BOOK REVIEWS

MINERAL TABLES by ARTHUR S. EAKLE; third edition, revised by ADOLF PABST. 73 pages. John Wiley & Sons, Inc., *New York*, **1938.** Price $1.50.

These well known tables for the determination of minerals by their physical properties follow the style and arrangement of the earlier editions. Minor changes have been made and a number of additional species included so that the tables in their present form contain descriptions of about two hundred minerals.

W. F. H.

MINERALS OF CALIFORNIA by ADOLF PABST. Bulletin No. **113,** State Division of Mines, Ferry Building, *San Francisco,* California, 1938.

This is a revision of Bulletin No. **91** bearing the same title and issued in 1923. All of the older references on the occurrence of minerals in California have been checked and the list extended so that the present bulletin contains descriptions and occurrences of over four hundred different minerals, forty-one of which have not thus far been found elsewhere. The bulletin concludes with a bibliography of twenty-one pages arranged alphabetically by authors.

W. F. H.

MINERALOGIE VON BOLIVIEN by FRIEDRICH AHLFELD AND JORGE MUÑOZ REYES. Gebrüder Borntraeger, *Berlin*, **1938.** 89 pages. Price RM 10.50.

This pamphlet is a German translation of a somewhat more extended work by the same authors in Spanish (Mineralogia Boliviana). Here are recorded the descriptions (crystallographic and chemical) and occurrences of 171 mineral species, based largely on the studies of the senior author which have extended over a long period. A special effort has been made to include wherever possible a discussion involving petrogenesis. Stress has been placed on cassiterite and associated minerals while the common rock-forming minerals are given but slight consideration. The text contains 30 crystal drawings of simple and twinned crystals and the bibliography records 75 references. This German translation makes accessible to all mineralogists and mining engineers information concerning the mineral wealth of this interesting country.

W. F. H.

PROCEEDINGS OF SOCIETIES

MINERALOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND

June 10, 1938

Dr. L. J. SPENCER, President, in the Chair. The following papers were read:

(1) *The leaching of granite and other rocks.* By Mr. E. H. DAVISON.

The paper describes experiments devised to determine the solubility of granite and other rocks in aerated, distilled water. The water is allowed to drip through the crushed rock and is afterwards evaporated and the residue of dissolved material weighed. The accumulated solubles after 25 leachings are analysed. The results show definite solubility in granite, gabbro, and oolitic limestone.

(2) *Some new and little-known meteorites found in Western Australia.* By Dr. E. S. SIMPSON.

Accounts are given of 14 meteorites (11 siderites, 2 stones, and one seen to fall but not yet found), of which 8 are new, bringing the total number known from Western Australia up to 23. New are Dalgaranga (siderite), Dowerin (siderite), Gundaring (siderite, 248 lb.,

fell April 6th, 1930, found 1937), Kumerina (siderite, 118 lb., found 1937), Landor (siderite), Mellenbye (stone), Wonyulgunna (siderite, 83½ lb., found 1937), and Yalgoo (stone). Meteorites previously described under the names Youndegin, Mount Stirling, and Mooranoppin are identical in structure and chemical composition, and they have all been found on an area of some ten square miles close to Pikaring (Penkarring) Rock, 34 miles S.E. of Youndegin.

(3) *Francolite from sedimentary ironstones of the coal measures.* By Mr. T. DEANS, with a chemical analysis by Mr. H. C. G. VINCENT.

Francolite occurs in oolitic ironstones from the Yorkshire coalfield as small hexagonal plates showing twinning in six sectors. The optical properties, including anomalous features found in other members of the apatite group, are described. Analysis establishes the formula $(Ca, Sr)_{10}(P, C)_6(F, OH)_2O_{24}$.

(4) *On the atomic arrangement and variability of the members of the montmorillonite group.* By Dr. G. NAGELSCHMIDT.

X-ray data for the montmorillonite group are given and discussed. The group is shown to have three end-members, Al_2R (montmorillonite) Fe_2R (nontronite) and Mg_3R (magnesium-beidellite) where R is possibly $Si_4O_{10}(OH)_2$. The number of hydroxyls is not quite certain.

Calculations based on the assumption of a three-layer lattice for these minerals show fairly large isomorphous replacements, which are believed to be essential, and a balance between the negative charges due to the replacements and the exchangeable excess cations. The need for more detailed information on these minerals, especially with regard to their dehydration curves, is pointed out.

