AN ECLECTIC HISTORY OF SCIENCE.

Progress of Science. By J. Villin Marmery. Pp. 357. (London: Chapman and Hall, Limited, 1895.)

THE custom of inserting laudatory prefaces or introductions, written by well-known men, in works of science by lesser lights, which was commented upon in these columns a few weeks ago, reaches the ridiculous in the case of this book. A letter from Mr. Samuel Laing to the publishers is printed, in the course of which he says: "I have now had time to read Mr. Marmery's book, and find it a work of great learning and research . . . and I can confidently recommend it as alike interesting and instructive." What induced the publishers to print this purely business letter as a testimonial to the book's good qualities, passes our comprehension. A book usually finds its proper level, and the effort to force it into a higher position by means of a letter of introduction from a more or less distinguished individual, must prove futile; for in literature, scientific or otherwise, authors are judged entirely by their own works.

Every one will recognise that to attempt to condense the history of science into a volume of about three hundred and fifty pages, is to court failure. All that can be accomplished in so small a space is to describe the well-defined steps of advancement along the road of natural knowledge, and to exhibit the continuity of scientific developments. Mr. Marmery has done this with a fair amount of success. After briefly noting the knowledge of the Egyptians and Chaldeans so far back as 3000 B.C., he surveys the successive stages in the history of science, and devotes a few lines to men and matters of first-rate importance in each. His statement of the progress made by the Arabians from the ninth to the fifteenth centuries, brings into view the substantial achievements of a people which then stood in advance of the whole world. Our obligations to the Arabs are indubitable; nevertheless, few European historians have expressed them. "Eminence in science is the highest of honours" was a maxim which represented the bearing of Islam towards scientific knowledge at a period when Europe was ruled by monkish philosophy, and when investigators were stamped as heretics.

The review of the science of the Greek, the Arabian, the Mediæval, and the Revival periods, leads to the science of the Modern period, from the end of the sixteenth century to the present time. And here the author treads upon dangerous ground. He has had, perforce, to create invidious distinctions by selecting from the host of scientific workers those that appear to him to have added most to the store of knowledge. Huxley got over the difficulty in his address on "The Progress of Science," published among his collected essays (vol. i.), by omitting references to all living men, and by dealing only with results. Mr. Marmery might have saved himself from hostile criticism by following the same method; but, in that case, his volume would have wanted the very information which is the chief justification for its existence. His selection of names has, he says, been determined "by what appears *typical originality* in the work, rather than by what is imposing in extent and weight." Here and there we fancy this criterion has not been applied; but in a book covering so wide a scope, such deficiencies may well be excused. Modern investigators are divided into seven groups, viz. (1) biologists, (2) geologists, (3) chemists, (4) mathematicians, (5) astronomers, (6) physicists, (7) eminent practical men. Short accounts of the main achievements of the individual workers in each group are given, and are fairly trustworthy. In an appendix, the names of foremost men of science in all the periods are tabulated, and a copious index makes it easy to find the sketch of the works of any one of them.

Many imperfections the book certainly has, but in spite of them we think it deserves some words of commendation. Those who wish to know something about the evolution of scientific knowledge, and the multitude of readers who like to dip into a book to find what this or that man of science has done, may obtain from this handy volume the information they seek. We could easily enumerate a score of names which ought to find a place in the book, but are wanting. Probably it was because the author was aware of the incompleteness of his record, that he omitted the definite article from the title of his book.

MICROSCOPIC STUDY OF ROCKS.

Petrology for Students: an Introduction to the Study of Rocks under the Microscope. By A. Harker. (Cambridge University Press, 1895.)

THIS latest addition to the Cambridge Science Manuals is intended by the author as a guide to the study of rocks in thin slices under the microscope In scarcely another English text-book on the subject has the treatment of rocks from the purely petrographical point of view of microscopic examination been so strictly adhered to throughout as in the book before us. "Microscope" is almost the first word in the book, and sounds the key-note of the whole.

After a short introduction, containing a few notes on the optical properties of minerals, the author plunges at once into the systematic description of the different rock species. The usual chapters on the characters and methods of separation and determination of the rock-forming minerals are omitted altogether; for all such mineralogical points, the reader is referred to standard works on the subject. The book, therefore, corresponds, though on a much smaller scale, to the second volume of such text-books as those of Rosenbusch and Zirkel.

In the classification of the massive igneous rocks the author divides them into *plutonic*, *intrusive* and *volcanic*, but is careful to point out that the divisions themselves are based upon the *structural* characters resulting from the different conditions of consolidation. This classification resembles that of Rosenbusch, but the author's intrusive groups do not correspond exactly with the Ganggesteine of Rosenbusch, for he extends them to the basic family, whereas even Rosenbusch considered this to be impracticable. In this connection we notice that those much abused terms "diabase" and "porphyrite" receive new definitions. Diabase is in this book used to designate, not pre-Tertiary or altered dolerites, but the group of intrusive basic rocks corresponding to the volcanic basalts, while porphyrite is applied to the intrusive rocks corresponding to the volcanic andesites. The author, of course, follows the British school in admit-