

is of necessity still academic in its bias, but, if thoroughly digested by students during their university course, must provide an excellent preliminary to practical experience in the field. It may also prove useful as a book of reference for those who have already had practical experience in the industry and yet desire to consolidate their knowledge in terms of academic principles.

**Statistical Year-Book of the World Power Conference No. 3: Data on Resources and Annual Statistics for 1935 and 1936.** Edited, with an Introduction and Explanatory Text, by Frederick Brown. Pp. 138. (London: World Power Conference, 1938.) 20s. net.

THE same principles are followed in this third Year-Book as in No. 1 (1936) and No. 2 (1937), the ultimate aim being to give *comparable* statistics of world power resources. Two noteworthy advances have, however, been incorporated in this volume, quite apart from progress made towards publication of complete statistics for the whole world. For the first time a table is included at the beginning of the volume showing the area and population of most of the countries from which statistics have been obtained. Also there is clear indication that the several countries have made a greater effort to return statistics in conformity with definitions adopted by the World Power Conference.

## MATHEMATICS

**Tables for Converting Rectangular to Polar Co-ordinates**

By Dr. J. C. P. Miller. Pp. 16. (London: The Scientific Computing Service, Ltd., 1939.) 2s.

DR. J. C. P. MILLER has compiled these tables to facilitate the conversion of rectangular to polar co-ordinates, and after several years of experiment he is convinced that they afford the maximum efficiency. Acknowledgment is made of the advice and assistance of Dr. L. J. Comrie both in the computation and publication of the tables. A full description of the method of application with a computing machine and also with a slide rule is given, and, generally speaking, only one set-up of the machine or rule is necessary. Where maximum accuracy is essential, two settings are sometimes required with the slide rule, and examples are given which show the various degrees of accuracy that arise with one or two settings. The tables have already been extensively used in manuscript form for the transformation of harmonic constants  $a$  and  $b$ , obtained by harmonic analysis, to amplitude  $c$  and phase angle  $\epsilon$ , in accordance with the relation

$$c \sin(nt + \epsilon) = a \sin nt + b \cos nt.$$

As further applications may be mentioned the evaluation of the magnitude and direction of a vector from rectangular components, and the conversion of complex numbers from the form  $x + iy$  to the form  $re^{i\theta}$ .

The tables will be very useful in various branches of applied science.

**Trigonometry, with Tables**

By Prof. Howard K. Hughes and Glen T. Miller. Pp. viii+190+79. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1938.) 7s. 6d. net.

TEACHERS of elementary trigonometry may discuss the order in which to introduce the tangent, the cosine, and the sine, and there are substantial and interesting arguments in favour of each as the first to be studied, but there has been general agreement for many years that in a first course the tangent and the sine or cosine should be introduced separately, whether the actual definitions are in terms of right-angled triangles or of co-ordinates. It is typical of the teaching of Messrs. Hughes and Miller that they throw the six circular functions simultaneously at the pupil's head at the very beginning, and this implies, on the kindest interpretation, that the subject has been deferred far beyond the age at which the elements of it can profitably be studied. We need scarcely give other reasons for doubting whether this text-book is suitable for the use for which it is intended. On principle, the inclusion of a chapter on spherical trigonometry is to be commended, and an attractive set of tables is paged independently at the end of the volume. The printing and production are exceptionally good. E. H. N.

## MISCELLANY

**Bibliographie de Maurice Maeterlinck**

Littérature, science, philosophie. Par Maurice Lecat. Pp. 208. (Bruxelles: Libr. Castaigne, 1939.) 35 francs.

M. MAURICE LECAT, the relentless and indefatigable critic of the "Belgian Shakespeare", has issued separately the bibliography which forms part of his work entitled "Maeterlinckisme", of which the first volume was published in 1937 and the third is to appear shortly. The bibliography consists of two parts devoted respectively to works by or about Maeterlinck. Appended is a bibliography of the publications of M. Lecat, who is a doctor in mathematical and physical sciences, a mining engineer, and a laureate of the Académie des Sciences.

**The Psychology of Physics**

By Blamey Stevens. Pp. xvi+282. (Manchester: Sherratt and Hughes; New York: G. E. Stechert and Co., 1939.) 7s. 6d. net.

NEITHER the psychology nor the physics of this book is of the conventional type. In a previous book, "The Identity Theory" (1936), Mr. Blamey Stevens put forward views which are now presented in a simpler form. To begin with, he suggests that space and time have no objective reality, and are merely two different subjective or *perceptual* aspects of an identical thing, which may be called substance. On bases such as these, a complete perceptual theory of physics is built up, rejecting many of the accepted laws, but replacing them by others which, it is claimed, are in accordance with empirical facts.