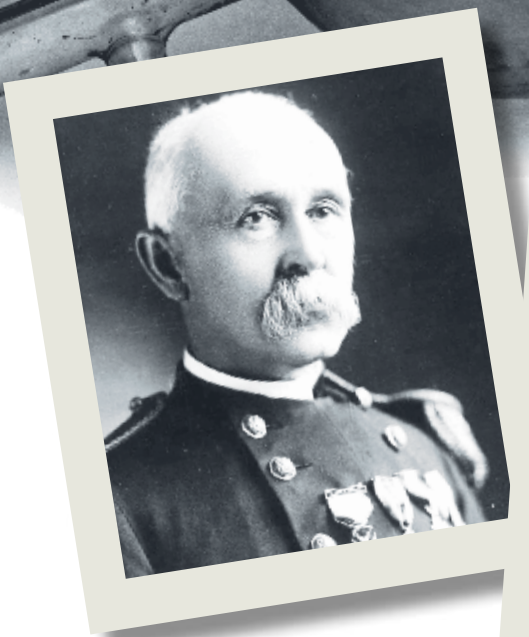
[Top] *Front and* [Inset] *rear views of the Surgeon General's Library. By the time the museum moved into the "Old Red Brick," the library had grown to 115,000 bound volumes and 184,000 unbound pamphlets and papers. (AMM 741; AMM 407)*

[Opposite] *Chemistry laboratory for the Army Medical School, which shared space with the museum until 1910. (AMM 1156)*

Students of the Army Medical School, established in 1893, work in one of the many laboratories they shared with museum staff. (AMM 1155)



In addition to his interest in bacteriology, Major Reed followed the latest advances in medical technology. Within 3 months of Wilhelm Roentgen's discovery of X-rays in January 1896, Reed obtained an X-ray apparatus: (right) Roentgen ray tube. (left) An electrostatic generator. (MIS 62-1020; MIS 62-4101)



[Left] *Brigadier General George Sternberg, Surgeon General of the Army, 1893–1902. During his tenure, the museum's research efforts were directed toward bacteriology. Sternberg also secured authority for creation of the Army Medical School. Established as part of the Army Medical Museum, the school consisted of a 4-month course of instruction to train candidates for admission to the Army Medical Corps in their duties as medical officers. (AMM 387)*

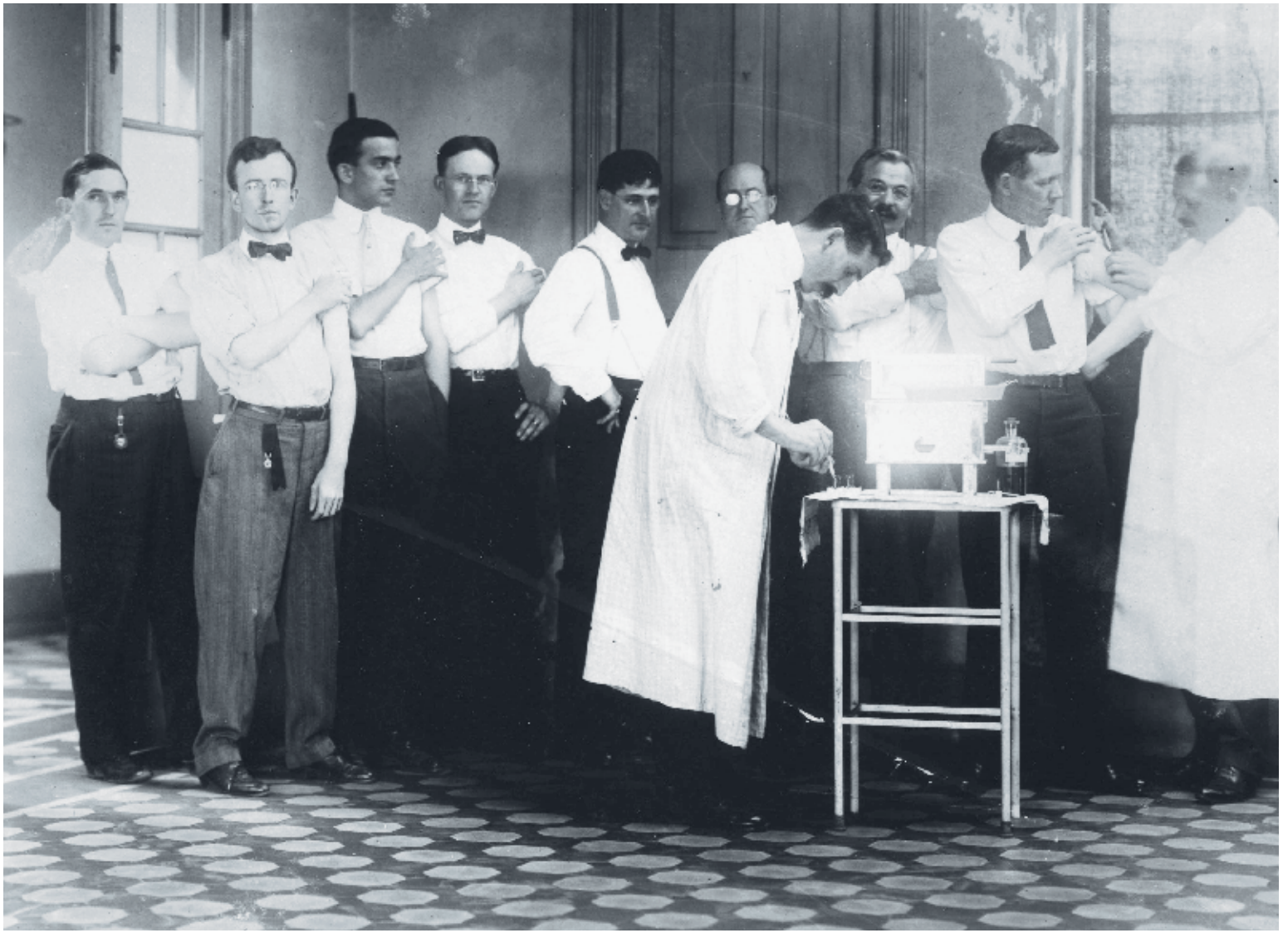
[Right] *Major Walter Reed, fifth curator of the museum, 1893–1902. Like Surgeon General Sternberg, Major Reed was greatly interested in bacteriology. Beginning in 1898, as president of the Army board of medical officers set up to investigate the typhoid fever epidemic in Army camps in the United States, he helped broaden the understanding of how typhoid spreads. Reed then led the board of officers investigating infectious diseases in Cuba, which discovered the transmission method of yellow fever. (MIS 05-6832-1)*

Dr William Gray was the first person on the Army Medical Museum's staff to use the new X-ray technology in a clinical setting. Here he X-rays a patient on a hospital ship during the Spanish-American War in 1898. (AMM 2186)

THE TYPHOID BOARD, established in August 1898 by the Army Adjutant General's Office, consisted of Reed and subsequent museum curators Lieutenant James Carroll and Major Frederick Russell. The three doctors immediately went to work by inspecting military campsites throughout the eastern United States. By October the board was back in Washington studying the detailed medical records of 118 regiments. Over the next several years the board disproved the theory that typhoid was primarily a waterborne disease; rather, it is "disseminated by the transference of the excretions of an infected individual to alimentary canals of others."[1(p137)] The board also concluded that typhoid was found in flies, which conveyed the infected organisms from their source to a person, and that men who ate in screened tents were less susceptible to typhoid than those whose mess tents were open to flies.

