

most beautiful of all geometrical sciences—the study of the exact forms assumed by crystallizing substances.

In the little volume before us the author has endeavored to give the beginner in crystallography an insight into the subject in its various branches. The book occupies the same place in German scientific literature as does Dr. Williams's *Elements of Crystallography* (Holt & Co.) in English literature. It goes further than the latter book, however, in that it treats of the physical as well as of the geometrical properties of crystals.

The order of treatment in the volume is not quite as logical and consecutive as one would wish it to be in an elementary text-book. It opens with an 'Introduction' in which the general principles of geometrical crystallography are described (rather than discussed). In this portion of the book such subjects as coördinated axes, symmetry, zonal equations, parallel growths, twinned crystals and pseudomorphs are explained, some of which, it would seem, might better have been left unexplained until the student had mastered the characteristics of simple crystals.

The discussion of the six crystal systems occupies 132 pages—about one-half the volume. The discussion of each begins with a brief study of the symmetry of the holohedral forms; then follow the descriptions of the individual forms and of their simple combinations; and in conclusion the description of the hemihedral and tetartohedral forms. The derivation of the partial forms from the holohedral ones is not emphasized as it is in Williams's book. They are treated rather as forms in which certain planes of symmetry have disappeared.

The last 100 pages are devoted to an outline treatment of physical crystallography. The figures used here are well chosen to illustrate the text. All of them are fresh and some are entirely original. This portion of the volume deserves more extended notice than can be given it in this place, not because the subject-matter is startling in its novelty, but because the subject of which it treats is made so little of in this country, whereas, in reality, familiarity with it is indispensable to a true knowledge of the properties of crystals.

The chapters on hardness, etching and optical properties are especially interesting. Here more particularly than elsewhere will the student wish that the author had explained the logic of the conclusions reached through the study of the phenomena described. The chapter on the optical properties of crystals covers this difficult branch of crystallography in a very satisfactory general manner. The treatment is not full enough to enable the student to understand the optical methods of studying crystals, but it is sufficiently thorough to enable him to understand the principles upon which the methods are based.

The magnetic, electrical and thermal properties of crystals are next briefly referred to, and the volume closes with a condensed statement of the relations existing between crystals and their chemical composition.

On the whole, the book is an excellent introduction to modern crystallography; it is certainly the best book of its kind published in any language, and yet one cannot help feeling that the author has not produced a book that will serve 'für Studierende und zum Selbstunterricht.' In the hands of an instructor it should unquestionably serve a useful purpose and should make an excellent text-book.

The colored plates illustrate the appearance of the axial figures of crystals, the dichroism of tourmaline, etc., and the pyro-electrical properties of quartz, boracite and struvite.

W. S. B.

*Chermotheca Italica Continens Exsiccat, in Situ, Coccidarum Plantis, Precipue Cultis, in Italia Occurrentibus, Obnoxiarum. Cocciniglie raccolte in Italia.* Fascicolo I. PROF. ANTONIO BERLESE e DR. LEONARDI GUSTAVO. Portici. 1896. Lire 10.

For a number of years sets of dried fungi have been published by mycologists in this country and abroad. The earliest works of this description were issued in Europe. The first distinctively American effort in this direction, as I am informed by Mr. B. T. Galloway, was made by H. W. Ravenel, of South Carolina, who published his *Fungi Caroliani Exsiccati* from 1852 to 1860. Other writers, especi-

ally Mr. J. B. Ellis, Messrs. Seymour & Earle, and, in Italy, Briosi and Cavara, have carried forward this excellent work.

Nothing of the kind has heretofore been done in entomology, and, in fact, it is only in the case of scale insects that this method of publication is possible. Quite recently Dr. A. Berlese and Dr. G. Leonardi, of the Superior School of Agriculture in Portici, have begun the publication of a series of Coccidæ based upon the mycological method. The first number, which has just been issued, contains in a large octavo volume, 25 species of Italian Coccidæ of economic importance. The form of the work is exceptionally pleasing. The printed matter comprises title page, index and the full synonymy and bibliography of each species. An entire sheet is given to each species and a sufficient number of specimens in situ on the leaf or bark, as the case may be, are folded into a commodious pocket. This publication, for certainly it must be called a publication, will be greeted with great pleasure by all economic and systematic entomologists. Nothing could be done which would better facilitate the labors of both classes of workers. A number of the synonyms appear surprising, but there is at present no reason to doubt their correctness. For example, *Parlatoria pergandei* Comstock, a well known enemy of citrus trees in Florida and Louisiana, is according to the authors, identical with the European *Parlatoria proteus* of Curtis; *Mytilaspis citricola* Comstock, nec Packard, becomes a synonym of *Mytilaspis fulva* Targioni Tozzetti; and for the California red scale of the orange the authors have erected a new genus, *Aonidiella*, the full description of which appears in Berlese's 'Italian Coccidæ living upon Citrus Plants,' Part III.

L. O. HOWARD.

*Hypnotism, Mesmerism and the New Witchcraft.*

By ERNEST HART. New Edition. New York, D. Appleton & Co. 1896. Pp. 212. 8°.

The demand for a second edition of Mr. Hart's book within three years after its first appearance is a welcome indication that although, as Mr. Hart strikingly illustrates, 'Populus vult decipi,' a small portion of the public at least is willing to be undeceived. The main object of

the volume is to inspire a reaction against the current uncritical and pernicious devotion to a certain obscure and semi-morbid portion of psychic phenomena. Hypnotism and faith-cure and telepathy and 'Psychic Research' have been seized upon by men and women without special fitness or training for such study, and have become to these well-meaning but misguided adepts a form of new witchcraft. Not only they, but men of scientific training and wide reputation, have contributed to the general mass of error by carelessness in experimentation, and by a lack of a realization of the vast possibilities of intentional deception and unconscious self-deception inherent in such investigations. The sensational and extravagant experiments of Dr. Luys, in which he claimed to have demonstrated the action of a magnet upon hypnotized subjects, the transference of sensations from a doll to a subject, the mysterious influence of sealed drugs acting at a distance, and the like, are particularly well 'exposed' by Dr. Hart. Wooden magnets and 'unmagnetized dolls' and drugs called by false names were found to be equally effective if only the subject believed them to be what they purported to be.

The main addition to the present edition of this series of essays is the one entitled 'The Eternal Gullible,' which contains a very remarkable account of the methods pursued by by public 'hypnotists,' in London, for obtaining bogus subjects. There seems to be a training school where young men with dull moral and physical sensibilities are taught to endure the pain of needles thrust through the cheek and fingers, to drink paraffin mixture, to sing a comic song, act any part assigned by the hypnotist, 'do catalepsy,' and the like. Mr. Hart's evidence is complete and convincing, but it seems rather strange that such methods should be resorted to when the training of genuine hypnotic subjects to do these things is so simple a matter.

While the general trend of Mr. Hart's volume is to be warmly commended, it will probably weaken its own cause by its slight but appreciable overstatement. Mr. Hart records his belief in the reality of the hypnotic state and in the existence of valid and scientific in-