

## Charles Drechsler, 1892–1986

R. D. Lumsden



Charles Drechsler, a long-time employee of the U.S. Department of Agriculture, Agricultural Research Service, died at the age of 93 on February 5, 1986. Dr. Drechsler's death ended the long and productive career of one of the world's authorities on fungi. His career spanned 45 years of active research as a plant pathologist and mycologist with the U.S. Department of Agriculture and an additional 20 years of continued independent research until failing health in recent years prevented work in his residence

basement laboratory.

Drechsler was born on a farm near Butternut, Wisconsin, May 1, 1892. Both of his parents, Louis and Bertha Alvina Schultz Drechsler, were born in Germany. Young Charles spoke only German during his very early years and learned English upon entering public school. He attended the University of Wisconsin immediately after graduation from high school and received a bachelor of science degree in agriculture in 1913. The following year he worked on a master of science degree in the Department of Plant Pathology at Wisconsin. His major professor was Dr. L. R. Jones, and he selected as a thesis problem a study on the bacterial black rot of crucifers. After completion of the M.S. degree in 1914, he pursued a Ph.D. degree with the renowned mycologist Roland Thaxter in the Botany Department at Harvard University. A eulogy to Roland Thaxter in 1933 stated "His insistence upon conscientious work, accurate illustration and clear presentation, as well as the inspiring example of his own scholarship, unexcelled draftsmanship and undivided devotion to his life-work left lasting impressions on his students." This statement describes the life and career of Charles Drechsler as well as Thaxter's, and indicates the great influence that the mentor had on this student. The Ph.D. thesis written by Drechsler was a pioneering taxonomic treatment of the genus *Actinomyces* and established much of the basic knowledge for later studies on production of antibiotics used in human medicine.

Dr. Drechsler moved to Washington, D.C., in 1917 and launched his long career with the U.S. Department of Agriculture as an assistant in the Bureau of Plant Industry, Soils and Agricultural Engineering. Except for a brief period of service with the U.S. Army Corps of Engineers during World War I (1918–1919), he devoted the rest of his life to the fungi he loved.

On return from service in the U.S. Army, he resumed work in the U.S. Department of Agriculture in the Office of Cereal Investigations as a scientific assistant from 1919 to 1920. He was promoted progressively to assistant pathologist (1920–1924), associate pathologist (1924–1929), and pathologist (1929–1953). In 1953, he became senior mycologist in the Horticultural Crops Research Branch, Crops Research Division, Agricultural Research Service, and remained in this position until his retirement, after 45 years of service, in 1962.

Dr. Drechsler's research work with cereal diseases resulted in a classical study on *Helminthosporium* spp. Because of his admiration for this work, S. Ito (Imperial Academy, Tokyo, Japan) proposed the new genus *Drechslera*. This genus now includes many of the grass pathogens formerly placed in *Helminthosporium*: specifically, those with cylindrical conidia that germinate from any cell and have a *Pyrenophora* teleomorph.

A new period in Dr. Drechsler's career began after he was transferred from cereal disease research to vegetable disease research in the Office of Cotton, Truck and Forage Crop Investigations. He investigated the taxonomy, morphology, and

parasitic interactions of plant diseases caused by oomycetes including root rots of vegetable crops caused by *Pythium* spp., *Phytophthora megasperma*, and *Aphanomyces euteiches*. His original descriptions of *Pythium* alone numbered 21 new species. All of his descriptions of new species and genera were accompanied by numerous detailed illustrations of each species. These line drawings were outstanding for their accuracy, clarity, and fascinating attention to artistic arrangement and space usage. His ability as a mycological artist equaled the precision with which he wrote. Charles Drechsler's simple and effective technique for discovering oomycetes led to an outstanding contribution to knowledge of fungi that parasitize and destroy oospores and nematodes as well as other soil animals. The technique was based on his observation that nutrient-poor maize-meal water agar cultures prepared to isolate *Pythium* and *Phytophthora* from discolored roots or other decaying plant material often encouraged abundant multiplication of parasitic fungi. He published six papers concerning parasitism of oospores and mycelia of *Pythium* spp. Notable among these parasites were the echinulate oogonial species, *P. acanthicum* and *P. oligandrum*, which are unusual in that they parasitize other *Pythium* spp.