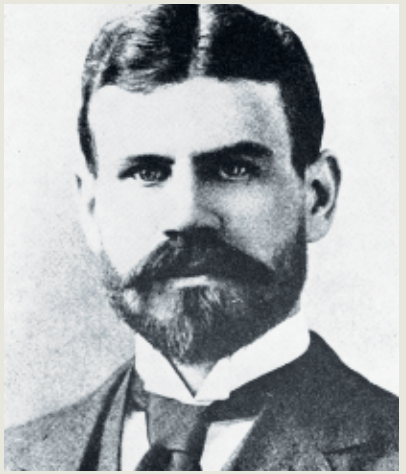
In the latter years of Lieutenant Carroll's tenure as curator, he conducted an experiment in vaccination against typhoid, which, like Reed's experiments with yellow fever in Cuba, used human volunteers as subjects. After limited success with an oral vaccine, Carroll investigated vaccination by hypodermic injection. He also consulted with the British and German armies, which had achieved some success with vaccinations. After considerable study, by 1909 the board had determined that "the practice of anti-typhoid vaccination is both useful and harmless and that it offers a practicable means of diminishing the amount of typhoid in the Army both in times of peace and war."[1(p143)] The board's findings were proven correct in March 1911, when an Army division was mobilized in Texas because of unrest on the Mexican border, with mandatory vaccination for military personnel. With more than 10,000 men in camp, the only death from typhoid was that of a civilian teamster who had refused vaccination.[1(p1430)] With this evidence, vaccination for typhoid was made compulsory for the entire Army on September 30. Typhoid vaccination did not originate in the United States, but the US Army was the first to make vaccination a required prophylaxis against typhoid.

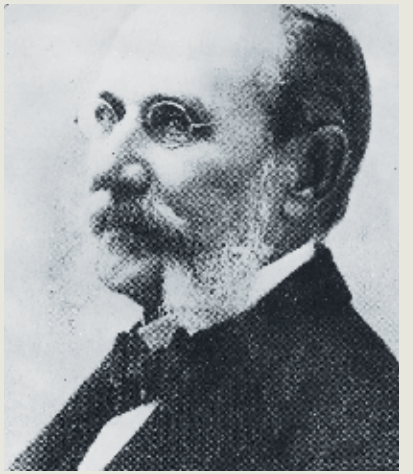
The typhoid team: (top) Major Frederick Russell, seventh curator of the museum, 1907–1913, and (bottom) Lieutenant James Carroll, sixth curator of the Army Medical Museum, 1902–1907. Carroll and Russell studied typhoid with Major Reed, initiating experiments with a vaccine and carrying out mass inoculations. (AMM 6090; NLM 61-167)



[Top] *Major Russell (far right) vaccinating volunteers against typhoid during the experimental phase, circa 1910. (AMM 6093)*

[Opposite] *By 1917, with the United States about to enter World War I, typhoid vaccination scenes such as this were commonplace. (Reeve 36335)*





[Top] *The yellow fever team. In addition to Major Reed, the most prominent members of the yellow fever board included (left) Dr Jesse Lazear of Johns Hopkins, who lost his life in the experiments; (middle) Dr Aristides Agramonte, a Cuban member of the board; and (right) Dr Juan Carlos Finlay, who assisted Reed during research and testing. Even in death, Lazear proved to be an instrumental member of the team. Following his passing, a small notebook containing entries on his experiments was found. Reed analyzed the notes and realized they furnished the clue to the secret of mosquito transmission of yellow fever— namely, that it was a matter of the timing of the bites. Subsequent experiments by Reed and others identified how many days a mosquito must have the illness before it could be successfully passed on by a bite. (MIS 61-6532-6; MIS 61-6532-16; Reeve 71133)*

