

## BOOK NOTICES

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### Queen Becomes Handmaiden

Eric Temple Bell, who several years ago wrote a delightful treatise on mathematics, entitled "The Queen of the Sciences," has now written an account of mathematics from a different viewpoint. This he calls "The Handmaiden of the Sciences." It is quite as delightful as his older books, though not so easy to read. Numerous examples are given of the predictive ability of mathematics in the natural sciences. The calculus is extensively treated, and some consideration is given to geometry, waves and vibrations, and probability. Throughout the book the place of mathematics in serving, stimulating and predicting for the sciences is emphasized. Although the reader is frequently exasperated by the fact that he is never quite sure when the author is serious and when he is laughing at him, the book is highly recommended to scientists for its informative entertainment.—L. H. S.

**The Handmaiden of the Sciences**, by Eric Temple Bell. viii+216 pp. Baltimore, The Williams and Wilkins Co., 1937. \$2.00.

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### Weather

A much-needed, up-to-date textbook in meteorology, serving ideally the needs of the modern elementary college course in this country, has arrived in "Weather Elements," by Thomas A. Blair. The author, who is an experienced meteorologist with the United States Weather Bureau, as well as Assistant Professor of Meteorology at the University of Nebraska, has keenly sensed the problem of presenting the science of the weather before an average, non-specialized reader, and has written his work in a fascinating, though scientific language, stripped of highly technical phrases and mathematical equations. The work is distinctly modern as demonstrated by the inclusion of aeronautical information, latest developments in researches of the stratosphere, and principles of air-mass analysis and their application in weather forecasting. It is quite complete, though void of excessive descriptive matter. It is reasonably well illustrated, with a series of excellent cloud photographs as a feature. Four useful appendices include a well-rounded bibliography, and various tables and charts. The two short chapters dealing with climate might well have been omitted, at least from the viewpoint of the teacher of courses in that field.—PARIS B. STOCKDALE.

**Weather Elements—A Textbook in Elementary Meteorology**, by Thomas A. Blair. xv+401 pp., 107 figs. New York, Prentice-Hall, Inc., 1937. \$4.00.

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### Elementary Electricity

"Electricity and Magnetism" is a textbook which should serve excellently as a text for a beginning course in Electrical Engineering or as a replacement for these topics in the ordinary course in College Physics.

The book is typical of English texts in the wealth of material covered and the clarification of written material by the use of solved examples. In the latter part of the work a slight knowledge of the elementary calculus is indicated, but the parts which embody these necessities may be omitted in a class not so prepared.

It might have been better if the first chapter (an introduction to supply the student with mechanical principles) had been omitted. This chapter contains a discussion of dimensions never mentioned again in the entire work, and without any use (so far as I can see) in an electrical problem, where their introduction always seems to be artificial, and serves at best as a poor check on the results which must be obtained in some other way.

The explanations and the solutions of the examples are very clear and the book appears to be very teachable. There is an excellent index and a large number of problems whose answers are given in a supplement at the end of the book.

—J. B. GREEN.

**Electricity and Magnetism**, by A. W. Hirst. xv+388 pp. New York, Prentice-Hall, Inc., 1937. \$4.50.

### Relativity

Relativity Theory of Protons and Electrons is the title of a highly entertaining new book by an author who needs no introduction, in which a theory is presented which aims to combine the concepts of the relativity and the quantum theories. The author has sought in his work to develop anew the theory of relativity along lines indicated by Diarc in his work which led to the relativistically invariant wave equation. The result has been, the author feels, an "harmonization rather than a unification" of the two theories.

The contents are divided into parts I and II, devoted in a general way to a development of the mathematical formalism and an application to physical problems respectively. This division, however, is a rather loose one since already in part I much physics has been anticipated. Part II concentrates itself largely about the problem of the origin of the "four required constants of nature:" (1) the ratio of the masses of the proton and the electron; (2) the fine structure constant; (3) the gravitational constant and (4) the number of particles in the universe. Numerical values are obtained for these in Chapters XII, XIV, XV and XVI, which appear to be in agreement with observation.

The book is important and desirable primarily because it presents this theory, much of which has been discussed earlier by the author in a series of papers in the Proceedings of the Royal Society, for the first time as a connected and homogeneous unit.—H. H. NIELSEN.

**Relativity Theory of Protons and Electrons**, by Sir Arthur Eddington. vi+336 pp. Cambridge, at the University Press; in New York, The Macmillan Co., 1936. \$5.50.

### Part Two of Peterson's Manual Completed

In 1934 Professor Alvah Peterson, of the Ohio State University, published Part I of his "Manual of Entomological Equipment and Methods." This first part dealt largely with equipment, most of which was diagramed, and with definite references to the sources. The extreme care and completeness with which Dr. Peterson prepared this first volume made it exceptionally valuable to all persons interested in any phase of entomology. Since its appearance entomologists have been eagerly awaiting the publication of Part II.

This second volume deals primarily with the rearing of insects. All of the literature upon this subject appearing in the English language has been consulted and abstracted under the names of the authors. One noteworthy feature of these abstracts is that they are of sufficient length to give a fairly comprehensive idea of the methods as described in the original articles. A second division of the volume gives twenty-one full page plates of special equipment as used in the articles abstracted. These are well drawn, clear and distinctly labelled. Besides rearing methods there has been included a number of related topics such as: killing, mounting, marking, shipping, etc.

To make the great mass of abstracts most usable the author has prepared a double index. Part A of this index is based upon the names of all the forms of insects, common and scientific, that are discussed in the abstracts. Part B is based upon the kinds of materials and equipment and the methods employed in the rearing. With the alphabetical arrangement of the authors this makes reference work very easy.

While either of these parts is of value to those working in special fields it is difficult to see how anyone working with insects can afford to be without the set of two volumes.—D. F. MILLER.

**A Manual of Entomological Equipment and Methods, Part II**, by Alvah Peterson. 334 pp. St. Louis, John S. Swift Co., Inc., 1937.