Short Reviews

Recent Advances in Agricultural Plant Breeding. By Dr. H. Hunter and Dr. H. Martin Leake. Pp. x+361+16 plates. (London: J. and A. Churchill, 1933.) 15*s*.

DURING the past generation the expansion of plant-breeding work on agricultural plants has been so rapid that it is impossible to present even a condensed comprehensive review within the limits of a single volume. Recognising this, the authors have confined their attention to the results of the more important investigations which have emerged from the academic stage and have resulted in improved varieties that have passed into general use. Indications are given of the general direction of progress and of some of the main problems awaiting solution.

Attempted improvements are often determined by commercial requirements, which may vary not only from one country to another, but also within each country itself. Further improvement in plants is relative to the environment, as soil fertility and climate, and is not an absolute condition; for example, a new variety that gives excellent results in one area, or under certain manurial treatment, may show no advantage elsewhere or under different cultural conditions. The extreme difficulty is recognised of arriving at a truly homozygous unit giving a completely stable plant, and the indications adduced from practice are that stability is in reality a relative term, but that some varieties are more stable than others.

Work in temperate regions is chiefly on food crops, with species and varieties long under domestication. The range of sub-tropical and tropical crops is much wider, and many of them are much nearer their wild forebears, thus raising very different problems in improvement. Under tropical conditions, also, environmental conditions encourage disease so much that the evolution of disease-resisting types takes precedence even of yield and quality improvement.

The survey is suggestive and its usefulness is increased by the provision of illustrations and numerous references associated with the individual crops.

Geology. By Prof. William H. Emmons, Prof. George A. Thiel, Prof. Clinton R. Stauffer and Prof. Ira S. Allison. Pp. xii+514. (New York: McGraw-Hill Book Co., Inc.; London: McGraw-Hill Publishing Co., Ltd., 1932.) 24*s*. net.

THE collaboration of four professors in the production of an introductory textbook of their subject must be a rare event. In this present instance the experiment, if it may be called such, has been successful, for the result is a lucid and logical exposition of the principles of geology. The greater part of the work deals with geological processes and is uniformly excellent. American examples are mainly employed for illustration, but the subjects are usually so magnificent that such a choice is right.

The last half a dozen chapters of the book are concerned with the origins of mountains, metamorphism, rock structures, conditions within the earth, earth history and kindred subjects. Here the treatment is not quite so successful. The account of the origin and structure of mountains, for example, is sketchy, and the references, especially to the Alps, distinctly inadequate. Again, the grand unity of metamorphic processes —the only guiding light in this uncharted sea— is obscured by a needless subdivision of the subject. Further, the planetesimal theory of the origin of the solar system is presented without critical examination. But, in spite of this, the book is certainly a good modern introduction to the subject and would be useful as a supplementary text for British students. In the main it is written in a pleasing easy style that is remarkably uniform throughout the volume. The illustrations, nearly five hundred in number, are well chosen and well reproduced.

Basic Units in Mechanical Drawing. By Prof. Randolph Philip Hœlscher and Prof. Arthur Beverly Mays. Book 1. Pp. viii+289. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1933.) 10*s*. net.

THE preface sufficiently indicates the design of the book, and the accompanying text throughout bears testimony to the realisation of that design. The authors are to be congratulated on being able to present the results of their practical experience in an eminently practical form. Nor can the diagrams, which are so liberally furnished, be over-praised.

The jejune qualities so frequently apparent in books of this nature are herein totally absent. If a demurring criticism is due, it is in respect to the somewhat mechanical system of lettering advocated; preferably lettering should be introduced upon a freehand mode of treatment.

P. L. M.

Collision Processes in Gases. By Dr. F. L. Arnot. (Methuen's Monographs on Physical Subjects.) Pp. viii+104. (London: Methuen and Co., Ltd., 1933.) 3*s*. net.

THIS useful little volume deals with that group of collision phenomena in gases in which the processes may be treated as individual events. It is divided into two parts. The main section deals with collisions between electrons and atoms and the brief second part gives some account of collisions between photons and atoms, and between normal, excited and ionised atoms.

The book is lucidly and critically written and may be unreservedly commended. A. F.