FRIENDS OF MINERALOGY
Pennsylvania Chapter
NEWSLETTER

VOL. 32 NOS. 1–2 SPRING–SUMMER 2004

EDITORIAL: GETTING IT RIGHT THE FIRST TIME

Making a good decision has everything to do with getting correct information and then processing it into a reasoned and insightful result. Wouldn't life be easier if we always obtained the right information and acted accordingly? Obviously, this is not a real world scenario, and as a result, we all make our share of unintended errors.

Take the last issue of the PA/FM Newsletter. In it were two locality articles which provided some "reasoned and insightful" information which included some "facts" about the rediscovery of the two old sites. I promptly received a telephone call from FM member, Martin Anné, who informed me that my information regarding these rediscoveries was incorrect. In the case of the Shimerville occurrence, Anné noted that he and Joe Varady worked the location in the 60s, prior to Allen Heyl and his cohorts. In the case of the Carpenter Mine, my suggestion that the locality remained undiscovered among members of PA/FM until my 1999 trip to the occurrence was heartily challenged by Marty. He recalled having visited the site in the early 80s; he just didn't feel the necessity to share the information with anyone else. So, in the interest of accuracy, I relinquish any claims to the rediscovery of the Carpenter Mine. I would like to suggest that longtime Pennsylvania collector Allen Heyl probably visited the Shimerville site during the early 30s. His locality revisitation in the 1980s was accomplished with a view to gathering information for a locality description.

So what is the point thus far? The misinformation in the last issue is fairly innocuous and doesn't alter the main thrust of the locality information. Such is not always the case. The Skytop article in this issue underscores my point. For those who may be unfamiliar with this explosive and newsworthy event, here is a brief summary. Road construction for the proposed Interstate Route 99 uncovered a significant deposit of pyrite in a sandstone deposit on Skytop Mountain, just a few miles west of State College. High level project management at PennDot apparently turned a blind eye to the problem, and as in similar projects, used the blasted rock as ballast to fill in low spots and construct roadbed. Subsequent sulphide deterioration (familiar to all serious mineral collectors) soon created acid runoff which impacted local aquatic and wildlife species. Shortly thereafter, a battle ensued between those two titanic forces, PennDot and the Department of Environmental Protection.

Just how these circumstances evolved to the present standoff remains unclear. Did PennDot take shortcuts which overlooked the existence of the bedded pyrite during environmental studies? Who then gave the go ahead to construct roadbeds (as deep as 18 feet in one case) with the sulphidic rock? Not getting it right the first time will now prove costly to the taxpayers of Pennsylvania.

The Associated Press (July 26, 2004) reported that the construction of the Skytop section of Interstate 99 could be delayed for a year or more, as transportation officials attempt to resolve the acid runoff situation. The discovery of the acid runoff earlier this year has been the biggest construction setback for the transportation department since it began building the $700 million link between the Pennsylvania Turnpike and Interstate 80 some five years ago. Last year, PennDot's contractors dug up between 500,000 and 1,000,000 cubic yards of the pyritic sandstone. Once exposed to air and rainwater, the runoff quickly polluted Buffalo Run and Bald Eagle Creek. The discharge has been temporarily neutralized with 10,000 pounds of soda ash briquettes, but a permanent resolution has yet to be determined. In the meantime, commonwealth collectors, with strict stipulations, have been permitted to collect specimens in this rather costly "sandbox." The accompanying article is the first mineralogical article published on the occurrence.

On a positive note, a first time article on the status of the historic Genth collection has been submitted by Joe Dague. In a time when the status of Pennsylvania museum holdings seems shakier than ever, we welcome an update on this valuable mineralogical treasure.

Finally, an apology is offered to members of PA/FM for not receiving a SPRING issue of the Newsletter. The computer network at our production plant in York was invaded by a pack of cyber terrorists who degraded our system in an attempt to utilize our high speed T1 line. The serious nature of this intrusion caused unimagined problems until they were overcome. I ask for your indulgence in what I hope will be a one time event. This issue has been modified to a SPRING-SUMMER issue. ⚒

IN THIS ISSUE

RESERVE THIS DATE!

PA/FM FALL SYMPOSIUM
NOVEMBER 6–7, 2004

"CLASSIC EASTERN LOCALITIES: PART ONE"

DELAWARE COUNTY INSTITUTE OF SCIENCE
11 VETERANS SQUARE
MEDIA, PENNSYLVANIA

NEW PENNSYLVANIA LOCALITY

A Preliminary Report on the Minerals and Geology of the New I-99 Roadcut at Skytop in Centre County, Pennsylvania

by
Dr. Andrew Sicree
Curator of Mineralogy, Penn State University Museum

To the joy of local mineral collectors and the consternation of highway engineers, construction of the new I-99 Interstate Highway through Centre County, Pennsylvania, uncovered a numerous pyrite-laden rocks. In particular, the large "Skytop" roadcut where I-99 crosses the top of Bald Eagle ridge (along U.S. Rte. 322 west of intersection of Pa. Rte. 550 near Waddle) has large amounts of pyrite and other minerals occurring in veins and veinlets in sandstones.

