

Thomas Ellsworth Rawlins, 1895-1972

W. N. Takahashi and M. W. Gardner



Thomas Ellsworth Rawlins, noted for his work in plant virus diseases, was born at Elk Creek, Glenn County, California, 13 November 1895, and died at Las Cruces, New Mexico, 1 August 1972. After receiving a B.S. in plant pathology at the University of California, Berkeley, in 1921, he was awarded an assistantship with James Johnson, tobacco

virologist at the University of Wisconsin where he received an M.S. in 1923. Returning to the Division of Plant Pathology, College of Agricultural Sciences at Berkeley, he received the Ph.D. in 1926, working with W. T. Horne and R. E. Smith. He remained here until he retired in 1962, being advanced to full professorial status in 1945. After he retired he lived a few years in Lake County. He went to Las Cruces, New Mexico, in January 1967, where, as full professor, he was engaged in research on *Vorticillium* wilt of cotton in the Department of Botany and Entomology of New Mexico State University until his death.

At Berkeley, he served many years as advisor of undergraduate majors in plant science in the College of Agricultural Sciences. For many years, he and William Takahashi offered a course in techniques of plant pathology. In later years, another course in plant histochemistry and virology was offered. Pertinent to these courses, Rawlins and Takahashi published two manuals, "Phytopathological and Botanical Research Methods" in 1933 and "Techniques of Plant Histochemistry and Virology" in 1952.

Rawlins' major field work was with the so-called "buckskin disease" of sweet cherries in Green Valley, Solano County. He showed that the disease was

transmissible and that its destructiveness could be reduced by using trees grafted onto *Prunus mahaleb* rootstocks instead of the commonly used Mazzard stocks. With Harvey Thomas, he described the virus diseases of sweet cherry, peach, prune, and almond for U.S. Department of Agriculture Handbook No. 10, published in 1951.

Rawlins and Tompkins developed the use of Carborundum as an abrasive to improve the juice inoculation transmission of plant viruses, a method now almost universally employed.

Familiarity with the properties of polarized light led Rawlins and Takahashi to an ingenious discovery that extracts from mosaic-diseased tobacco plants exhibited the stream double-refraction phenomenon when viewed through crossed nicol prisms. This discovery led them to conclude that the virus was composed of ultramicroscopic rods, a conclusion confirmed a few years later by the newly developed electron microscope.

Using a primitive model electron microscope, Rawlins did pioneer work on the morphology of plant viruses and their effects on infected tissues at different stages of infection. He studied methods of virus purification, the effect of radioactive phosphorus, chemotherapy, antibiotics, and various organic compounds on virus infections. His interest in cytology occasionally diverted his attention to other than virus problems. He developed a method for differentiating white pine blister rust in *Ribes* spp. tissues from a deceptively similar rust. With R. K. S. Wood and A. H. Gold, he showed the effect of pectic enzymes on cell walls.

He was a member of the AAAS, the Botanical Society of America, and The American Phytopathological Society, serving as president of its Pacific Division in 1940-41.

He is survived by his widow and by his son, Wendell, of Topeka, Kansas.