

fever came as far north as Philadelphia, St. Louis and even up to Illinois, then retired for a season or for some years, only to recur again. That is now impossible. I am confident in making this assertion, because it is inconceivable that anybody, official or otherwise, would be so negligent as to allow this invasion by disregarding the fact that yellow fever is carried from individual to individual by a certain mosquito. Yellow fever is now an unknown disease in this country. If you want to study yellow fever, you will have to go to Western Africa or to one or two places in South America.

When the United States went into Panama to dig the canal, it took hold of a job which France had had to give up because of her inability to control malaria and yellow fever. In the interval—the few years that had passed—came the new knowledge of these diseases, and our men went down to Panama and encountered relatively little malaria and no yellow fever. Actually not a single case of yellow fever has originated on the Isthmus of Panama since 1904, the first year of the work on the canal. This great service to humanity was the direct result of microscopic research, supplemented by experimental methods.

In speaking of carriers, I want to refer to one or two additional examples. Thirty-five years ago, an English scientist, Dutton, in west Africa, in conversation with a local doctor was told that the latter had found peculiar worm-like bodies in the blood of a river captain. The scientist promptly got hold of the captain, examined his blood and discovered a trypanosome, a flagellate protozoan. For a time that organism was supposed to be localized on the west coast of Africa, but within a year this same organism was found in Central Africa in cases of sleeping sickness. This was the African sleeping sickness, not the one commonly known to us. The cause of sleeping sickness was thus revealed and shortly thereafter came the further observation that the carrier of that dis-

ease was an insect, the tsetse fly. The microscope made it possible to follow that germ through the body of the fly, and the mystery of that disease was cleared up.

I will refer to another instance of this kind, and that concerns an insect which we ordinarily do not name in polite society, the body louse, which is capable of transmitting two diseases. One is relapsing fever (due to a spirochete) which at one time extended throughout Europe and at times was present even in the eastern United States. The other disease is typhus fever, where an exceedingly minute rod-shaped organism is present. Recognizing that this insect was the carrier of this disease, during the world war, special efforts were made on the western front against the importation of the disease by troops from Africa, and from the Orient. As a result not a single case of typhus fever developed on the western front, whereas on the eastern front, the disease became wide-spread. It has been estimated that thirty millions of cases of typhus fever occurred in Russia during and after the war. We can not conceive of those figures, but certainly western Europe and the United States have benefited by the use of the microscope in the study of this disease.

Time does not permit my taking up any more examples of this kind. In fact, I believe I have already gone beyond the limit set, but I want to leave with you this conclusion—that the microscope has enabled man to gain the mastery over his ancient enemies, the enemies that have afflicted the race from the beginning of time. If it accomplished nothing else, it would be a wonderful result, but it has done more. Optical studies in general have enlarged the boundaries of science in all directions.

And now, in closing, I wish to thank you again, my dear friends, Mr. Bausch, Mr. Eisenhower, ladies and gentlemen.

FREDERICK G. NOVY

UNIVERSITY OF MICHIGAN

OBITUARY

HENRY SEWALL

HENRY SEWALL, born at Winchester, Virginia, on May 25, 1855, physician and pioneer physiologist of America, passed on suddenly from a heart attack, in a measure as he would have chosen had it been in his power, on the morning of July 8, 1936, at Denver, as he was preparing for his breakfast with his wife, Isabel Josephine Vickers Sewall, who had been his close companion since their marriage in 1887.

Dr. Sewall at heart was always first a physiologist. He cherished the memories of his training under Professor Henry Newell Martin while teaching physiol-

ogy in the newly founded Johns Hopkins University at Baltimore and following his graduation from Wesleyan University in 1876. He also cherished his associations with Carl Ludwig and Michael Foster during his European training. In 1881, he founded the new department of physiology at the University of Michigan, serving as professor and head under Dean Victor C. Vaughan, who later noted that "as a physiologist Sewall has had but few equals." At Ann Arbor, Sewall demonstrated that pigeons could be immunized to the venom of rattlesnakes,¹ an obser-

¹ Henry Sewall, *Jour. Physiol.*, 8: 203, 1887.

