

*Review.**Lehrbuch der Mineralogie.*

By MAX BAUER (Berlin and Leipzig, 1886).

THIS excellent manual is intended for use either as a class text-book or as a guide to private study, and is admirably adapted for these purposes. While it does not aim at the fulness of detail which renders the *Lehrbuch* of Naumann (now edited by Prof. Zirkel) so convenient as a book of reference, it contains a large amount of information in a very readable form, and is thoroughly up to date.

As might be expected, the subjects of Crystallography and Physical Mineralogy are most fully treated; but it is unfortunate that the chemistry of the science does not receive its fair share of attention. About half of the book is devoted to the general introduction and the remainder to the description of mineral species, so that the latter occupies a smaller part of the work than is usual in text-books. In the first half crystallography and physics extend over 208 pages, while 35 pages are considered enough for mineral chemistry, including the origin and association of minerals. The optical characters (interference figures, &c.) are admirably treated, and the description of twin growth, while far from satisfactory, is more detailed than is usual.

In the second half of the book the less important minerals are only briefly described, and are distinguished from the more important by the use of a small type.

There are many good points in the book: the figures, which are for the most part new, are excellent; frequent references are given to important papers, even those of very recent date; there is a good bibliography; and the modes of occurrence and origin of minerals are ably discussed.

In the introductory portion the object of the author has been to describe all that is of practical importance without entering into theoretical considerations, and only those points which are illustrated by mineral substances are considered at any length.

As regards the descriptive portion, exception may be taken by many readers to the classification adopted, which is somewhat unusual (Borates, Carbonates, Titanates, Silicates, Tantalates, Phosphates, Wolframates, Chromates, Sulphates); while within each class an attempt is made to

arrange the species in the order of increasing basicity, the hydrated compounds being separated from the anhydrous. In this part of the book, as in the introduction, the chemical properties do not receive the attention which they deserve.

We notice that in the list of minerals, which professes to be complete, Connellite is conspicuous by its absence, as indeed is the case in almost all German text-books; Astrophyllite is retained with the mica group, though now generally regarded as a Pyroxene; such small points, and the many misprints which unfortunately disfigure the book, will, it may be hoped, be corrected in a second edition, which will doubtless be soon required. The book is an excellent manual, and may be heartily recommended.