

was pursuing. Then follows the well-known and now classical study by Ricketts on "Oidiomycosis of the Skin," and an important contribution by Benjamin F. Davis on "The Immunological Reactions of Oidiomycosis in the Guinea Pig," a work which grew out of and is partly based upon the observations of Ricketts. One is then reminded, by several articles, that Ricketts made important contributions in the field of immunity, in studies on lymphotoxic and neurotoxic sera, and on tetanus.

The main portion of the volume consists of the remarkable series of papers on Rocky Mountain fever, in which is found the history of the various steps which led to the unravelling of the mysteries of this disease. Some unfinished studies relating to the mode of transmission of the disease were taken up by Davis, Petersen, Moore and Maver, and their reports follow. LeCount contributes, with many illustrations, a report on the pathological anatomy of the disease based on the material collected in six autopsies performed by Ricketts. Finally come the preliminary reports of Ricketts and his colleague Wilder of their studies on Mexican typhus, in which they were able to show that the disease is communicable to monkeys, that it is transmitted by an insect, *Pediculus vestimenti*, and finally that it is probably caused by a bacillus which they succeeded in isolating from the blood of typhus patients and from the insects.

The volume appears to us noteworthy in several aspects. The scientific value of its contents, dealing with pioneer research in three important fields and practically covering the entire scope of essential knowledge in two of them, renders the work one of high scientific distinction and fully justifies its existence. The committee may be congratulated in perceiving what a rare opportunity existed of perpetuating the memory of a brief career by the simple record of its own activities.

These collected studies stand as a model of orderly and effective research guided by a keen imagination and scientific enthusiasm. The

volume is a unique testimonial to the genius and energy of one of the most productive of American pathologists.

J. E.

The Geology of Building Stones. By J. ALLEN HOWE. London, Edward Arnold. 1910. Small octavo, pp. viii + 455.

This work, as stated in the editor's preface, is the fourth volume of a series of works treating of economic geology, the compilation being made mainly with a view to the requirements of students of architecture.

The volume contains, in a condensed form, a large amount of information gathered from sources easily recognizable, though foot-notes are lacking and credits given mainly for trifling statements of fact rather than ideas.

The work begins with an introductory chapter which includes a table of strata arranged after the English system. This is followed in order by chapters on the minerals of building stones; igneous rocks; sandstones and grits; limestones (including marble); slates and other fissile rocks. Pages 333-411 inclusive are devoted to discussions of the decay and the testing of building stones. In the reviewer's opinion too much stress is laid upon the latter subject and too little upon the first. No amount of testing by methods now known can compare in value to a study of the conduct of the stone in the quarry bed or in old buildings. Incidentally the statement on page 398, that the present writer made certain corrosion tests, is an error. Credit should be given to Professor J. A. Dodge, of Minneapolis, Minn.¹

Naturally the descriptive portion of the work is devoted largely to English materials, but American and other foreign localities are not wholly overlooked.

As might perhaps be anticipated from the title, the various classes of sedimentary rocks are discussed with reference to their geological horizons. How far such an arrangement of the subject is desirable has always been a question in the reviewer's mind. Unless it

¹ See "Stones for Building and Decoration," third edition, p. 458.

can be shown that stone of the various horizons possess characteristics of their own it would seem that the question of position in the geological scale was wholly of minor importance. Kind, quality and accessibility are the only questions in which the man of affairs is interested or need concern himself.

In the appendices is given a list of the principal quarries, together with a bibliography, the latter confessedly incomplete and containing no reference to the important reports published in America by the geological surveys of Georgia, Maryland, Missouri, New York and North Carolina.

The work represents a laudable attempt to make certain information available to students of architecture. Whether successful or not the future must decide. At present the average architect seemingly contents himself with the purely decorative feature regardless of climate and incidental or consequential durability. Witness the proposed construction of one of the most elaborate ecclesiastical structures in America from one of the cheapest and least durable of natural materials. And this for no other reason than that the elaborate detail of ornamentation, the effect of light and shade, can not be produced in a better stone at what is considered a reasonable outlay of time and money!

GEO. P. MERRILL

Crystallography and Practical Crystal Measurement. By A. E. H. TUTTON, D.Sc., M.A. (Oxon), F.R.S., A.R.C., Vice-president of the Mineralogical Society; Member of the Councils of the Chemical Society, and the British Society for the Advancement of Science. New York, The Macmillan Company; London, Macmillan & Company, Limited. 1911. 8vo. Pp. xiv + 946, 720 figures in the text. \$8.50.

This work aims to present a complete survey of the science of crystallography from the most modern point of view, including both the theory and practise of the study of crystals and their manifold properties. Avoiding the forbiddingly mathematical treatment of his English predecessors in the field the author

has succeeded admirably in giving a living interest to crystallography such as is to be found elsewhere, if at all, only in von Groth's "Physikalische Krystallographie." The method of presentation differs however widely from von Groth's in that theoretical considerations generally follow on detailed descriptions of actual crystallographic investigations drawn from the author's wide experience. These practical details occupy a large part of this large volume and in many respects are its most distinctive and valuable feature. Tutton's work has been remarkable for the careful attention to detail which has rendered his results extraordinarily accurate; and for the completeness of his studies, made chiefly on artificial crystals. So that in the detailed records of measurement and the full description of structure and use of instruments and methods employed we have the best guide-book to actual crystallographic practise which has yet appeared. Concerning the actual measurement of crystal angles little that is new is claimed for the book; and indeed it is much to be regretted that the author treats so slightly the use of the two-circle goniometer. But the descriptions of methods in density, optical, thermal and elasticity investigations form a most welcome contribution to the scanty literature in this domain of peculiar difficulty, and the author speaks here with the authority of an undoubted leader.

The chapters in which are traced out the historical development of the theory of homogeneous crystal structure are particularly well done and are of the greatest interest. The idea of molecular distance ratios is also fully worked out and its application abundantly illustrated.

The illustrations of the book are abundant and good; the crystal drawings almost all new, the figures of instruments very clear wood-engravings and the interference figures reproductions of the author's photographs.

In all respects the work is to be regarded as of unusually high excellence and of the first importance in the field of crystallography.

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