

“LOCATIONS, MUSEUMS, & MORE”

**FRIENDS OF MINERALOGY—PA CHAPTER, INC.
FALL SYMPOSIUM—1986
West Chester State University
West Chester, PA
October 31, November 1 and 2, 1986**

PROGRAM

Friday, October 31—

7:00 p.m. to 8:00 p.m.

8:00 p.m. to 8:30 p.m.

8:30 p.m. to 10:00 p.m.

Schmucker Hall, on Church Street

Social Hour—Refreshments, Show and Tell, Give Aways

FM PA Chapter Meeting

“What’s new in Pennsylvania Minerals?”



Saturday, November 1—

8:00 a.m. to 8:45 a.m.

9:00 a.m. to 9:45 a.m.

10:00 a.m. to 10:45 a.m.

11:00 a.m. to 11:45 a.m.

12:00 p.m. to 1:00 p.m.

1:00 p.m. to 1:45 p.m.

2:00 p.m. to 2:45 p.m.

3:30 p.m. to ?

6:30 p.m.

Schmucker Hall, on Church Street

Registration

“Geology of the Reading Prong”, Prof. Lucian B. Platt, PhD., Bryn Mawr College

“Geology and Types of Uranium Occurrences in the Reading Prong”, Robert C. Smith II, PhD, Pennsylvania Geologic Survey

“Origins and Health Effects of Radon”, John Kostige, Environmental Scientist, RMC Environmental Services

Lunch—On your own, at College cafeteria, or local eatery

“Commonwealth of Pennsylvania’s Response to Radon: Radon Monitoring Program”, Jaysen Gaertner, DER, Bureau of Radiation Protection

“Radioactive Minerals of the Easton Serpentine/Franklin Marble Belt”, Jay Lininger, FM PA Chapter Board Member

Mineral Auction

Banquet and Speaker: William Crawford, PhD., “Asbestiform Minerals and Your Health.”



Sunday, November 2—

Field Trip: To Be Announced

As in previous years, we continue to use the pages of our symposium program to feature historical mineral locality articles with the purpose of maintaining interest in our rich mineral heritage. The current program format was started in 1980 and many obscure articles have been reprinted. This program features an article on the Easton serpentine by Dr. Arthur Montgomery published in 1957 and extracted from the "International Mineralogical Association Northern Field Excursion Handbook" pgs. 24-27. Also an article on the Vanartsdalen Quarry by John F. Vanartsdalen and published in "The Mineral Collector" Vol. VIII, No. 12, February 1902. Finally, a field trip to Phoenixville described by Samuel MacFeeters and extracted from "The Mineral Collector" Vol. VIII, No. 11, January 1902.



SERPENTINE NEAR EASTON, PENNSYLVANIA

Arthur Montgomery

The Williams Quarry, on highway 611 a mile north of Easton, Pa. (Fig. 1), is in a group of serpentine and talc quarries once producing fillers for paper, paint and soap, also minor ornamental stone. These quarries mostly follow a N50E-striking zone of serpentine-talc-rich rocks along the south slope of Chestnut Hill. This anticlinal NE-SW-extending ridge consists chiefly of Precambrian granitic and amphibolitic gneisses in fault contact with Cambro-Ordovician limestones on either side. Other NE-SW ridges of related lithology and structure, rise prominently above the Great Limestone Valley in this region. The rocks exposed in these ridges are extensions of the Precambrian crystalline rocks of the New England Province which widens northeastward in New Jersey. The serpentine-talc zone of Chestnut Hill is atypical of regional Precambrian rocks, but is believed (Peck, 1905; Fraser [Miller, 1939], Bayley, 1941; Montgomery 1955, 1957) to represent serpentinized dolomitic marble possibly affiliated with the Franklin graphitic marble. About ten widely-separated small-scale occurrences of Franklin-like marble have been traced along two spotty belts for nearly 100 miles southeastward from Franklin, N. J. The Easton serpentine lies in one of these belts. The Franklin marble may be correlatable with the graphitic Grenville marble widely exposed farther north.

This visit will be to the accessible North Quarry part of the Williams quarry. Its walls of pale-green serpentine-tremolite rock show intense shearing effects in the form of slabby contorted structures and prominent fractures filled with snow-white tremolite and calcite. In the Central Quarry (see map) dike-like bodies of altered diabase (?) and a little phlogopite-specked marble are exposed. Graphitic phlogopite-banded marble (bedding N40E, vertical ?) lies above and west of the South Quarry. Big outcrops of sheared granite pegmatite are northeast, also south, of the main quarry. Pegmatite has intruded serpentine rock in and above the west wall between the Central and South Quarries. Whitish coarsely-crystalline diopside rock occurs near pegmatite above this west wall.

