

Harry L. Keil, 1915-1978

T. van der Zwet



Harry Louis Keil, Research Plant Pathologist for the U.S. Department of Agriculture in Beltsville, Maryland, died unexpectedly of a heart attack August 24, 1978, at his home in Bowie, Maryland. Son of Henry and Philipina Keil, he was born March 6, 1915, in Hudson, Pennsylvania; attended public schools and college in eastern Pennsylvania; and graduated with a BS from Penn State University in 1937. He earned the MS degree by June, 1939, and the PhD degree in 1946 under Dr. C. C. Wernham for

studies on the "silver top" of fescue grasses, a mite/fungus complex. In 1941, he married Edith Goddard who survives him and still resides in Bowie, Maryland.

From 1943 to 1946, Dr. Keil worked as assistant professor and agricultural agent at Rhode Island State University. He was a research assistant in Plant Pathology-Entomology in spring 1942, and was promoted to faculty status January 1, 1943. He first studied the cadmium compounds as turfgrass fungicides. With Dr. Frank Howard, Dr. Keil co-discovered and developed data on the fungitoxicity of quaternary ammonias, pyridine, quinoline, nicotinium derivatives, organic mercuries, and cadmium compounds. The organic mercuries became especially important for eradication and protective control of apple scab and various fine turf grass diseases. The cadmium compounds effectively controlled dollar spot and have been used extensively in the United States for over a quarter of a century.

Dr. Keil's expertise in evaluating the fungitoxicity of chemicals was recognized by the Rohm and Haas Chemical Company and in August, 1946, he accepted a research position with that company in Bristol, Pennsylvania, where he pioneered and developed the dithiocarbamate fungicides for control of vegetable and fruit diseases and participated in the discovery and development of Karathane as a control for powdery mildew and mites. This compound has been used worldwide, especially on fruit trees for the past 25 yr because it proved to be the most effective chemical for control of powdery mildew. Later he discovered, developed, and introduced the nickel compounds for control of rust on wheat: these were used for several years in foreign countries where they significantly increased wheat yields.

In 1958, Dr. Keil accepted a position as research plant pathologist with the U.S. Department of Agriculture in Beltsville, Maryland. Following a reorganization in 1972, he worked in the Fruit Laboratory of the Agricultural Research Center until his untimely death last year. During that period of 20 years, Dr. Keil investigated fungal and bacterial diseases of deciduous tree fruits. Principally, he conducted basic and applied research in laboratory, greenhouse, and orchard on the epidemiology and etiology of fire blight, the host-parasite relationship of *Erwinia amylovora* and *Xanthomonas pruni* and their respective hosts, and the interrelationship of certain cultural practices and the occurrence and severity of fire blight.

During the past 12 years, Harry and I worked together on various phases of the fire blight problem. In 1969, 1971, and 1976, we organized three fire blight workshops in cooperation with scientists at the Universities of Missouri, Michigan State, and Cornell, respectively. The last one was attended by several research workers from Europe. During the past 5 yr, we evaluated and summarized more than 1,200 articles on fire blight into the first comprehensive review on this subject. In July 1978, Harry saw the

final printers proof of USDA Handbook 510, entitled "Fire Blight—a Bacterial Disease of Rosaceous Plants."

Dr. Keil's most important accomplishments, however, were in the development of effective control measures for bacterial and fungal pathogens of deciduous fruit trees; this involved searching for, screening, and testing various chemicals and determining their phytotoxic and other properties. His data on efficacy and residue levels of streptomycin sprayed after bloom on apples and pears were the basis for FDA and USDA approval of an extended streptomycin schedule for control of fire blight which made it possible for fruit growers in the central and northeastern United States to protect newly planted orchards. He also proved oxytetracycline to be practical for control for bacterial spot of stone fruit for which there was no effective chemical control. Because of his work, a temporary label was issued for the use of oxytetracycline.

Dr. Keil and his coworkers showed pesticide enhancement of certain fungicides and bactericides by dimethyl sulfoxide (DMSO) and, through careful studies with radiolabeled material, investigated the movement, metabolism, and volatilization of DMSO from peach tissue. In 1974, he presented an invitational paper at the New York Academy of Sciences entitled "Accumulation and Persistence of Sulfur 35 in Peach Foliage and Fruit Sprayed with Radiolabeled Dimethyl Sulfoxide."

For many years, Dr. Keil was a leader in the field of fungicides and bactericides, especially those used for the control of fruit tree diseases. His knowledge of agricultural chemicals often was sought by other scientists and numerous visitors to Beltsville. He cooperated with many scientists in private industry and in state experiment stations who were to develop and evaluate new chemical compounds. His forte was the application of research findings to field problems. His broad background in fungicide research was utilized in the task of collecting, evaluating, and coordinating all disease loss data for fruit and nut crops into Agriculture Handbook 291 entitled "Losses in Agriculture." He also evaluated, compiled, and reviewed technical information relative to diseases of fruit and nut crops, which was recently published in Agriculture Handbook 378, entitled "Guidelines for the Chemical Control of Plant Diseases and Nematodes." Dr. Keil authored or coauthored over 70 scientific publications.

Dr. Keil was a member of the American Phytopathological Society (APS), the Entomological Society of America, the Mycological Society of America, and the Society for Industrial Microbiology. He served on several committees in an editorial or advisory capacity and represented the APS to other organizations such as the Food Protection Committee of the National Academy of Sciences. Furthermore, he was honored by his fellow pathologists when they elected him Secretary-Treasurer, Vice-President, and President of the Potomac Division of APS in 1969, 1972, and 1973, respectively. Dr. Keil faithfully attended the annual meetings of the Potomac Division, and of the Cumberland-Shenandoah Fruit Workers Conference and his contributions were held in high esteem by fellow scientists.

Dr. Keil worked harmoniously with his associates and always was ready to assist them. A rather shy person, he usually understated his capabilities and achievements. His favorite pastime was singing with the "Knights of Harmony," a barbershop quartet in the Bowie, Maryland, chapter of the Society for the Preservation and Encouragement of Barbershop Quartet Singing in America, Inc. He was a charter member, sang lead, was on the Board of Directors, and was one of the most popular members of the Bowie chapter. All who knew, worked, or sang with Harry are conscious of a great loss.