the same conditions might inhibit the action of the real lines of propagation, whatever they are.

Further investigation is demanded for the elucidation of this interesting problem.

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THE UNIVERSITY OF CHICAGO.

Roscoe-Schorlemmer's Ausführliches Lehrbuch der Chemie. Von JUL. WILH. BRÜHL, Professor an der Universität Heidelberg. Neunter Band, *Die Kohlenwasserstoffe und ihre Derivate oder organische Chemie;* Siebenter Theil. Bearbeitet in gemeinschaft mit EDWARD HJELT und OSSIAN ASCHAN, Professoren an der Universität Helsingfors, O. COHNHEIM, O. EMMERLING und E. VAHLEN, Privatdocenten an der Universitäten Heidelberg, Berlin und Halle, A. S. Braunschweig, Druck und Verlag von Friedrich Viewig und Sohn. 1901.

The present volume, being the seventh volume of 'Organic Chemistry,' and the ninth volume of Roscoe-Schorlemmer's 'Ausführliches Lehrbuch der Chemie,' constitutes the closing volume of this important work. It deals with three distinct topics of physiological chemistry, viz., the 'Chemistry of the Albuminous Bodies and the Constituents of Bile,' written by Dr. O. Cohnheim, of Heidelberg; 'Enzymes,' written by Dr. O. Emmerling, of Charlottenburg; 'Ptomaines and Toxines,' written by Dr. E. Vahlen, of Halle.

The section on proteids covers 331 pages, and is a well-presented statement of facts and theories bearing on the various classes of proteids of physiological interest. It is thoroughly up-to-date, and makes a valuable addition to the list of handbooks which aim to present a systematic account of the chemical nature of this important group of proximate principles.

The section on 'Enzymes' is divided into eight chapters, dealing respectively with enzymes which have a splitting action on monosaccharides, disaccharides, polysaccharides, glucosides, glycerides, etc., while other chapters or subsections deal with oxidizing and reducing enzymes, clotting enzymes, proteolytic enzymes of both animal and vegetable origin, amide-splitting enzymes, etc.

The last section of the book, by Dr. Vahlen, deals with ptomaines and toxines, and constitutes an interesting chapter on the chemistry of these products of bacterial life and growth.

The volume, as a whole, reflects great credit upon the several authors, and will undoubtedly prove of great service as a reference handbook for physiological chemists.

R. H. CHITTENDEN.

History of Geology and Paleontology to the End of the Nineteenth Century. By KARL ALFRED VON ZITTEL. Walter Scott. 1901. 16mo. Pp. xiii + 562.

This work is timely. Lyell's synopsis of views and opinions comes down to barely seventy-five years ago; Whewell's chapters on geology, though nominally covering the period down to 1855, are unsatisfactory at best; d'Archiac's work, too voluminous for the ordinary student, ends with 1859; while nearly all of the other so-called histories are histories, not of the science as a whole, but of separate branches surrounded by a framework of chapters upon other branches. The preparation of a history of geology and paleontology is no longer a simple task, and before many years it will be an almost impossible task, for the several lines of investigation now embraced under the general title of geology are fast becoming wholly independent sciences. One must welcome this history, covering the whole period to the end of the nineteenth century, prepared by one who first attained eminence in geology and afterwards turned with equal success to paleontology.

The introduction of 153 pages reviews the steps by which the science advanced. The synopsis of opinions held by ancient writers is just, with full recognition of their merits, yet showing their defects in such manner that no excuse remains for regarding the Greek philosophers as gifted beyond modern students. One hundred pages are devoted to the 'heroic age,' 1790 to 1820, in which one finds appreciative discussions of the doctrines presented by Werner, Hutton, Playfair, Humboldt, Kant and the rest, which, too often, have received either unstinted praise or unstinted censure.

The story since 1820 is told briefly, as that is given in detail beyond.

The main portion of the work contains chapters on cosmical, physiographical, dynamical and stratigraphical geology, petrography and paleontology, which are not mere narratives, not mere synopses of individual contributions: they are true histories; the opinions of investigators are given, their value discussed and their bearing upon the advancement of the science determined. The reader may detect here and there evidence of positive bias, or he may feel that the decision is inexact, but in every instance he must recognize the author's effort to maintain a judicial attitude—and it may be said that the effort has been so far successful as to place the work in a class by itself.

The statement has been made frequently that Germans are inclined to ignore the work of English-speaking peoples, but there is no trace of any such inclination in this work. Professor Zittel has been a faithful student of British and American contributions, and the references to such titles compare in number very favorably with those to works in German or French. This history will prove more than serviceable to the geologist who finds the daily accumulation of literature bearing upon his own immediate line of work so burdensome as to prevent him from keeping track of advance along other lines.

Mrs. Ogilvie-Gordon, the translator, has done her work well, for hardly a trace of German idioms remains. The text is enriched with brief biographical notices of deceased geologists and with thirteen portraits. The index of authors is complete and in a measure replaces the bibliography, which the British publisher felt compelled to omit. The index of subjects is less satisfactory, being much too brief.

John J. Stevenson.

SCIENTIFIC JOURNALS AND ARTICLES.

The April number (Vol. III., No 2) of the *Transactions of the American Mathematical Society* contains the following papers: 'On the Small Divisors in the Lunar Theory,' by E. W. Brown; 'On the Holomorphisms of a Group,' by J. W. Young; 'A Simple Non-Desarguesian Plane Geometry,' by F. R. Moulton; 'On the Real Solutions of Two Linear Homogeneous Differential Equations of the First Order,' by M. Bôcher; 'On a Recent Method for Dealing with the Intersections of Plane Curves,' by C. A. Scott; 'A Complete Set of Postulates for the Theory of Absolute Continuous Magnitude,' by E. V. Huntington; 'Complete Sets of Postulates for the Theories of Positive Integral and of Positive Rational Numbers,' by E. V. Huntington.

The April number (Vol. VIII., No. 7) of the *Bulletin of the American Mathematical Society* contains the following articles: 'The February Meeting of the American Mathematical Society,' by E. Kasner; 'Note on the Transformation of a Group into its Canonical Form,' by S. E. Slocum; 'Some Applications of Green's Theorem in One Dimension,' by O. Dunkel; 'On the Forms of Quintic Scrolls,' by V. Snyder; 'Simplified Definition of a Group,' by E. V. Huntington; 'Note on Isotropic Congruences,' by L. P. Eisenhart; 'Kronecker's Lectures on the Theory of Numbers,' by G. A. Miller; 'Notes' and 'New Publications.'

The *Botanical Gazette* for March contains the following: Professor Frederick C. Newcombe, of the University of Michigan, publishes the first instalment of a paper upon the 'Geotropism of Roots,' the result of a number of years of investigation. His results will be noted upon the completion of the paper. Miss Alice Eastwood, of the California Academy of Sciences, continues her descriptions of an interesting collection of plants from Nome City, Alaska, describing several new species and completing descriptions of many species already poorly known. John Gallatin Hall has published some interesting results of an embryological study of *Limnocharis emarginata,* a South American member of the Alismaceæ. Some of the interesting features are as follows: The tapetal cell of the ovule is cut off, but no division wall is formed, the cell disappearing early; the antipodal cell following the first division of the megaspore nucleus remains undivided, so that there is no antip-