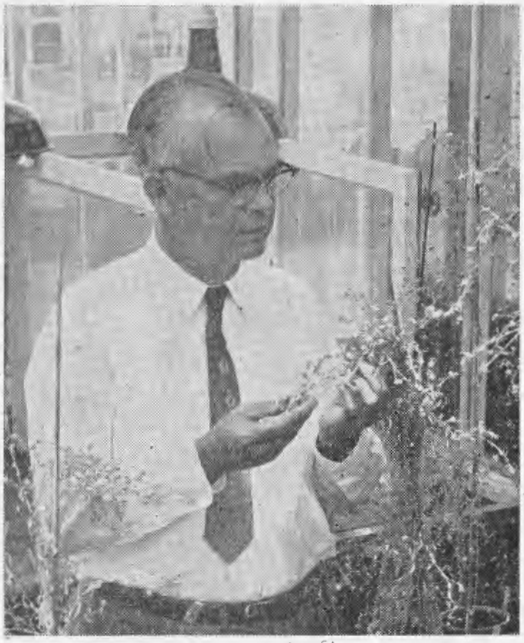
OUR RESPECTS

To DR. H. H. FLOR



Several important contributions to plant disease research were recognized May 27 when Dr. H. H. Flor received the USDA Superior Service Award. Dr. Flor, plant pathologist with the Agricultural Research Service, was assigned to the North Dakota Agricultural Experiment Station in 1931 for research on the diseases of flax. The award was presented to him in Washington by Secretary of Agriculture, Ezra Taft Benson.

Dr. Flor was first to prove that the flax rust fungus (Melampsora lini) was composed of many strains or races, each differing in its ability to attack the flax plant. He has also identified and described nearly 300 races of rust and has prepared a key for the identification of rust collections of unknown races.

Dr. Flor was the first to make artificial hybrids between races of flax rust, and to study the inheritance of rust reaction of the host on the one hand, and the virulence of the rust parasite on the other.

These studies led to a new concept and understanding of disease resistance and susceptibility in flax plants. Rust resistance, (or susceptibility) is not a character alone of the host, or of the parasite, but a host-parasite relationship—an interaction of complementary genes—genes in the host and genes in the parasite.

In crosses between rust differentiating varieties of flax, Dr. Flor has identified 25 genes that determine the reaction of the flax plant to rust. A corresponding series of genes for virulence has been identified in the rust parasite by appropriate crosses.

The methods and principles developed by Dr. Flor represent an important new understanding for plant breeders and pathologists concerned with providing protection against disastrous crop losses which can occur when new physiologic races of plant diseases arise. The results of this research are considered by scientists to have wide implications in the entire field of plant breeding where disease resistance is a major objective. The Crops Division of ARS and the North Dakota Agricultural Experiment Station, cooperating, have under way a similar study concerned with stem rust and the wheat plant.