(5) *On chamosite and daphnite.* By Dr. A. F. HALLIMOND.

Relatively pure chamosite found in a Cardinia shell in the Frodingham Ironstone has the simple ratio $2SiO_2 \cdot Al_2O_3 \cdot 3FeO \cdot nH_2O$. Daphnite from Tolgus Mine differs somewhat from this ratio, belonging to a series extending toward the ordinary chlorites. Neither mineral is represented by the Tschermak formula. *X*-ray photographs of chamosite are constant in pattern and closely resemble those of cronstedtite. Daphnite and thuringite give patterns nearly identical with those of clinochlore but the spacings are slightly different. The two minerals studied are distinct varieties of chlorite. Chemical analyses are by Mr. C. O. Harvey and *x*-ray measurements by Mr. F. A. Bannister.

(6) *The identity of zinckenite and keeleyite.* By Mr. G. VAUX and Mr. F. A. BANNISTER.

Zinckenite from Wolfsberg, Harz, and keeleyite from Oruro, Bolivia, were compared by means of single crystal *x*-ray photographs about the *c* axis, and were found to be identical. No twinning was discovered in zinckenite which was found to be truly hexagonal with $a=44.06$, $c=8.60$Å, space-group $C_6^6=C6_3$ or $C_6^2=C6_3/m$.

(7) *A chemical and optical study of a low-grade actinolitic amphibole from Coronet Peak, Western Otago, New Zealand.* By Mr. C. OSBORNE HUTTON.

The chemical analysis and optical constants of an actinolitic amphibole from a low-grade albite-epidote-actinolite-chlorite-calcite schist are given. It is shown that the maximum ext. angle in the prism-pinacoid zone is not to be obtained on a clinopinacoidal section. Details of a rare amphibole comparable with crossite in its optical properties are also given.

(8) *An x-ray examination of mordenite (ptilolite)*. By Messrs. C. WAYMOUTH, P. C. THORNLEY, and W. H. TAYLOR.

Specimens of the fibrous zeolite mordenite (ptilolite) have been examined by *x*-ray methods, and the specific gravity and pyroelectric properties determined. Laue- and oscillation-photographs indicate that the structure possesses orthorhombic symmetry, and the unit cell with axes: $a=18.25$Å., $b=20.35$Å., $c=7.50$Å., contains four molecules of composition (Ca, K_2, Na_2)$Al_2Si_{10}O_{24}\cdot 7H_2O$. The space group is $D_{2h}^{17}-Cmcm$ or $C_{2v}^{12}-Cmc$; the pyroelectric tests are somewhat inconclusive but indicate that the *c*-axis [001] is probably polar. The structure is probably based on a frame-work of linked tetrahedra.

PHILADELPHIA MINERALOGICAL SOCIETY

Academy of Natural Sciences of Philadelphia, April 7, 1938

A stated meeting was held on the above date with the president, Mr. Trudell, in the Chair, 43 members and 26 visitors were present.

The speaker of the evening was Mr. Richmond E. Myers, whose subject was "Collecting Minerals in the U.S.S.R." Mr. Myers attended the 17th International Geological Congress, taking the excursion through the Caucasus Mountains and Armenia, to the Persian border. The speaker said there was little opportunity for collecting at the localities visited, however, specimens were set aside. Mr. Myers visited the Moscow Museum where he was treated with great courtesy. Motion pictures of the cities and localities visited were shown and specimens obtained on the trip exhibited.

LOUIS MOYD, *Secretary*

Academy of Natural Sciences of Philadelphia, May 5, 1938

A stated meeting was held with the president, Mr. Trudell in the Chair, 51 members and 33 visitors were present.

Dr. Benjamin L. Miller of Lehigh University, spoke on "Experiences in Russia, Korea, China and Japan." Dr. Miller attended the Geological Congress in Russia last summer, taking the excursions through the Caucasus and Urals, and then traveling on through Asia. He described many of the mining localities visited. The Urals are eroded pre-Cambrian rocks. These rocks are the source of the metals now being dredged from the alluvial gravels, especially platinum. At one place a mine is being operated for iron from a pisolitic laterite which caps a highly altered and weathered ultrabasic dike. This deposit is similar to those worked in Cuba.