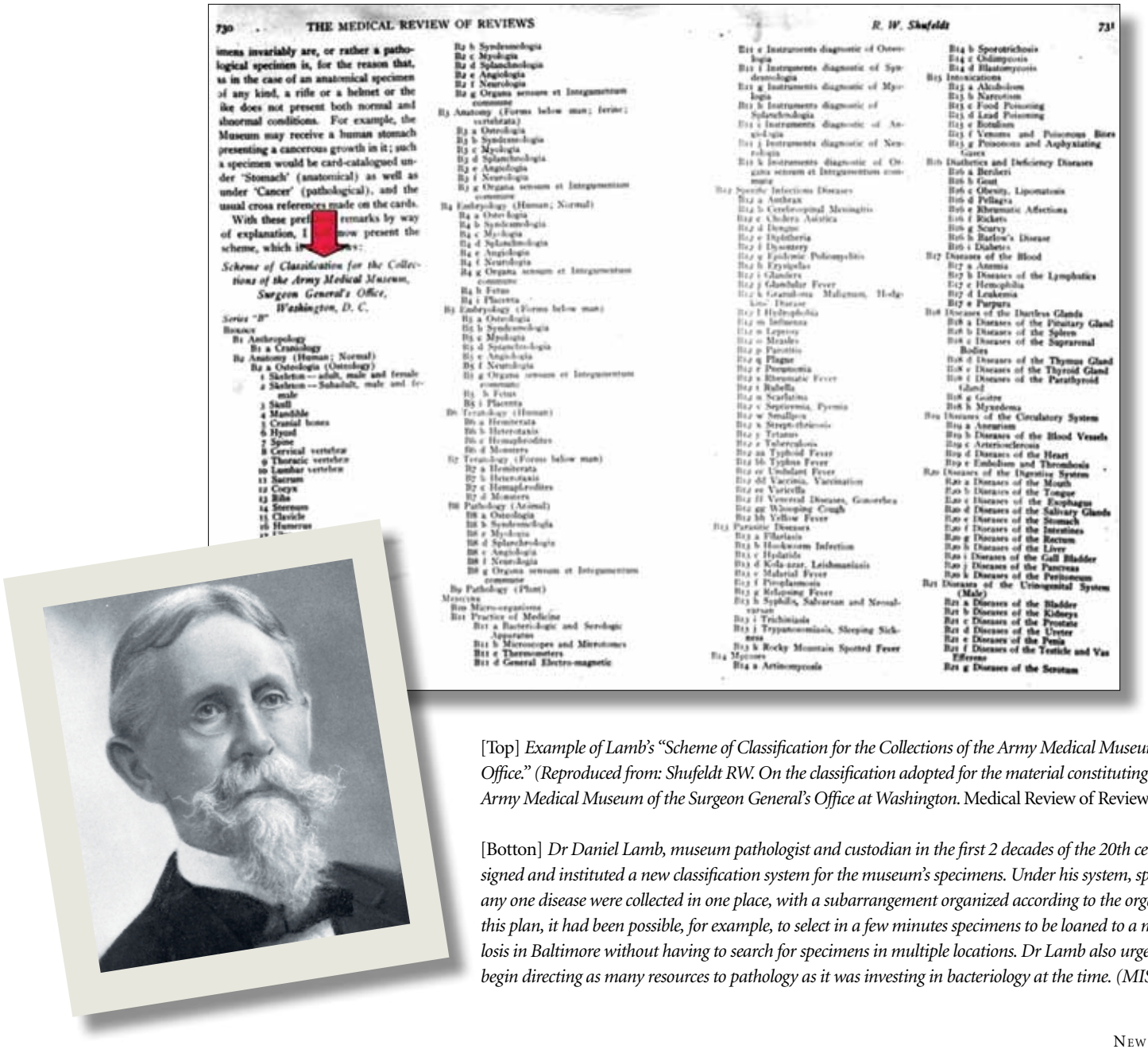
[Bottom] *Expanded view of Camp Lazear, which demonstrates its distance from a populated area and shows the tents that housed both those running the experiments and the volunteers who took part in them. (Reeve 40732)*

Soon after field work was completed on typhoid, Major Reed was sent to Cuba in June 1900, joining other doctors focused on identifying the specific agent of yellow fever, which had killed over 100,000 people in the United States from 1793 through 1900. Reed relied heavily on Dr Juan Carlos Finlay, who had long been an advocate of the theory that yellow fever was transmitted by mosquitos.[1(p118)] The team's biggest hurdle: humans were the only known animal subject to yellow fever. Permission was obtained to experiment on humans, which unfortunately resulted in four deaths, but provided support for the mosquito theory of yellow fever. More work was needed, and by November 1900, Reed had established Camp Lazear in Cuba, where tests of yellow fever transmission could be carried on under controlled conditions.

The distinguishing feature of Camp Lazear, located in a Havana suburb, was a pair of frame buildings located on opposite slopes of a small valley. One, the "Infected Mosquito Building," was designed to test the mosquito theory; the other, the "Infected Clothing Building," was designed to test the widely accepted theory of infection by contact with clothing, bedding, and other articles that had been in contact with yellow fever patients. By early 1901, through a series of highly controlled experiments using volunteers from both the US military and the Spanish immigrant population, Reed and the other investigators were able to prove that transmission by mosquito was the primary source of yellow fever, and that control of the mosquito population could significantly reduce the number of cases. At the same time, volunteers sleeping every night in the Infected Clothing Building—averaging 21 nights amid the filthy garments—resulted in not one case of yellow fever, which put to rest beliefs that transmission was possible through such contact.[1(pp125–128)] While this pioneering research was vital in proving the disease's method of transmission, it would be another quarter of a century before it was finally established that the infecting agent of yellow fever is not a visible "parasite" such as Reed sought, but a virus that had not yet been trapped by filters or revealed by microscopes.

Camp Lazear in the Havana suburbs, where yellow fever research was conducted. Pictured here is the "Infected Clothing Building," where it was proved that yellow fever could not be caught by contact with clothing or bedding from those already infected. (Reeve 40731-2)

After 15 years of operation in the museum building, the Army Medical School moved in 1910 to rented quarters on Louisiana Avenue, SW. The school had originally occupied a mere two rooms in the museum when it opened in 1893, but as it grew it increasingly took over space that had been dedicated to exhibits. (Reeve 60542)



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imens invariably are, or rather a pathological specimen is, for the reason that, as in the case of an anatomical specimen of any kind, a rifle or a helmet or the like does not present both normal and abnormal conditions. For example, the Museum may receive a human stomach presenting a cancerous growth in it; such a specimen would be card-catalogued under 'Stomach' (anatomical) as well as under 'Cancer' (pathological), and the usual cross references made on the cards.

With these prefi[illegible] remarks by way of explanation, I [illegible]ow present the scheme, which in[illegible]es:

Scheme of Classification for the Collections of the Army Medical Museum, Surgeon General's Office, Washington, D. C.

Series "B"

Bounce

B1 Anthropology
B1 a Craniology
B2 Anatomy (Human; Normal)
B2 a Osteologia (Osteology)
1 Skeleton — adult, male and female
2 Skeleton — Subadult, male and female
3 Skull
4 Mandible
5 Cranial bones
6 Hyoid
7 Spine
8 Cervical vertebræ
9 Thoracic vertebræ
10 Lumbar vertebræ
11 Sacrum
12 Coccyx
13 Ribs
14 Sternum
15 Clavicle
16 Humerus

