

FRANCIS J. RYAN
1916 - 1963

Francis J. Ryan died unexpectedly in July of this year. He will be sorely missed by his friends, and the science of genetics has lost a teacher and investigator of great stature.

It is difficult for one to write of a close personal friend in true perspective. Time and history make this judgment.

It is perhaps appropriate in the *Neurospora* Newsletter to review briefly the role that Ryan played in the development of contemporary microbial genetics. Professor Ryan's life was spent largely in and around New York. He was born in New York City, although he grew up in a small town out on the "Island." He spent many summers as a boy on Lake George. These summers developed in him a keen interest in natural history. At Columbia College, he therefore majored in zoology. He stayed on for his graduate work at Columbia University and for his thesis problem undertook an investigation in the field of developmental biology. In 1941, Ryan received his Ph.D. At the same time he received a National Research Council Fellowship and an appointment to the faculty of the Zoology Department. This latter appointment was to succeed the retiring Professor of Vertebrate Zoology. Ryan received his National Research Council Fellowship to do postdoctoral work in the field of embryology with Professor Douglas Whittaker in the Department of Biology of Stanford University. He therefore moved west in the summer of 1941. Shortly after Ryan arrived at Stanford University, he found that some fascinating experiments were under way by Professors G. W. Beadle and E. L. Tatum, for they had recently initiated their investigations of biochemical mutations in *Neurospora*. Ryan became intrigued with the new world these experiments had opened up. His year at Stanford was spent in working on *Neurospora* with little embryology creeping in. This was for him an exciting year, for the biochemical mutants that were then being isolated opened up problems on many fronts. During this year he undertook detailed study of the growth rate characteristics of mutant strains and developed the growth tube methodology that is in use today. In the Fall of 1942, Ryan returned to Columbia. He carried back with him, however, a new research interest, for his experimental work remained in the area of microbial genetics, and it is in this field that his major research contributions were made. While his research interests had shifted to genetics, his undergraduate teaching duties remained in the field of vertebrate zoology. His skill, his patience, and his abiding love of biology and his love of teaching all led to his deserved fame as a teacher.

Ryan's initial research interests were in the growth characteristics of mutant and parental strains which carried him on to investigation of nuclear behavior in heterokaryons. His basic interest soon shifted to the study of mutation and he turned to bacteria. His studies of the mutation of the histidine locus and the evolution of fitter strains are now classic. Perhaps his most important contributions, however, were his investigations of the past few years. The many years in which he studied the problems of bacterial mutation permitted him to call upon a vast reservoir of biological knowledge in tackling the problems of mutation and replication at the molecular level. These investigations were at an exciting level at the time of his death.

While Ryan's undergraduate teachings were in the field of vertebrate zoology, he established a major graduate center of microbial genetics at Columbia. In the course of his lifetime, he had many pre- and postdoctoral students, many of whom have gone on to distinguished careers. Perhaps one student might be individually mentioned. Shortly after Ryan returned to Columbia in 1942, he provided research space for a young medical student, Joshua Lederberg. Lederberg worked with Ryan for two years, on problems of nuclear selection in *Neurospora* heterokaryons. Lederberg, however, did not stay at Columbia for his Ph.D. degree, for when Lederberg became interested in the phenomena of bacterial recombination, Ryan sent him on to Yale to work with Tatum.

While Ryan spent his formal academic career at Columbia University, he had an intense curiosity about the rest of the world. Shortly after the end of the second World War, he set out to see the world, first as summer forays to Europe. In 1950, he spent a year's sabbatical leave at the Institute of Pasteur in Paris. In 1955, he spent a year at the Institute of Microbiology in Tokyo, giving the first formal course of microbial genetics in Japan. He spent a semester in the Fall of 1960 at the Hebrew University in Israel. In fact, during the 1950's, he made trips throughout the world lecturing, teaching and learning. He became a great internationalist in the field of genetics, and his laboratory and home became an international center.

His impact on the science of genetics in Japan was great. His first year in Japan was spent at a time when many of the younger Japanese geneticists were tremendously curious about the new world of microbial genetics, and both by formal course work and personal interaction he touched off a wave of *experimentation that resulted in Japan now being one of the major research centers in the field of microbial genetics.*

Ryan was active in many fields. In collaboration with Ruth Sager he wrote the first definitive textbook on cell genetics. He was responsible for travel funds which permitted sending the younger geneticists of this country to the last three international congresses of genetics. He was active in creating the reorganized Cold Spring Harbor Laboratory, and he was serving as Chairman of the Zoology Department at the time of his death.

Francis Ryan was the first postdoctoral student to work with Beadle and Tatum on the biochemical genetics of *Neurospora*, and his contributions to our knowledge of the characteristics of mutants were extensive. His impact on the field of cell genetics was tremendous. His impact was in part through his personal interest and work on problems of mutation and replication, in part through his great skill in working with pre- and postdoctoral students, and in part through his internationalism in teaching and research.

Francis Ryan was a tall man of contemporary genetics and he will be missed.