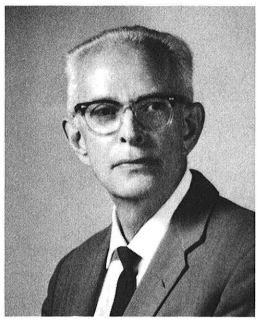
Francis Oliver Holmes, 1899–1990

Francis William Holmes



Francis Oliver Holmes was born November 26, 1899, in Cambridge, Massachusetts. He was struck by a vehicle while walking in a pedestrian crosswalk near his home in Henniker, New Hampshire, the evening of October 12, 1990, and died before reaching the hospital.

He graduated from Rindge Technical High School in Cambridge in 1916 and from Massachusetts Institute of Technology in June 1921 as one of a few graduates in biological sciences (Public Health program = S.B.). While an undergraduate student at MIT, he was also in training in the U.S. Army. World War I ended after he had received orders to go overseas but before his date to embark, so that soon after his induction he received his honorable discharge.

In 1921 Holmes went to Baltimore, Maryland, to do graduate study at Johns Hopkins University, under Dr. Robert W. Hegner. In June 1925 Johns Hopkins awarded him the degree Doctor of Science based on a research thesis entitled "Herpetomonad Flagellates in Milkweed in the United States."

Dr. Holmes was the first to discover this one-celled animal living in milkweed plants. He found it in the latex of milkweed plants all along the East Coast of the United States between Boston and southern Maryland, and as far west as Chicago. And for the rest of his life, he was rather an expert on all the plants that are found along roadsides in the eastern United States... which cast a very interesting light upon all family vacation trips!

While he was in Baltimore at Johns Hopkins University he met (and on August 30, 1924, married) Miss L. Ruth Deem, who had graduated with an English major from Goucher College.

In 1923, shortly before completing his doctoral thesis, Holmes accepted a job as Protozoologist at the Boyce Thompson Institute for Plant Research in Yonkers, New York. As one of the original group of seven scientists at Boyce Thompson, Dr. Holmes worked in close association with Dr. Louis Otto Kunkel. Kunkel had found and was studying some viruslike organisms that turned plant leaves yellow (although they turned the flowers green). These were known in those days as the "yellows viruses," and a half-century was to pass before scientists were to find out that these were actually mycoplasmas.

In 1932, when Dr. Kunkel was asked to develop a Plant Virology section for the new Plant & Animal Disease section of the Rockefeller Institute for Medical Research, he brought Dr. Holmes with him to Princeton, New Jersey. Holmes remained a Rockefeller Institute (later called Rockefeller University) scientist until his retirement in 1965. During this time he made a specialty of studying the "mosaic" virus diseases of plants.

During his long career, Dr. Holmes was noted for his discovery, in 1929, of a way to determine the relative concentration of virus particles in a plant tissue sample. His method became widely known as the "local lesion assay." This assay became a fundamental technique of plant virology.

Dr. Holmes also is world renowned for his long advocacy of the use of Latin binomials to name viruses, culminating in two editions of his book, "Handbook of Phytopathogenic Viruses" in 1939 and later (expanded to include all viruses whether or not they cause plant disease) "The Filterable Viruses" in 1948. Whether to use Latin names for this purpose is still a controversial topic, but such a usage has very great advantages.

Dr. Holmes went on to develop TMV-resistant cultivars in several crops, including tobacco, tomatoes, and sweet peppers.

Later in his career, Dr. Holmes discovered how one could successfully remove all the virus from contaminated varieties of dahlia and other horticultural plants. He used a combination of heat treatment plus meristem tissue culture.

Dr. Holmes served as an officer in the Northeast Division of the American Phytopathological Society, whose Award of Merit was given to him August 5, 1965. Shortly after his retirement he was the second recipient of the Ruth Allen Award, on August 22, 1967.

In his 60 years of scientific research Dr. Holmes listed 181 publications. Of these, 61 were published in Phytopathology, mostly before his retirement, and 49 more were published in Gleanings in Bee Culture, mostly after his retirement. The remaining 71 are found in 36 other journals or books.

During 1944, 1946, 1948, 1958, and 1959, Dr. Holmes and his wife were guests of the Puerto Rico Agricultural Experiment Station in Rio Piedras, where he studied the papaya "bunchy-top" disease. They also visited Puerto Rico for shorter periods on later occasions. In 1945-46 he studied the same disorder in Hawaii.

Dr. Holmes always showed a strong international interest. In 1961–62, as a consultant in virology for the United Nations Food & Agriculture Organization, Dr. Holmes worked at the Guinobatan Agricultural Experiment Station in the Philippine Republic. Here he discovered that the fatal "cadang-cadang" disease of coconut palms did not occur wherever the trees were kept in weed-free surroundings. This weed-free state was easily arranged by giving permission to local residents to cultivate private vegetable gardens among the trees.

In 1964, again under auspices of the United Nations Food & Agriculture Organization, Dr. Holmes investigated the same or a similar disease at an Experiment Station in Kerala Province in southwestern India.

Dr. Holmes also taught virology after his retirement from the Rockefeller Institute for Medical Research, for one year at the University of New Hampshire (at the request of Dr. Avery Rich) and for one year at the University of Illinois (at the request of Dr. Lindsay Black).

From his earliest childhood, Dr. Holmes loved the state of New Hampshire. His family had vacationed there for generations. After his retirement he moved there in 1965, where he raised honeybees and studied the taxonomy of willows. He gathered more than 100 species of Salix on his farm in Henniker and often donated to botanical gardens the species that they lacked.

Dr. Holmes made a custom of bringing wildflowers daily to the town library and other town facilities, as well as to the local church. He became so widely known and beloved in the town of Henniker, that in 1989 its residents voted him Citizen of the Year, and in 1990 the local New England College followed this up by awarding him an honorary Doctor of Science degree.

Dr. Holmes never stopped experimenting: with his bees, with the propagation of willows, with boron deficient soils, and with effects of boron deficiency on both bees and willows. During the Gypsy Moth outbreak of the 1980s he even experimented with these insects' food preferences among the various species of willows.

Dr. Holmes is buried among the beautiful pine trees of the Henniker Cemetery with his wife Ruth, who had died November 2, 1982. He leaves a sister, Edith Greenleaf Holmes, of Northampton, MA; a son, Francis William Holmes, of Amherst, MA; and three grandchildren, Peter Alan Holmes, of Framingham, MA, Sarah Ruth ("Virginia") Holmes, of Greenfield, MA, and Joseph Mark Holmes, of Westford, MA.

Donations in his memory may be made to the Tucker Free Library, P.O. Box 688, Henniker, NH 03242.