Book Reviews

Introduction to historical geology. Raymond Cecil Moore. New York-London: McGraw-Hill, 1949. Pp. ix + 582. (Illustrated.) $5.00.

This new book bids fair to become one of the leading textbooks in the country for beginning college courses. It is an authoritative treatment of historical geology by a leading student of stratigraphy and paleontology, and a teacher of more than thirty years' experience.

The facts of historical geology are presented concisely and clearly, by means of lucid text, large and beautiful illustrations, diagrams, correlation tables, areal and paleogeographic maps on facing pages, and many figures of fossils and restorations of landscapes and both vertebrate and invertebrate animals.

The book is well suited to beginning classes in geology, and the correlation tables and areal and paleogeographic maps make it useful for more advanced students of the stratigraphy of North America. Students use their texts in historical geology in identifying the fossils they collect on geological excursions. It would be better, the reviewer thinks, if the names of species had been given so that the figures could be used for specific as well as for generic identification.

Dr. Moore's book is fully equal, in the reviewer's estimation, to any textbook in historical geology now being used in this country. It is logically written, adequately illustrated, and is authoritative, accurate and up to date.

J. J. GALLOWAY

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Elastomers and plastomers: their chemistry, physics and technology. (Vol. III.) ***Testing and analysis; tabulation of properties.*** R. Houwink. (Ed.) New York: Elsevier Publ., 1948. Pp. 174. (Illustrated.) $4.50.

This third volume of the series edited by Hermans, Houwink, and Martin is essentially devoted to methods of analysis and testing and to a presentation of numerical data on the mechanical, electrical, optical, and thermal properties of high polymers. This is a very important subject and a book on it is a welcome addition to the scientific literature in this field.

J. H. Teeple describes in about sixty pages the modern methods of plastics and rubber testing in a comprehensive, clear, and up-to-date manner, using a large number of well-selected figures and tables. A. G. Epprecht follows with a chapter on chemical analysis, which will be particularly interesting for American readers because it contains many European methods which are not as yet too well known in this country. A chapter by B. B. S. T. Boonstra on properties of elastomers gives additional information on these important materials, and the fifth chapter of J. W. F. Van't Wout and R. Houwink completes the volume by discussing the properties of plastics.

It is evident that books of this character are very valuable and necessary for chemists and physicists interested in this rapidly expanding field, and Dr. Houwink's series is contributing a great deal to the dissemination of factual knowledge and current ideas.

H. MARK

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Foundations of nuclear physics: facsimiles of thirteen original studies. Robert T. Beyer. (Ed.) New York 19, N. Y.: Dover Publ., 1949. Pp. 272. (Illustrated.) $2.95.

The use of original papers as a teaching device has been recognized in the natural sciences ever since Wilhelm Ostwald first reprinted a series of classics in the natural sciences. However, most of these papers were concerned with developments in days gone by, and only a few volumes in this series (in German) are devoted to modern developments (such as the volume on Brownian motion, which contains the famous papers by Einstein and Smoluchowski). The present volume presents a particularly interesting collection of thirteen of the fundamental studies in nuclear physics as they were originally reported in scientific journals. Everybody will agree with Professor Beyer as to the importance of the various papers. All of them had a profound influence on the development of nuclear physics and they cover a wide range of interests, from simple experimental descriptions to some rather difficult theoretical developments such as, for instance, Fermi's theory of β-decay and the theory of the interaction of elementary particles by Yukawa.

Of the classical papers on radioactivity, Rutherford's papers on the scattering of alpha particles and on artificial nuclear disintegration are included. The other papers are of the period when modern techniques made the discovery of new particles possible and wave mechanics gave the interpretation of their interaction with matter.

One may regret that Fermi's detailed paper from the *Proceedings of the Royal Society* has not been reprinted; also that the paper of the Joliots in the *Journal de Physique* has not been given instead of the short note in *Comptes Rendus*. We hope that a future edition will contain the brief note by Frisch and Meitner on fission. For the sake of the student one might wish that papers were accompanied by a commentary, because the beginner will find it necessary to have proper guidance if he wants to study this material by himself.

The bibliography, which covers such chapters as isotopes and mass measurements, hyperfine structures, nuclear moments and spin, scattering and collision processes, disintegration processes, radioactivity, beta radiation, gamma radiation and neutrons, the theory of nuclear structure, theory of disintegration processes,

nuclear fission, and finally a chapter on methods and apparatus, will be useful to the beginner as well as the research worker and teacher who wants a handy classified list of sources.

KARL LARK-HOROVITZ

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Advances in catalysis and related subjects. W. G. Frankenburg, V. I. Komarewsky, and E. K. Rideal. (Eds.) New York: Academic Press, 1948. Pp. viii + 321. (Illustrated.) $7.80.

