

## John R. Preer, Jr.

With very few exceptions, eminent scientists of retirement age have been away from the laboratory bench for many years. The responsibilities of running and funding a large, successful group, combined with the unpredictable long hours of experimental work—to say nothing of staying abreast of new technical developments—all take their toll and almost always move the successful professor out of the lab into the office, where by middle age he or she assumes a more managerial role. Senior workers who do experiments themselves are rare; those who implement the latest experimental technology with their own hands are virtually non-existent. People who can do this are special. John R. Preer, Jr., distinguished professor of biology, is one of these special people.

Preer's is a personal and scientific success story directly from Frank Capra central casting. As a kid growing up in Florida during the depression, he collected insects. During his high-school days he worked for a scientist at the University of Florida by classifying thrips, an insect found in grasses. He became sufficiently knowledgeable about thrips for his work to become known internationally. A species and a genus of thrips bear his name. This is a rather remarkable achievement for a high-school student.

Preer enrolled in the zoology department at Indiana University to study taxonomy with Kinsey, who worked on gall wasps. However, a course given by the dynamic young geneticist Tracy Sonneborn altered his plans, and he began to work in protozoology. His life took another unexpected turn when he was drafted soon after Pearl Harbor. Before leaving Bloomington he married his graduate-student colleague, Bertie Brandau, who subsequently became his lab partner for life. He spent four years in the U.S.

Army and Army Air Corps, stationed in England and in Texas.

After the war he returned to Bloomington to finish his graduate work. This work involved an analysis of the killer character in *Paramecium*, a phenomenon that had been discovered by Sonneborn. Certain strains of *Paramecium* can kill other, sensitive strains. What made this phenomenon remarkable was that the killer genes were not in the nucleus, where all genes known at that time resided. Instead, these genes showed a cytoplasmic form of inheritance that seemed to challenge accepted ideas about genetics. Preer worked on this problem after he left Bloomington to take a position in Philadelphia at the University of Pennsylvania. He worked on this problem for the next thirty years, ultimately showing that the killer trait was due to unusual bacterial endosymbionts that lived in the cytoplasm of *Paramecium*. During this time he also began to study the surface antigens of *Paramecium*, a group of distinct genes whose expression was under complicated control. In 1968, Preer left Penn to take a position at Indiana in the department of his mentor, Sonneborn. The presence of these two scientists in the same place meant that Indiana was the acknowledged world center for work on the genetics of Protozoa. After his return to Indiana, Preer also continued his work on endosymbionts.

As molecular biology revolutionized experimental approaches to understanding control of gene expression, Preer learned new techniques and adapted them to his work. An inveterate tinkerer who loves to build and repair things (from musical instruments to scientific equipment) he is not one to direct his co-workers to undertake new techniques without trying them himself. Some of these efforts have led to dramatic discoveries, as in 1985, when he, Bertie, and their associates Bertina Rudman and Audrey Barnett found that the genetic code, universal for all previously described

nuclear genes, was unexpectedly different in *Paramecium*. Even more recently, he and co-workers have developed a new method of introducing genes into *Paramecium*, a method which promises to accelerate greatly the rate at which basic molecular questions can be studied in this organism. It is likely that Preer is on the verge of doing some of the most interesting and important work of his career.

In 1976, Preer was elected to membership in the National Academy of Sciences, and shortly thereafter was made distinguished professor of biology. He also served as chairman of the biology department from 1977 to 1980.

Throughout all this, he and Bertie have raised two kids and a series of German shepherds, learned to sail, ground the mirror for a twelve-inch telescope, fixed hundreds of broken toys, household items, and pieces of scientific equipment, invented innumerable new ways of doing things, maintained a huge greenhouse for growing orchids, learned how to program the Macintosh, and generally seemed to have a great time. Preer brings a rare combination of deep insight and hands-on ability to everything he does, regardless of project size. His and Bertie's attitude towards life and work and colleagues seems almost too sappy to be true, somewhat like a Frank Capra movie. But it isn't sappy. It's the way they really are. Since they have become molecular biologists, retirement is out of the question, since there is too much work to do. It can be expected that retirement will alter their lifestyle rather minimally. Certainly, it could not improve it.

Barry Polisky