

Drew Schwartz

Among his colleagues and fellow geneticists, Drew Schwartz is well-known as a theoretician par excellence who has produced a stream of imaginative and creative ideas throughout his career. In his research into corn genetics, he has devised ingenious and complex schemes to discover how the plant controls its development and gene expression. His mind is continually active and any puzzling finding, whether his own or another investigator's, is a challenge. His colleagues have found him to be stimulating and perceptive, often critical, but never dull.

Drew Schwartz was born in Pennsylvania and grew up in a traditional Jewish environment with strong family ties. For many years, when away from home, he wrote a short daily note to his father in Hebrew. As an undergraduate at Pennsylvania State College, he majored in horticulture and resolved to pursue further studies in the field of plant genetics. World events forced a change in his plans, however, and from 1942 to 1946 he served in the U.S. Army; he saw active duty in the Burma and India theater. After his discharge, he enrolled in the Department of Botany at Columbia University, where he obtained the M.A. degree in 1948 and the Ph.D. degree in 1950.

In 1942, Drew married a New York City girl he had first met in summer camp. Pearl was a superlative homemaker; artistic, and a collector of antiques and objets d'art, she made the Schwartz residence a showplace. Her sociable nature, sunny disposition, and wide-ranging intellect made her an entertaining hostess and complemented Drew's more sober style. Drew and Pearl suffered a tragic loss when their oldest child, Alan, died of a heart ailment at the age of seventeen. Pearl was afflicted with a similar condition; during the last years of her life, she carried on many of her usual activities despite frequent hospitalization.

Before coming to Indiana University in 1964, Drew Schwartz held positions at the Oak Ridge National Laboratory and at the Western Reserve University. Schwartz was at Oak Ridge during the

explosive growth of molecular genetics, and there he interacted with and was influenced by an outstanding group of colleagues, including Atwood, Baker, Doermann, Lindsley, Novitski, Sandler, Volkin, Wolff, the Grells, and the Russells. Another important relationship was the close friendship he developed with the leading French geneticist, Boris Ephrussi, while both were on the staff at Western Reserve.

While he is an excellent teacher and a forceful speaker, Drew's major interest has always been in research. Following his early studies on the genetic effects of ionizing radiation and a cytogenetic analysis that revealed an unexpectedly high frequency of sister strand crossing over in meiosis, Schwartz made a radical change in his experimental procedures. At the time, electrophoresis was a technique useful in the separation of serum proteins. Schwartz realized that this technique could be adapted for use in genetic studies. His pioneering work resulted in the identification and isolation of a protein (the Sh₁ protein, later identified as sucrose synthetase) as the product of a single gene; it was the first such case in maize. He presented the first evidence for allelic isozymes and demonstrated the existence of "hybrid" enzymes, formed by dimerization of protein subunits produced by different alleles of the E₁ esterase system.

Drew also developed a powerful method to screen for alcohol dehydrogenase negative mutants making use of haploid pollen grains. From these studies also came his "competition" model describing regulation of gene action, which has implications for the problem of dosage compensation in *Drosophila*.

Schwartz discovered and analyzed the PROT embryonic globulin storage protein gene in maize as well as a related processing gene. In recent years, he has become interested in the transposable elements of maize, made famous by Barbara McClintock. In order to understand the molecular nature of these unusual bits of DNA, Schwartz again was forced to modify his lab and update his skills. He has focused his attention on the Ac-Ds system and is presently engaged in demonstrating the

influences of cytosine methylation on the control of that system. These studies and others have led to collaborations with investigators in Cologne, Canberra, and Haifa, as well as with others in this country.

Drew Schwartz's lab has been a busy and exciting place where a score of graduate students received rigorous training in modern corn genetics. At times, the rooms were so full of students and post-doctoral fellows trying to pursue their various research projects that some felt obliged to work through the night when more space was available. Many of Drew's students are now well-established investigators with students of their own.

Drew's dedication to research has allowed little time for his other interests, but he has a deep appreciation of classical music and is especially fond of performances by small instrumental groups. In a lighter vein, Drew was, for many years, anchorman on a local bowling team, and several trophies attest to his prowess. Following his service on the University Athletics Committee, Drew developed a passion for intercollegiate basketball. He attends many practice sessions of the IU team, occasionally travels with the players, and has become a knowledgeable and faithful fan. Around Jordan Hall, it is common knowledge that Drew's mood varies with the fortunes of the team.

I have always claimed Drew Schwartz was an exceptionally talented individual and he has more than fulfilled my expectations when I urged his appointment as an IU faculty member. A scientist who is well known and admired by geneticists all over the world, Schwartz has enhanced the standing of the IU Biology Department. His many years of teaching graduate students have left a mark on future leaders in genetics. Some of our most productive and imaginative geneticists were his students; their achievements reflect the excellence of the training they received in his laboratory. Indiana University is indeed fortunate to have had the services of such an innovative and distinguished scientist.

M. M. Rhoades