

Our Bookshelf.

Quantitative Organic Micro-analysis. By Prof. Fritz Pregl. Translated from the second revised and enlarged German edition by Dr. Ernest Fyleman. Pp. xv + 190. (London: J. and A. Churchill, 1924.) 12s. 6d. net.

THE quantitative analysis of minute amounts of organic solids and liquids is an art (or should we say handicraft?) which owes more to Prof. Pregl than to any other worker, and the award of a Nobel prize to him a few years ago was a fitting tribute to his successful services in this field. At present confined almost exclusively to biochemistry (where it will be useful when the elusive vitamin is isolated), organic micro-analysis has an important future before it.

After devoting a chapter to the Kuhlmann balance, a marvellous instrument which weighs to ± 0.001 mgm. at maximum load (20 gm.), the author describes the determination of carbon and hydrogen, nitrogen, the halogens, sulphur, of arsenic, phosphorus, and copper in organic combination, of the carboxyl, methoxyl, ethoxyl, and methyl groups, and adds a chapter on the determination of molecular weight by the boiling-point method. The weight of material required for each analysis is about 12-15 mgm.

The micro-methods have many points of similarity with the older classical methods of Liebig, Dumas, and Carius, and have obviously been developed from these by dint of tremendous patience and devotion to detail, as well as of unusual practical skill. These newer methods demand a very special technique, the acquisition of which would provide a valuable training to the student after—not before—he has mastered the principles and practice of ordinary analysis. Technique is, as a rule, best learnt in the laboratory from a colleague or instructor, not from a text-book; but in the present case the use of a text-book is fully justified, because organic micro-analysis is still very little known in Great Britain, and also because the directions given by Pregl are so detailed, that it is difficult to conceive how any well-trained chemist could fail to learn from them.

One does not, of course, look for literary skill or grace in a work of this kind; and one does not find them. Like most German technical treatises, the style of this work is heavy, and the translator, of set purpose, has not lightened it. As a literal translation the English version is good, but it would have been much better if the German style had been less rigidly reproduced. "Pregl" is an important work, and both publisher and translator deserve our thanks for having made it available to the increasing number of chemists who either cannot read German, or cannot read it with ease or pleasure.

The Heavens. By J. H. Fabre. Translated by Dr. E. E. Fournier d'Albe. Pp. xvi + 336 + 16 plates. (London: T. Fisher Unwin, Ltd., 1924.) 15s. net.

For lucidity of style, for simplicity of language, and for felicity in illustration, this book on descriptive astronomy is probably unique. Many passages are quite poetical, as, for example, that (pp. 90, 91) on morning, noon, and night, while the charm of others,

such as the concluding paragraphs of the lesson on hour and longitude, lies in their wealth of descriptive allusions. Even the elementary mechanics becomes absorbing when clothed in such vivid language, and the explanation of how the earth is weighed, and of such subjects as parallax, inertia, and centrifugal force, are presented in a most attractive style.

The work is divided into twenty-five lessons, or chapters, and of these all, except three, are concerned with the solar system, and principally with an elementary presentation of its mechanics. There is a preliminary lesson on simple geometry, and by the employment of these "modest geometrical studies" the earth is surveyed, and is weighed, the Cavendish experiment being very clearly explained. It is then girdled with circles of latitude, and with meridians of longitude, its rotation is made clear, and the effects of the illumination of the atmosphere and of the refraction of light are applied. There is also a very good chapter on the calendar. These are specimens of the topics dealt with, and there are also chapters on the sun, the moon, the planets, the comets, the fixed stars, and the nebulae.

The translation is very well done, and there are several notes by the translator to bring the matter in the text up-to-date. But we think that it would have been an advantage had the translator also edited out-of-date statements in the text, as, for example, that Uranus has eight satellites, that the best method of determining solar parallax is by the transit of Venus, as also the distances in light-years given for some of the stars, which are founded on antiquated data. The name Herschel is always wrongly spelt. There are other obvious slips, probably due to faulty proof-reading.

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British Antarctic ("Terra Nova") Expedition, 1910. Natural History Report. Zoology, vol. 8, No. 1: Crustacea. Part 8: Euphausiacea. By Prof. W. M. Tattersall. Pp. 36 + 2 plates. (London: British Museum (Natural History), 1924.) 5s.

THERE are very few groups of invertebrate animals of which it can be said with any probability that nearly all the existing species have now been discovered. This claim was made some years ago by Dr. H. J. Hansen as a result of his extensive studies on the Crustacea of the order Euphausiacea. It is supported by the fact that, in the report on the very large collections of this group made by the *Terra Nova* expedition, Prof. Tattersall has not found it necessary to describe a single new species. He discusses the characters and synonymy of a number of the species and describes a series of the larval stages of *Euphausia longirostris*, which is shown to differ from some of its congeners in having a prolonged larval life and in reaching an unusually large size before assuming the adult form. A considerable part of the memoir is devoted to discussing the distribution of the species obtained in the three areas chiefly explored, the Atlantic, the New Zealand region, and the Antarctic and Subantarctic zones south of New Zealand.

It is pointed out that nearly all the specimens were taken in the surface waters at night. During the daytime very few euphausians were taken, and these were, for the most part, larvæ. While a daily vertical migration to and from the deeper strata of the ocean