less than a wanton massacre of the innocents. And the helplessness of the individual, even when attended by the best of medical practitioners, in contending alone with the general conditions which play havoc with the health of the most favored people, has convinced every one of knowledge and sense that the maintenance of the public health is a public function. As there is a community of interests at the bottom of the health question, so there must be community of effort.—*The Springfield Republican.*

SCIENTIFIC BOOKS

Rocks and Rock Minerals. A Manual of the Elements of Petrology without the Use of the Microscope. By Louis V. Pirsson. New York, John Wiley and Sons; London, Chapman and Hall. 12mo. Pp. 414, 74 figs., 36 plates.

Few if any petrologists are better qualified by reason of notable attainments in the science, as well as by long experience in teaching it, to write a manual of petrology than is Professor Pirsson, of Yale University, and it is with pleasure that we note the appearance of the book before us. Teachers of petrology will in general, we believe, fully agree with the author's opinion, as expressed in his preface, that there has long been a need for a "small, concise and practical treatise" on petrology in which the subject is dealt with entirely from a megascopic standpoint. Mining engineers and others who have to deal with rocks in a practical way have also felt the urgent need of such a book for purposes of reference. In our opinion the present manual meets this need in a highly satisfactory manner, and its publication marks a distinct advance in the treatment of elementary petrology. A general idea of the scope of the book may be obtained from the table of contents which follows:

Part I., Introductory and General Considerations. Chapter I., Scope of Petrology: Historical Methods of Study; Chapter II., Chemical Character of the Earth's Crust and its Component Minerals.

Part II., Rock Minerals. Chapter III., Important Properties of Minerals; Chapter IV., Description of the Rock-making Minerals; Chapter V., Determination of the Rock-making Minerals.

Part III., The Rocks. Chapter VI., General Petrology of Igneous Rocks; Chapter VII., Description of Igneous Rocks; Chapter VIII., Origin and Classification of Stratified Rocks; Chapter IX., Description of Stratified Rocks; Chapter X., Origin, General Characters and Classification of the Metamorphic Rocks; Chapter XI., Description of the Metamorphic Rocks; Chapter XII., The Determination of Rocks; Index.

The arrangement of the material in the various chapters is admirable throughout, while discussions, descriptions and statements in general are accurate, clear, concise, yet sufficiently complete, and are written in a style which is attractive and easy to read. Chapter IV., dealing with the general petrology of the igneous rocks, seems particularly worthy of notice, since it presents such material of a general character, both practical and theoretical, as is really essential for a clear understanding of igneous rocks, in a manner entirely in keeping with the most recent developments of the science, and yet within the comprehension of those not thoroughly trained in physical chemistry, nor in micro-petrology, a task that is not an easy one. An idea of the contents of this chapter may be gathered from the following topics, which are among those discussed therein: The modes of occurrence of igneous rocks; the chemical composition of magmas and their differentiation; the crystallization of silicate solutions (magmas) and the development of texture in igneous rocks; contact metamorphism; the classification of the igneous rocks.

In regard to the classification mentioned above, a system has been developed entirely consistent with megascopic petrology, all distinctions being based upon differences of texture or of mineral composition that can be made out by the careful study of good hand-specimens with the aid of a pocket lens, and a knife, in some few instances supplemented

by a simple chemical test. The first division is made on the basis of differences of grain (granularity) into three classes. These are divided according as the rock in question is porphyritic or non-porphyritic. Further division is made, chiefly upon differences of mineral composition, into a few broad groups which are designated by familiar rock names (granite, diorite, etc.) firmly fixed in petrological literature by long usage. The more important varieties falling under these various groups or kinds of rock, but which for microscopical or other reasons have received special names from petrographers, are referred to in appropriate places, so that the significance of such names when encountered can be easily found by reference to the book. Among the names adopted for the rock groups, it may be noted that *dolerite* has been retained, very wisely it seems, to designate those granular, igneous rocks, with predominant ferro-magnesian minerals but in which it is not possible to tell positively just what ferro-magnesian mineral is present. This group will therefore include much that is commonly referred to as diabase. *Felsite* (resp. felsite-porphyry) is used for those nearly or entirely dense rocks, light in color, and generally highly feldspathic in character, while basalt (resp. basalt-porphyry) covers those dense, dark-colored, igneous rocks, for the most part ferro-magnesian in character. It will be noted that both of these terms, felsite and basalt, have been given a broader meaning than is customary in books covering a somewhat similar field. For example, dacites and most andesites fall under the head of felsite. Directions, however, for recognizing such varieties when it is possible to do so macroscopically, are given. The classification is summarized in a convenient table on page 202.

While some teachers will doubtless wish to make some minor additions to the scheme of classification in their class-room work, the scheme as a whole appears so sane, simple and practical that it can not fail to meet with general approval, and it is to be hoped that it will also come shortly into general use. In such an event it would be a strong influence toward uniformity and simplicity of practise among field workers in geology and petrology.

In Chapter VII. we find the descriptions of individual kinds of rock treated under such appropriate headings as: Mineral Composition; General Properties; Chemical Composition (the latter illustrated by a few well-chosen analyses); Occurrence and Alteration. Thus while the descriptions furnish one with data useful for the recognition of the rock in the field or laboratory, they also furnish in a most satisfactory manner what might be termed the Natural History of the rock.

With so excellent a manual available as a basis for petrological study it is to be hoped that it may be substituted for the dry and generally uninteresting lecturing so common in petrological laboratories, as well as for the too numerous laboratory guides and notes of inferior quality, and thus promote a general improvement in petrological teaching.

In conclusion it may be said that the book is conspicuous by reason of its typographical excellence and for the superior quality of the illustrations which admirably illustrate the text.

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Die Pendulationstheorie. Von Dr. HEINRICH SIMROTH, Professor an der Universität Leipzig. Octavo, S. 564, Karten 27. Leipzig, Konrad Grethlein's Verlag, 1907. Pr. brosch, M. 12.

Theories of polar pendulation, based on geological or geographical considerations, have been proposed independently in the past few years by two investigators, one[1] an engineer, another[2] a geologist. To Professor Simroth alone among biologists, however, does the idea seem to have appealed as worthy of attention for its possible value in explaining the facts of zoogeography.

[1] Paul Reibisch, "Ein Gestaltungsprinzip der Erde," 27 *Jahresber. Ver. f. Erdk. zu Dresden*, 1901, S. 105–124. II., *ibid.*, 1905, S. 39–53, 2 Karten.

[2] D. Kreichgaur, "Die Aquatorfrage in der Geologie," Steyl, 1902.