Can the Nation Really Afford To Close Walter Reed Army Medical Center?

by Pam Lowry

> *11:50 p.m.* Dec. 31, 1900. Only ten minutes of the old century remain, lovie, dear. Here I have been sitting, reading that most wonderful book—*La Roche on Yellow Fever* written in 1853. Forty-seven years later it has been permitted to me and my assistants to lift the impenetrable veil that has surrounded the causation of this most dreadful pest of humanity and to put it on a rational and scientific basis. I thank God that this has been accomplished during the latter days of the old century. May its cure be wrought in the *early* days of the new century! The prayer that has been mine for twenty or more years, that I might be permitted in some way or sometime to do something to alleviate human suffering has been answered!
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> *12 midnight.* A thousand happy New Years to my precious, thrice precious wife and daughter! Hark! there go the twenty-four buglers all in concert, sounding taps for the old year! How beautiful it floats through the midnight air and how appropriate!

So wrote Walter Reed to his wife from Columbia Barracks in Cuba, where his team had just solved many of the mysteries surrounding the dreaded yellow fever, creating the possibility that the disease could soon be controlled and perhaps eliminated. This wonderful sense of opening horizons and expanding possibilities for mankind, had been a driving force in American medicine since the middle of the 19th Century, when Louis Pasteur disproved the theory of spontaneous generation in 1862, and opened the door for the resultant great discoveries in bacteriology and virology.

Using Pasteur's theory that bacteria can cause infection, Joseph Lister of Great Britain began the practice of antisepsis for his surgery in 1865, using both sterile instruments and sterile bandages. In Germany, the discoveries of scientists such as Jacob Henle, Robert Koch, and Karl Ludwig had drawn first scores, and then hundreds of American doctors and researchers to be trained in their laboratories. By 1914, approximately 15,000 Americans had journeyed to France, Germany, and Italy to learn the scientific methods which had enabled the discoveries to be made.

Pasteur's development of a vaccine against anthrax, and his spectacular victory over hydrophobia (rabies) in 1885, gave hope to the world that infectious diseases could be cured, and even prevented. Hearing of Pasteur's work, the citizens of Newark, N.J., raised enough money in one week to pay boat passage to France for five children who had been bitten by the same rabid dog. They were accompanied by an American doctor to Paris, where Pasteur succeeding in curing all five.

Before the end of the 19th Century, American research had begun to add its contributions to the developing field of microbiology and medicine. The excitement of being able to combine laboratory research, advanced training for physicians, and patient care and cure, led to the founding of major research hospitals, and the Army hospital named for Maj. Walter Reed was one of these. The story of that hospital begins with American efforts to stop the terrible epidemics of contagious diseases, such as typhoid and yellow fever, which would cause hundreds or even thousands of deaths, and then disappear as mysteriously as they had come, only to return again at some unpredictable future time.

The terrible yellow fever epidemic, which hit the Mississippi valley in 1878, sickened 120,000 people and killed 20,000 of them. In the light of Louis Pasteur's and Robert Koch's discoveries that specific microorganisms caused specific diseases, the American medical and scientific community determined that the cause of these scourges could and must be found, and that preventative measures must be put into place as soon as possible.

Into this mission stepped Walter Reed, a Virginia doctor who began his practice by serving on the Boards of Health in Brooklyn and New York. In 1875, Reed joined the Medical Corps of the U.S. Army and served at a number of frontier garrisons. When he was moved East and stationed at Mount Vernon Barracks in Alabama, he provided care to Apache Chief Geronimo and 400 members of his tribe. Despite his comparative isolation from the work being done in medicine, Reed's experiences on the frontier helped develop his ingenuity, flexibility, and ability to initiate measures, because there was little to support him in his work.

In 1890, Reed was assigned to Baltimore, enabling him to pursue graduate study at the emerging medical center of Johns Hopkins. He had briefly attended lectures there ten years earlier, and was eager to learn about the breakthroughs which were putting American medicine on a scientific basis. After a brief course in clinical medicine, he was attached to the pathology laboratory, where he specialized in bacteriology. The director of this program was Prof. William Welch,

who had been trained in Germany by Karl Ludwig and Robert Koch. Welch had chosen a talented group of associates and trainees, who came to be known as the Welch Rabbits. In the course of his study, Reed became especially interested in the bacteriology of erysipelas and diphtheria. He argued for the treatment of diphtheria by antitoxin, and favored government control of the preparation of biological remedies.

