IN MEMORIAM

KEN-ICHI KOJIMA

Dr. Ken-Ichi Kojima, Professor of Zoology, died November 14, 1971, in a highway accident. He is survived by his wife, Chizuko Kojima, his son Kenji Kojima and his daughter, Chie Kojima, all of whom now live at 3304 Boulder Court, Raleigh, North Carolina 27607.

Dr. Kojima was born September 17, 1930 in Toyama, Japan, the son of Seiji and Masako Kojima, who presently reside in Gifu, Japan. He married his wife, Chizuko, on May 1, 1955. About a year or so before he died, he obtained his citizenship in the United States.

After graduating from The 8th National High School in 1950, Dr. Kojima entered Kyoto University, one of the best universities in Japan in the area of natural sciences, and obtained his B.S. Degree in 1953. He remained in the Graduate School of the same University, majoring in plant genetics under the supervision of Professor H. Kihara, an eminent geneticist.

In 1955 Dr. Kojima moved, as a predoctoral Fulbright Fellow, to The Institute of Statistics, North Carolina State University at Raleigh where he majored in statistics and genetics for his Ph.D. Degree. He was officially a graduate student, but in practice he was a colleague of Drs. R. E. Comstock, C. C. Cockerham, and R. C. Lewontin.
While Dr. Kojima was in Raleigh, he was appointed as an Assistant Statistician in the Institute of Statistics for 1957-58, and as an Assistant Geneticist in the Department of Genetics for 1958-59. He was then appointed as an Assistant Professor, Department of Genetics for 1959-61, then promoted to Associate Professor for 1961-64, and then was promoted to Professor in the same Department.

In 1967 Dr. Kojima moved from Raleigh to Austin, Texas. He held the position of Professor in the Department of Zoology of the University of Texas at Austin, and continued his research and teaching activities until his death.

While holding these appointments in the United States, Dr. Kojima was appointed as a Visiting Lecturer at Kyoto University, Japan in 1963; as a Visiting Professor at Tokyo Metropolitan University, Japan in 1965; and as a Visiting Professor at Brown University in 1966.

As a graduate student in Kyoto University, Dr. Kojima spent several years working on the genetic control of left- and right-handedness of spikelets in einkorn wheat. Thus he started his research career as a developmental geneticist, but his interests were extended gradually toward statistical genetics of quantitative characters and toward populational and evolutionary genetics. This change in direction of interest is exemplified by two of his abstracts presented in the annual meetings of The Genetics
Society of Japan: in 1954 he discussed the effects of selection on polygenic variations in a population, and in 1955 he discussed the application of polygenic analysis to the problem of left- and right-handedness in wheat. His research activities covered theoretical and experimental areas in population genetics. He made many significant contributions in both areas.

In his doctoral dissertation at North Carolina State University, Dr. Kojima presented the first complete treatment of the quadratic optimum model for selection. The optimum fitness model was proposed by Dr. Sewall Wright, one of the eminent pioneers in population genetics. He had been used this model to demonstrate theoretical outcomes in Mendelian population when selecting for an intermediate phenotype. The crucial question of equilibria for this model, however, had not been studied. Dr. Kojima demonstrated the existence of the stable equilibria, and that such equilibria required either partial or overdominance on the primary scale of gene effect.

During this period Dr. Kojima studied the conditions for equilibria under epistasis and linkage. These were theoretical questions of fundamental importance. He showed that when epistasis and linkage were present, the mean fitness of a population could decrease in spite of natural selection; the fundamental theorem of natural selection proposed by Sir Ronald Fisher needed to be modified as a result of Dr. Kojima's study.

Dr. Kojima also published with colleagues and his graduate students
several papers of experiments confirming many of his theoretical discoveries. He was especially interested in the action of selection on quantitatively inherited characters. His research contributed to a better understanding of genetic processes, and some of the work has been applied to improvement of crop species, especially maize.

After moving to Austin, Texas, he made extensive contributions to the understanding of enzyme variations in natural populations. With several students, he demonstrated experimentally that the fitnesses in the esterase-6 system in *Drosophila melanogaster* were not constant, but depended upon the frequencies of genotypes in populations. He developed theory to show that the frequency dependent selection mechanism was a strong force leading population to a stable equilibrium state. This mechanism of selection plays an important role in evolution.

The analysis of the variation in enzyme of different functional classes conducted by Dr. Kojima and graduate student was also one of his significant contributions.

Besides contributions to regular scientific journals, Dr. Kojima was invited to give lectures at international symposia and congress in genetics and these were published in the corresponding proceedings. As one of the most active and original scientists in the area of population and evolutionary genetics, he was invited to give numerous seminar lectures in various institutions.
Besides his research activities, Dr. Kojima supervised many students, culminating in 11 Ph.D. Degrees and 5 M.A. Degrees. He also served on many other graduate student committees. In addition, he worked together with several postdoctorals. Considering the young age when he died, this number is exceptionally high. It was clear to all his associates that Dr. Kojima had worked tirelessly and efficiently with and for the students.

Dr. Kojima was loved by every one who had come to know him closely. The promise of his future was great — his achievements in a short career were exceptional, and he passed many of his ideas and enthusiasms to his students and to his friends. Many good memories of him will remain with those who knew him well, and his influence on thinking in the area of evolutionary genetics will remain as a memorial.

BIBLIOGRAPHY

Articles:


Japan Academy 30: 221-225.


Richardson, R. H. and K. Kojima. 1965. The kinds of genetic variability


Genetics 57: 677-686.


Abstracts:


Books:

(In this book Dr. Kojima, besides acting as an editor, wrote one chapter: Kojima, K. and R. C. Lewontin. Evolutionary Significance of Linkage and Epistasis. pp 367-388.)

Book Reviews:


Dr. Lorene L. Rogers  
President ad interim  
The University of Texas at Austin

John R. Durbin,  
Secretary  
The General Faculty

This Memorial Resolution was prepared by a Special Committee consisting of Y. Hiraizumi (chairman), R. P. Wagner and R. H. Richardson.