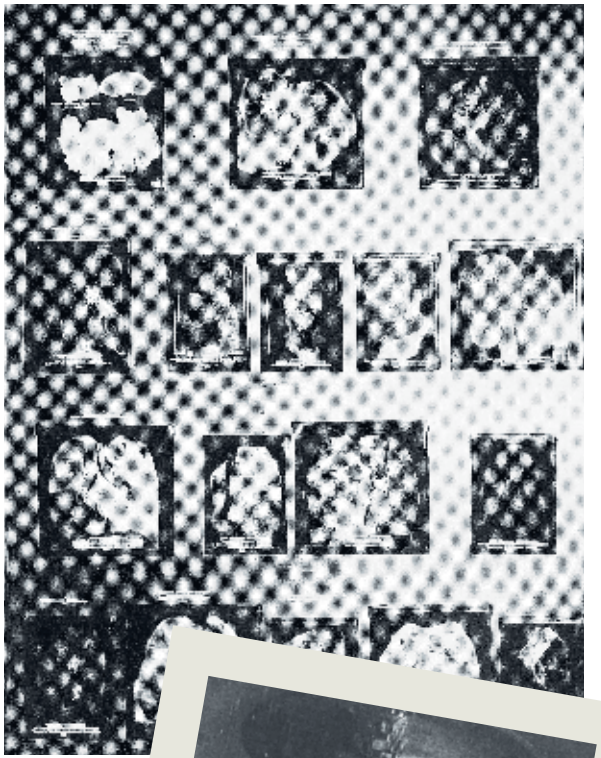
B2 b Syndesmologia
B2 c Myologia
B2 d Splanchnologia
B2 e Angiologia
B2 f Neurologia
B2 g Organa sensuum et Integumentum commune
B3 Anatomy (Forms below man; ferae; vertebrata)
B3 a Osteologia
B3 b Syndesmologia
B3 c Myologia
B3 d Splanchnologia
B3 e Angiologia
B3 f Neurologia
B3 g Organa sensuum et Integumentum commune
B4 Embryology (Human; Normal)
B4 a Osteologia
B4 b Syndesmologia
B4 c Myologia
B4 d Splanchnologia
B4 e Angiologia
B4 f Neurologia
B4 g Organa sensuum et Integumentum commune
B4 h Fetus
B4 i Placenta
B5 Embryology (Forms below man)
B5 a Osteologia
B5 b Syndesmologia
B5 c Myologia
B5 d Splanchnologia
B5 e Angiologia
B5 f Neurologia
B5 g Organa sensuum et Integumentum commune
B5 h Fetus
B5 i Placenta
B6 Teratology (Human)
B6 a Hemiterata
B6 b Heterotaxis
B6 c Hemaphrodites
B6 d Monsters
B7 Teratology (Forms below man)
B7 a Hemiterata
B7 b Heterotaxis
B7 c Hemaphrodites
B7 d Monsters
B8 Pathology (Animal)
B8 a Osteologia
B8 b Syndesmologia
B8 c Myologia
B8 d Splanchnologia
B8 e Angiologia
B8 f Neurologia
B8 g Organa sensuum et Integumentum commune
B9 Pathology (Plant)
Medicine
B10 Micro-organisms
B11 Practice of Medicine
B11 a Bacteriologic and Serologic Apparatus
B11 b Microscopes and Microtomes
B11 c Thermometers
B11 d General Electro-magnetic

R. W. Shufeldt 731

B11 e Instruments diagnostic of Osteologia
B11 f Instruments diagnostic of Syndesmologia
B11 g Instruments diagnostic of Myologia
B11 h Instruments diagnostic of Splanchnologia
B11 i Instruments diagnostic of Angiologia
B11 j Instruments diagnostic of Neurologia
B11 k Instruments diagnostic of Organa sensuum et Integumentum commune
B12 Specific Infectious Diseases
B12 a Anthrax
B12 b Cerebro-spinal Meningitis
B12 c Cholera Asiatica
B12 d Dengue
B12 e Diphtheria
B12 f Dysentery
B12 g Epidemic Poliomyelitis
B12 h Erysipelas
B12 i Glanders
B12 j Glandular Fever
B12 k Granuloma Malignum, Hodgkin's Disease
B12 l Hydrophobia
B12 m Influenza
B12 n Leprosy
B12 o Measles
B12 p Parotitis
B12 q Plague
B12 r Pneumonia
B12 s Rheumatic Fever
B12 t Rubella
B12 u Scarlatina
B12 v Septicemia, Pyemia
B12 w Smallpox
B12 x Streptothricosis
B12 y Tetanus
B12 z Tuberculosis
B12 aa Typhoid Fever
B12 bb Typhus Fever
B12 cc Undulant Fever
B12 dd Vaccinia, Vaccination
B12 ee Varicella
B12 ff Venereal Diseases, Gonorrhea
B12 gg Whooping Cough
B12 hh Yellow Fever
B13 Parasitic Diseases
B13 a Filariasis
B13 b Hookworm Infection
B13 c Hydatids
B13 d Kala-azar, Leishmaniasis
B13 e Malarial Fever
B13 f Piroplasmosis
B13 g Relapsing Fever
B13 h Syphilis, Salvarsan and Neosalvarsan
B13 i Trichiniasis
B13 j Trypanosomiasis, Sleeping Sickness
B13 k Rocky Mountain Spotted Fever
B14 Mycoses
B14 a Actinomycosis
B14 b Sporotrichosis
B14 c Oidiomycosis
B14 d Blastomycosis
B15 Intoxications
B15 a Alcoholism
B15 b Narcotism
B15 c Food Poisoning
B15 d Lead Poisoning
B15 e Botulism
B15 f Venomes and Poisonous Bites
B15 g Poisonous and Asphyxiating Gases
B16 Diathetics and Deficiency Diseases
B16 a Beriberi
B16 b Gout
B16 c Obesity, Lipomatosis
B16 d Pellagra
B16 e Rheumatic Affections
B16 f Rickets
B16 g Scurvy
B16 h Barlow's Disease
B16 i Diabetes
B17 Diseases of the Blood
B17 a Anemia
B17 b Diseases of the Lymphatics
B17 c Hemophilia
B17 d Leukemia
B17 e Purpura
B18 Diseases of the Ductless Glands
B18 a Diseases of the Pituitary Gland
B18 b Diseases of the Spleen
B18 c Diseases of the Suprarenal Bodies
B18 d Diseases of the Thymus Gland
B18 e Diseases of the Thyroid Gland
B18 f Diseases of the Parathyroid Gland
B18 g Goitre
B18 h Myxedema
B19 Diseases of the Circulatory System
B19 a Aneurism
B19 b Diseases of the Blood Vessels
B19 c Arteriosclerosis
B19 d Diseases of the Heart
B19 e Embolism and Thrombosis
B20 Diseases of the Digestive System
B20 a Diseases of the Mouth
B20 b Diseases of the Tongue
B20 c Diseases of the Esophagus
B20 d Diseases of the Salivary Glands
B20 e Diseases of the Stomach
B20 f Diseases of the Intestines
B20 g Diseases of the Rectum
B20 h Diseases of the Liver
B20 i Diseases of the Gall Bladder
B20 j Diseases of the Pancreas
B20 k Diseases of the Peritoneum
B21 Diseases of the Urinogenital System (Male)
B21 a Diseases of the Bladder
B21 b Diseases of the Kidneys
B21 c Diseases of the Prostate
B21 d Diseases of the Ureter
B21 e Diseases of the Penis
B21 f Diseases of the Testicle and Vas Efferens
B21 g Diseases of the Scrotum