Although Reed had wished to continue his studies, he was rotated out to a post at Fort Snelling, Minn. Unwilling to let his bacteriology training lie fallow, he went out of his way to meet members of the local medical community, and became friends with Louis Wilson, a local high school biology teacher. Wilson later became the director of the Mayo Foundation. Wilson helped Reed set up a bacteriology laboratory, where he processed throat cultures in order to diagnose diphtheria. While he was at Fort Snelling, the first of Reed's many scientific papers was published, dealing with the contagiousness of erysipelas, a skin infection. The paper had grown out of his work at three frontier posts, one of them a rough-and-ready railroad town in Nebraska, between 1882 and 1887. The medical journal which published his paper was the predecessor of the *New England Journal of Medicine.*

The Army Medical School Is Established

In 1893, an internationally known bacteriologist was named to the post of Surgeon General of the U.S. Army. This was George Miller Sternberg, a Civil War officer in the Union Army who, like Reed, had served at frontier posts. In 1881, he had photographed the germ of tuberculosis, discovered the same year in Germany by Koch. His 1884 book on photomicroscopy was of great use to the pioneers in the field. Among other interests, such as pneumonia and malaria, Sternberg worked on finding the cause of yellow fever for more than 25 years.

Sternberg immediately established the Army Medical School in Washington, D.C., to train doctors who had graduated from civilian medical schools in the practices of Army medicine. Capt. Walter Reed was called to Washington to take on duties at the school, as well as to serve as the curator of the Army Medical Museum. The Medical Museum had been founded in 1862, to study the illnesses and injuries which affected the Union troops during the Civil War.

The coming of the Spanish-American War in 1898 brought with it a severe typhoid outbreak in the Army camps, in particular in the training camps on Long Island. The sheer size of the outbreak—the epidemic killed more than 50 times as many soldiers as did the combat—caused a public scandal, and Surgeon General Sternberg set up a committee to investigate the causes and mode of transmission of typhoid fever. Walter Reed was appointed chairman of the committee, which proved that the virus was not transmitted by contaminated water, as had been thought, but by flies and contact with infected feces. This enabled the Army and public health officers to take the necessary precautions to contain the disease.

When the Spanish-American War resulted in the American occupation of Cuba, yellow fever lost no time in appearing among the American troops stationed there. In 1900, Reed was again appointed head of a commission of Army medical officers to investigate the disease. He and his assistant, Dr. James Carroll, had already disproved the theory of Italian scientist Dr. Giuseppe Sanarelli, that the bacillus *icteroides* was the cause of yellow fever. Now, Reed and Carroll were joined by Dr. Jesse Lazear, an entomologist, and Dr. Aristides Agramonte, a pathologist. The members of the Yellow Fever Commission sailed to Cuba and set up a research facility at a small American post.

Courtesy of John R. Pierce, M.D.

Walter Reed Army Medical Center, established in 1909, grew into a "mini city," where today 5,000 staff provide services for 600,000 patient visitors per year.

Because animals were not affected by yellow fever, the commission decided they had to use human test subjects. The brave volunteers consisted of both Americans and Cubans. The theory that mosquitoes caused yellow fever had been proposed by several doctors, but it had never been proven. During carefully controlled experiments, 22 cases of yellow fever were produced, fortunately without any fatalities. In early uncontrolled experiments, while Reed had been called back to Washington, Dr. Carroll contracted a serious case, but recovered with collateral heart damage, and Dr. Lazear died from the bite of an infected mosquito.