In Manchuria Dr. Miller visited a coal mine with a bed of coal 400 feet thick, containing an unusual quantity of amber, some of which includes insects. Overlying the coal seam is a bed of oil shale from which kerosene is obtained, and a bed of calcareous shale that is being burned for lime; altogether a very profitable deposit.

In Japan, on a small island 10 miles from Nagasaki, the speaker descended a 2000 foot shaft into a coal mine which is being worked by drifting out beneath the sea. The presence of the coal bed at that depth was determined by tracing the dip where the bed outcropped on a neighboring island. Dr. Miller visited the great caldera of Mt. Osso, which measures 10×14 miles and contains 11 villages. Sixty-eight small craters are found on the floor of the caldera and sulfur is being mined from some of the active vents. The sulfur is deposited in the porous volcanic rock by the vapors. The lecture was illustrated with many interesting slides.

LOUIS MOYD, *Secretary*

Academy of Natural Sciences of Philadelphia, June 2, 1938

A stated meeting was held with the president Mr. Trudell in the Chair, 51 members and 31 visitors were in attendance.

Mr. A. Williams Postel of the University of Pennsylvania spoke on his study of the granite gneisses of the Chester Quadrangle. The speaker found xenoliths showing all stages of reaction with the granite. These xenoliths, he believes, are remnants of the amphibolite facies of the Wissahickon gneiss. Unaltered cores of some of the xenoliths resemble normal amphibolites, but the rocks become more acidic as the granite is approached. The labradorite of the amphibolite is changed to andesine, then to a sodic oligoclase. The hornblende alters to biotite, with epidote forming from the lime released by these changes. In the contact zone a very unusual symplektite becomes an important constituent of the rock.

Mr. Joseph Berman described this symplektite as an intergrowth of magnesium muscovite (phengite) and oligoclase. Its origin, he believes, is due to reaction between biotite and basic plagioclase in the presence of acid solutions.

Dr. Joseph L. Gillson described some unusual varieties of fluorite from the localities he had visited during the past few months: among these were a chalky, white type of extreme purity, and stalactitic and botryoidal types from Nevada and Utah. Other members displayed numerous specimens collected on trips recently taken.

LOUIS MOYD, *Secretary*

An organization meeting of the Plainfield Mineralogical Society was held at the home of Mr. Thomas A. Wright, Tuesday evening June 7, 1938. Thirteen persons were present and others unable to attend expressed their desire to join. Present plans call for monthly meetings from October to May with field trips scheduled to be held during the summer months. The first field trip to Bedford, New York, was taken on June 19. The officers for the ensuing year are: Honorary President, Alfred C. Hawkins; President, Thomas A. Wright; Secretary-Treasurer, Joseph D'Agostino; Chief Scout, O. Ivan Lee.

NEW MINERAL NAMES

Skolite

KAZIMIERZ SMULIKOWSKI: Skolite, a new mineral of the glauconite group. *Arch. Mineral. Warsaw*, vol. **12**, pp. 144–180, 1936. French; Polish summary.

NAME: From the village Skole, Poland, where the mineral was first found.

CHEMICAL PROPERTIES: A hydrous silicate, related to glauconite: $H_4K(MgFe'', Ca)(Al, Fe''')_3Si_6O_{20} \cdot 4H_2O$. Analysis: SiO_2 49.09, Al_2O_3 18.17, Fe_2O_3 6.42, FeO 2.56, MgO 3.10, CaO 1.03, K_2O 5.62, Na_2O 0.23, H_2O 13.47, TiO_2 0.21, P_2O_5, MnO tr. Sum 99.90.

PHYSICAL AND OPTICAL PROPERTIES: Color dark green, gray green, yellowish green. Luster greasy to earthy. Cleavage basal. H. about 2; G. variable, 2.508–2.572, principally 2.555. Cleavage micaceous, structure scaly. Biaxial, negative. 2V variable from 0° to 90° (due to distortion of the plates), n generally variable, mean values $\alpha = 1.559$, $\beta = 1.581$, $\gamma = 1.586$. Pleochroism distinct, X = pale yellowish green; $Y = Z$ = yellow green, herb green, emerald green. Bx_a is normal to the plane of cleavage. Birefringence = 0.027.

OCCURRENCE: Found as veinlets and ribands in the sandstones of the Klódka quarry, near Skole, eastern Carpathians, Poland.

W. F. FOSHAG