[Top] *Example of Lamb's "Scheme of Classification for the Collections of the Army Medical Museum Surgeon General's Office." (Reproduced from: Shufeldt RW. On the classification adopted for the material constituting the collections of the Army Medical Museum of the Surgeon General's Office at Washington.* Medical Review of Reviews. *1918;24:12.)*

[Botton] *Dr Daniel Lamb, museum pathologist and custodian in the first 2 decades of the 20th century. Dr Lamb designed and instituted a new classification system for the museum's specimens. Under his system, specimens illustrating any one disease were collected in one place, with a subarrangement organized according to the organ involved. Under this plan, it had been possible, for example, to select in a few minutes specimens to be loaned to a meeting on tuberculosis in Baltimore without having to search for specimens in multiple locations. Dr Lamb also urged the museum to begin directing as many resources to pathology as it was investing in bacteriology at the time. (MIS 57-13237)*



[Opposite Left and Right | Top] *Anatomical models and pathological specimens on exhibit in the early part of the 20th century. (Reeve 30538; Reeve 30535; Reeve 30325)*

[Opposite | Inset] *Major Eugene Whitmore, eighth curator of the Army Medical Museum, 1913–1915. Although praising the museum's work in the field of bacteriology and immunology, Major Whitmore was critical of the ongoing shift away from the museum's exhibit role. Under his leadership this mission was reenergized to present more focus on the collection, preparation, and exhibition of specimens illustrating medicine in all its branches.*[1(p150)] *(MIS 05-7110-1)*

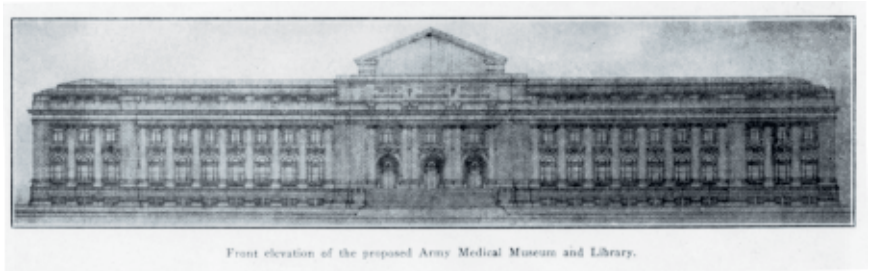
[Opposite] *Osteology exhibit on display just prior to World War I. (Woodward 3833)*

[Bottom] *Exhibit detailing the historical development of microscopes and surgical instruments, circa 1918. (Reeve 30537)*

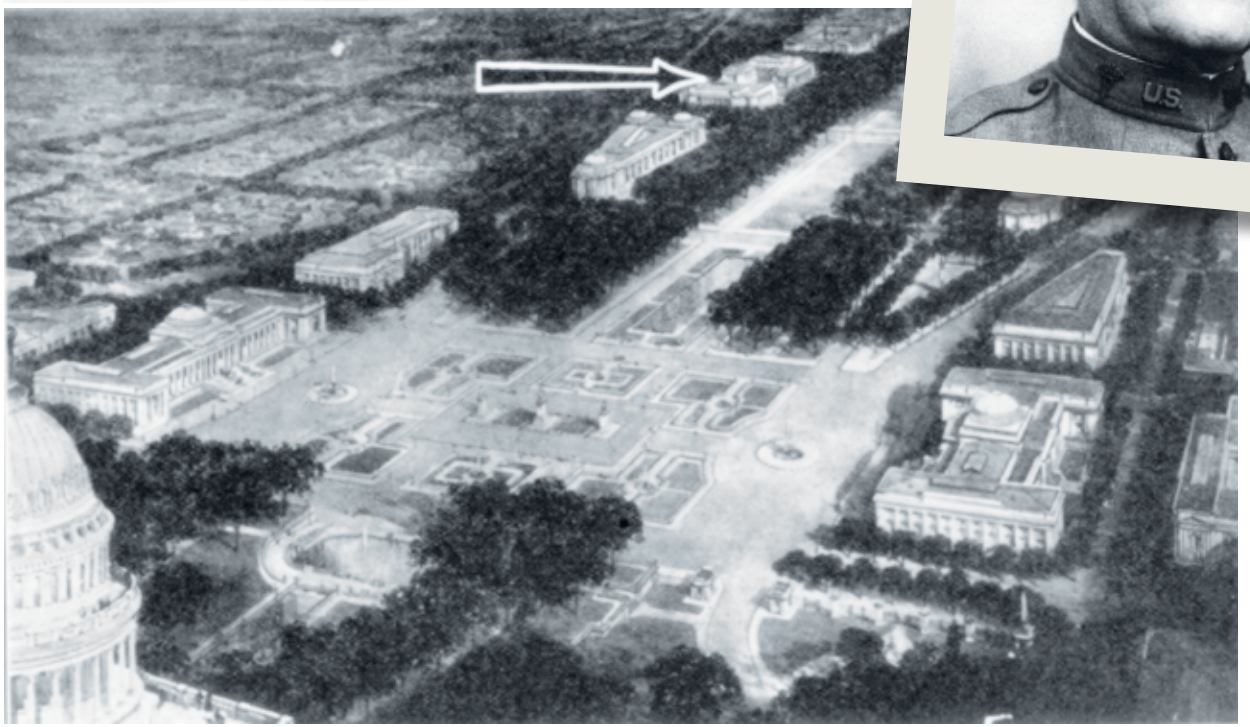
[Opposite | Top Far Right] *Colonel William Owen, tenth curator of the Army Medical Museum, 1916–1919. During his tenure, Colonel Owen pushed for construction of a new, 175,000-square-foot building to house the museum and library on the south side of the Mall, between 4½ and 6th Streets, SW. The plan was endorsed by more than a score of medical college deans and faculties, as well as top leaders in the medical profession. Preliminary plans for the building were approved by the city's Fine Arts Commission. But in the middle of a war, with Army money, materials, and manpower in short supply, the timing was not good and the project joined many other deferred plans of the time. Colonel Owen also envisioned an expanded role in pathology for the museum, writing: "I do not believe that a mere collection of anatomical and pathological curiosities for exhibit to the curious and the prurient should be permitted. A medical museum should be, in my judgment, a great library of history and pathology, where the student of medicine may come and study the history of disease and its pathology, for the benefit of himself, his patients and his nation."*[1(p165, 168)] *A conference room named for Colonel Owen exists in AFIP's headquarters today. (MIS 05-6766-1)*

