

sections. He also, in his desire to be abreast of current literature, uses such terms as "allotriomorphic," "micro-felsitic," "magma-basalt," without adequate definition or discussion; and in speaking of a "porphyritic ground-mass" he will throw many beginners into confusion. If the student is to seek elsewhere for instruction both in the manipulation of the polariscope and in the use of technical terms, the book must be held to fail in its fundamental object as a primer. It will probably serve well, however, to remind the learner of the broader features that mark out one rock-forming mineral from another. The author, moreover, insists, as befits a geologist, on the purely supplementary character of microscopic study—a warning that seems more than ever needed when micro-petrography, by the change of a few letters, has been exalted to the level of a science.

The statements in this book are essentially accurate, and the illustrations, excepting that of ophitic structure, may be useful in recalling diagrammatically what has been seen in actual sections. On p. 32, however, there is an incorrect account of the pleochroism of muscovite, which probably has arisen from a blending of two totally independent notes. On p. 36 the sections of augite should be described as having, not six, but eight sides; and talc reappears on p. 50 as a constituent of protogine granite. The cleavages in drawings on pp. 33 and 36 are not in every case consistent with the descriptions.

G. C.

*Theoretical Mechanics.* By J. E. Taylor, M.A. (London: Longmans, Green, and Co., 1888.)

So long as examinations on prescribed courses are in vogue, so long, we suppose, will text-books be written for them. The book before us has been prepared chiefly to help those who are studying for the elementary stage of the Science and Art Department's examination in the subject, but it also covers the requirements for London matriculation. There is not much scope for originality in a work of this description, and in looking through it we find ourselves in familiar, well-worn paths.

In his preface, Mr. Taylor states that he has endeavoured to make the subject comprehensible to the beginner, but we are afraid that his efforts to explain the difference between mass and weight will be far from successful. This is always a delicate point to touch upon, but we venture to say that few beginners will be likely to understand the explanation given on page 8. This is as follows:—"Whilst mass is always measured by weight, yet the two terms must be kept distinct, the weight being the amount of force which the attraction of the earth exerts on the mass. If  $g$  represent this attraction,  $W$ , weight of the body,  $m$ , mass, we have  $W = mg$ ." Most beginners are likely to imagine from this that  $W$  should be equal to  $g$ , instead of to  $mg$ .

The book is well illustrated throughout with many new diagrams and several old ones from well-known text-books. Numerous examples, worked and unworked, are also given.

With the exception referred to, the book is on the whole well written, and completely covers the Syllabus. The admirable style in which it has been issued, and its comparative cheapness, will commend it to many teachers.

*Instructions for Observing Clouds on Land and Sea.* By the Hon. R. Abercromby. With Photographs and Engravings. 22 pp. (London: Stanford, 1888.)

THE phrase *Nascitur non fit* may be applied to cloud observers with almost the same confidence as to poets; at least, such is the experience of most persons who have attempted to teach an ordinary observer to record cloud phenomena.

Mr. Abercromby's pamphlet, however, contains a valuable stock of instruction which may be placed in the

hands of intending observers, and will at least indicate to them what they have to observe.

The actual nomenclature of cloud forms used by Mr. Abercromby is that which has been, for the time at least, rejected by the International Committee at the recent meeting at Zürich (*NATURE*, vol. xxxviii. p. 491), but this is a minor matter. The illustrations of cloud perspective and cloud motion are new and good, while the difference between the motion of advance, the "propagation" of a cloud bank, and the rotation of the clouds within that bank is, for the first time, clearly stated. The importance of the R. point (radiation point), the point towards which the stripes of cirrus converge, is explained.

Mr. Abercromby concludes as follows:—

"It (cloud observing) cannot be learnt in a day, but with a little attention and practice the knowledge is soon acquired. The observer, who begins by taking simple cases of low, fast-moving clouds, till he has fully realized the meaning and importance of R. points, will soon attain such proficiency as will enable him to make valuable observations in the most recent branches of modern cloud science."

*Laboratory Manual of General Chemistry.* By R. P. Williams, A.M. (Boston: Ginn and Company, 1888.)

AFTER a few preliminary matters, including some good rules for students in the laboratory, each two pages of this book has in large type consecutive directions for performing an experiment or exercise. The rest of the two pages is left blank for written notes. One hundred exercises are given, and they are of a quite elementary character. It is a pity that contractions are so frequently used, especially when there is a large amount of vacant space and so small an amount of matter. "Ap.: pt., 4 rec., t.t., d.t., r.s." indicates to the student the apparatus he needs for the purpose of preparing hydrogen. It would have been better to adopt a recognized system of shorthand throughout, for that would have rendered the book more useful to some and quite useless to others, instead of troublesome to all.

#### LETTERS TO THE EDITOR.

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#### Mr. Romanes on the Origin of Species.

WHAT the *Times* said is substantially the same as what Mr. Romanes himself says on p. 366 of his paper: "The theory of natural selection is not, properly speaking, a theory of the origin of species: it is a theory of the development of adaptive structures. Only if species always differed from one another in respect of adaptive structures, would natural selection be a theory of the origin of species. But, as we have already seen, species do not always, or even generally, thus differ from one another." Very well then, I say, if this be true, it shrivels up the part played by natural selection to very small dimensions.

The second part of Mr. Romanes's reply consists of a complaint that when I quoted from his paper the words "natural selection not a theory of the origin of species," I did not see that they were "flatly falsified" by the section at the head of which they stood. I do not see it even now, because the section finishes with what Mr. Romanes oddly calls an "insinuation" "that Mr. Darwin's great work on the 'Origin of Species' has been misnamed." If this insinuation be just, then I further do not understand how Mr. Darwin's reputation for candour is to be saved except at the expense of his intelligence.

In the third part of his reply, Mr. Romanes says "he [Mr. Dyer] must surely be aware that other botanists who have more thoroughly considered the subject are dead against him in his general conclusion." I have perhaps as many opportunities as most men of knowing the opinions of botanists, and I cannot