

tion, with little or no practical work, contenting himself by adding thirty-eight exercises at the end of the chapter. These exercises leave little to be desired, but a beginner will not always be clear about the several steps by which he is to arrive at the required result. The divisions adopted by the author lead to some very miscellaneous chapters; thus Chapter vi., entitled "Changes Belong to Several Classes," runs to thirty-two pages, and includes a brief treatment of inertia, the electrophorus, voltaic cells, the thermopile, gravitation, expansion, the Gulf Stream, Trade winds and several other subjects. Chapters viii. and ix. take the pupil "along the well-beaten track of chemical rudiments," and were written by Mr. F. Collins. Too much is attempted in this section, and things are often taken for granted of which a beginner has no knowledge whatever. Thus, on p. 185, the modes of chemical action are partly explained by chemical equations, though the only guidance towards understanding them which has been given to the pupil is the table of elements, with their symbols and atomic weights, on p. 181. The value of the book would have been much increased by using simpler language, and adding more illustrations.

*Elementary Practical Chemistry.* By A. J. Cooper, B.A., B.Sc. Pp. viii + 86. (London: Whittaker and Co., 1899.)

SOME idea of the profound changes which have occurred in the teaching of elementary chemistry during the last decade can be obtained from the large number of books recently published, all of which claim to supply a long-felt want. Mr. Cooper's book covers familiar ground in a more or less familiar way. He starts with a brief account of the metric system (which, however, is too short to be of much use), describes the balance, how to determine relative densities, and to measure liquids and fit up apparatus. No wonder the student often asks why these subjects must be studied both in the chemical and physical laboratories. But like many another recent writer of an elementary course of chemistry, Mr. Cooper rightly avoids the thaumaturgic art of test-tubing, and it is in this connection we are able to perceive an advance has been made in the way of studying science. Though the "Heuristic" method, of which so much is heard nowadays, is not suitable throughout a complete course of chemistry, it is unfortunate that so many statements occur like "note the white powder of metastannic acid that is formed"; "the name of the gas which you have just prepared is nitrous oxide"—which have no significance to a beginner.

*The Teaching of Geography in Switzerland and North Italy.* By Joan Berenice Reynolds. Pp. xii + 112. (London: C. J. Clay and Sons, 1899.)

NO more hopeful indication of the growing desire on the part of British teachers to improve the methods of instruction in our schools could be desired than this little volume provides. It is particularly gratifying to find that the old insular prejudice is giving place to an intelligent study of foreign educational systems, and that it is at last becoming recognised there is much to be learnt from Continental pedagogic authorities. Miss Reynolds was, in 1897, awarded the Travelling Studentship for Teachers in connection with the University of Wales, and her report, which she presented in 1898 to the Court of this newest of our Universities, demonstrates conclusively that she made the best use of her opportunities. Equipped with the information provided by a wide course of reading in the geographical literature of the countries she intended to visit, Miss Reynolds was able to intelligently note all the features of Swiss and Italian teaching practice which would prove of assistance to our own teachers, and she has here set them down in a clear and interesting manner. Her book should be read by every teacher of geography.

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*Liverpool Marine Biology Committee's Memoirs. I. Ascidia.* By Prof. W. A. Herdman, D.Sc., F.R.S. Pp. v + 52; with five plates. (Liverpool: T. Dobb and Co., 1899.)

THIS is the first of a series of memoirs which is being prepared by the Liverpool Marine Biology Committee under the editorship of Prof. Herdman, to supply a want which "has been constantly felt of a series of detailed descriptions of the structure of certain common typical animals and plants, chosen as representatives of their groups, and dealt with by specialists." The expense of preparing the plates in illustration of the first few memoirs is being met by a donation of Mr. F. H. Gossage, of Woolton. Prof. Herdman has omitted detailed references to original memoirs, the object of his manual being more to provide students of marine biology with a concise and accurate description of the appearance, structure, and life-history of the Ascidian than to publish a bibliography.

In an appendix a statement is given of the classification and characters of the Tunicata, in order to indicate the position of *Ascidia* as a type of the group and its relations to the other British Ascidiarians.

*The Story of the Wanderings of Atoms, especially those of Carbon.* By M. M. Pattison Muir, M.A. Pp. 192. (London: George Newnes, Ltd., 1899.)

AN attractive title does not by itself make an attractive book. Assuming that "The Library of Useful Stories" is intended for the general reader, we are afraid that this short account of the compounds of carbon is largely beyond his comprehension. There is an abundance of information, but the repeated references to Mr. Muir's "Story of the Chemical Elements" will tantalise the man who expects to get knowledge and recreation by the same process. A sound knowledge of organic chemistry is only obtained by experimental methods based upon a thorough grounding in the elements of chemistry, and this end is most satisfactorily obtained by studying simple inorganic substances first. The author has adopted a style more suited for the classroom than the platform of the popular lecturer, and the ordinary person who takes up this little volume will, after reading very few pages, find himself completely out of his depth.

*General Index, by Robert Newstead, F.E.S., Curator of the Grosvenor Museum, Chester, to Annual Reports of Observations of Injurious Insects, 1877-1898.* By Eleanor A. Ormerod, F.R. Met. Soc., &c. With Preface by the author. Pp. xii + 58. (Simpkin, 1899.)

THE twenty-two annual volumes of Miss Ormerod's Reports are known to all students of agricultural entomology, and their usefulness as indispensable works of reference will be largely increased by the present compendium, which includes, in addition to the general index, separate indices of plants, animals and unclassified "hosts." Miss Ormerod's preface contains remarks on the origin and method of the reports, notices of a few of the more important insects which have been dealt with, and miscellaneous observations. It is worthy of special note that she considers all birds which are even moderately insectivorous as beneficial to such an extent as to overbalance any mischief they may do in other ways, unless they are present in overwhelming numbers; but she especially excludes the house sparrow, which she denounces as a national evil.

W. F. K.

*A Hand-List of the Genera and Species of Birds.* By R. Bowdler Sharpe, LL.D. Vol. I. Pp. xxi + 303. (London: Printed by order of the Trustees of the British Museum, 1899.)

THE system of classification adopted in this new "hand-list" is that proposed by Dr. Bowdler Sharpe in 1891. The book is founded upon the "Catalogue of the Birds