Uncovering the Cause and Course Of Yellow Fever

Seven months of experimentation brought conclusive proof that yellow fever is transmitted by the female *Aedes aegypti* mosquito. For the mosquito to pick up the virus from an infected person, the yellow fever in that person must be of less than four days' duration. The incubation of the virus in the mosquito requires at least 12 days, and then the mosquito is infective for at least 57 days. The experiments also showed that yellow fever could also be produced by injecting blood taken from a person suffering a fresh case of yellow fever, and that the serum that remained after filtration of the blood

Hench-Reed Collection, CMHSL, UVA

Walter Reed (1851-1902), physician, bacteriologist, and leader of the medical teams that conquered typhoid and yellow fever, died prematurely at age 50, but is memorialized by the Army Medical Center that bears his name.

was also infective. The commission also found that the clothing and bedding of yellow fever patients were not infective.

These were extremely valuable findings, which enabled doctors and public health personnel to eradicate the disease in the United States and Cuba. The mosquitoes laid their eggs in fresh water, so the technique to destroy them consisted of putting a thin film of oil on the water surface of rain barrels or any other collected water. By 1902, there was not a single case of yellow fever in Cuba, and by 1905, the last, difficult epidemic of yellow fever was finally defeated in New Orleans.

Dr. Carroll returned to Cuba and discovered that the yellow fever virus could be weakened by heating it, and that it was could not be filtered out—that is, it was so small that it would even pass through the new Berkefeld filter which had been designed to capture even the smallest bacteria. It was not until the advent of the electron microscope that the virus could actually be seen.

Reed returned to Washington and resumed his work at the Army Medical School and the Army Medical Museum. He also taught pathology and bacteriology at the Columbian University Medical School, the precursor of George Washington University. In the Fall of 1902, he ignored the warning pains of chronic appendicitis, and when his friend, Maj. William C. Borden, operated on him, he found a burst appendix and possible peritonitis. Major Reed died five days later at the age of 50, and was buried in Arlington National Cemetery.

A Hospital Is Born

Dr. Borden, who was the commander of the Army hospital at Washington Barracks, was devastated by the loss not only of a friend, but of a gifted and highly moral scientist who had many more discoveries to make. He resolved to persuade the Army and Congress to build a new hospital which would be named after Walter Reed, and which would embody the scientific and medical tradition which Reed represented.

Borden went to the Secretary of War, who approved his blueprints for the hospital, but told him he would have to find the funding himself. For several years, Borden haunted the halls of Congress, trying to get the appropriation he needed. Many people began to call the projected hospital "Borden's dream." But one day, Dr. Borden chatted with the doorkeeper of the Senate chamber, asking about the state of his health. The man's arm had been amputated because of a Civil War wound, and he told Borden about the pain he was suffering. Borden operated on him and successfully removed a neuroma from the stump.

To return the favor, the doorkeeper told Dr. Borden that projects in the District of Columbia usually succeeded if a certain colonel backed them. Borden went to the colonel, who took him to the chairman of the House Appropriations Committee. The chairman was favorable to the idea, and sought $500,000 for initial costs, but this was reduced to $300,000 in the joint conference committee. It became law in March of 1905, and an additional appropriation in October stated that the hospital was to be named the Walter Reed United States Army General Hospital.

The first patients to be treated at the new hospital were transferred from Washington Barracks on May 1, 1909. The 80-bed hospital grew rapidly, especially during and after World War I. Then, piece by piece, other Army institutions were moved to Walter Reed Hospital's campus, transforming it into a major medical center which combined patient care with research programs and specialized training for Army doctors. In 1923, the Army Medical School, founded by Surgeon General Sternberg, and which had counted Walter Reed among its faculty members, was moved to the hospital grounds. A new Armed Forces Institute of Pathology building was dedicated in 1955, and in 1971, the National Museum of Health and Medicine, successor to the 1862 Army Medical Museum where Walter Reed had served as curator, also moved to the campus.

World War II greatly expanded the medical center's operations, and after the war a new Commander, Major General Heaton, brought Walter Reed Army Medical Center into national and international prominence. Heaton made long-term plans to ensure the center's future beyond his own lifetime and into our present century.

It was then that all Americans knew that if a member of the military were suffering from a complicated medical problem, he should be sent to Walter Reed. If the President of the United States became ill, he would be treated at Walter Reed. Dignitaries from foreign governments came to be treated there. Letters from all over the planet, addressed simply to Walter Reed, would always be delivered to the right place.

