we conceive of this relation? In cognition an obvious distinction of subject and object is presupposed. But their complete incomparability is denied, and their actual unification in some form is affirmed (p. 206). This unification can take place 'only if the conception of one of the two—either of thing or of self—can be so extended in a valid way as to provide an explanation for the other, and for the relation of knowledge between the two' (p. 216). The concept of the Self, the author finds, is alone capable of such extension. It furnishes the key or interpretation to all that we know about things. That is, it is only when things are conceived as in some sort analogous to the Self that they can be known at all. Our knowledge of the Self is direct and intuitive and has the highest degree of certainty. Indeed, it is because we fail to attain the same perfection in knowing, when dealing with things, that we become dissatisfied with the limits, etc., of our knowledge (p. 252). The author's doctrine on the nature of our knowledge of the Self requires further elaboration to render it perfectly clear. He seems, however, to believe that we here get beyond the antithesis of subject and object, and are, in a sense, face to face with reality. He himself sums up his chapter on the knowledge of Things and of Self as follows: "While the knowledge of Self may attain an intuitive penetration to the heart of reality, the knowledge of things remains an analogical interpretation of their apparent behavior into terms of a real nature corresponding, in important characteristics, to our own" (p. 226).

This conception of the Self as the central point of knowledge determines, to a very important extent, the character of the discussions which follow. The meaning of Identity and Difference and of the principle of Sufficient Reason are found in the nature of the Self. And, similarly, the author's conclusions regarding the teleological character of knowledge, and the necessity of employing teleology to understand completely the nature of things, follows directly from the doctrine that knowing is an interpretation of things by the Self in the light of what it knows about its own nature. The author's discussion of Experience and the Transcendent (Chap. xi.) is extremely interesting. We cannot, he argues, know anything that is not somehow implicate in our experience. But every experience implies the existence of conditions which transcend it as mere fact. Hence to know is just to reach beyond the mere factual aspect of experience to its underlying conditions (pp. 325–35).

The theory of reality outlined in the present volume shows marked traces of the influence of Lotze. No meaning can be given to the concept of related things "unless things are conceived of as self-active beings, with their various modes of behavior interdependent and yet united under a framework, so to speak, of immanent ideas" (p. 360). In the same way, the relation between the individual and the ground of reality is conceived as a relation of minds or selves. "Human cognition is all to be understood as a species of intercourse between minds. In all man's knowledge the real being of the finite Self is in actual commerce with the absolute Self. The relation of an intercourse between Selves is the one fundamental and permanent conception under which may be truthfully included all the particular forms of relation of which we have experience in the development of the life of cognition" (p. 558).

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Elementary Geology. By RALPH S. TARR, B. S., F. G. S. A., Professor of Dynamic Geology and Physical Geography at Cornell University. New York, The Macmillan Company. 1897. Price, $1.40.

Occasion for the publication of another elementary text-book on geology, in addition to the number of good works previously available, is found in the 'need of a geology in which more stress is placed upon the dynamic aspect of the subject than is commonly given.' It is the author's opinion that stratigraphic geology —that is, as the term is used in this work, the history of the earth's development—contains too much abstract fact for the average high school student, whereas structural and dynamic geology, which treat respectively of the materials composing the earth's mass and the forces affecting it, may be presented in simpler form. "Here the body of fact necessary for

elementary understanding is not so great nor so difficult to grasp. The teachings of these truths of geology are illustrated on every hand, and in fact some of them are already familiar to the pupil before he enters upon the study. They deal with phenomena in the midst of which we dwell, and hence should become a part of the mental possessions of every high school pupil." The second reason for putting forth the book is to furnish a companion and adjunct to the 'Elementary Physical Geography,' by the same author.

There is much to be said for the view that in teaching geology a beginning can best be made with the study of the materials of the earth and the forces which modify it. Such a method transforms the study by substituting observation of our environment for book learning of past conditions. As the tendency of modern geologic interpretation is to seek in the records of the past for the effects of causes now operative, such a method is scientifically sound. Those who have found the author's work on 'Physical Geography' helpful will, no doubt, discover in this 'Elementary Geology' an aid to further studies.

To prepare an adequate elementary textbook is a task involving the successful reduction of three difficulties: the selection of material; the analysis of the subject-matter chosen, and the choice of language.

In the selection of material from the enormous mass of available facts the author determines the essential character of the book. This is his peculiar privilege, and detailed comment would only serve to illustrate another point of view. The choice for this volume is controlled by the emphasis given to the dynamic phase of the subject, and by the appropriate preference for American instances of world-wide phenomena.

With reference to the analysis of the subjects chosen and the precision of expression, more definite standards have been set by the masters of scientific exposition. Their example might well check too fluent thought and too facile pen. The present work is weak in analysis and statement. The writing is in a descriptive style, which is pleasant to read, but which lacks emphasis of leading ideas. Examples chosen to illustrate processes appear to have controlled the order of presentation rather than to have been controlled by a logical train of thought.

About one-hundred and fifty pages of the four hundred and eighty-seven are given to illustrations. The illustrations are, as a rule, well chosen, judging by those whose originals are familiar, but in reduction to a scale adequate for this work they have suffered very materially, and their value is in many instances doubtful Half-tone reductions printed as text figures rarely retain sufficient character to justify their use in works of this kind. The photograph should either be redrawn as line work or it should be printed upon a separate plate in a proper press. Either of these alternatives would limit the number of illustrations available for a book of moderate cost, but it would be better to have a few good ones than many which fail of their purpose.

The responsibility which rests upon the scientific author in attempting to promote the study of his subject can scarcely be too seriously considered. It is only in recognition of this responsibility that this review has been prepared.

Bailey Willis.

NEW BOOKS.

Natural History. R. Lydekker and others. New York, D. Appleton & Co. 1897. Pp. xvi+771. $2.00.

Life Histories of American Insects. Clarence M. Weed. New York and London, The Macmillan Co. 1897. Pp. xii+272. $1.50.

Comparative Zoology. J. S. Kingsley. New York, Henry Holt & Co. 1897. Pp. vii+357.

Darwin and after Darwin. George John Romanes. Chicago, The Open Court Publishing Co. 1897. Vol. III. Pp. viii+181.

Laboratory Directions in General Biology. Harriet Randolf. New York, Henry Holt & Co. 1897. Pp. vi+163.

Quantitative Chemical Analysis. Percy Norton Evans. Boston and London, Ginn & Co. 1897. Pp. iv+80.

Kroll's Stereoskopische Bilder für Schielende. R. Perlia. Hamburg, Leopold Voss. 1897. 26 colored pictures.