

written, and the facts are grouped together in a very useful manner. The third chapter practically completes the qualitative portion of the book, and is followed by tables of organic compounds in which the properties and physical constants of a large number of the most generally met with organic compounds are compiled—it is, in fact, a short dictionary. This section will most certainly be found very useful in the laboratory, and has been very painstakingly compiled.

The rest of the book deals with quantitative analysis, combustions, nitrogen determinations, vapour densities, optical rotation, and other methods which are employed in the laboratory.

LOCAL AND GENERAL GEOLOGY.

(1) *Transactions of the Paisley Naturalists' Society*. Vol. i. Notes on the Mineralogy of Renfrewshire. By Robt. S. Houston. Pp. 88. (Paisley: Alexander Gardner, 1912.) Price 2s. 6d. net.

(2) *Physiography for High Schools*. By Albert L. Carey, Frank L. Bryant, William W. Clendenin, and William T. Morrey. Pp. vi+450. (Boston, New York, Chicago: D. C. Heath and Co.; London: George G. Harrap and Co., 1912.) Price 4s. 6d.

(3) *Structural and Field Geology. For Students of Pure and Applied Science*. By Prof. James Geikie, F.R.S. Third edition, revised. Pp. xxiv+452. (Edinburgh: Oliver and Boyd; London: Gurney and Jackson, 1912.) Price 12s. 6d. net.

(1) **M**R. HOUSTON'S volume, attractively produced and excellently printed, cannot fail to arouse interest in local mineralogy. A preface is given on the geology of Renfrewshire, and we are reminded of the famous specimens of prehnite and analcite from the Boylestone Quarry, near Barrhead. New analyses are given of several minerals, including phosphatic nodules (p. 72) from three localities, and a greenish kaolin (p. 71). The name "lithomarge" is misprinted in three places, and we do not like the term "carbonated" on p. 78 in place of "carbonised." But considerable care has evidently been given to the book, which serves as a model for the work of local naturalists.

(2) We now possess several good English books on physiography, and have received much stimulating aid from the United States. Hence it is questionable if another American work is likely to find a free place in our schools. Four high-school masters, however, have collaborated in New York City in producing a clearly written account of natural phenomena, illustrated with views and maps from the wide field available in the United

States. Unlike Huxley, they set aside the biological aspects of physiography, and they omit in consequence a good deal that would interest a schoolboy in the surface-features of his country. The work is terse and lucid, but seems somewhat cold and uninspiring; its method of construction has prevented any one of the authors from impressing on it the mark of personality. A few good books of scientific travel would probably set young pupils thinking to far more purpose about the earth. Physical geography in the high-school stage already runs the risk of becoming stereotyped. Certain set names for phenomena require certain definitions. Meanwhile, the rock is removed out of its place and the waters wear the stones, while the eye of the pupil, made for wonder, remains fixed upon the printed page.

(3) Prof. James Geikie's "Structural and Field Geology" now reaches a third edition. In its fine use of full-page photographic plates it aims at accurate illustration of what will be encountered in the field. No one can convert these pictures into diagrams for the note-book; they are, as the author intends, direct encouragements to observe. Rocks are photographed from actual specimens, and the landscapes and field examples are largely derived from the series of views brought together by the Geological Survey. The book is a broad treatise on physical geology, written with a remarkable absence of technicalities. It goes, perhaps, too far in avoiding chemical considerations, such as those involved in the formation of laterite (p. 58) and cornstones (p. 70), and in omitting even chemical formulæ, which would be helpful in the description of the silicates. Methods of testing minerals and rocks are introduced as they happen to be required, and it is clear that the work should be read continuously. Among its best features are the drawings of block-models of faulted strata (pp. 162 and 166), which explain many of the puzzles of geological maps. The trough-faults in Fig. 53 might gain by a cross-reference to their explanation in Fig. 54.

The principles of geological surveying receive unusually full treatment, and attention is given to economic questions and to the broad characters of soils. Chapter xxv., on geological structure and surface features, might, of course, be greatly elaborated. The twenty-three lines devoted to coast-lines seem inadequate in comparison with forty-five pages given to ore-formations in chapter xvi., a subject not closely related to structural geology. Prof. James Geikie's book, so handsomely set before us, will long remain our best introduction to geological phenomena as they actually present themselves to the observer.

GRENVILLE A. J. COLE