THE HOUSSAY JOURNAL FUND

A FEW months ago you were kind enough to insert in SCIENCE a brief notice of the attempt of our committee to collect a fund of money for subscriptions to all important American journals in the broad field of physiology and biology for Professor B. A. Houssay, of Buenos Aires. In addition to the note in SCIENCE, all members of the Federation of American Societies for Experimental Biology were circularized. The response to this plea has been generous, for 247 donations were received and a fund of $1,543.28 was secured. This has enabled the committee to send Professor Houssay five years' subscriptions to the eighteen journals he desired, namely:

Archives of Biochemistry
American Journal of Medical Sciences
American Journal of Physiology
Anatomical Record
Annals of Internal Medicine
Archives of Internal Medicine
Biological Abstracts
Endocrinology and Journal of Clinical Endocrinology
The Journal of Clinical Investigation
Journal of Laboratory and Clinical Medicine
Journal of Neurophysiology
Journal of Nutrition
Journal of Biological Chemistry
Journal of Pharmacology and Experimental Therapeutics
Nutrition Reviews
Physiological Reviews
SCIENCE

and a sum of $625.90 for subscriptions to foreign periodicals.

The committee takes this means of thanking the various donors for their generous participation in helping our Argentinian colleagues at a time when they were in sore need.

Committee on Houssay Journal Fund,
HERBERT M. EVANS, *Chairman*
WALTER B. CANNON
JOHN F. FULTON
CARL J. WIGGERS

SCIENTIFIC BOOKS

STATISTICAL ANALYSIS

Statistical Analysis in Biology. By K. MATHER, with a foreword by R. A. FISHER. Nine diagrams. New York: Interscience Publishers, Inc. 1943. $4.50.

THE statistical method is an important tool in a wide range of substantive fields. While the basic procedures are not limited in their applications, the beginner prefers to learn them from a text in which they are applied directly to his own subject-matter. The present volume is by a geneticist for geneticists and other experimental biologists. It begins with the relation between sample and population. Books which open with the problem of statistical inference usually emphasize the contributions of R. A. Fisher and his associates. Mather's book falls in this group. Following a discussion of probability, significance and the basic random sampling distributions, he continues with tests of significance, the analysis of variance, experimental design, relations of two variables, the analysis of frequency data, and concludes with estimation and information.

Some biologists are disturbed by the omission of statistical derivations and mathematical proof, as in Fisher's "Statistical Methods for Research Workers." They will have little complaint with the present book on this score. Mather's approach is primarily algebraic with some elementary calculus. He shows how most of the standard equations can be derived, although those for the basic distributions, including the tests of significance, are stated without proof. In developing the analysis of variance, randomized blocks and similar topics, he inverts the usual order. Starting with combinations and permutations, individual degrees of freedom and their variances are isolated, even though they may be added later to obtain mean squares with several degrees of freedom. In the reviewer's experience many biologists are content with learning how to use statistical equations and enough of their logic to avoid misapplying them. Mather's approach tends to bury the essential simplicity and logic of some of the techniques under the derivation of equations.

Most of the examples in the present volume are new in text-books. Perhaps two thirds of them are genetic, with most of the remainder physiological or agricultural. Some of his topics occur rarely in text-books, such as the calculation of polynomial coefficients, the discriminant function, the method of maximum likelihood, the limitations of inefficient statistics and an extended discussion of the partitioning of χ^2.

On the debit side, Mather uses N instead of n for degrees of freedom, which is the reverse of the convention to which many of us have become adjusted. Symbolism is not consistent through the book, although this is as difficult to attain as complete freedom from errors. Many calculations are carried to several more decimal places than have any meaning. Some statements are open to question, such as the one that "neither χ^2 nor the normal deviate should ever be used when any class frequency has an expectation of 5 or less." Cochran has shown that, in