

parent has indeed shown how a classification of minerals according to their mode of occurrence may be employed even in a systematic treatise; but Dr. Hatch's more humble attempt is not open to the criticism to which an ambitious work on the same lines would obviously be liable. It is clear that in a book of this kind there is not much scope for originality of treatment, but Dr. Hatch has admirably united brevity and clearness in his treatment of the crystallographical and physical characters of minerals. His method of giving the names and commonly employed reference letters to the crystal-combinations which he figures is well adapted to prepare the student for consulting larger treatises on the subject. So, too, the reference to the use of symbols, though it must evidently be very slight in a work of the dimensions of that before us, is eminently judicious. A short table of symbols of the chief forms belonging to each system, according to Miller and Naumann, will enable the beginner to recognize the meaning of all the very commonly occurring combinations; and it is clearly inexpedient to attempt more than this in such a very elementary work. We can confidently recommend the book as an excellent summary of mineralogical science, adapted to the wants of the geological student; and we believe the perusal of this small work may even be of advantage to those who desire to enter upon the more systematic study of the science of mineralogy.

J. W. J.

*To the Snows of Tibet through China.* By A. E. Pratt, F.R.G.S. (London: Longmans, Green, and Co., 1892.)

THE author of this book says in the preface that he has done his best "to withstand the temptation to generalize from limited experience, to which travellers in China seem peculiarly liable." Yet in his last sentence he expresses the opinion that several incidents he has mentioned "will show what a credulous and cowardly race the Chinese are." It ought surely to have occurred to him, when he set down this harsh and rather foolish judgment, that it was a striking example of the kind of generalization which he had wished to avoid. Fortunately the statement, although it seems to convey Mr. Pratt's final impression of the Chinese people, does not represent the general character of his work, in which scientific readers will find a good deal to interest them. He went to China in 1887 for the purpose of studying the natural history of the country, and remained until 1890, fixing his head-quarters at Ichang, a town on the left bank of the Yang-tze-Kiang, 1110 miles from its mouth. He crossed the frontier of Tibet, and at Tatsien-lu met Mr. Rockhill, whose excellent account of travels in Tibet we lately reviewed. Mr. Pratt worked hard in the various regions he visited, and collected many valuable specimens in several departments of natural history. He has not a very bright or attractive style, but many of his facts are themselves so interesting, and his enthusiasm as a collector is so keen and persistent, that there are few passages which his readers will desire to skip. In an appendix, Dr. Albert Günther gives a list of the species of reptiles and fishes brought by Mr. Pratt from the Upper Yang-tze-Kiang and the province Sze-chuen, with a description of the new species. There are also lists of birds and of Lepidoptera.

#### LETTERS TO THE EDITOR.

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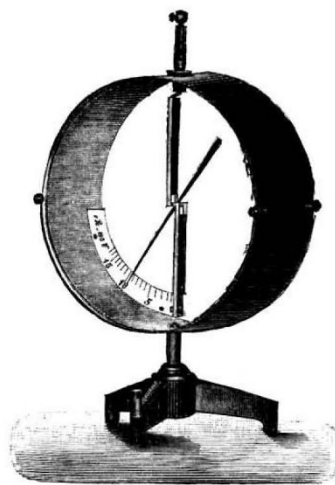
#### Absolute Electrometer for Lecture Purposes.

I THOUGHT it might be welcome to some of your readers to be made acquainted with the following simple and cheap instru-

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ments which I have now used for some years with advantage in lectures, and also for many scientific purposes. They are electrometers, which are divided directly into volts. The needle, which is made of aluminium, moves about a horizontal axis of hard steel, and is repelled from the vertical brass piece connected with the knob above. The instruments have the advantage that they are much easier of manipulation than the gold-leaf electroscope, while the sensibility is nearly the same, and fully suffices for all lecture purposes. Potentials are read off directly in volts, so that the measurements in the experiments on electrostatics and electrodynamics can all be referred to the same unit, whereby the conception of the student gains in distinctness, and the lecture in simplicity. In consequence of the specially careful workmanship, the needle adjusts itself quickly and with certainty, so that readings may be made to about 10 volts. The back and front consist of glass disks 1 mm. thick, each of which covers a plate of zinc of the same size, out of which are cut two equal and opposite slits, through which the position of the needle on the brass scale is read off. The readings of the instrument are only correct when these plates are in position.

When the instrument is used in the lecture, the two plates are taken away, and the back glass plate covered with tissue paper,



the instrument being illuminated from behind. The deflections are then easily visible in a room for more than a hundred students.

The method of graduation of these instruments I have described in full in *Wiedemann's Annalen*, vol. xlv., 1891, p. 771. They can be procured from the University mechanician here, Herr Albrecht, in three different sizes, 0-1500, 0-4000, and 0-10,000 volts. The first of these is the substitute for a gold-leaf electroscope. Herr Albrecht also makes the instruments for technical purposes.

F. BRAUN.

Physical Laboratory, Tübingen, May 28.

#### Saturn's Rings.

THE writer of the "Astronomical Column," in your number of June 2, directs attention to some observations of M. Bigourdan on certain peculiarities in the appearance of the following arm of Saturn's Rings observed by him on May 21. He mentions in particular a protuberance situated near Cassini's division. This, I think, is easily accounted for in a quite different manner. At 9h. 6m. p.m., according to Marth's ephemeris, two satellites, Enceladus and Tethys, were in conjunction with the east end of the ring. They were going in apparently opposite directions, Tethys away from Saturn. Their conjunctions with the middle of the Cassini division would, I find, take place at 8h. 36m. p.m. for Tethys, and at 9h. 36m. p.m. for Enceladus. Both satellites would be so close to the ring as to appear inseparable from it. Tethys, moving in an orbit inclined as much as 65' to the plane of the rings, might easily be half superposed in appearance upon the northern boundary of the rings. The following remarks are from my observation-book of date May 21:—