This book is a collection of the following eight articles: "The Heterogeneity of Catalyst Surfaces for Chemisorption," by Hugh S. Taylor; "Alkylation of Isoparaffins," by V. N. Ipatieff and Louis Schmerling; "Surface Area Measurements. A New Tool for Studying Contact Catalysts," by P. H. Emmett; "The Geometrical Factor in Catalysis," by R. H. Griffith; "The Fischer-Tropsch and Related Processes for Synthesis of Hydrocarbons by Hydrogenation of Carbon Monoxide," by H. H. Storch; "The Catalytic Activation of Hydrogen," by D. D. Eley; "Isomerization of Alkanes," by Herman Pines; and "The Application of X-Ray Diffraction to the Study of Solid Catalysts," by M. H. Jellinek and I. Fankuchen.

All of the articles will be read with much interest. However, the time has not yet arrived when one specifies exact mechanisms for most catalyst reactions. Taylor presents interesting data which indicate hydrogen is chemisorbed on nickel-chromia catalysts, for example, in two different ways—one at a temperature below −78° C and the other above 0° C. He succeeds in adducing much evidence to show the nonuniformity of chemisorption on various surfaces. The other authors likewise provide much new information. Every chapter is written by a specialist in the particular field and the contents are accurately indicated by the titles. A person concerned with catalysis should certainly consult this book.

HENRY EYRING

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Detailed atlas of the head and neck. Raymond C. Truex and Carl E. Kellner. New York: Oxford Univ. Press, 1948. Pp. xiii + 162. $15.00.

We find in this atlas an unusually complete coverage of the anatomy of the head and neck. Some eighty of the figures are of dissections and thirty of frontal or transverse sections. In all but a few plates of the skull and vertebrae, the artist has been painstaking and successful in representing by line and shade the finer structure of organs and the texture of tissues. Blood vessels and nerves are in colors. The figures are large, some of them over life size.

An atlas, a chart, or a model may lose much of its value by faulty labeling. This feature has been given careful consideration. Labels are abundant and this abundance is reflected in the extent of the index. The special problem of labeling the closely packed structures of some sections of the head is met by repeating the central part of the plate on the opposite page.

In any atlas that faithfully records anatomical preparations there are inevitable variations from the more usual anatomy. These misleading features are usually passed over in silence. Here they are commented on in the explanatory paragraphs accompanying the plates.

The volume will serve as a highly valuable addition to the working equipment of certain clinical specialists and anatomists. Its contents are too extensive for daily use by the first-year student but it should be made available to him for reference.

JOHN J. SHEININ

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Scientific Book Register

BENEDICT, MANSON, and WILLIAMS, CLARKE. (Eds.) *Engineering developments in the gaseous diffusion process.* New York: McGraw-Hill, 1949. Pp. xx + 129. (Illustrated.) $1.25.

BENT, ARTHUR CLEVELAND. *Life histories of North American thrushes, kinglets, and their allies.* (U. S. National Museum Bull. 196.) Washington, D. C.: Supt. of Documents, U. S. Govt. Prntng. Office, 1949. Pp. viii + 454. (Illustrated.) $1.50.

BURSTEIN, CHARLES L. *Fundamental considerations in anesthesia.* New York: Macmillan, 1949. Pp. x + 153. (Illustrated.) $4.00.

DAVIES, OWEN L. (Ed.) *Statistical methods in research and production: with special reference to the chemical industry.* (2nd ed., rev.) New York (3): Stechert-Hafner; London and Edinburgh: Oliver & Boyd, 1949. Pp. xi + 292. 28/–.

EDGELL, GEORGE HAROLD. *The bee hunter.* Cambridge, Mass.: Harvard Univ. Press, 1949. Pp. 49. (Illustrated.) $2.50.

EDMONDSON, CHARLES HOWARD. *Seashore treasures.* Palo Alto, Calif.: Pacific Books, 1949. (Illustrated.) Pp. 144. $3.50.

GRASSE, PIERRE-P. (Ed.) *Traité de Zoologie: Anatomie, Systématique, Biologie: Onychophores, Tardigrades, Arthropodes, Trilobitomorphes, Chélicérates.* (Tome VI). Paris (VIe): Masson et Cie, 1949. Pp. 979. (Illustrated.) 5000 fr.

WENTZEL, GREGOR. *Quantum theory of fields.* (Translated from the German by Charlotte Houtermans and J. M. Jauch.) New York, London: Interscience, 1949. Pp. ix + 224. $6.00.

WISLER, C. O. and BRATER, E. F. *Hydrology.* New York: John Wiley, 1949. Pp. xi + 419. (Illustrated.) $6.00.