

materials, methods, equipment and zoological books, these latter chapters having a direct positive practical character just such as the inquiring teacher must need. In the discussion of the relation of school courses in zoology to college entrance credits in that subject the author argues for an entrance option in zoology, which indeed is wise, since under educational conditions in this country it is well-nigh impossible to secure proper time and attention to a subject in the high school unless it can be counted for college entrance. The author makes the welcome announcement that such an option is being formulated by an authoritative committee, and is to be published, probably early in 1905. The final chapter deals with the teaching of human physiology in the high school, which the author thinks should be combined with the instruction in zoology. It is interesting to observe the temperate but firm stand the author takes upon a subject which scientific men can hardly be expected to speak of with patience—the 'scientific temperance' instruction in schools.

The limits of space forbid more than this inadequate account of the parts of this very sane, modern, scientific and quite admirable book. It is indispensable to the teacher of biology, and it will exert great influence upon future biological teaching. W. F. GANONG.

Outlines of Physiological Chemistry. By S. P. BEEBE, Ph.D., and B. H. BUXTON, M.D. New York, The Macmillan Company. 1904. \$1.50.

The title of this work does not correctly describe its contents or define its scope. It contains little physiological chemistry in the ordinary sense of the term. Yet it may prove a very useful handbook as an outline of chemical theories for the use of physiological chemists.

There are many laboratory guides in physiological chemistry now available. These works, however, have in most cases given little space to the theoretical side of the subject. In order, therefore, to repair this deficiency the student must consult the hand-books of physical chemistry and of organic chemistry.

In doing so he is apt to overlook those matters which especially concern him, because of the great mass of unfamiliar ideas with which he meets, and because the writers of such works had not his special needs in view. The work before us aims to meet these special needs. It presents in convenient form so much of chemical theory as is essential to the comprehension of the subject matter and present problems of physiological chemistry.

The first chapter (twenty pages) is devoted to that part of physical chemistry which is of especial importance in physiological chemistry—the theory of solution. It explains briefly and clearly the significance of dissociation, chemical equilibrium, osmotic pressure, why reactions take place, and calculation of chemical formulæ. The succeeding four chapters are devoted to organic chemistry. Structural formulæ of the paraffins, and of the nitrogen and cyclical compounds, are given quite fully, and their significance clearly set forth. In chapter VI. sixty pages are devoted to the proteids, their chemical character, in the light of the preceding chapters, being dwelt upon rather than their reactions as in a laboratory guide. Chapter VII., on enzymes, gives an account of this most important subject, which is not so well generalized as is the treatment of the subject matter of earlier chapters. It even encroaches on the domain of the laboratory guide in giving an enzymatic test for the detection of tyrosin. The eighth and final chapter presents diagrams of Ehrlich's side chain theory, and explains their significance for the phenomena of disease and immunity.

The usefulness of this book would have been enhanced by giving at the end of each chapter a list of the works to which the reader might refer for more detailed information.

The typographical work, which in the presentation of diagrams and structural formulæ is of prime importance, is excellent throughout. YANDELL HENDERSON.

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SCIENTIFIC JOURNALS AND ARTICLES.

THE November Number of the *Journal of Nervous and Mental Disease* opens with an