most grateful remembrance and will sadly mourn his loss.

The following details of his life are taken from one of the newspaper notices of his death. He was a son of Karl Zittel, the leader of the Clerical Liberals in Baden, and was born at Bahlingen, near Freiburg, on September 25, 1839. He studied at Heidelberg, Paris and Vienna. After serving as assistant in the Hofmineralien-Kabinet in Vienna, he was appointed professor of mineralogy at Karlsruhe, and in 1866 he assumed the same professorship in Munich, where he also became director of the Paleontological Staatsmuseum. The great scientific value of the Rohlf expedition to the Libyan desert in 1873–74 was owing chiefly to his participation in it. He wrote a book on the expedition; another on the Sahara, and many treatises on geological and paleontological subjects. In 1899 he published his 'Geschichte der Geologie und Palæontologie'—an important work carrying the subjects to the end of the nineteenth century. He was editor of the periodical *Palæontographica*. He was present at the opening of the Northern Pacific Railroad in August and September, 1883. It may be added that he had been in delicate health for some years. His death was unfortunately hastened by his being struck by a bicyclist, causing a serious injury to his knee and a long and debilitating confinement.

He traveled extensively. Aside from the special journey to the United States in connection with the Northern Pacific Railroad, he came here again in connection with the meeting of the International Geological Congress, visiting all the American museums and studying the great collections with most intense interest. At the meeting of the Geological Congress in Paris in 1900, Professor von Zittel received the honors to which he was so richly entitled, frequently presiding over the paleontological and geological sections.

Henry Fairfield Osborn.

SCIENTIFIC BOOKS.

The Moth Book. A Popular Guide to a Knowledge of the Moths of North America. By W. J. Holland. New York, Doubleday, Page & Company, 1903. Pp. xxiv + 479. Forty-eight plates in color photography and numerous illustrations in the text.

All persons interested in the study of Lepidoptera, including hundreds of amateur collectors, have anxiously been awaiting the publication of Dr. Holland's 'Moth Book,' which was promised five years ago in the introduction to his well-known and very useful 'Butterfly Book.' The volume has now appeared, and will be a delight to collectors and will greatly facilitate their attempts to determine their specimens, and will no doubt induce many others to take up the study of these beautiful and interesting insects. In his 'Butterfly Book' Dr. Holland had a restricted group of comparatively few species, and was able to illustrate or describe practically every species known to occur within the limits of the United States. The task of producing a serviceable moth book has been much more difficult. To illustrate and describe all of the thousands of species of moths of this country would require the publication of several volumes. Therefore, an effort has been made to select those species which adequately represent the various families and the commoner and more important genera, thus providing a work which will serve as an introduction to the study. The selection has been admirable. The 48 colored plates illustrate with beautiful accuracy more than 1,500 species, and all through the text are illustrated other species to the number of more than 250. Dr. Holland adopts in the main the classification of Sir George Hampson, and uses 43 family names. In nomenclature he wisely follows, for the most part, Dr. Dyar's list of the Lepidoptera of the United States, and has conformed the text of his volume to Dr. Dyar's serial arrangement. Dr. Holland differs, as he says, from Dr. Dyar

in his views as to the position which should be held in relation to each other of a number of genera, but as Dyar's list is certain for many years to come to be used largely by American students in arranging their collections, he has thought best to follow it. As in the 'Butterfly Book,' the 'Moth Book' contains a number of digressions and quotations. The quotations are extremely apt, and the digressions are extremely readable.

Dr. Holland's literary style is charming, and his cosmopolitan training and wide range of information lend interest and value to every line of the digressions. The one entitled 'Walking as a Fine Art' deserves a place in literature as well as in a treatise on hygiene. The book is by no means confined to descriptive matter of the species treated. Statements concerning the habits and the life histories are scattered through the pages, and much sound information of a practical economic character accompanies the accounts of many of the injurious species. The general chapters on the life history and anatomy of moths, and on the capture, preparation and preservation of specimens, contain all the information that is necessary, and in the chapter entitled 'Books about the Moths of North America' the author has given a competent bibliography for the use of students who wish to go further into the subject. The index is very full.

As a bit of book-making, the volume is a handsome one. Some of the text figures suffer in the printing on account of the character of the paper used, but this is by no means a serious blemish.

Dr. Holland is to be congratulated on the completion of this very attractive and useful work, and the number of collectors and students is sure to be increased rapidly as the result of its publication. L. O. HOWARD.

Allgemeine Physiologie. Ein Grundriss der Lehre vom Leben. By MAX VERWORN. Fourth Edition, revised. Jena, G. Fischer. 1903. Pp. 652; illustrations 300.

The favor with which this work is still regarded is evinced by the fact that the fourth edition is now called for within nine years of the book's first appearance. The author has made in it less radical changes than in previous editions. Those portions which have received the most considerable alterations are the section on 'Physical World and Mind,' which has been rewritten and enlarged, and endeavors to present more clearly than before the author's psychomonistic conception; the section on 'Enzymes and Their Mode of Action,' which has again been rewritten, largely for the purpose of showing the analogy between ferment actions and the catalytic actions of inorganic chemistry; and the section on 'Growth as the Fundamental Phenomenon of Change of Form,' which has been revised and extended by Professor Rhumbler, and contains the latest conclusions of that well-known investigator, with figures and discussions of Rhumbler's and Heidenhain's models of the dividing cell. In the revision of the chemical portions of the book the author has had the counsel of Professor von Baeyer, of Munich, and Dr. Coehn, of Göttingen, and the alterations, though not great, represent improvements.

Engelmann's law of complementary chromatic adaptation is cited, according to which the color of an organism becomes more and more complementary to that of colored light to which the organism is subjected. Macfadyen's observations are summarized on the resistance of bacteria to extreme cold, and Regnard's observations of the temporary cessation of vital activity in a large variety of organisms subjected for not too long a time to great pressure. Wallengren's demonstrations are quoted of anodic, kathodic and transverse galvanotaxis in the same organism by the application, to the same spot, of polar stimuli of different intensities. Many other recent discoveries are cited; but with the multiplicity of present investigations in general physiology one naturally finds many important omissions. By judicious excisions and condensations of the previous text the enlargement of the book, caused by the additions and a much-needed revision of the index, is limited to twenty-one pages.

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