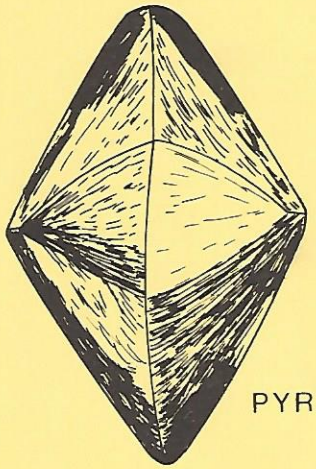
F/M
Pennsylvania
Chapter

SYMPOSIUM 78

SULFIDES



PYRITE

NOVEMBER 3, 4, 5, 1978

SCHMUCKER HALL
WEST CHESTER STATE COLLEGE

SYMPOSIUM 78

ON

SULFIDES

AND

ASSOCIATED MINERALS

FROM

PENNSYLVANIA

SPONSORED BY

FRIENDS OF MINERALOGY
PENNSYLVANIA CHAPTER

SYMPOSIUM 78

PROGRAM

Friday - November 3, 1978

8:00 PM - WORKSHOP: Tests and Methods for Identifying Common Sulfide Minerals
Dr. John H. Way, Pa. Geological Survey

Saturday - November 4, 1978

8:30 AM - WELCOME
Dr. Seymore S. Greenberg, Professor, Dept. of Earth Sciences, W.C.S.C.
Dr. Russell K. Rickert, Dean, School of Sciences and Mathematics, W.C.S.C.

8:45 Sulfides and Associated Minerals in Pennsylvania: Dr. Allen V. Heyl, U.S. Geological Survey, Denver, Colorado.

9:30 Coffee Break

10:00 Sulfides and Related Minerals Formed in Burning Coal Seams and Waste Piles in Pennsylvania: Robert B. Finkelman, U.S. Geological Survey, Reston, Virginia

10:45 Sulfides and Uranium Minerals in Pennsylvania: Donald T. Hoff, Wm. Penn Memorial Museum, Harrisburg, Pennsylvania

Saturday (cont.)

11:30 Lunch

1:00 PM - Nickel Sulfides in Pennsylvania:
Dr. J. Alexander Speer, Virginia Polytechnic Institute, Blacksburg, Virginia.

1:45 Round Table Discussion
Leader - Dr. Robert C. Smith, II
Pa. Gealogical Survey, Harrisburg, Pa.

2:30 Coffee Break

3:00 F/M Business Meeting
Auction

7:30 Rocks of Ages - audio-visual slide presentation - John and Bobbie Way

Sunday, November 5, 1978

9:30 AM - Field Trip to Phoenixville Area
Leader - Robert Walker

Data on Probable New Species to the State as well as Information on Several Other Interesting Minerals Discovered and Identified by the Pennsylvania Geological Survey and Wm. Penn Memorial Museum since 1975

AUTUNITE, $Ca(UO_2)_2(PO_4)_2 \cdot 12H_2O$, occurs as rectangular, tabular crystals and micaceous scales associated with shale chips on oxidized, water-saturated bedding surfaces in gray sandstone from Carbon County. The crystals are transparent and have a bright greenish-yellow color. The excellent basal cleavage exhibits a pearly luster. The crystals fluoresce green in daylight and a brilliant yellowish green in artificial ultraviolet light. The autunite occurs with other supergene uranyl phosphates. The identified samples were stored in water from the time of their exposure until verification.

CHALCOPHYLLITE, $Cu_{18}Al_2(AsO_4)_3(SO_4)_3(OH)_{27} \cdot 33H_2O$, occurs as bluish-green, crystalline coatings with carbonaceous plant fragments in micaeous, gray sandstone from Lycoming County. The individual crystals consist of transparent, micaceous, "hexagonal," 0.1 mm plates having a vitreous luster. The chalcophyllite is a supergene mineral in a red-bed-type copper occurrence with tennantite nearby.

CHERVETITE, $Pb_2V_2O_7$, occurs as minute, clear, colorless, striated, rectangular, tabular crystal aggregates with a highly adamantine luster on bedding surfaces in sandstone from Carbon County. The chervetite occurs with francevillite and other supergene uranium minerals forming by the oxidation of uraninite- and clausthalite-bearing gray sandstone.

FRANCEVILLITE, $Ba(UO_2)_2(VO_4)_2 \cdot 5H_2O$, occurs as bright-sulfur-yellow to greenish-yellow microcrystalline and botryoidal crusts on fractures in oxidized, shale chip-bearing gray sandstones from Carbon County. It also occurs as crystals in quartz tension veins cutting these zones and probably on serpentine from Northampton County. (R. C. Smith, II, 1977 and D. K. Smith, personal commun., May 1, 1978).

