

Ruth Allen Award

The Ruth Allen Memorial Fund was established in 1965 by means of gifts from the estate of Dr. Ruth Allen through the generosity of her heirs: Sam Emsweller, Mabel Nebel, Hally Sax, and Evangaline Yarwood. The award, consisting of a certificate and income from the invested fund, is given for outstanding contributions to the science of plant pathology.

William F. Rochow



William F. Rochow was born in Lancaster, Pennsylvania, on March 12, 1927. He received a B.S. degree at Franklin and Marshall College in 1950, and a Ph.D. degree at Cornell University in 1954. He spent the year of 1955 at the Virus Laboratory at the University of California, Berkeley, on a National Foundation for Infantile Paralysis Fellowship. In 1955, he joined the Cereal Crops Research Branch of the U.S. Department of Agriculture to initiate a study of oat viruses in a cooperative program with

the Department of Plant Pathology at Cornell. He was later promoted to professor of plant pathology.

Dr. Rochow's findings have had major influence on the course of research on barley yellow dwarf virus (BYDV), the luteoviruses, and on other persistently transmitted viruses. He is largely responsible for the discovery and description of vector specificity

for BYDV. He recognized that some isolates of field-collected BYDV were transmitted only by specific species of aphids. He then identified five vector-specific isolates of BYDV by comparative transmissions of virus by four aphid species. These isolates are now recognized worldwide by plant pathologists and breeders as major types for BYDV strains. The discovery of vector specificity enabled Dr. Rochow to identify the occurrence of dependent virus transmission from mixed infections, using different BYDV isolates. He further identified that transcapsidation could dramatically influence epidemiology of BYDV. The demonstration of dependent transmission suggests how a virus might infect a new host species and eventually evolve to become an identifiably distinct virus. Additional work led to the hypothesis that vector specificity is based on aphid membrane recognition of virus capsid proteins. These studies have triggered similar projects to study persistently transmitted viruses in other locations.

Dr. Rochow has been at the forefront in adapting new technology for the study of BYDV biology and epidemiology. He helped develop and utilize bioassay techniques based on feeding aphids on purified virus through membranes and based on

microinjection of virus into anesthetized aphids. He was among the first to utilize enzyme immunosorbent assay. His leadership and his willingness to assist other researchers have stimulated BYDV programs in many other areas. He is currently using monoclonal antibodies developed in a cooperative project.

At a BYDV workshop held in 1983 at the International Maize and Wheat Improvement Center in Mexico, Dr. Rochow was acknowledged as the leading international scientist in BYDV research. In 1966 he received the USDA Superior Service Award,

and in 1970 he was made a Fellow of APS. He has served on the Editorial Board of PHYTOPATHOLOGY, as associate editor of *Virology*, and on the Editorial Committee of the *Annual Review of Phytopathology*. He has been a member of six APS committees. He arranged the program in virology for the Second International Congress of Plant Pathology, which involved more than 200 scientists from 20 countries. He has also served as advisor to a number of graduate students.