Dr. Drechsler's interest in the oomycetes and their parasites also developed into an outstanding series of publications on fungi that destroy nematodes, amoebae, and soil rhizopods. The nutrient-poor environment for isolation of *Pythium* and *Phytophthora* also encouraged the development of bacteria and microscopic animals, and the fungi that attack these animals. These predatory and parasitic fungi caught his attention and fascinated him through a significant portion of his career. He published 42 papers on nematode-destroying fungi. Those species, including *Arthrobotryx* spp., *Dactylella* spp., and *Dactylaria* spp., form adhesive loops and knobs to capture their nematode prey. Other species described included endo-parasitic forms of fungi, such as *Cephalosporium* spp., *Nematoclonus* spp., and *Harposporium* spp.

Dr. Drechsler was a member of numerous scientific and scholarly societies. He was named a fellow in the American Phytopathological Society in 1966. He was honored by the Mycological Society of America in 1984 when he was named Distinguished Mycologist. The U.S. Department of Agriculture selected Dr. Drechsler for the departmental Distinguished Service Award in May 1958. He was cited "for outstanding leadership in pioneering research on fungi of special significance to the fields of plant pathology, soil microbiology, and antibiotics." He served as collaborator with the department for about 10 years after his retirement.

In addition to the American Phytopathological Society and the Mycological Society of America, Dr. Drechsler was a member of the Botanical Society of America (he served as secretary in 1940), the Washington Botanical Society, the Washington Academy of Sciences (he served as vice president in 1936), The Torrey Botanical Club, the Microscopical Society (he served as vice president in 1945), the American Association for the Advancement of Science, the Harvard Club, and the Wisconsin Academy of Arts, Letters, and Sciences.

Although Charles Drechsler was devoted to this career, he was equally devoted to his family and friends. He met his wife, Mary Florence Morscher, also a botanist, at a Washington Botanical Society annual dinner dance, not realizing that they both worked for the U.S. Department of Agriculture, in the same building and in the same wing. They were married in 1930 and resided for many years in Arlington, Virginia, where their three children, Charles, Kathryn, and Robert, were born. Charles Drechsler was one of the first scientists to move in 1935 from the USDA Administration Building in Washington, D.C., to the new Plant Industry Station in Beltsville, Maryland, now known as the Beltsville Agricultural

Research Center. Fourteen years passed before the Drechslers moved from Arlington in 1949 to University Park, Maryland, to be closer to his work. He resided in University Park, near the University of Maryland and Beltsville for the remainder of his life. The family maintained membership at the Clarendon Methodist Church in Arlington and the University Park United Methodist Church in College Park.

Dr. Drechsler is survived by his wife Mary Florence, who now lives in Burlingame, California, by his son Charles also of Burlingame, by his daughter Kathryn Finnegan of Flemington, New Jersey, and by his younger son, Robert. He is also survived by seven grandchildren and one great grandchild.

Dr. Drechsler will long be remembered for his great, untiring, and outstanding devotion to science. The legacy he leaves will live on in his pioneering and classical studies on actinomycetes, Helminthosporia, the oomycetes, and parasitic fungi attacking nematodes. It is no small tribute to his contribution to scientific knowledge for current authors to repeatedly cite many of his numerous publications, which totaled more than 180. Even 22 years after Dr. Drechsler's retirement, the *Science Citation Index* for 1984 listed 36 citations by current authors for several of his publications. In addition, at least nine generic and specific names of fungi have been designated in his honor. A lifetime dedicated to science will perhaps be a contribution for eternity.