

Preface

Dr Motoo Kimura passed away suddenly a year and a half ago. In November 1995 his wife Mrs Hiroko Kimura and his son Dr Akio Kimura arranged an anniversary ceremony in Okazaki, his birthplace. On this occasion a collection of essays and obituaries was on display, and these were later privately published. Dr Katsumi Kimura, his younger brother and professor at Japan Advanced Institute of Science and Technology, is planning to build the Kimura Memorial Museum in Okazaki, in which Kimura's scientific papers, including his correspondence, notebooks, reprints and handwritten manuscripts, will be preserved.

Kimura was one of the founders of what are today two very active fields, molecular population genetics and molecular evolution. Of course, the two are interrelated, and expanding rapidly. This issue of *Journal of Genetics* is a special one in honour of Motoo Kimura. It contains papers, essays and biographies by his friends, colleagues and students. Kimura is widely known as the pioneer of the neutral theory of molecular evolution (1968, *Nature* 217: 624–626), but his accomplishments in other areas of theoretical population genetics, especially his work on stochastic processes, are as impressive.

The opening article by Crow is a short sketch of Kimura's life and work, with emphasis on Kimura's early years and his contributions to theoretical population genetics. Provine presents an interesting story on how Kimura got into the field of population genetics when there was no appropriate senior in Japan. Steen's article begins as a personal account, with an encounter of the author with Kimura three years before Kimura's death, and then gives a short biographical sketch.

Next are papers on topics in theoretical population genetics. Tajima presents an elegant analysis of the relation between the infinite-allele model and the infinite-site model. Tachida shows that the shape of the distribution of mutant effect is important for the mutant substitution process in the nearly neutral models. Charlesworth and Guttman review the effect of deleterious background selection on heterozygosity at neutral markers. Caballero, Wei and Hill discuss reduction of effective population size by artificial selection. Wakeley examines pairwise differences among alleles under subdivided population structure. Ina reviews the usefulness of various methods of estimating separately the numbers of synonymous and nonsynonymous substitutions.

The last two papers deal with experimental studies. Klein argues that his favourite major histocompatibility complex (MHC) loci are exceptionally polymorphic under balancing selection, and therefore provide evidence that the neutral theory holds for other loci. His study is based on the single-locus theory of balancing selection. Another approach comes from the multigenic organization of MHC loci (Parham and Ohta 1996, *Science* 272: 67–74). Inomata and Yamazaki review their investigations on adaptive divergence of amylase loci in *Drosophila*.

It is remarkable that Kimura's work has profoundly influenced such diverse areas. In every one of them one finds Kimura's indelible mark.

TOMOKO OHTA
WILLIAM B. PROVINE