

self devised—gas analysis, mineral water analysis, flame reactions. It is not easy to describe Bunsen's relation to chemical science. He was a perfect type of "Naturforscher," a word for which there is hardly an English equivalent. He lived in his laboratory, ever absorbed, he seemed, in finding his way through natural problems, like a navigator always on the bridge sailing in an unknown archipelago. His writings are hardly more than his log, and his lectures were the narratives of his own particular voyage in the region called chemistry. To a listener who had a fair knowledge of chemistry and its literature it seemed as if there were no part of inorganic chemistry which Bunsen had not made in some way his own. In the laboratory it was the same; from the making of a borax bead to the execution of the most complicated analysis there was the Bunsen method of doing things. Spectroscopy, gas analysis, and electrolytic chemistry for long seemed wholly his. No chemist had a broader or more philosophical outlook than he; on the one hand he had a profound distrust of theory that went in advance of experiment, and on the other hand he despised all kinds of aimless or recipe work. Of the periodic classification of the elements he said at one time, "Ja, solche Regelmässigkeiten findet man in den Börsenblättern"; of a well known standard work on analysis he said "Koch-buch!" and indignantly ordered its removal. What a memorable experience it was for a student to work with Bunsen through the Russian Mint residues! The innumerable devices of his own, the "nursing" operations at different stages, the tales of his earlier efforts and disasters, the eager hope "vielleicht steckt etwas neues darin," the dry assurance "ja, alle Wochen werden ein Paar neue Platinmetalle entdeckt"—all these things come to mind to recall the image of a man in whom the art of a past master was combined with the artlessness of a child.

It is impossible to estimate the influence of such a man; but in the volumes which it is the object of this notice to commend, it is possible to read the record of his work and to catch something of the spirit which animated the worker.

The collected works are published under the auspices of the German Bunsen Society for Applied Physical Chemistry, and are edited by Prof. Ostwald and Dr. Bodenstein. We are therefore assured that the task has been performed with pious care and with fulness of knowledge. The original intention of publishing a biography of Bunsen had to be abandoned owing to his express order, so characteristic, that his literary remains should be destroyed. He also desired that from his own letters in the possession of others nothing of a personal character should be published. The gap thus left is probably not so great as might be imagined, and one feels, after reading the prefatory memoirs by Sir Henry Roscoe, Dr. Rathke, and Prof. Ostwald himself, that we have probably all we really need to know. "Bunsen stories" were doubtless good to those who knew him, but to those who did not they were apt to be like most tales of university dons, and the collection which has been

privately published seems rather trivial, and jars somewhat on the ears of the faithful. But the collection of his writings makes a noble monument, and the thanks of all chemists are due to the Bunsen Society and to the two editors who have undertaken the laborious task and have executed it so well.

ARTHUR SMITHKILLS.

#### OUR BOOK SHELF.

*The Practical Study of Malaria and other Blood Parasites.* By Dr. J. W. W. Stephens and S. R. Christophers. 2nd Revised Edition. Pp. iii+396 and xlv. (London: Published for the University Press of Liverpool by Williams and Norgate, 1904.) Price 12s. 6d. net.

THIS volume gives a very full and complete account of the practical methods employed in the study of malaria and kindred protozoan diseases of man and animals. The book being intended primarily for the use of medical men in the tropics, who may be far from any laboratory, abounds in practical hints and suggestions which will enable good work to be accomplished with a minimum of apparatus, &c.

The methods of making and staining blood-films are given very fully, and the appearances of normal blood and of the various malaria parasites carefully described. In connection with malaria, the methods of catching, breeding, keeping, and feeding mosquitoes for purposes of malaria study receive considerable attention, and the life-history of the mosquito and the characters of a number of the more important species have no less than 200 pages devoted to them. Chapters then follow on the clinical and epidemiological study of malaria, and finally the hæmamebidaë, trypanosomes, spirochætes, and filariæ are considered. This entails descriptions of the anatomy and classification of the chief species of ticks, fleas, tsetse and other biting flies, and a mass of detail is thus brought together in a form required by the investigator for which he otherwise would have to search in many scattered papers and works of natural history. In this respect the book will be of great value in laboratories of medical protozoology and the like. There are few points to which exception can be taken, for the book is the outcome of the authors' own experience on the subjects of which they write. It may be doubted, however, if methylated spirit can take the place of methyl alcohol for making up the Leishman blood-stain, and the authors' view that blackwater fever is malaria plus hæmoglobinuria excited by chill, quinine, or other simple cause is open to question.

The book can be recommended as a most valuable guide, and the numerous illustrations, diagrammatic though many of them are, enhance its usefulness.

R. T. HEWLETT.

*Pictures from Nature.* By Richard and Cherry Kearton. Portfolio of fifteen Rembrandt photogravures. Size 15in. x 11in. (London: Cassell and Co., Ltd.) Price 10s. 6d. net.

THE remarkable photographs taken by the Brothers Kearton of animal life in many aspects have often been described in these columns in terms of the highest praise. The fifteen pictures of birds and other animals, among their natural surroundings, reproduced for the present portfolio, represent the high-water mark of faithful portraiture in natural history.

The plates include the following subjects:—Black throated diver, kittiwakes at home, leverets in their form, kingfisher waiting for its prey, squirrel, puffins