ornamental purposes, but for the real illustration of the text. The book is well printed and bound and with no undue share of typographical errors.

While the different topics discussed in this work have been treated in more or less detail in official reports and in special articles, Dr. Ries's book will be welcomed by all interested in the subject of clays, as being certainly the most comprehensive and evenly balanced, if not the only, presentation of the subject as a whole that we have. And though written primarily for American geologists, chemists, and engineers, the introductory part, being of a general nature, should be equally useful to men of all nationalities.

EUGENE A. SMITH
UNIVERSITY OF ALABAMA

Biochemie der Pflanzen. Bd. II. By FRIEDRICH CZAPEK, Ph.D., M.D. Gustav Fischer in Jena. 1905. Pp. xii + 1027.

The second volume of this important work on the chemistry of plants has fully sustained the high expectations excited by the first volume. In something over a thousand pages, the author brings his account down to the state of our knowledge as it existed in June, 1905. It is impossible in the space available for this purpose to give more than a most meager outline of the contents of this volume of this truly great work. A general discussion of the biochemistry of plant albuminoids is followed by a treatment in some detail of the phenomena connected with this class of bodies as seen in the physiological processes of various groups of plants from bacteria to phanerogams, and as seen in the various organs and structures of these plants.

The second large division deals with the nitrogen-containing end products of plant metabolism. The discussion is one of rare interest, especially as dealing with the chemical physiology of hydrocyanic acid and with the plant alkaloids. We have had chemical discussions and botanical discussions on these subjects, but the author has here succeeded in making the facts of either category illuminate those of the other, an observation that applies to a remarkable degree to all parts of the book.

The chapters on the physiology and chemistry of the relation of plants and plant products to oxygen is succeeded by a treatment of the part played by ash constituents in plant metabolism in its widest relations. A chapter of unusual interest on the chemical aspects of plant irritability concludes the body of the work.

It would be hard to speak in too high praise of this work. It comes into a place in botanical literature that has never been filled heretofore, and as the drift of plant study in recent years has been strongly in this direction, the need of such a work has been more and more keenly felt. This book will go on to the same shelf of indispensables on which Pfeffer's 'Physiology,' Goebel's 'Organography' and Haberlandt's 'Anatomy' are to be found.

It is to be strongly hoped that the author may find opportunity from time to time to revise the work as the progress of science makes necessary, and thus provide investigators with a ready means of keeping in close touch with the progress of physiology. The author gives evidence of a desire to do this by providing in an appendix references to literature appearing after the body of the work was completed.

This book should be translated into English, and that at an early date.

R. H. TRUE

SCIENTIFIC JOURNALS AND ARTICLES

The American Naturalist for May opens with an article by Herbert W. Rand on 'The Functions of the Spiracle of the Skate,' the conclusion being that it serves chiefly as an in-take for the respiratory stream, and that the reversal of the stream, or spouting, may serve to clear out the gill chambers and be analogous to taking a deep breath. F. H. Pike presents 'A Critical and Statistical Study of the Determination of Sex, Particularly in Human Offspring.' Among the conclusions are that in man there is a slight excess in the number of male offspring; that sex determination probably occurs before the fertilization of the ovum and that sex is