[Opposite Top] *Front elevation of Colonel Owen's proposed Army Medical Museum and Library. (Reproduced from: Owen W. The Army Medical Museum.* New York Medical Journal. *1918; June: 4.)*

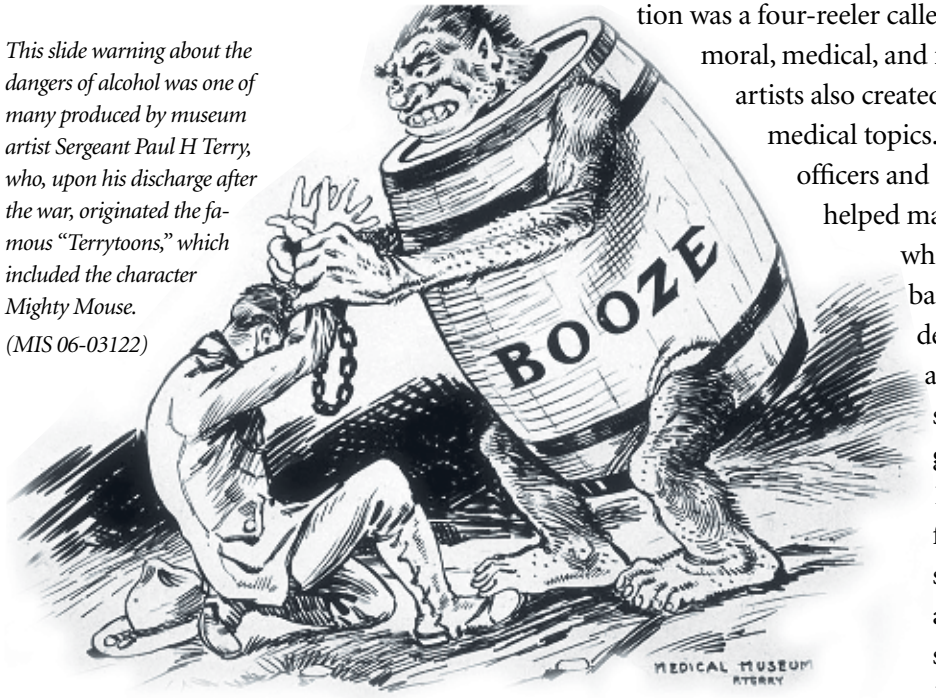
[Opposite Bottom] *Bird's eye view of the Mall, Washington, DC, as planned by the Fine Arts Commission. The arrow points to the site proposed for the Army Medical Museum and Library. (Reproduced from: Owen W. The Army Medical Museum.* New York Medical Journal. *1918; June: 3.)*



Front elevation of the proposed Army Medical Museum and Library.



[Opposite] *Art Department at the Army Medical Museum during World War I. (Reeve 309)*



This slide warning about the dangers of alcohol was one of many produced by museum artist Sergeant Paul H Terry, who, upon his discharge after the war, originated the famous "Terrytoons," which included the character Mighty Mouse. (MIS 06-03122)

During World War I museum staff established the Instruction Laboratory to create educational materials for military service members and document medical aspects of the war through motion pictures, photography, illustrations, and cast models. Altogether, 137 films were produced and distributed for showing in camps and through civilian outlets. The films' subjects ranged from diagnosis of tuberculosis to handling the wounded on the battlefield to training the new medical officer. In one case, drawings detailing every step in an operation were used to create an instructional film. The Instruction Laboratory's most controversial production was a four-reeler called *Fit to Fight*, which dramatically focused on the moral, medical, and readiness issues related to venereal disease. Museum artists also created extensive illustrations for training camp lectures on medical topics. This attempt to add to the medical knowledge of officers and enlisted personnel through anatomical medical art helped make the Army of 1917–1918 the first in US history in which deaths from disease were fewer than those from battlefield casualties. Meanwhile, museum teams were deployed to Europe to accurately document medical aspects of the war, including making wax models of soldiers' injuries. Eventually museum staff photographed, captioned, filed, and cross-indexed about 10,000 still photographs and turned out some 40,000 feet of motion-picture film showing medical and surgical activities at hospitals. In the same period the artists and modelers produced 35 casts of surgical subjects, about 200 drawings and paintings, and 1,000 photographs of technical subjects.

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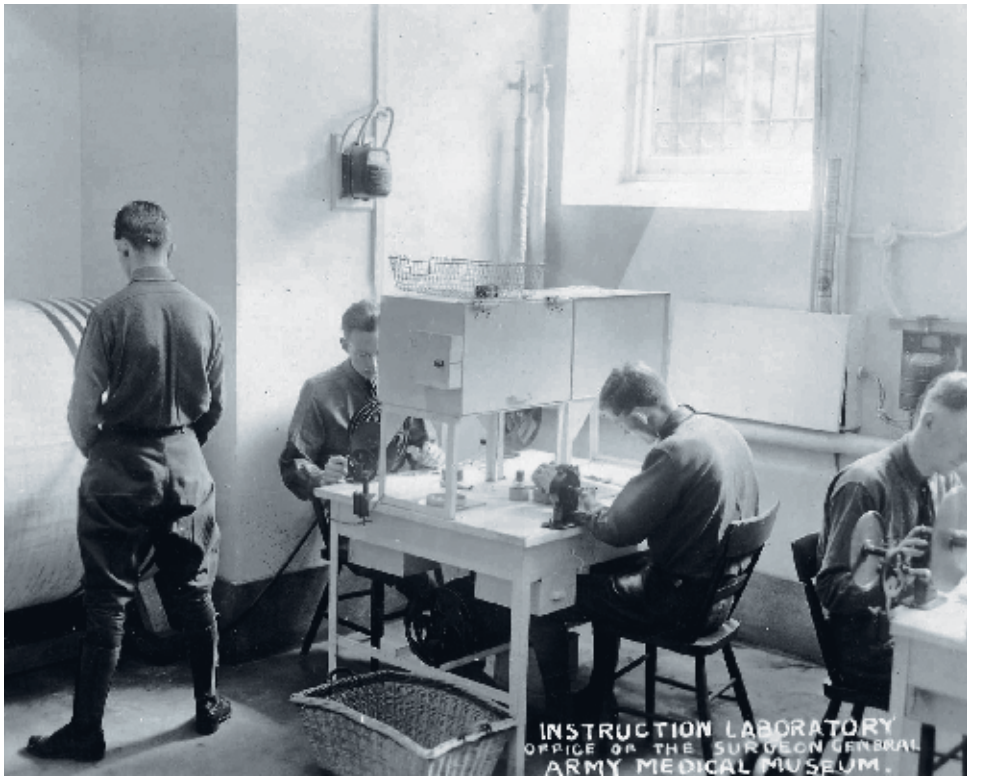
1. Henry RS. *The Armed Forces Institute of Pathology; Its First Century, 1862–1962.* Washington, DC: Office of the Surgeon General, Department of the Army; 1964.
2. Sternberg GM. *A Manual of Bacteriology.* New York, NY: Wood; 1892.
3. Rhode MG. The Army Medical Museum in World War I. Paper presented at: Annual Conference of the American Association for the History of Medicine; April 24, 2009; Cleveland, OH.

