

THURSDAY, SEPTEMBER 10, 1908.

NEW EDITION OF STRASBURGER'S BOTANY.

A Text-book of Botany. By Dr. E. Strasburger, Dr. Fritz Noll, Dr. H. Schenck, and Dr. G. Karsten. Third English edition, revised with eighth German edition by Dr. W. H. Lang. Pp. x+746. (London: Macmillan and Co., Ltd., 1908.) Price 18s. net.

THIS work is divided into two main divisions, "General Botany" and "Special Botany." The general botany commences with a section on morphology, external and internal. Some alterations from the second English edition have been made here, notably in the account and diagrams of mitosis. A paragraph on "reduction division," with illustrations, has been added. The description of the secondary tissues and their development is particularly good, but the new diagrams illustrating this subject do not add to the clearness.

Physiology is treated under the heads, stability of the plant body, nutrition, respiration, growth, movement, reproduction. There are numerous small changes and additions, chiefly due to research since the second English edition appeared. Several new illustrations, mostly taken from Schimper's "Plant Geography," have been introduced.

This is an excellent account of plant physiology for its size. A few criticisms, however, suggest themselves. Through an attempt to crowd too much into a small space, inadequacy, if not inaccuracy, has sometimes resulted. For example, in the discussion on the cause of the ascent of the transpiration current, the evidence for the theories based on "the cooperation of the living cells" and "the cohesive force of water" respectively is slurred over in a dozen lines, and twice as much space is devoted to dismissing "capillarity" and "atmospheric pressure," which, all admit, are quite insufficient as causes.

It seems a pity that the idea embodied in the term "circulation of nitrogen" has not been given prominence. Recent results tending to bridge over the gap between the taking in of CO_2 and the appearance of carbohydrates in assimilation are not mentioned.

The paragraph on hybridisation has been enriched by a short account of Mendelism. It has not been made sufficiently clear that the Mendelian proportions 2:1:1, &c., are only approximated to when large numbers are dealt with, and are dependent on the laws of chance. A slight inaccuracy in statement occurs in the last few lines of p. 314. It is not 50 per cent. of the serrate leaved individuals, but of the whole second generation, which are of hybrid nature. These 50 per cent. exhibit the dominant serrate character.

The greater part of the special botany has been re-written. The order of treatment is, as in the previous edition, from the lowest to the highest forms. Most of the sections on the Thallophytes have been enlarged and altered, and two extra classes have been added by the separation of the Heterocontæ from the green algæ and the division of the fungi into the

classes Phycomycetes and Eumycetes. Numerous excellent new illustrations have been included which greatly add to the value of this part of the book. Particularly noticeable are several new figures of the behaviour of nuclei in the reproductive phenomena of the fungi. The Rhodophyceæ do not seem to have received enough attention compared with the other groups.

Amongst the Archegoniatae the mosses are little altered. The classification of the ferns has been rearranged, and there are several new figures.

The remainder of the book, devoted to Phanerogams, has been completely re-written and re-illustrated. In the introduction to this part there is a very useful comparative table of the "Alternation of Generations." The treatment of the Gymnosperms, and especially of the Cycads, is distinctly good. In the Angiosperms, after a general description of each family, an account of some important genera of the family is given, the official plants of the British Pharmacopœia being noted in each case. This part of the book is very copiously and excellently illustrated, a large number of the figures being coloured. The colouring leaves something to be desired in several cases, but is much improved from the second English edition.

Throughout the work the arrangement and division into paragraphs is such as to secure the utmost degree of clearness. In each paragraph a leading idea is printed in larger type, so that it impresses itself on the memory, and serves as a centre round which the subsidiary ideas may be grouped. The usefulness of this is perhaps most noticeable in the part on physiology.

There are very few misprints. The only one worth noticing is on p. 280, line 41, where "heliotropism" should, of course, have been "geotropism."

The translator has been most successful in his work, the book reading as though originally written in English. In spite of the criticisms offered on a few points, this is one of the best, if not the best, text-book extant.

L. B. S.

FOREST ENTOMOLOGY.

Forest Entomology. By A. T. Gillanders. Pp. 422+xxii; 348 figures. (Edinburgh and London: Wm. Blackwood and Sons, 1908.) Price 15s. net.

MR. GILLANDERS, who is woods manager to His Grace the Duke of Northumberland, has produced a useful book for beginners in his "Forest Entomology." "The main feature which is attempted," we are told in the preface, "is recognition of the insect from the damage, together with systematic characters and life-history details." The first-named ideal has been well carried out, the figures given from photographs of the damage done being a great help to the practical forester and novice of forest entomology; we much regret, however, to see that the insects which cause the damage are frequently not shown at all.

The introduction, of eighteen pages, deals briefly with classification, metamorphosis, and structure.