Rocks of the Skytop roadcut were originally deposited about 440 million years ago. Clastic sediments and shallow marine carbonates formed the geological formations known as the Reedsville Shale, followed by the Bald Eagle Sandstone (typically thought of as a delta deposit), the Juniata Shale, and the Tuscarora Sandstone (a beach deposit). The Reedsville-Bald Eagle-Juniata sequence is late Ordovician and the Tuscarora formation is early Silurian. These rocks were deformed and uplifted as part of the Appalachian Fold Mountain Belt. This ancient mountain range was once as high as the modern-day Rocky Mountains or the Alps, but erosion has removed from three to nine kilometers (2-6 miles) of rocks, and the roots of the mountains are now exposed as the folded Valley and Ridge terrain of central Pennsylvania. Most of the structures (joints, faults and folds) exposed at the Skytop roadcut appear to have developed during the Alleghenian Orogeny (mountain-building episode) in the Late Permian about 250 million years ago.

Cutting through Bald Eagle Ridge in Centre County, highway builders have exposed the Reedsville-to-Tuscarora sequence of rocks. These rock beds are standing upright and may even be slightly overturned. Many bedding surfaces are marked by shale rip-up clasts (silver dollar-sized disks of black shale). Most of the pyrite occurs within the Bald Eagle formation, although some mineralization has also been observed in the Juniata and Tuscarora formations. Minor amounts of pyrite occur throughout the Reedsville Shale. This pyrite appears to be authigenic (i.e., it formed when the sediments were deposited) and is disseminated throughout the shales rather than occurring on joint surfaces. Within the grey-green colored sandstones of the Bald Eagle formation, iron sulfide minerals are typically found on joint surfaces rather than on the bedding planes, and where the joints open up to provide open spaces, nicely crystallized pyrite has been found. Some faults also cut the sandstones. In one fault zone, pyrite makes up 50–80% of a fault breccia that is up to a meter wide. This pyrite is mostly very small pyrite grains forming green-grey to black masses interspersed among fragments of grey sandstones. Fault slickensides occur in the pyrite and polished, grooved surfaces may be found in the fault plane. The slickensides indicate the relative direction of fault motion.

"One may also observe that, in addition to the matchsticks, there are lath-shapes and panel-shapes, irregular shapes with right-angled sides, and some cubes skewered by matchsticks."

The Skytop site is, in reality, a low-grade ore body. In the roadcut, one may observe both the oxidized cap rock (the "gossan") and unoxidized sulfide zone. The oxidized cap rocks are bleached white sandstones with joint surfaces covered with a mixture of iron oxide minerals. These surfaces are variously colored dull brown to shiny black to bright red, bright orange, or yellow. Mineralogically, these coatings are hematite, goethite, and other iron oxide minerals which are underlain by a thin layer of very small (less than 1 mm) quartz crystals. Layers of iron oxides may be more than 20 mm thick but are typically less than 3 mm thick. This gossan is particularly well-exposed in the remnants of the original road-cut located along old U.S. Rte. 322. It is possible to find blocks with both iron oxide and iron sulfide coatings, indicating that they were at the oxide-sulfide (oxidized iron-reduced iron) boundary.

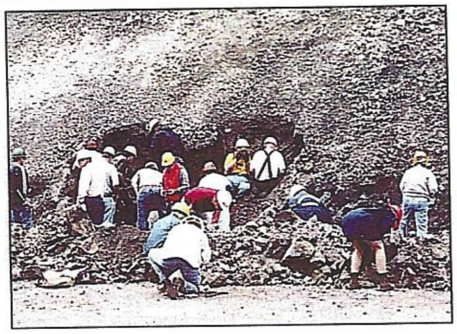
Rocks in the sulfide or reduced zone may display joint surfaces which are covered with very small pyrite crystals. Crystals on most of these joint surfaces are small enough to be difficult to examine under 30X magnification but they give the sandstone joint surfaces a sheen which is either grey-green or bright brassy-white. Walking along the base of the roadcut, one finds that many of the joint surfaces are covered with pyrite, and that larger (greater than 5 mm thickness) veins occur as well. The larger veins appear to be randomly spaced but there is typically at least one larger vein every 1 to 2 meters. These veins may range up to a meter in thickness, but most are less than 15 mm in thickness. Pyrite appears in at least two types of veins: the "dull" veins with grey-green pyrite and the "bright" veins in which the pyrite is bright brassy-white. Not everything which appears to be pyrite may indeed be pyrite. The presence of pyrrhotite has been confirmed by x-ray powder diffraction. Marcasite may also occur but the relative amounts and distributions of the various iron sulfides are, as yet, still undetermined.

