

DE LAPPARENT'S "MINERALOGY."

Cours de Minéralogie. Par A. de Lapparent. 2me édition. (Paris: F. Savy, 1890.)

SIX years have elapsed since our announcement in NATURE of the appearance of this book, and now the call for a second edition indicates the continually increasing popularity of the work, not only in France, but especially abroad, where more than half of the first edition has been sold. This popularity must be ascribed mainly to the fact that M. de Lapparent's "Cours de Minéralogie" was the first educational work in which the crystallographic theories of Bravais and Mallard were expounded as a system, and constituted, one may say, the basis of his lectures.

Now that these theories are continually obtaining a more favourable reception, it must be recognized that their diffusion has been largely effected by the present "Cours de Minéralogie," owing mainly to the remarkable power of exposition possessed by M. de Lapparent, of which he gave us a new proof when he published his lectures on mineralogy in 1884. The same quality is eminently conspicuous in this edition; but let us hasten to remark that the present is in reality a new work, which contains nearly 100 pages more than the first edition and a large number of new figures. A glance is sufficient to show that the author has not been content with revision, but has entirely reconstructed the book. He has so developed the optical portion that the volume becomes a sufficient introduction to the study of petrography, this chapter now containing a description of the refractometer, the quarter-wave-length mica, and Bertrand's plate; attention may also be directed to the paragraph on complex molecules (p. 22), and to the demonstration of the terq uaternary system (p. 55); he has, moreover, grouped in a series of chapters, which constitute a homogeneous and strikingly uniform treatise on the subject, the elegant theories of Mallard upon twinning, isomorphism, and polymorphism. The description of species has been considerably increased, especially by the extended account of the rock-forming minerals; and the characters in microscopic sections of the minerals which are most important in lithology are illustrated by figures selected from the best authorities. In his own words, the author, taught by experience and knowing how necessary it is that numbers should be verified, has revised all the crystallographic data; he has given for each species the corresponding axial ratios after imposing upon himself the task of verifying by trigonometrical calculation the agreement of these ratios with the fundamental angles; and he has selected from the latest and best publications the optical data, such as double refraction, dispersion, principal indices of refraction, and the numbers which indicate the positions of the optic axes and bisectrices.

Finally the index has been subjected to careful revision, and has been augmented by 200 names which represent the progress of descriptive mineralogy during the last six years. Since, moreover, the chapter on calculation has been developed and contains all the formulæ in common use, the practical value of the book has been largely increased, and it should satisfy every requirement of the University student; it will prove of special service to geologists occupied with the study of rocks, the class

of readers whom the author appears to have continually had in his mind in the composition of a treatise in which the geological bias is discernible both in the classification adopted, and in the manner in which the description of the rock-forming minerals has been developed.

In a word, this work not only affords a good general idea of all that constitutes modern mineralogy, but is also a useful introduction to the study of lithology.

We are convinced that the book, written with the remarkable lucidity and elegance which characterize the works of M. de Lapparent, is destined to occupy the same position in the study of mineralogy which in geology has been held by the same author's "Traité de Géologie."

A. F. RENARD.

OUR BOOK SHELF.

Key to Higher Algebra. By H. S. Hall, M.A., and S. R. Knight, B.A. (London: Macmillan and Co., 1889.)

THIS work forms a key to the higher algebra, and contains solutions fully worked out of nearly all the examples. More than one solution of a problem is given in some cases, and throughout the book repeated references are made to the text and illustrative examples of the algebra. The volume will prove most useful to teachers, and we strongly recommend it to students who are beginning the study of algebra without the aid of a teacher, for, by first of all trying to work out the examples without the key, they may learn much by a careful and judicious use of the solutions afterwards.

LETTERS TO THE EDITOR.

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On the Use of the Word Antiparallel.

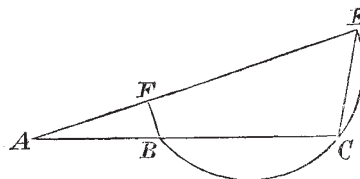
So much of the "recent geometry of the triangle" is connected with the properties of "antiparallels," that it is a matter of some interest to geometers to ascertain when they came to be recognized as worthy of a distinctive name, and when the name now in use was first applied. The following extracts afford two early instances, and seem to imply that the term "antiparallel" had, at the dates given, been some time in existence.

On p. 220 of Hutton's *Miscellanea Mathematica* (1775) occurs the following lemma by the Rev. Mr. Wildbore:—

"If two lines FB, EC be antiparallel, and through their extremities two right lines be drawn meeting each other in A, it will be as $AB^2 : AE^2 - AB^2 :: AB^2 - AF^2 : FE^2 - BC^2$;"

and the demonstration begins as follows:—

"The \angle at B being by the nature of antiparallel lines the supplement of that at E, and F of C, a circle may, by Eucl. III. 22, be drawn through those four points."



After the lemma occurs this "Scholium":—

"The reader may from hence correct an error in 'Clark's Dictionary' under the word *antiparallels*, where it is said that the sides AE, AC are cut reciprocally proportional by the line FB; that is, $AF : FE :: BC : AB$, which is evidently wrong."