We recommend the book as valuable to the student of physics and engineering, but as especially valuable to the student of pure mathematics, and as a book that will be useful to all teachers of the infinitesimal calculus.

W. F. Osgood.

Harvard University, 26 April 1898.

*A Text-Book of Botany.* By Dr. E. Strasburger, Dr. Fritz Noll, Dr. H. Schenck and Dr. A. F. W. Schimper; translated by H. C. Porter, Ph.D. London and New York, Macmillan & Co. With 594 illustrations, in part colored. 8vo. Pp. x + 632. $4.50.

In 1894 the 'Bonn Text-Book' appeared from the hand of the brilliant German botanist Strasburger, with the assistance of three of his collaborators. In this volume Strasburger prepared the chapter on external and internal morphology (132 pp.), Noll the chapter on physiology (125 pp.), Schenck that relating to cryptogams (104 pp.) and Schimper that on phanerogams (264 pp.). The success of this volume was so great that in but little more than a year a second edition was brought out, with some new matter and additional illustrations. About a year ago the welcome announcement was made that Dr. Porter, of the University of Pennsylvania, was bringing out a translation of this second edition, but its appearance has been much delayed, and the volume was not issued until early in April of the present year. The length of this delay is indicated by the date of the translator's preface, February, 1896, and accounts for the fact that some important additions to botanical science are not noticed in this otherwise very modern book. There is no reference to Harper's proof of the fecundation in the Erysipheæ, nor to the discovery of antherozoids in lower gymnosperms.

The volume in its German dress is so well known to botanists that it is quite needless to speak of its merits. Perhaps no man living is better prepared than Dr. Strasburger to undertake the presentation of the portion of the work which deals with the internal morphology of plants. Certainly no man has a better knowledge of the structure of the cell, and the many changes which it undergoes in constitution and form. This book, unlike many other text-books, is, in this chapter at least, authoritative.

The translation is good, and the publishers have spared no pains to make the type and printing all that could be desired, these being far more pleasant to the eye in the translation than in the original. The colored figures, also, are somewhat improved by a softening of the rather bright colors of the German editions.

The publishers announce an early issue of this work in two volumes, of about 300 pages each, to be sold separately, volume I. containing Strasburger's chapter on Morphology, and Noll's on Physiology, and volume II., Schenck's Cryptogams and Schimper's Phanerogams. This will be a great improvement, since it will enable the student of morphology and physiology to supply himself with the part relating to these subjects at much less expense.

Charles E. Bessey.

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*SCIENTIFIC JOURNALS.*

*Journal of Physical Chemistry*, April. 'Study of a three-component System:' by Hector R. Carveth. A study of the freezing-points of lithium, sodium and potassium nitrate mixtures and their classification and interpretation according to the Phase Rule. The suggestion is made of the possibility of applying the freezing-point method to the analysis of mixtures of inorganic salts. 'Note on Thermal Equilibrium in Electrolysis:' by D. Tommasi. The effect of the simultaneous action of an oxidizing and a reducing agent upon a substance capable of being oxidized or reduced. A mixture of electrolytic hydrogen and oxygen was allowed to act on various substances, as nitric acid, potassium chlorate, etc. The laws are deduced that when a substance is submitted to two equal and contrary chemical actions the reaction which evolves the most heat will take place in preference, provided always it can begin; and of two chemical reactions that one which requires less heat to start it will always take place in preference, even though it evolves less heat than the other reaction. 'Benzene, Acetic Acid and Water:' by John Waddell. An investigation of the distribution ratio of acetic acid in benzene and water as solvents.