The bright pyrite veins may have open spaces which can produce euhedral pyrite crystals (up to 5 mm) with cubic habits and light striations. Smaller pyrite crystals (less than 2 mm) displaying both cubic and octahedral faces also occur. These crystals have faces which may be quite smooth and bright, and may even appear to be shiny metallic white rather than brassy.

The pyrites with the most unusual morphologies at the site are the so-called "whisker" pyrites. These pyrites are very small (typically less than 1 mm in length) but they have length-to-width ratios of 10:1 or even 50:1. When examined with a hand lense or binocular microscope they are quite spectacular. Closer examination reveals that the "whisker" terminology is somewhat inappropriate. First of all they do not curve - most of the pyrite crystals are perfectly straight. Under the scope they more closely resemble a pile of match sticks. One may also observe that, in addition to the matchsticks, there are lath-shapes, and panel-shapes, irregular shapes with right-angled sides, and some cubes skewered by matchsticks. Some matchsticks display complicated end terminations. Some of the stick-forms may be pyrrhotite or marcasite. These matchstick forms may be found associated with both the "dull" and "bright" veins. This locality may be one of the best sources for "whisker" pyrites in the world! Certainly it will produce some very good micromounts.

It is important to note that iron sulfides occur in quantities sufficient to cause a major environmental problem at the site. Because much of the pyrite is located along joint surfaces it is readily exposed to air and water when excavated. Oxidation of the iron sulfide minerals produces iron oxide minerals and releases sulfuric acid. This acid rock drainage has been occurring naturally at the site due to erosion and weathering of the ridge sandstones, but the blasting and excavating associated with road-building have exposed large quantities of iron sulfides to ready supplies of air and water thus greatly accelerated the acid-producing reactions.

Other minerals at the site include minor amounts of sphalerite, typically in crystals less than 2 mm, although one specimen of massive sphalerite was found with a seam of sphalerite at least 20 mm wide. Galena is less common than sphalerite and occurs at the site in small (2 mm or less) cuboctahedrons, some of which may be heavily etched. It is possible that chalcopyrite may occur at the site although this has not yet been confirmed. Arsenic and other heavy metals are found in the run-off waters but the mineralogical sources of these elements have not yet been identified.



Attendees of the Penn State Mineral Symposium participated in a field trip to the Skytop roadcut.

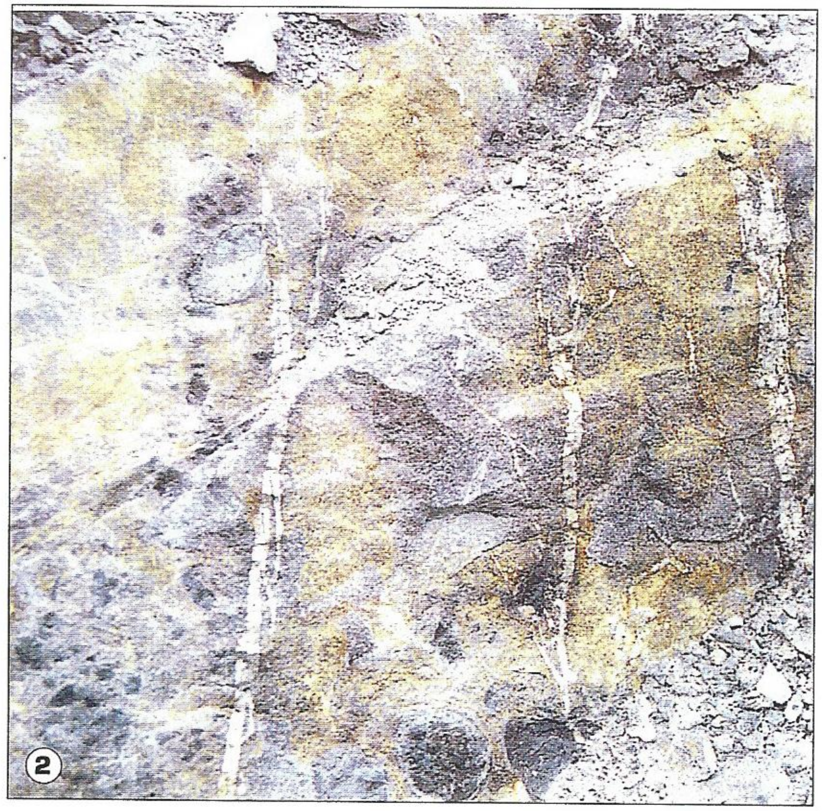
Fine small quartz crystals (displaying mainly the pyramidal faces about 1 mm across, although some 2 mm doubly terminated clear quartz crystals were also observed) occur in the pyrite veins typically forming a layer between the pyrite and the sandstone country-rock, thus indicating that the quartz was deposited before the pyrite. The iron oxide minerals such as hematite, goethite, etc. occur in the oxidized gossan. Typically, the iron oxide minerals coat a layer of quartz crystals similar to those found associated with the pyrite veins. This indicates that, upon oxidation of iron sulfide minerals to iron oxide minerals, much of the iron probably did not move, but the sulfur was carried away as dilute sulfuric acid (sulfate ions in solution).

