schistosity of the rock and is coated on both faces with a layer of ankerite rhombs, often slightly curved. The wider vugs have more or less crystallized quartz in the openings. Where the quartz extends across the hollow, it often shows a series of roughly parallel fractures in one direction which appear to have been produced by pressure due to rock movements subsequent to its deposition, and do not seem related to any crystallographic direction.

Millerite occurs in spaces between the ankerite or quartz crystals, or is found on quartz adjacent to ankerite. As no instances of millerite penetrating either of the two minerals have been observed, the order of deposition is:—ankerite, quartz and millerite. Occasionally a few small crystals of sphalerite also occur on the ankerite.

So far as the author knows, no occurrence of millerite in the Wyoming Valley coal field has been recorded. Gordon[1] mentions a questionable occurrence of the mineral with quartz in siderite, presumably at a coal mine in Scranton, Pa., some nine miles east of the new locality. Since his book represents a survey of the literature on Pennsylvania minerals prior to 1922, it seems reasonable to suppose that its occurrence at West Pittston would have been included by him, had the mineral been discovered. Moreover, until four or five years ago the mine in question had not been worked for a long time. As the author visited it repeatedly in 1936 without finding any millerite, there seems little doubt but that the occurrence here noted is a new one.

[1] Gordon, S. G., *The Mineralogy of Pennsylvania*, Special Publication No. 1 of The Philadelphia Academy of Natural Sciences.

BOOK REVIEW

DAS MAGMA UND SEINE PRODUKTE, I TEIL:PHYSIKALISCH-CHEMISCHE GRUNDLAGEN. Paul Niggli, Akademische Verlagsgesellschaft m.b.H., *Leipzig*, **1937.** 379 pp., 276 figures. Price, RM 32.

This book is the first volume of what is essentially a second edition of Niggli's earlier book, "Die leichtflüchtigen Bestandteile im Magma." The other volume will bear the subtitle, "Magmatische Gesteine und Minerallagerstätten."

The first volume is concerned entirely with physico-chemical principles and a review of the experimental work that has been done. It is of wider scope than the corresponding part of the first edition, which dealt entirely with systems containing both non-volatile and volatile components. The new edition has a considerable section (110 pages) dealing with the construction and interpretation of diagrams of anhydrous systems, using the published diagrams of such systems as examples. At the end of the text the data for the fundamental ternary systems are given in tabular form.

The outline of the section dealing with systems with components of different volatility has been taken bodily from the first edition, but the text has been revised slightly and

brought up to date. Most of the examples are the same, but the figures have been re-drawn and numerous auxiliary explanatory diagrams have been added. Recent experimental and theoretical work on such systems is cited, notably that by Wuite on the system Na_2SO_4–H_2O, that by Eitel and by Niggli on systems with CO_2, and that by Smits (theoretical) on the system H_2O–SiO_2.

This book is a worthy successor to its well-known predecessor, "Die leichtflüchtigen Bestandteile im Magma." The additional data on systems with volatile components would probably not have justified a new edition, but the inclusion of the fundamental anhydrous systems makes it useful not only as an explanation of the theory of phase equilibrium diagrams, but also as a reference book of the important systems that have been worked out experimentally. It is fully illustrated with actual diagrams which are accompanied by lengthy explanatory legends.

The work should be especially useful and convenient when the second volume appears because it will then be possible while studying a given natural process to have the pertinent diagram and data before one at the same time without having to turn to another part of the same volume for them.

EARL INGERSON

PROCEEDINGS OF SOCIETIES

PHILADELPHIA MINERALOGICAL SOCIETY

Academy of Natural Sciences of Philadelphia, September 3, 1937

A stated meeting was held with Mr. Baldwin in the chair, and an attendance of 32 members and 17 visitors. Mr. Welton Meisenhelder and Mr. Ralph Carmer, Jr. were elected senior and junior members respectively.

Reports of summer trips constituted the program. Mr. Benge found dolomite, calcite, and minute pyrite in the Valley Forge Cement Co. quarry near West Conshohocken. Mr. Edwin Roedder exhibited large pyromorphite specimens from Phoenixville; clinochlore from Brinton's quarry near West Chester; malachite crystals from Bridgeport, Pa.; molybdenite crystals from Hillburn, N. Y ; and pyrrhotite crystals with black sulfur from Judds Bridge, N. Y.

Mr. Albert Jehle exhibited a four pound mass of bismuthinite from Bedford, N. Y., and some rose quartz. Mr. Leonard Morgan described a trip to Canada, exhibiting chondrodite (Tilly Foster, N. Y.); stilbite and heulandite (Prospect Park, N. J.); quartz crystals (Herkimer); siderite (Antwerp, N. Y.); apatite, tourmaline, moonstone (Cantley, Quebec); molybdenite (Molybdenite mine); titanite crystals, apatite crystals, and hornblende (Lake Clear); ellsworthite (Hybla); uraninite (Wilberforce); fluorite and barite (Madoc).

Dr. W. Hershey Thomas visited Lynchburg and Amelia Court House (albite, amazonstone, tantalite). Mr. Moyd found native copper at Cornwall, Pa.; Mr. Trudell described a trip, with Messrs. Gordon and Moyd to New England visiting Westmoreland, N. H. (fluorite); Acworth (beryl); Grafton, N. H. (uraninite, autunite, uranophane, gummite, albite, apatite). Mr. Cienkowski reported on a lengthy trip through the West.

WILEY FLACK, *Secretary*