In the analysis of the Kilimanjaro hornblende the small amount of material available precluded the determination of manganese and fluorine; but it is reasonable to suppose that the percentages of both are very low. The analysis is remarkable for the rather high percentages of soda and (especially) potash, and also for the rather high titanium, which was determined colorimetrically. The material was dried at 110°.

Stanley's analysis of the Monte Somma hornblende resembles that of Kilimanjaro in most respects, but ferrous oxide is higher, as is ferric oxide, and magnesia is lower, while soda is lower and potash higher. The extraordinarily high percentage of manganese oxide in Stanley's analysis is almost certainly too high; and the rocks and minerals of Vesuvius are not notably high in manganese, rather the contrary. The Bilin hornblende is similar in many of its chemical features, but the alumina is suspiciously high, the iron oxides are in inverse relation to those in the Kilimanjaro and other similar, well-analyzed hornblendes, while magnesia and lime, soda and potash are much as in the African hornblende. In both of the hornblendes analyzed by Stanley titanium is much lower than in that from Kilimanjaro, and the amount of fluorine is insignificant.

Penfield and Stanley discuss the structural composition of the hornblendes whose analyses are given in Table 3, along with those of others, but it is not necessary to do this here with that from Kilimanjaro. The three hornblendes come from volcanoes whose lavas are decidedly alkalic (in the case of Monte Somma potassic), and the high soda is thus interesting and significant of some relation between the magma and the composition of the hornblende of lavas, as contrasted with that of the augite, from the same volcano, as is illustrated by the analyses of augite and hornblende from Kilimanjaro and Vesuvius (Somma) given here. The point seems to be worthy of further study, when more appropriate analyses of suitable occurrences are available.

BOOK REVIEW

LEHRBUCH DER MINERALOGIE. PAUL NIGGLI. *Berlin W 35:* Gebrüder Borntraeger. Large 8vo., 694 pages. 1920.

This constitutes another book which has a somewhat misleading title. We usually think of a text-book of mineralogy as a book containing more or less introductory or explanatory matter and then descriptions of minerals; here the "introduction" makes up most of the book, and minerals as such are not described

at all. A more accurate title would be "Modern methods of studying, interpreting, and understanding minerals."

In the 150 pages devoted to crystallography we do not find crystals taken up system by system or class by class, as in ordinary books; instead there is an elaborate discussion of arrangement of points in space, of symmetry-operations and their results, and of crystal forms in the order of their number of faces and symmetry features. There is a well-illustrated discussion of twinning and its structural significance; altho crystal measurement and calculation are dismissed rather too briefly. The physical properties of crystals are then considered, being discussed thruout from the structural viewpoint. The chapter on optics is treated in a more usual manner, and curiously enough only rock-making minerals are given as illustrations. Structure determination by X-rays is of course fully described, while radioactivity of minerals is treated briefly.

The section headed "Kristallchemie" is especially interesting. In it polymorphism, isomorphism, etc., are discussed from the most up-to-date viewpoints. Then there is an illuminating treatment of the relation of chemical composition to crystal form. Silicate formulas are written according to a modified Werner coördination plan, to which there is no objection except that unnecessarily complicated ones are used. The chapter on crystal habit and its causes is also good, and the section ends with a useful collection of data on colloid minerals.

Nearly 200 pages are then devoted the subject of origin and occurrence of minerals, with full discussions of pseudomorphs, magmatic phenomena and minerals, weathering and metamorphism and their mineral associations. Graphic methods are freely used in bringing out the relations, and the modern physical chemical viewpoint is held thruout. Finally there is a 6-page list of books on the various subdivisions of mineralogy, and a 23-page mineral list, in which name and formula are given for all minerals which the author has been able to locate, species being emphasized by bold-face type, and varieties or synonyms clearly designated.

The frequent criticism of text-books, that they are necessarily a generation behind the times, is distinctly inapplicable to this up-to-the-minute book. Except in so far as the experimental work of the Geophysical Laboratory is concerned, the modern trend of mineralogical thought in America is, to be sure, inadequately pictured in it. But every American mineralogist must turn to it to find out what has been done in central Europe during the past ten years; and no one writing a mineralogical article which is other than merely descriptive can afford not to refer to it. W.

PROCEEDINGS OF SOCIETIES

NEW YORK MINERALOGICAL CLUB

The annual meeting of the New York Mineralogical Club was held in the American Museum of Natural History on the evening of Wednesday, April 12th at 8:00 P. M.

The President, Dr. George F. Kunz, presided and there was an attendance of 28 members. Mr. Whitlock reported for the Committee on proposed Sunday field trips as follows: Peekskill (Emery Mine), Davenport Neck, New Rochelle, Portchester, Sing Sing (Prison Quarry), Great Notch, Englewood (Printin Quarry), South River, N. J., Plainfield, N. J., Chimney Rocks, Sommerville, N. J., Hastings-