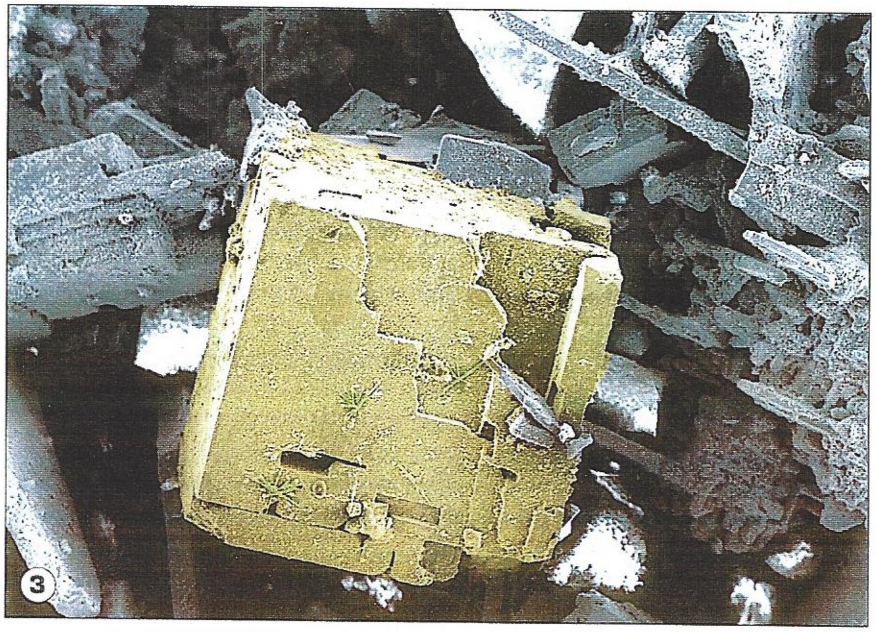
The outcrop continues to weather and white and yellow weathering product minerals have been observed. At least some of the yellow crusts are copiapite (an iron sulfate) and other sulfate minerals probably occur there as well. Many of these crusts are water-soluble and will disappear during a rain storm and then reappear as the rocks dry out.

South of Skytop, I-99 moves out of the Bald Eagle and Juniata Formations and into the Silurian Tuscarora Sandstone. Much of the roadwork in this area involved moving around large boulders of white sandstone from the naturally-weathered talus slopes on the side of the ridge so little of the bedrock was exposed. However, pyrite was observed on some blocks of sandstone during the excavation phase although it was much less plentiful than in the Ordovician sandstones. More interestingly was the discovery of several specimens of apple-green variscite as up to 3 mm thick apple-green mammillary masses of fine radiating sprays of green crystals with white roots. These specimens were initially called "wavellite" but recent x-ray analyses confirm that they are indeed variscite (an aluminum phosphate mineral). Wavellite was found in close association with the variscite and the wavellite (also an aluminum phosphate) appears as white to cream-colored radiating sprays which may be 2 mm thick and have crystals up to 15 mm long. A single boulder of white sandstone yielded both green crusts of variscite and cream-colored sprays of wavellite. Also found in this boulder was a highly-unusual pod (about 10 cm in diameter) filled with a tan-colored material with brown-colored spheres (about 8 mm in diameter) with white cores (about 7 mm in diameter) suspended in it. Initial analyses of this pod indicates that it is composed of a mixture of quartz, some minor mica, along with the phosphate minerals variscite, crandallite, and possibly some minor amounts of woodhouseite and meta-variscite.

