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BOTANY FOR STUDENTS.

A Text-Book of Botany. By Dr. Eduard Strasburger, Dr. Ludwig Jost, Dr. Heinrich Schenk and Dr. George Karsten. Fourth English edition, revised with the tenth German edition by Prof. W. H. Lang, F.R.S. Pp. xi + 767. (London: Macmillan and Co., Ltd., 1912.) Price 18s. net.

FOUR years have passed since the last English edition of this comprehensive German text-book was published, and the present volume, revised by Dr. Lang, is by far the most satisfactory edition of the book which has yet appeared. The book has been very widely used by English-speaking botanists, though it is far from being an ideal work either for students or for teachers. With the rapid development of botanical research there has been a corresponding increase in the subject-matter dealt with until the volume is now uncomfortably bulky and heavy. The attempt to deal with botanical science in the most comprehensive manner, which is the aim of this text-book, has resulted in the former editions in undue condensation of the subject-matter. This defect is still very marked in the present volume and seriously impairs the value of the work.

The arrangement follows that of previous editions, namely, two parts devoted to general botany—including morphology and physiology—and special botany, comprising cryptogams and phanerogams. The first part consists of 325 pages, and in the second section, physiology, the pages for the most part are closely printed with small type.

With characteristic thoroughness the German authors appear to have included the last word in each branch of the subject, but there is also the tendency, when so many points have to be mentioned, that a large number of important subjects receive too short a notice to allow of adequate explanation. This defect has all along been particularly noticeable in the morphological section of the volume. In the present edition the structure of the sieve tube, for instance, is dismissed in about half a page of text with some indifferent figures—a treatment far too meagre to be within the unaided comprehension of the ordinary student. Germination, too, receives but the scantiest treatment.

It is true that references to all the most recent work are given, but surely it would have tended to a more liberal education in botany to deal at

greater length with the fundamental facts and to put aside some of the minutiae of detail. There is very little use in placing ornamented crockets on the pinnacles of a tower if the whole structure is likely to collapse from insecure foundations. In this, however, our plaint is not against Dr. Lang but is directed rather towards the authors of the book. The defect is probably due to the fact that they have had to compress matter sufficient for two volumes into one, and have become frightened at the size of the result. If, in the future, part i. should be separated from part ii. it may then be found possible to extend adequately and fundamentally the sections of morphology and physiology. The physiological section has now become one of the most useful in the book and is, if anything, too careful to be thoroughly abreast of modern work. Like the first section it tends to suffer from condensation and too brief treatment of the various subjects. As an instance it may be pointed out that the explanation of so important a phenomenon as plasmolysis fails to be wholly intelligible.

The second part is as comprehensive as the first. Among the fungi the recent work by Blackman and others is included with illustrations, and the utmost care has been taken to put the reader in possession of the latest results. The inclusion of fossil types where needed to explain the sequence of plant forms is a distinct addition to the book. Our chief quarrel with the phanerogamic section, and with the cryptogamic to a lesser extent, is the inclusion of the coloured illustrations, which are poor in themselves and are not likely to be of much service to British students.

The defects from which this volume suffers may perhaps be attributed to two facts, the first being that it is a compound work, and the second and more important that it has been written to meet the requirements of too many different classes of people.

The science of botany is presented as a concentrated extract of dry facts and the subject is very largely shorn of its romance and charm. There can be no doubt, however, that it ought to be possible for the intelligent examinee to obtain the maximum number of marks in his examination after a careful study of this volume.

Suitable though it may be for the various types of German students and serviceable as it undoubtedly is to English-speaking students, we cannot but feel regret, despite its many excellent qualities, that this book is coming to be recognised as the standard text-book of botany in English.