HEAZLEWOODITE, $(Ni,Co)_3S_2$, occurs as trigonal prisms up to 0.5 mm in partly serpentinized dunite from Lancaster County. The prisms have a pale-creamy-brass color and a metallic luster. Less conspicuous heazlewoodite may also occur in Delaware County (G. Myer, personal commun., 1978). Verification of pentlandite-millerite grains disseminated in antigorite, var. williamsite, suggests that earlier reports of heazlewoodite in this rock may be unfounded.

KASOLITE, $Pb(UO_2)SiO_4 \cdot H_2O$, occurs as golden-yellow microcrystalline crusts and grayish-tan mixtures on uraninite from Carbon County and as raggy or microcrystalline, brownish-gold aggregates in carbonaceous, micaceous, plant-fossil-bearing sandstone from Lycoming and Sullivan Counties. Associated lead minerals such as cerrusite and linarite in the latter areas suggest that most of the lead is not radiogenic.

LANGITE, $Cu_4(SO_4)(OH)_6 \cdot 2H_2O$, occurs as aggregates of medium-blue, transparent flaky crystals on micaceous, fine-grained, gray sandstone from Columbia County. Brochantite occurs on these same specimens.

META-URANOCIRCITE, $Ba(UO_2)_2(PO_4)_2 \cdot 8H_2O$, occurs as micaceous aggretates of rectangular, yellowish-green plates on sandstone and as free-standing, rectangular, platy crystals in conglomeratic sandstone from several localities in Carbon County. Fluorescing bright green under short wave and long wave ultraviolet light, metauranocircute is somewhat brighter under short wave light. The refractive index of rectangular cleavage flakes showing gridiron twinning is 1.621 ± 0.003.

POSNJAKITE, $Cu_4(SO_4)(OH)_6 \cdot H_2O$, occurs as crusts of medium-blue, platy crystals with a silky luster. It occurs with azurite and malachite on micaceous sandstone from Columbia County.

POWELLITE, $Ca(Mo,W)O_4$, occurs as cleavable white masses up to 1 cm with piemontite in metarhyolite from Adams County. The milky-white powellite is translucent and has a vitreous to greasy luster on at least two cleavage surfaces. Under short wave ultraviolet light it fluoresces a bright creamy yellow and under long wave most areas are a dull, yellowish apricot. Densities of 4.30 ± 0.02 have been obtained on reasonably fresh material. The unit cell is estimated to be a_o = 5.23A, c_o 11.43A. After correcting for impurities, chemical analyses yielded: 26.4% CaO, 8.0% WO_3, and 65.6% MoO_3 (D. Schmerling, personal commun., 1978). Qualitative X-ray fluorescence scans suggest minor Ce. The powellite occurs as a late, hydrothermal mineral filling vugs. Zonation in the Mo/W ratio is suspected, i.e., a partial solid solution towards scheelite.

RENARDITE, $Pb(UO_2)_4(PO_4)_2(OH)_4 \cdot 7H_2O$, occurs as a bright sulfur to golden yellow powdery microcrystalline coating with kasolite and uraninite from Carbon County. In oil immersion, the yellow grains are seen to consist of flakey aggregates with a refractive index >1.720 and <1.745.

TYROLITE, $Cu_5Ca(AsO_4)_2(CO_3)(OH)_4 \cdot 6H_2O$, occurs as crystalline patches up to 15 mm on bedding partings in fine-grained sandstone from Lycoming County. The green to bluish-green patches are composed of transparent, radiating foliae with a pearly to micaceous luster. Biaxial (-) with α = 1.694 ± 0.003 and γ = 1.705. Tyrolite is soluable in dilute HCl with effervescence.

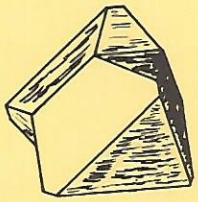
PAST ANNUAL F/M

PENNSYLVANIA CHAPTER

SYMPOSIA

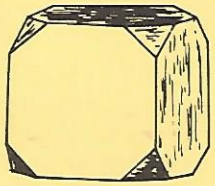
November

1973	Lafayette College	Pennsylvania Mineral Collecting Symposium
1974	"	Minerals and Ores in Pennsylvania Igneous Rocks
1975	West Chester State College	Metamorphic Rocks and Minerals of Pennsylvania
1976	"	Sedimentary Rocks and Minerals of Pennsylvania
1977	"	Native Elements of Pennsylvania
1978	"	Sulfides of Pennsylvania



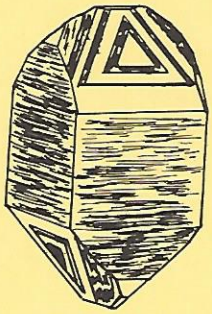
SPHALERITE

GALENA



WURTZITE

MOLYBDENITE



CHALCOPYRITE

ARSENOPYRITE