A Mini-City Grows Up

In 1977, a large new hospital, one of Commander Heaton's planned improvements, was dedicated by Daisy Royce, the granddaughter of Walter Reed. It was subsequently named

Library of Congress

The work of the great French scientist Louis Pasteur prepared the way for future researchers of infectious diseases, and saved the lives of future millions, who were able to live because of his method of vaccinations for killer diseases.

the Heaton Pavilion. This present hospital was designed as a state-of-the-art medical facility. The completed building had 5,500 rooms, 28 acres of floor space, 1,280 patient beds, and 16 operating rooms. The interstitial space between floors was designed to include air conditioning, heating, electrical, plumbing, and life-support systems, as well as a monorail track system to handle linen and medical supplies. Even a patient food-cart system was built into the monorail delivery design. There was also a separate tele-lift system, which was to carry administrative materials, laboratory samples, and patient records.

Today, Walter Reed Army Medical Center occupies a campus of 113 acres in the Northwest quadrant of Washington, D.C. It has grown into a mini-city, with its own fire department, police, and other units which provide support services. It has about 5,000 staff members, who, in one way or another, provide services for the 600,000 visits a year by members of the military and their families to its main hospital and satellite clinics. The hospital now normally operates 260 beds out of its capacity of 1,280, but the unused wards have been turned into specialty clinics. The medical center contains 60 such clinics, which offer a full range of medical specialties and sub-specialties.

The strong tradition of medical research at Walter Reed is demonstrated by its nearly 800 clinical research projects. These include work on hepatitis, prostate cancer, breast cancer, the AIDS virus, and Persian Gulf illnesses.

There are also 65 graduate medical training programs in more than 50 fields, offering internships, residencies, fellowships, and associated health courses for members of all the military branches. At the Armed Forces Institute of Pathology, the successor to the U.S. Army Medical Museum, there are 250 pathologists who help diagnose difficult or unusual cases. They also teach pathology to hundreds of physicians, both military and civilian, every year.

Yet, Walter Reed Army Medical Center has been selected for closure under the new Base Realignment and Closure cycle. Its functions will supposedly be transferred over a period of five years to a new, not-yet-built building on the campus of the National Naval Medical Center in Bethesda, Md. There is nothing wrong in proposing a new building for Walter Reed Medical Center, but perhaps, thinking in the tradition of Dr. Walter Reed, we should look at the circumstances surrounding that offer.

Given the Rumsfeld/Cheney Pentagon policy of a leaner American Army, whose work will largely be done by such weapons as the proposed low-yield nuclear weapons called bunker-busters, what need will the Pentagon planners have of a major medical facility to treat and rehabilitate wounded soldiers? Given the attack on American health care, which has already accomplished massive cuts in the services provided by the Veterans Administration and Medicaid, and which sponsors the cost-cutting and health-care-denying policies of the health maintenance organizations, is it reasonable to think that the new hospital for Walter Reed will have no difficulty in obtaining funding?

Beware the Ghost of D.C. General

The ghost of D.C. General Hospital and its world-class Trauma Unit should make us pause and consider. When the proposal was made for closing D.C. General, the capital's only public hospital, and using its valuable land for another purpose, the residents of the District of Columbia were assured that the high-level patient services provided by the hospital could be easily provided by another. They were also assured that ambulances bound for D.C. General could easily reach the other District of Columbia hospitals, which, of course, would have the funding and staff to absorb the flood of new patients. But when D.C. General was closed in 2003, none of the promises was kept; patients died because the Trauma Unit no longer existed, and under the current cost-cutting policy, no other hospitals were geared up to replace it.

There is one more consideration. Walter Reed Army Medical Center is a leading asset of the national security of the United States. There are signs that the avian flu found in Asia may indeed be capable of jumping to human beings, and could build into a pandemic. There are also indications that "mad cow disease" is in no way under control. The flu epidemics which generally hit the United States every year are of varying severity, but once in a while, like the terrible worldwide pandemic of 1918-19, the virus is capable of causing millions of deaths. And the current difficulty in obtaining enough vaccine for even the normal flu seasons compounds the possible problem. If the scientific and medical capabilities of Walter Reed, built up over decades, were diluted and scattered over the next five years, would we be able to stop those pandemics in time?

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