

Mathilde Bensaúde

(1890–1969)

Portugal's Pioneer Plant Pathologist

Manuel M. Mota

Mathilde Bensaúde, a pioneering woman plant pathologist from Portugal, lived an extraordinary life and made many significant contributions to the sciences of mycology and plant pathology. Two of her most important contributions were the discovery of heterothallism in the basidiomycetes—the primary scientific question of her 1918 doctoral thesis at the Sorbonne—and the establishment of the national Plant Quarantine Services (Serviços de Inspeção Fitopatológica) in Portugal in 1931. In addition, she also studied numerous fungi and bacteria and the diseases they cause, including Cladosporium species on stone fruits, Synchytrium endobioticum (potato wart), and Corynebacterium (= Clavibacter) sepedonicum (potato ring rot). She produced the first report of Olpidium species on roots of several vegetable species in the United States and investigated rusts (Uredinales) from citrus groves in southern Portugal's region of Algarve. She also studied and established control measures, including pioneering biological control methods (such as the use of Rodolia cardinalis, Cryptolaemus montrouzieri, and Aphelinus mali), for several insect pests, such as Sphinx convolvuli on sweet potato, Unaspis (= Chionaspis) citri on citrus, Phthorimaea operculella on orange, Aspidiotus perniciosus, Ceratitis capitata (Mediterranean fruit fly), and fire ants, among others. Early in her career, beginning in 1912, Bensaúde forged strong scientific ties with the United States, particularly with the Department of Plant Pathology at the University of Wisconsin-Madison. Her contributions to plant pathology and her visits to Madison have been honored with a plaque still on display in the department.

Mary Dilys Glynne

(1895–1991)

Cereal Disease Pathologist and First Woman Plant Pathologist Hired at Rothamsted

Geoffrey A. Salt

Mary Dilys Glynne was a research plant pathologist in the Plant Pathology Department at the Rothamsted Experimental Station soon after graduating with a B.Sc. degree from the University of Wales, Bangor. She began her career at Rothamsted in August 1917 as an assistant botanist under the guidance of the first woman scientist hired at Rothamsted, Winifred Brenchley. Glynne became one of the original members of the newly formed Mycology Department in 1918. She spent 43 years at Rothamsted, working mostly on soilborne and foliar diseases of cereals. The University of Wales awarded her an M.Sc. degree in 1922 for her work on wart disease of potatoes and a D.Sc. degree in 1943 for her work on eyespot disease of wheat. She is best known for her work on take-all decline and eyespot of wheat. She was elected a fellow of the Institute of Biology, and in 1960, she was honored with the Order of the British Empire for her services to agriculture. She retired in November 1960 but returned to Rothamsted on a voluntary basis for another 2 years and then continued writing from her home, publishing her final paper in 1985 when she was 90. She was also a renowned climber and was one of the first women to scale mountains such as Fujiyama and the Matterhorn.

Rosalind Franklin

(1920–1958)

A Pioneer in Plant Virus Structure Research

Sue A. Tolin

Rosalind Franklin made significant contributions to the science of plant pathology, notably on the structure of Tobacco mosaic virus (TMV). In approximately 4 years of work on virus structure, she published 16 papers until (and after) her premature death from cancer. She is better known historically for her X-ray crystallography of DNA and the controversial use of her unpublished pictures by Maurice Wilkins, James Watson, and Francis Crick to build their double helix model of DNA. The negative image of her portrayed by Watson in his classic book The Double Helix was later retracted and she became friends and colleagues of both Watson and Crick. Ann Sayre, a longtime friend of Franklin, wrote an excellent biography, portraying personal information of what it was like to be a gifted woman in a competitive scientific race dominated by males. Sayre remarks that the words of Watson compelled her to “set the record” straight by writing a biography of Franklin. Franklin’s life was revisited by B. Maddox in 2002, bringing additional information to light about the woman who became known as the “Dark Lady of DNA”. Maddox also presents a complete picture of Franklin’s career, including her work on virus structure. Recently, other science historians have begun to recognize that Franklin made major contributions to our understanding of the structural biology of viruses, in addition to her work on DNA structure. Franklin was invited to present her research at the 50th anniversary of The American Phytopathological Society (APS) in August 1958, which would have been her first presentation at a plant pathology meeting. Her untimely death occurred 4 months prior to the APS meeting, at the age of 37. Franklin’s work was represented in the commemorative volume from the meeting in an article written by Donald Caspar and Aaron Klug, in which they designated her as senior author. Notably, she was the only woman on the program and, as a coauthor, in the entire APS Golden Jubilee volume. Franklin will be remembered as a gifted scientist who advanced the science of structural virology in a few short years with uncommon dedication, talent, and ultimately her life from side effects of her work with X-ray crystallography.