These paragenetic rock types can be collected in the North Quarry: pale-green serpentine-tremolite rock (whitish relic patches of bladed tremolite in greenish serpentine), greenish-gray diopside-tremolite rock (fibrous tremolite partly pseudomorphic after diopside), partly-micaceous gray-green serpentine-phlogopite rock, highly-micaceous olive-green serpentine, finely-granular white phlogopite-specked marble. These minerals can be collected: massive

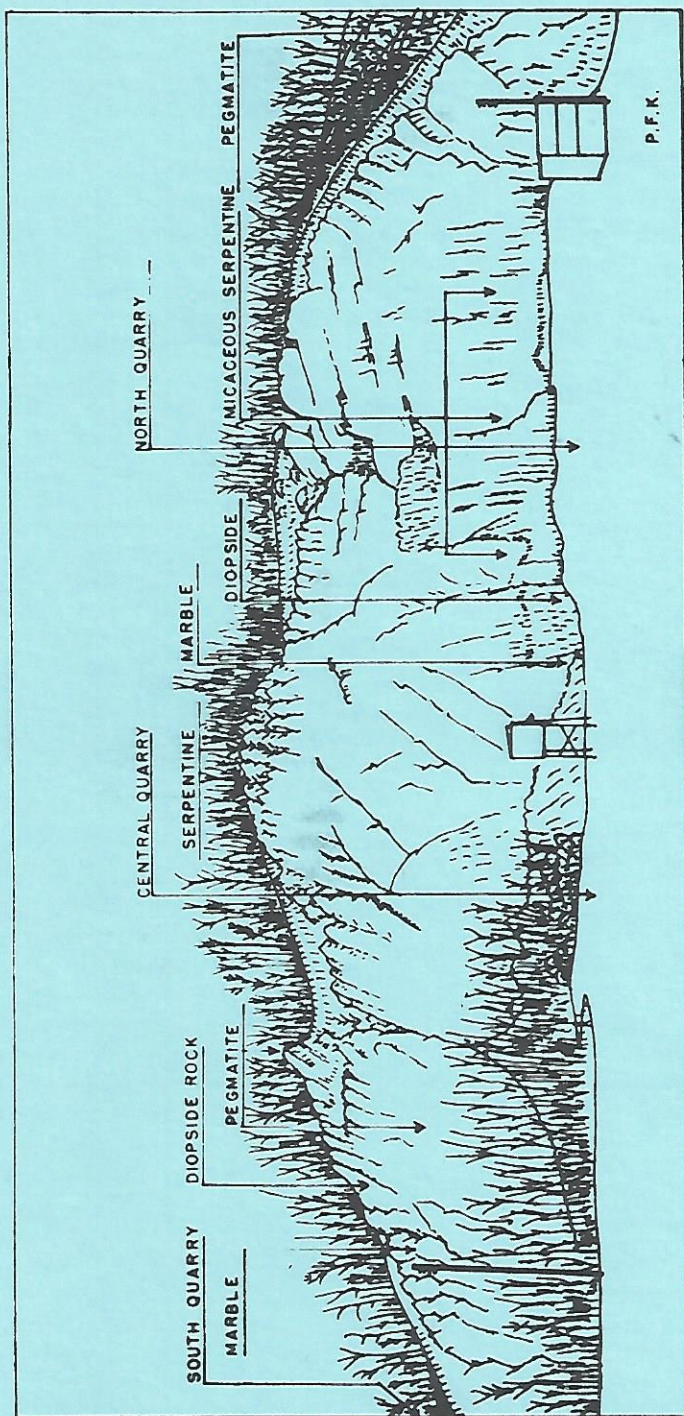


Fig. 1 -- Williams Quarry near Easton, Pennsylvania.

green serpentine, micaceous olive-green serpentine (commonly erroneously called "eastonite"), coarsely-crystalline glistening-white tremolite, fibrous snow-white tremolite, finely-prismatic snow-white calcite, coarsely-crystalline greenish-gray diopside (all diopside is partly altered to fibrous tremolite), slabby gray talc, coarse silvery hydrophlogopite (true eastonite), fine-scaly pale-brown phlogopite (in marble), colorless quartz, also gray microcline (in pegmatite and marble), minute pale-blue apatite prisms, minute brown plates of sphene, also tiny pale-brassy pyrite cubes (all in marble). One might find (with unusual luck!): small black grains of uraninite-thorianite (surrounded by yellow alteration rims of thorogummite, wol-sendorfite, boltwoodite, uranophane), small black grains of thorite (no alteration rims), small brown zircon prisms.

