lishing an error-free book is carried on, for on page 19 there is a broken integral sign and on page 21, last line, there is "!more to come!" which, if it is not an error, is not at all clear.

For one whose manuscript was printed by the William Byrd Press, the dedication was particularly significant:

> For the first mathematician who may find in these pages something of assistance toward more satisfactory and economical publication.

If this book had been available earlier, truly much revision and much retyping would have been avoided.

MYRON F. ROSSKOPF
Teachers College, Columbia University

The Ocean Floor. Hans Pettersson. Yale Univ. Press, New Haven; Oxford Univ. Press, London, 1954. xv + 181 pp. Illus. $3.

There are various kinds of progress reports, ranging from those that say simply that progress has been made to those that say that it is hoped that progress will be made (none of them, of course, ever admit that progress has not been made), but few of them actually say *what* progress has been made. Pettersson's Silliman lectures are a fine example of the best sort of progress report—a stimulating account of what is being accomplished in an active field of research. We must call them progress reports because many of the findings are still preliminary and subject to revision, and others are still not thoroughly understood.

Study of the deep sea is no longer a superficial analysis of a few thimblefuls of bottom mud and an occasional water sample; it is an intricate study of trace elements in long cores with all the devices of the atomic age, combined with careful analysis of the remains of minute organisms in the best classical tradition. The difficulties and complexity of such studies will be fully realized when it is remembered that the material for them was gathered by the expedition of the Swedish *Albatross* in 1947–48. Preliminary results from subsequent expeditions have also been included, and the final interpretation of these investigations may not be made for many years.

JOEL W. HEDGPETH
Scripps Institution of Oceanography

Statistics in Research. Basic concepts and techniques for research workers. Bernard Ostle. Iowa State College Press, Ames, 1954. xiv + 487 pp. Illus. $6.95.

Contemporary research in both the natural and the social sciences is permeated by statistical thinking and, whether or not the research worker is aware of it, he applies methods of statistics. Thus it behooves every conscientious investigator to familiarize himself, as well as his mathematical training permits, with the techniques that have been worked out to deal efficiently with the large numbers of items whose individual or aggregate behavior falls within the scope of his investigation and from which the chance element is not absent.

Notwithstanding the many good textbooks of statistics that have appeared recently, there was a definite need for a guide that would give every research worker a clear understanding of the fundamental concepts of statistical methods, at a level commensurate with the mathematical equipment he may be able to apply to specific research objectives. This goal is achieved by Ostle in an admirable and incomparable way. He not only presents modern statistical methods, but also shows when and how to apply them.

If, in perusing this remarkable book, the student or research worker has become fully aware that statistics, although singular as a scientific method, is yet the plural of statistic, he will have gained a great insight and higher proficiency in his research. The chapter that deals with the design of experiments is outstanding in its conciseness and clarity. It is regrettable that because of poor indexing many valuable items are unavailable for quick reference.

FRANCIS JOSEPH WEISS
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Qualitative Analysis Using Semimicro Methods. Esmarch S. Gilreath. McGraw-Hill, New York. viii + 287 pp. Illus. $5.

The author's stated purpose in writing this one-semester textbook is to satisfy the demand for a broader theoretical approach with less emphasis on laboratory exercises. He hopes it will reverse the trend away from a subject that offers unparalleled opportunities for presenting and amplifying many of the fundamental principles of inorganic chemistry.

The text is divided into theoretical and laboratory sections. Ten chapters cover the properties and behavior of electrolytes. There are 228 numbered problems and exercises. Approximately one-half of these require numerical calculation.

The Fresenius scheme of cation analysis is followed, except for departures in groups III and IV. Anions are studied by the Dobbins and Ljung system [*J. Chem. Educ.* **12**, 586 (1935)].

The laboratory work is on a semimicro scale. The behavior of knowns is studied first, followed by an outline for a complete analysis. The appendix contains directions for analyzing 10 unknowns, a suggested class assignment program, a list of reagents and test solutions as well as tables of useful information.

The book is well written, with a minimum of typographic errors. Laboratory directions are clear and complete.

WILLIAM MACNEVIN
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