inference is a minor point beside the undoubted fact that geneticists practically never use the theory. They use maximum-likelihood (which the author also treats fully), they publish likelihood curves, and they occasionally resort to Bayesian tactics when all else fails. The author may have felt she had a duty to introduce the Neyman-Pearson theory to genetics, but if that is so she underestimates her pupils. The theory is meeting its Waterloo on the field of genetics, and few statisticians are aware of the fact.

The remaining "applied" part of the book barely uses the theory: it is all χ^2 and maximum-likelihood. The estimation of linkage is treated along the lines of Bailey's book, though in practice this approach is now out of date, likelihood curves being preferred.

There are two detailed chapters on ascertainment and segregation analysis, and a final one on histocompatibility testing, a favourite topic of the author. The book closes with two mathematical appendices.

In spite of reservations, particularly on the statistical side, the book is of undoubted value as a source of clear, detailed, and exhaustive treatments of probability manipulations in genetics, which can be so confusing. The author writes with commendable accuracy on mathematical topics, and her work will be a standard source for many years. But as a textbook it leaves something to be desired.

A. W. F. EDWARDS

Gonville and Caius College, Cambridge

GENETICS EXPERIMENTS WITH BACTERIAL VIRUSES. D. Peter Snustad and Donald S. Dean. W. H. Freeman, 1972. Pp. 65. £1.10.

This book describes several experiments using bacteriophage T4rII mutants, in an attempt to illustrate some of the principles of genetic fine structure analysis, for students with little laboratory experience. Procedures are described for performing crosses and complementation tests, inducing and estimating the rates of mutation and assaying the burst size of T4 infections.

The flow charts provided for each experiment are easy to follow, and the book mentions many useful practical points and will be useful for teachers in this respect. However, teachers will have to modify the design of many of the experiments if they are to be suitable exercises for students, since the methods suggested by the authors do not include adequate controls, an omission that cannot be justified by a desire for economy and simplicity.

S. D. MARTINELLI

Department of Genetics, University of Cambridge

THE MUTAGENICITY OF PESTICIDES. CONCEPTS AND EVALUATION. S. S. Epstein and M. S. Legator. MIT Press, Cambridge, Massachusetts and London. \$12.50.

This monograph is based on the Report of the Advisory Panel on the Mutagenicity of Pesticides to the U.S. Secretary's Commission on Pesticides and their Relationship to Environmental Health. It contains a foreword by Joshua Lederberg, and an introduction on the importance of mutagenicity testing in relation to the potential health hazard their use may accrue.

Suggested testing methods, which are only briefly discussed, include bacterial systems (reverse or forward mutation using nutritional, resistance, and fermentative markers), *Neurospora* (forward-mutation at the *ad-3A* and *ad-3B* loci), transforming DNA (fluorescent mutants in the tryptophan operon), phage (forward and reverse mutation at the *rII* cistron), *Drosophila* (sex-linked recessive lethals, translocations, X chromosome loss, and chromosome aberrations as detected by the bithorax method of Lewis). Screening systems in plants are those for mutation of barley seeds, chromosome aberrations in root-tip cells of *Allium*, *Tradescantia*, or *Vicia*, specific-locus mutation at the Waxy locus in the pollen of maize, barley, or rice, and somatic mutation in *Tradescantia*. Possible mammalian systems are represented by cytogenetic effects on Potorous or Chinese hamster cells (including 8-azaguanine resistance) in tissue culture, human leukocytes and fibroblast cultures, host-mediated assay of chemicals utilising *Salmonella* or *Neurospora* as indicator organisms, and the specific-locus and dominant lethal tests in mice. A recommended programme is suggested for the screening of all the current 400 substances in use for the control of weeds, insects, nematodes, rodents, and plant diseases.

The final section reviews the structure-activity relationships of pesticides, which is followed by an appendix which tabulates each compound under its proprietary name together with its proper chemical name and formula, its major uses, and its commercial manufacturer. A cross-index of names is included. The book is concluded with a table of the known biological effects of some pesticides gathered from a rather inadequate literature survey.

The book is unlikely to be other than of cursory interest to geneticists whose interests lie outside the field of mutagenesis. The price is unnecessarily high for a publication of its kind. It would be far better received as a cheap pamphlet with a conventional format rather than with its rectangular shape which causes it to protrude awkwardly out of a bookshelf.

T. ALDERSON

M.R.C. Radiobiology Unit, Harwell, Didcot, Berks.

COMPARATIVE GENETICS IN MONKEYS, APES AND MAN. Edited by A. B. Chiarelli. London and New York, Academic Press, 1971. Pp. x+346. £5.50.

When, 30 years ago, Hooton declared himself abashed at his own effrontery in writing a book about primates, in the then body of knowledge there was much anatomy, some physiology, an increasing amount of behaviour (mainly under conditions of captivity), and almost no genetics. Out of some 150 references quoted by Hooton there are only five on genetic topics. Primate studies have profited from the great advance in human genetics since the war, and today the genetic papers in the literature number hundreds. This book is therefore a timely review. In it are published papers discussed at a symposium held at Ernice, Sicily, in July 1970, and they summarise the state of knowledge of selected genetic topics as they apply to primates. And what a useful volume it is. It shows how irregular is that knowledge—commendable in some topics, non-existent in others; how different are the opinions of contributors—Chiarelli notes (p. 2) that in the primates there is opportunity to trace the evolution of genes, whereas