A long-continued sequence of mineral changes is inferred. Much serpentine altered from fibrous tremolite. Other serpentine probably replaced diopside, also dolomite. The sequence diopside-tremolite-serpentine is best proven by specimens showing relic tremolite fading into serpentine, with rare patches of this tremolite made up of finely-banded relic structures pseudomorphic after basal parting of vanished diopside. Minor talc seems associated with late shearing effects along lithologically-distinctive beds. Phlogopite is locally abundant in serpentine, perhaps following lithologically-distinctive beds also. The source of the K and Al for so much late phlogopite (eastonite) is a problem, unless it was in certain original shaly beds. Much phlogopite is partly altered to serpentine; highly micaceous serpentine, however, seems an effect of serpentine alteration. Very late fibrous tremolite and calcite filled open fractures, evidence of long-continued tremolite formation and shearing. Granite-pegmatite magma undoubtedly supplied heat, water, silica, also Zr, U, Th, Mo, Zn, Pb, Mn, Fe, S. Hydrothermal solutions, increasingly water-rich, must have invaded fractured rocks again and again. The source of the Mg for all the serpentine and talc of this area is unknown. It could have come in part from nearby diabase dikes, relics of which are found engulfed by granite pegmatite. Most likely it could have come from extensive original beds of dolomitic limestone. This may explain why some marble (dolomite-poor ?) remains unserpentinized.

REFERENCES

- Bayley, W. S. (1941), Precambrian geology and mineral resources of the Delaware Water Gap and Easton Quadrangles, New Jersey and Pennsylvania: U.S.G.S. Bull. 920, 8-53.
- Miller, B. L. (1939), Northampton County, Pennsylvania: Pa. Geol. Survey, 4th Ser., Bull. C48, 159-203, 435-466.
- Montgomery, A. (1955), Paragenesis of the serpentine-talc deposits near Easton, Pa.: Pa. Acad. Sci. Proc., 29, 203-215.
- Montgomery, A. (1957), Three occurrences of high-thorian uraninite near Easton, Pennsylvania: Am. Mineral., 42, 804-820.
- Peck, F. B. (1905), The talc deposits of Phillipsburg, N. J., and Easton, Pa.: N. J. Geol. Survey, Ann. Report, Pt. 3, 163-185.

Photo on next page: A view of the C.K. Williams Quarry photographed during an MSP sponsored field trip on November 15, 1953. The photographer was the late Harold Evans who recorded many of the MSP functions during the 1950's and 60's. See tribute, page 8.



THE VANARTSDALEN QUARRY

BY JOHN F. VANARTSDALEN

[Read before the Philadelphia Mineralogical Club.]

ABOUT two and a half miles north of Neshaminy Falls and four miles west of Langhorne, in Bucks County, Pa., is situated the old Vanartsdalen limestone quarry. It is located in a very old geological formation, and quite likely the Archaen. From what we can learn from observation at the quarry, the limestone must be of small extent unless it dips under the adjoining rocks, which is not likely, as they have a vertical cleavage. Evidently the only remaining trace of a former stratification.

Small veins of the pyroxene rock penetrate the limestone, and the late George Vanartsdalen procured almost the entire alphabet by polishing pieces of the limestone containing these veins. Many of the letters are quite perfect. It is said the words "Holy Bible" and "George Washington" were made from it.

The limestone was burned for fertilizer, and as it required more time to slack than the ordinary limestone, it was abandoned. The quarry has not been worked for over twenty years and good specimens are not likely to be found. I have been informed that there occurred twenty-six varieties of minerals in this quarry, but I could not get a list of that many. Some of those attributed to this quarry are found in the rocks near at hand, as zircon, garnet, etc.