vation pointing the way to the discovery of diphtheria antitoxin, according to a delegation of Frenchmen who sought Sewall's laboratory at Michigan twenty years later.²

In 1888, Dr. Sewall received an honorary M.D. degree from the University of Michigan. Symptoms of pulmonary tuberculosis asserted themselves in 1885 and forced Sewall to leave Ann Arbor. During the winter of 1889, he became first resident physician, under the founder, Dr. Edward L. Trudeau, at the Adirondack Cottage Sanitarium, where Dr. and Mrs. Sewall occupied one of the first little one-room cottages. In 1890, Denver, Colorado, became his permanent residence, where he remained for the rest of his life. He brought honor to Colorado scientifically and became one of its most beloved physicians. He served as assistant health commissioner of Denver from 1891 to 1893, and secretary of the Colorado State Board of Health from 1893 to 1899.

When the National Board of Medical Examiners was established, he served this organization from 1915 to 1919. He received an M.D. degree from the University of Denver in 1889 and was professor of physiology in the Denver and Gross College of Medicine from 1890 to 1908. In 1912, the University of Michigan conferred on him the honorary Sc.D. degree, as did his Alma Mater, Wesleyan University, in 1926. From 1911 to 1918, Dr. Sewall occupied the chair of professor of medicine, at the University of Colorado School of Medicine, being emeritus professor since 1920. In 1916, he served as president of the American Association of Physicians; in 1924, president of the Colorado State Medical Society; and in 1927, president of the National Tuberculosis Association. In 1917, he became a member of the editorial staff of the *American Review of Tuberculosis*, the foremost tuberculosis journal in the world, a post he occupied from its inception on. In 1919, he became intimately associated with the research at the National Jewish Hospital at Denver, Colorado, serving as a member of the local and national advisory boards and as an active investigator also. His conscientiousness and

industry are attested by a bibliography of over 123 original scientific articles, in later years devoted mainly to tuberculosis, climatology, immunity. In 1930, Dr. Sewall received the Trudeau Medal for his scientific investigations in tuberculosis, the first time this honor had been bestowed west of the Atlantic Seaboard states. In 1931, he was awarded the George Kober Medal of the Association of American Physicians. Dr. Sewall was a fellow of the American Association for the Advancement of Science since 1921, contributing to the success of sectional and association meetings.

Dr. Henry Sewall's life was dynamic and purposeful. He was beloved by patient and colleague alike. He was always welcome into that rare fellowship of those who understand. His intimate professional and scientific friends ranked from those crowned with success to those struggling for an education. He was a profound teacher whose lessons were never to be forgotten, founded as they were on scientific observations and knowledge. His demands for work were meager, content with a bench or room so long as his colleagues were there for communion. He didn't believe in retirement while there was work still to be done. In spite of his busy life, he always had time to aid charitable causes. Dr. Sewall's high place in the world of science and medicine will long remain vacant as a testimonial to the stature of him who last resided there.

H. J. CORPER

DENVER, COLO.

RECENT DEATHS

PROFESSOR FRIEDRICH BREINL, of the University of Praha, died on July 29 from an infection of Rocky Mountain fever. He was expecting to lecture on the subject before the International Bacteriological Congress in London. Professor Breinl taught bacteriology at Harvard University in 1925.

DR. AUBREY C. GRUBB, professor of physical chemistry at the University of Saskatchewan since 1921, known for his work on electrical activation of hydrogen and nitrogen gases, died on July 29.

SCIENTIFIC EVENTS

THE HIGH VOLTAGE LABORATORY OF THE UNIVERSITY OF LONDON

THE High Voltage Laboratory of Queen Mary College of the University of London was opened recently by the Earl of Athlone. The laboratory is the first in England to combine facilities for original research with facilities for training students.

² Victor C. Vaughan, "A Doctor's Memories," p. 211. Publisher, Bobbs-Merrill Company. 1926.

The London *Times* writes:

Great Britain, in comparison with American and Continental Europe, has been ill equipped to provide the specialized training required for the study of problems in connection with the transmission of electrical energy at high voltages, and it is peculiarly fitting that the first great step in this country towards improving that position should be associated with Queen Mary College, where the high standard maintained by the electrical engineering department has led to its being entrusted with much