

artists," says Hume (whose joint work with Marshall on the "Game Birds of India" is dedicated to Hodgson), "to paint birds with extreme accuracy from a scientific point of view; and under his careful supervision admirable large scale pictures were produced, not only of all these new species, but also of several hundred others, and in many cases of their nests and eggs also. These were continually accompanied by exact, life-size, pencil drawings of the bills, nasal orifices, legs, feet, and claws (the scutellation of the torso and toes being reproduced with photographic accuracy and minuteness), and of the arrangement of the feathers in crest, wing, and tails." Unrivalled as a collector, Hodgson's generosity with his specimens and drawings was equally unrivalled, and practically the whole of them were given to public libraries or scientific societies.

We would not have the appreciation which his biographer has lavished upon his many-sided intellectual activity diminished by a single word. It is only strange that the marked absence of anything of the kind in other civilians should not have seemed to Sir William Hunter to call for any limitation of that exuberant optimism with which he regards the ways and works of every official (except Lord Ellenborough) that he has to mention. No doubt the results of the system of Indian government have been, from a material point of view, encouraging. The members of the Service have developed administrative qualities of a high order. But is there nothing at all that is lacking? Is not intellectual alertness sometimes smothered under a mass of detail, and any really scholarly or scientific knowledge tabooed or discouraged as waste of time? And is not the best executive ability apt to strike cold when it wants the charm of intellectual sympathy? Nothing is more evident in this book than the way in which Brian Houghton Hodgson's wide knowledge and intellectual sympathy helped him in his official work, unless indeed it be the degree in which, in those qualities, he stood alone. We need not wonder that he received from the Indian Government none of those titular honours that were bestowed on many of his contemporaries, now forgotten.

The biography is delightfully and lucidly written, and enriched by contributions from specialists in the various subjects dealt with in Hodgson's works. The charm of the narrative is such that the reader will probably find it only too short. And a word of acknowledgment must be given to the beauty of the illustrations, especially of the striking picture taken by Mrs. Hodgson, to whom the work is dedicated.

#### OUR BOOK SHELF.

*Manual of Determinative Mineralogy, with an Introduction on Blowpipe Analysis.* By G. J. Brush. Revised and enlarged by S. L. Penfield. Pp. vi + 208. (New York: Wiley. London: Chapman and Hall, Ltd., 1896.)

THE manual of the veteran mineralogist, and present Director of the Sheffield Scientific School at New Haven, has been in constant use since 1874, and has passed through thirteen editions. The present volume is the beginning of a new and revised edition which has been

undertaken by Prof. Penfield. The determinative tables, originally based upon von Kobell's "Tafeln zur Bestimmung der Mineralien," remain as they were in the thirteenth edition, but they are now preceded by four chapters on the qualitative analysis of minerals, which have been in great part re-written by Prof. Penfield. These chapters are, as might be expected from this able mineralogist, entirely excellent. The description of the apparatus and methods employed is most simple and clear, and is rendered attractive by numerous good illustrations, which are in large part new.

The book abounds in practical hints of the greatest value to a beginner. The course consists of a series of simple experiments so arranged as to illustrate the reactions of the various elements, and many of these are designed to illustrate the *difficulties* which attend their use, and the risk of drawing erroneous conclusions, e.g. "The mistake is sometimes made of testing carbonates with acids which are too concentrated, as illustrated by the following experiment," &c.; or again, "In order to show that there is sometimes danger of overlooking a small quantity of a carbonate, test as follows."

The rarer elements are treated, as well as those which the student is more likely to encounter, and due regard is paid to newly-discovered reactions. Thus mention is made of the method of testing recommended by Haamel, in which the material is heated in the oxidising flame after being moistened with hydriodic acid, or tincture of iodine, as suggested by Wheeler and Luedeking; and it is recommended that a plaster of Paris tablet should be used to collect the coloured sublimates produced. It is perhaps unfortunate that this method does not find a place in the summary of blowpipe and chemical reactions, which constitutes Chapter iv.

The fundamental principles of qualitative analysis (e.g. the nature of the flame, and the action of charcoal) are more fully explained than in the preceding editions; and for these and other reasons, the volume is a more satisfactory handbook for an elementary student than any with which we are acquainted.

The new edition is to be completed by the revision of the determinative tables, and Prof. Penfield promises to add to these a chapter on crystallography and the physical properties of minerals. It is, we think, to be regretted that the publishers have brought out the new edition in an incomplete state.

*Grundriss der Entwicklungsgeschichte des Menschen und der Säugethiere.* By Dr. Oscar Schultze. Erste Hälfte. Pp. 177. (Leipzig: Engelmann, 1896.)

THIS work, which is a revision of Prof. Koelliker's book, is intended especially for students and practitioners. Although Dr. Schultze writes his descriptions of the various developmental processes in a concise manner, avoiding controverted and purely theoretical points as far as possible, still he has introduced into his book all the more recent important observations on mammalian embryology. The work appears to be throughout in all points quite up to date. The well-chosen figures, which are numerous and nicely reproduced, are all taken from mammalian embryos, and it will doubtless be a satisfaction to a student of human embryology to find such illustrations instead of the oft-repeated figures of fowl, reptile, and even invertebrate embryos common in textbooks on human development. Our present knowledge of the early stages of mammalian embryos quite justifies the omission of such figures in an account of mammalian development. Dr. Schultze has succeeded in making his history of the embryology of man and mammals hang well together. As the work is sure to be extensively used, it is to be hoped that an English translation will shortly be forthcoming. The second part is promised at the end of this year.