The micas are apparently all phlogopites, and occur in three colors—brown, green and silver. The titanite or sphene is of the usual color and wedge-shape crystals. The crystals seldom exceed one inch in length and are usually found in the black pyroxene rock. The pyroxene is found in black crystals, also as sahlite, and the friable green variety known as coccolite, also a black variety similar to cocculite. The limonite is in small specimens, and is probably due to the decomposition of pyroxene. The apatite is of a bluish-green color, known as moroxite. Blue quartz occurs in the limestone, but is not of so deep a color as is found in the dykes south of the quarry. So far as is known only two crystals of quartz were ever found, and were found near the spring, being of a milky color and quite symmetrical, and being a little over half an inch in length.

Splendid large specimens of graphite were quarried. Massive and octahedral pyrites were found, the crystals being about one inch in length, three or four being all I know of, and they are considerably bruised, and are now to be seen in the collection of Henry D. Paxson, of Bicot, Bucks Co., Pa. Some Malachite of fair quality was also found near the spring, which seem to have been a good locality. The pyrrhotite is both massive and crystalized. One cupul in my collection is about one inch in length and a half inch in thickness. The Wollastonite is of the usual white color. The feldspar is glassy and of a blue color and somewhat opalescent, and is also found of a common white color. The scapolite is of a green color and occurs both massive and in crystals. It may still be seen in the eastern side of the quarry. Crystals of Calcite occur in a vein near the entrance. White, blue and pink cleavage may be seen at many places in the limestone.

The limestone is a fine granular or sacchacoidal marble, capable of taking a good polish, but the presence of graphite would make it unfit for decorative work.

Editor's note: The Vanartsdalen Quarry was visited in 1981 and was still accessible though heavily overgrown. Graphite and other limestone minerals could still be found.

A TRIP TO PHOENIXVILLE, PA.

BY SAMUEL MACFEETERS

FIVE members of the Philadelphia Mineralogical Club, Bengé, Hirleman, Koch, Dickinson, and myself, concluded to take Mr. Pennypacker's advice, that is, "fill your lungs with good Chester Co. air and your knapsack with rocks," so we took the 7:13 A.M. train, and after about an hour's ride, and passing through Perkiomen and Valley Forge, that famous place made sacred by the hardships that Washington and his men endured, we at last arrived at Phoenixville.

A short walk from the station brought us to our destination, the famous old Wheatley mines. And what a Paradise it is to the collector. Dumps everywhere. One dump contains pyromorphite, another ankerite, and so on; and if you can't find anything in one, there is another waiting for you; but you must work, and work hard if you want to find anything.

Many good finds were made that day, including quartz, pyromorphite, fluorite, etc. The pyromorphite is becoming quite scarce, and those having good specimens from this locality will do well to hold them.

A peculiar feature of the quartz crystals from this locality is that nearly every crystal found shows capping, and are quite interesting, being of milky quartz, while a few are nearly transparent, and some have the pyromorphite on them, making showy specimens. One specimen that I found is a capped crystal about four inches long and two inches across and has the terminal planes etched, but I will not try to describe the quartz of this locality as this has been done in an able manner by our friend, E. A. Groth, in the *COLLECTOR* of December, 1900, and those wishing to familiarize themselves with the quartz of this locality will do well to read his article, if they have not already done so.

After a day of hard work, we turned our faces toward the station just as the sun went down, tired, but well pleased with our trip, and our grips full of rocks and our lungs full of good Chester County air, and we extend thanks to Brother Pennypacker for having such good air in his County and such good rocks.

F. Harold Evans

I was saddened to learn of the death of Harold Evans on October 19, 1986. Harold's many years of activity in mineralogy spanned from the "Gordon era" until this year. He was a naturalist in the mold of such other notables as Gordon, Wherry, Trudell and Frankenfield. He maintained an active interest in cactus and butterflies, as well as minerals. He was an active participant in the Mineralogical Society of Pennsylvania and served as a past president. His job as company photographer for the Philadelphia Electric Co. prepared him well as photographer/historian of MSP during its formative years. His wife, the late Florence Evans, shared his enthusiasm for the natural sciences, and they both shared a strong devotion for each other. It was my privilege to know Harold and to work with him on the two books he produced in his later years. The Montgomery County Copper Mining book and the report on Charles Wheatley were important additions to the archives of Pennsylvania Mineralogy. He was awarded an honorary membership in the Pennsylvania Chapter of FM. And he was very kind in sharing information and pictures from his collection with me in recent years. My condolences to David Evans and his family for their loss.

Jay Lininger