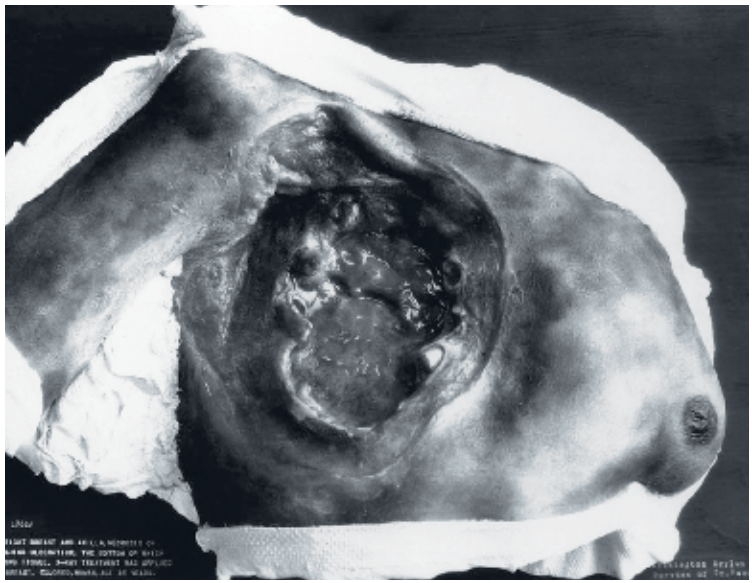
[Top] *Examples of lantern slides produced by the museum to warn of the dangers of promiscuous behaviors. (OHA 367: World War I Lantern Slide Training Sets)*

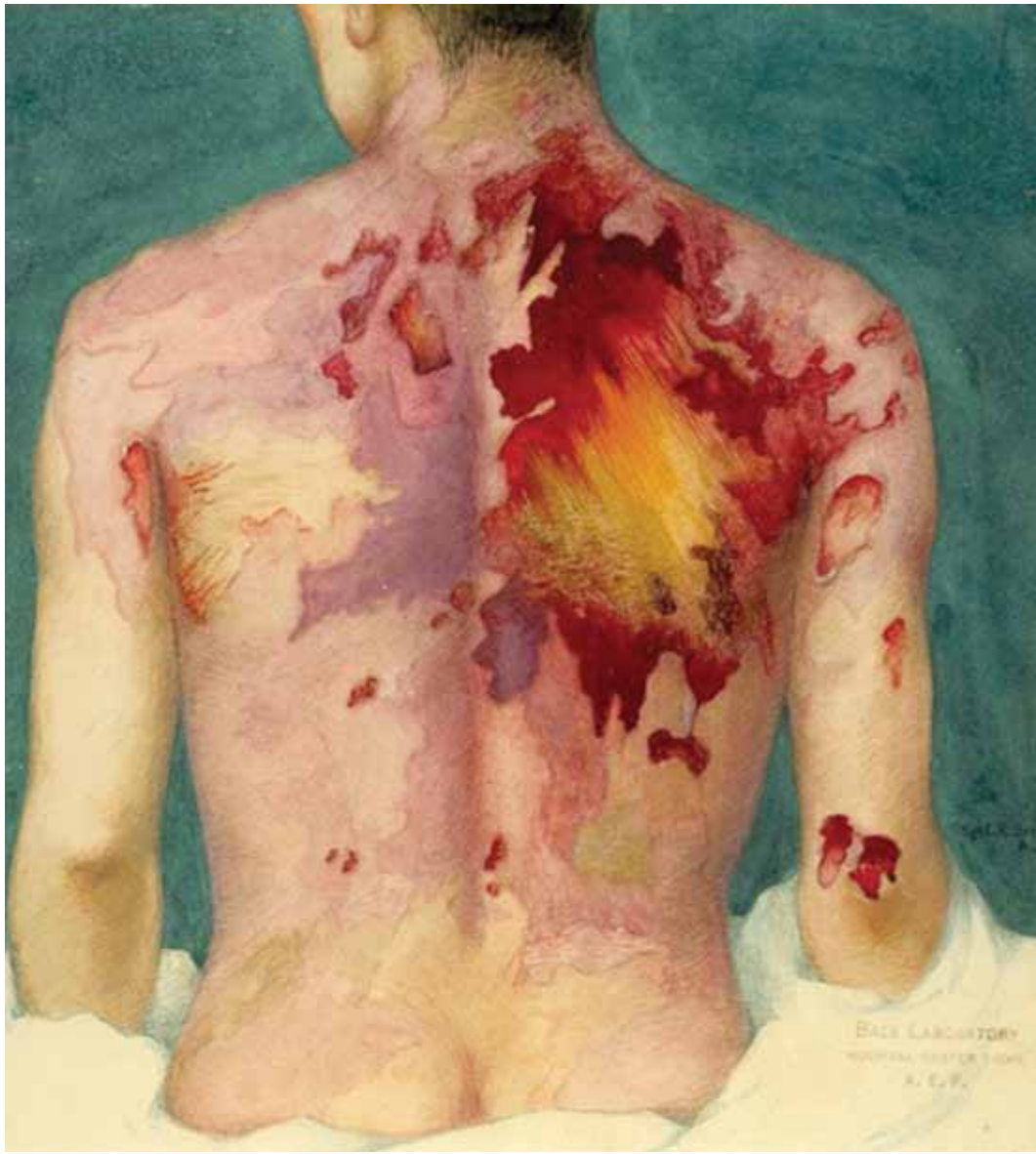
[Bottom Right] *Advertisement for one of the most controversial films produced by the museum during World War I. (Reeve 895)*



[Left] *Staff of the Instruction Laboratory arrange motion picture film on drying racks inside their office space at the Army Medical Museum. (Reeve 492-B)*

[Right] *Instruction Laboratory personnel going through the painstaking task of cutting and polishing motion-picture film. (Reeve 491-B)*



