

OUR BOOK SHELF.

Notes on the Use of the Portable Reversible Transit Instrument and the Method of Calculation of the Observations. By Captain C. E. Monro. Pp. 60. (London: J. D. Potter, 1911.) Price 3s.

THIS excellent little handbook is written to serve as a practical guide for the use of beginners with the transit instrument. After a very slight amount of personal instruction, the learner will find a sufficient aid in this book, which gives ample directions for securing the best possible determinations of time. The notes are written in a thoroughly practical manner; the whole procedure to be adopted in setting up the instrument and in making and reducing the observations is explicitly set forth.

Captain Monro is well qualified by experience for compiling such a handbook, having taken the principal part in the important longitude determination Greenwich-Ascension-Cape in 1907; but beyond his own observations, he has drawn largely on the accumulated experience of Greenwich observers during the series of fundamental longitude determinations made by the Royal Observatory. These notes may, in fact, be regarded as embodying in the main the practice actually employed at Greenwich. In one respect, however, a deficiency is apparent, namely, with regard to the observations which depend on the use of the Right Ascension micrometer. This is presumably owing to the author having gained his experience near the equator, where slow-moving polar stars are almost unobservable; in consequence, he himself would have little occasion for using the micrometer screw. To this we attribute the fact that there is no explanation of how to determine the value of the screw, a very important instrumental constant in time determinations under ordinary conditions. Further, the example given of the reduction of a slow-moving polar involves an extravagant amount of arithmetic, and an excessive number of decimal places are employed. It may also be remarked that the wire intervals are better determined from special observations of two or three polar stars than by the laborious process of reducing some hundreds of equatorial transits.

Apart from this the book contains all that is necessary for the most refined work with the type of instrument described. The appendix, containing specimens of computing forms for the reduction of the observations, is a useful feature. Another appendix contains an elementary account of the theory of the corrections for azimuth and level. A. S. E.

Elements of Zoology; to accompany the Field and Laboratory Study of Animals. By Dr. Charles B. Davenport and Gertrude C. Davenport. Revised edition. Pp. x+508. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd., 1911.) Price 5s. 6d. net.

THIS attractive work was issued ten years ago by Dr. and Mrs. Davenport, and it has now passed into a revised edition. In the interval the author has taken charge of the Carnegie Institute for Experimental Evolution and of the Brooklyn Institute Laboratory at Long Island, and he is consequently well qualified to introduce changes in the work that reflect to some extent the advance of zoological knowledge so far as it affects an elementary text-book. The chief feature of the work is the abundance and excellence of the illustrations. Scarcely less striking than the figures are the suggestive and interesting remarks on the habits and behaviour of the examples selected. There is little plan or sequence in the chapters. Each of them consists of an isolated study of some particular topic associated with a given form of animal life. By

some curious oversight only one-half of the selected forms are figured, though illustrations of related forms occur in abundance, and there are, in addition, photographs of the localities in which the chosen animals may be found. The work is so attractive and will be so useful to teachers who wish to organise nature-study courses that we are loth to point out the few blemishes that we have noticed. Darwin, however, would object to be quoted as saying (p. 171), or rather writing "mold" for mould, and "plow" for plough. The *Ranidæ* occur over Africa, and are not limited, as suggested on p. 348, to the northern hemisphere and East Indies. The spotted salamander figured on p. 335 is called "A urode," a name which is certain to cause trouble and misunderstanding, as are many other curious vernacular names, such as "sow-bug" for *Oniscus*, "basket-fish" for branched *Ophiuroids*, "tumble-bugs" for the large dung-beetles, the "underwing" for *Catocala*, "spring azure" for blue *Lycænas*, and many others. Probably in the States these difficulties will not occur. We can heartily recommend this book.

Modern Industrial Chemistry, from the German of H. Blucher. Translated by J. P. Millington. Pp. xvi+779. (London: Gresham Publishing Co., 1911.) Price 30s. net.

THIS work is an attempt to survey the field of chemical technology and to bring the results within the compass of about 800 pages of well-leaded type. It is, lexicographically arranged, fairly well illustrated by "process" cuts, and plentifully interspersed with advertisements, or with references to the many advertisements between which the book itself is sandwiched. As might be anticipated from its origin, it deals mainly with German technology, and is especially rich in references to German patent literature. Another feature in which it differs from the ordinary run of such works is the prominence it gives to the nostrums and drugs with which modern chemical manufacturers, more especially in Germany, have flooded the markets of the world. Many of these are only of the most ephemeral interest, and certain of them are no longer in use, either because they have been found to be baneful, or because they have been superseded by others more convenient in use. As their names are to be found in modern pharmacological literature, and are presumably of interest to medical men, a catalogue of them, arranged alphabetically, may possibly be of some service. It must be admitted, however, that the information vouchsafed in the case of many of them is very meagre and not always authentic. Indeed, many of the titles in the book seem to be introduced for no other purpose than to direct attention to a trade advertisement.

The book may be of use in the counting-house of a manufacturer, but would be of very limited value to the specialist or the student of chemical technology.

Practical Plant Physiology. By Prof. F. Keeble, assisted by M. C. Rayner. Pp. xvi+250. (London: G. Bell and Sons, Ltd., 1911.) Price 3s. 6d.

BOTANICAL physiology is one of the most instructive branches of science, because it provides an excellent test of a student's capabilities and is particularly suitable for inculcating the spirit of original research. Both these objects are kept in view by the author of this practical text-book, where they supply the main undercurrent flowing below the more obvious stream of information conveyed in the text. The course outlined is also thorough and complete, as the student is led systematically by argument and experiment through the sequence of problems connected with plant nutrition.