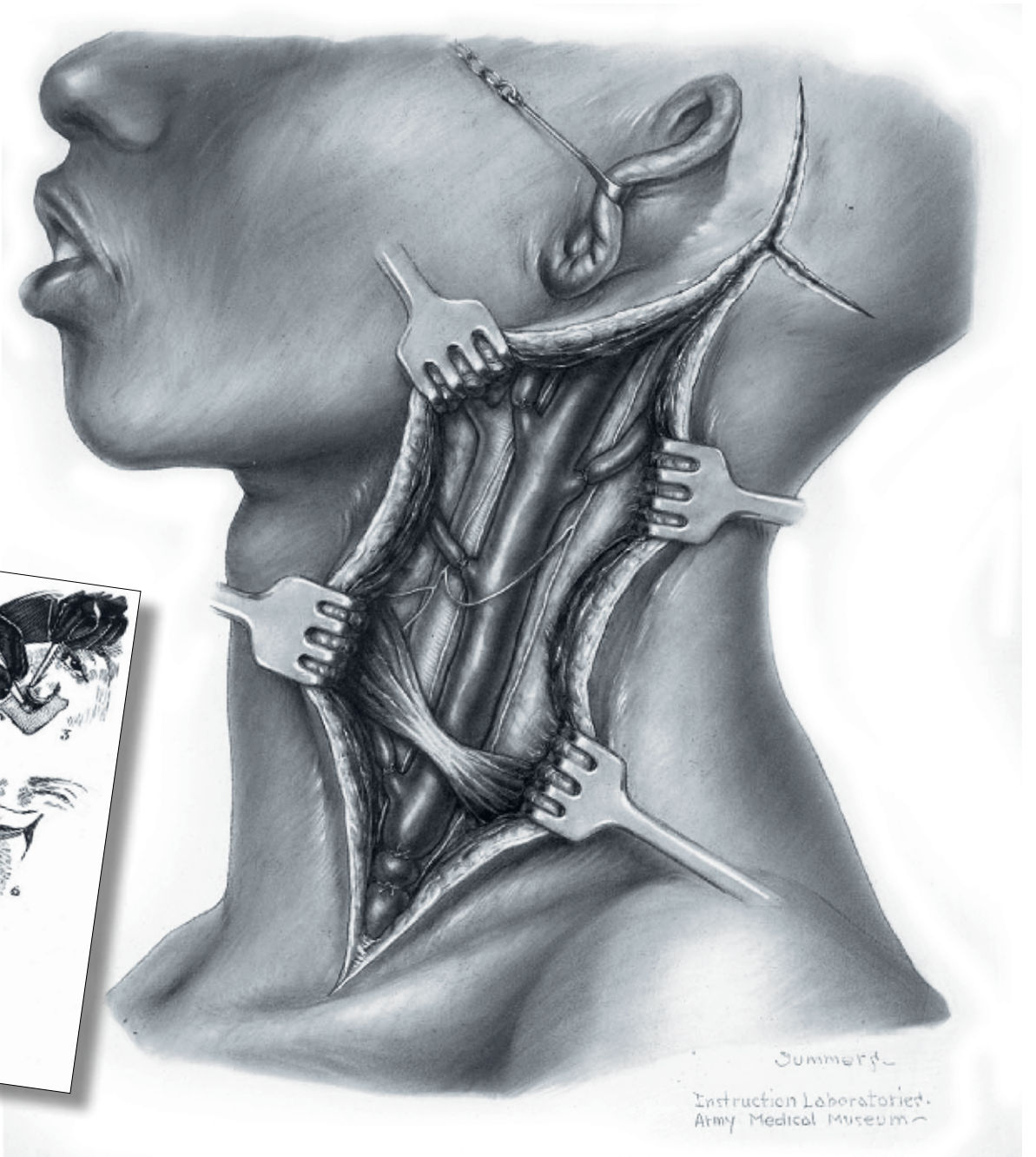


[Opposite Left] *Much effort was expended to produce realistic models of medical problems during the war. Pictured here is (top) a trench foot model and (bottom) an X-ray burn of the chest; both produced by Captain James Frank Wallis, who led the museum's modeling section. (M-550,10731; Reeve 36721)*

[Opposite Right] *Illustration of mustard gas burn by Brainerd. (OHA 229: Medical Art/Illustration Collection)*

[Left] *Nose reconstruction drawn by Lieutenant William Schwartz, who headed up the anatomical art service. (OHA 229: Medical Art/Illustration Collection)*

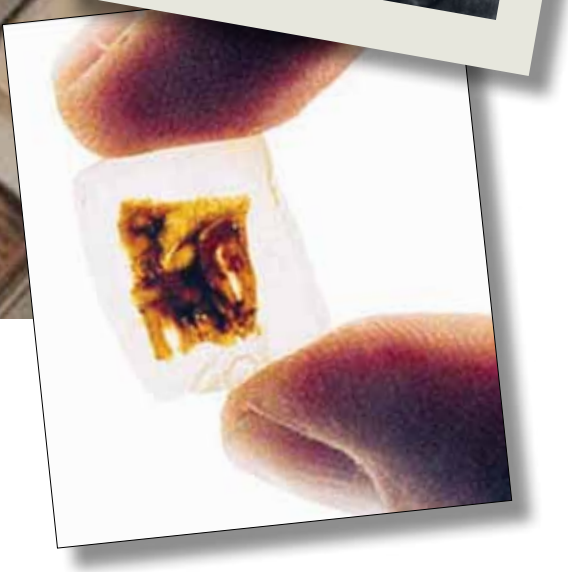
[Right] *Medical illustration by Summers of an unidentified operation. (OHA 229: Medical Art/Illustration Collection)*



[Top Left] *Camp Mills in Long Island, New York, one of many camps that had a high rate of influenza cases. (OHA 308: Smith Scrapbook Flu #2)*

[Bottom Left] *Eleanor Allen making wax models in France during the war. Allen had studied at the Chicago Art Institute and joined the museum staff in March 1918. (A022256 [formerly Reeve 17656], courtesy of National Library of Medicine)*

Cross-section of trench foot. (Reeve 30610)



[Top Right] *Dr James Ewing, who was highly influential in collecting pathology specimens at camps during the war, including specimens from victims of the 1918 influenza epidemic. (NCP 1288)*

World War I-era influenza-infected tissue on microscope slides (left) and in wax blocks (inset), which are still stored in AFIP's massive Tissue Repository. Some of these specimens were used in 2005 by AFIP scientist Jeffrey Taubenberger to investigate the disease. (NCP 4198; NCP 17029)

“As World War I came to a close, the Army Medical Museum—already incorporating a progressive vision and performing leading-edge medical research—was poised for a long transition leading to the development of an institute of pathology.”