The I-99 roadcut sites are controlled by PennDOT and access to the site is only by permission of the local PennDOT office. Unplanned visits by individuals are not allowed. Because this is an active road construction zone, there are numerous hazards at the site, including heavy equipment, unsecured overhead beams, wood boards with nails, etc. No one visiting the site should climb up the outcrop nor should they climb on any heavy equipment at the site. A word of caution: let's not spoil the site for collecting by having people entering it unauthorized and getting hurt.

We have only just begun to study the mineralogy of the Skytop site. If, as stated above, the pyrite-rich zone is really a subeconomic ore body, possibly related to the "Mississippi Valley-type" deposits, then we have a rare opportunity to see and study this type of deposit in a major exposure in Pennsylvania. Research on the site is being conducted by Dr. David Gold and myself at Penn State University in State College, and Dr. Ryan Mathur at Juniata College in Huntingdon, Pennsylvania, and others. Look for more details in the future. ⚒





MINERALIZATION AT SKYTOP

1. View of the I-99 Skytop roadcut. 2. Vertical veins of pyrite at Skytop. 3. Pyrite in the cubic and "matchstick" morphology, photographed by Dr. Ryan Mathur, Juniata State College, ×70. 4. Horizontal vein of pyrite following a fracture in sandstone. 5. Large hematite-coated boulder seen near intersection of I-99 with old U.S. Rte. 322. MATRIX photos.

PENNSYLVANIA MINERAL HISTORY

A Recent Visit to the Genth Collection

by
Joseph A. Dague

Introduction

The legendary Genth mineral collection has remained securely under lock and key in the recesses of the Penn State College of Earth and Mineral Sciences for more than half a century. Its use for research purposes has been limited to a handful of qualified scientific people with specific research goals. Recently, a rich archive of preserved Genth papers, and access to the Genth Collection was made available to FM member Joe Dague, who has performed significant conservation efforts in behalf of the university.

A primary objective is to publish an in-depth biographical sketch of Genth, who in spite of his remarkable contributions to 19th century mineralogy, remains little known to collectors in the 21st century. This article shares insights into the Genth collection, and a future article to be published in *MATRIX*, will provide new and previously unpublished information regarding this notable Pennsylvania mineralogist and chemist. The article was abstracted from a program presented by Dague at the recent Penn State Mineral Symposium.

Dr. Frederick Genth and His Collection

Penn State's College of Earth and Mineral Sciences has a true time machine tucked away in the basement of the Deike Building. There, still preserved intact in steel drawers and subdued by a deposit of dust, stands a cabinet of minerals assembled by Dr. Frederick Augustus Genth–19th century America's leading analytical chemist and mineralogist.

Frederick Augustus Ludwig Carl Wilhelm Genth was born in Hesse, Germany on May 17, 1820. From early childhood, his father, George Frederick Genth–High Forester to one Prince Issenbourg, led him to take an interest in nature, especially plants and minerals. He attended the University of Heidelberg under the instruction of Gmelin in chemistry (namesake for gmelinite); then at Geissen, devoting himself mainly to chemistry under Liebig. Eventually Genth entered the University of Marburg, where he studied chemistry under Robert Bunsen.

In the summer of 1848, after serving three years as a Private-Docent at the University of Marburg, Genth sailed for Baltimore. Soon after his arrival there, he went to Philadelphia, where he established one of the earliest analytical laboratories in America. In the fall of 1849, he accepted an offer as superintendent of the Washington Mine, gave up his lab and moved to Davidson, North Carolina.

"Genth's cabinet of minerals, fortunately however, remained intact, and his children eventually donated the cabinet of minerals to Dean Edward Steidle . . ."

He returned to Philadelphia in August of 1850, reopened his analytical laboratory and devoted himself to mineralogical investigations, research, commercial analysis and the instruction of special students in chemistry.

His work in pure chemistry, especially on ammonia-cobalt bases with Dr. Wolcott Gibbs of New York ranked as one of the highest chemical investigations ever made in this country. The widespread interest that this research created led the University of Pennsylvania to offer him the Professorship of Chemistry in 1872 upon the death of Prof. Wetherill.

At first he declined the offer, because of the pecuniary sacrifice involved, but later accepted with the understanding that his private work could continue. He went on to hold his chair at Penn until the fall of 1888, when he severed his connection with the University and returned to private professional work.

Besides his investigations in pure chemistry, Genth is best remembered by mineralogists and mineral collectors for his research in chemical mineralogy. In 1851, he announced the discovery of traces of platinum in Lancaster County, Pennsylvania, and magnetic pyrite, containing 2.9 percent nickel at the same locality. This became the basis for the important nickel industry at Gap.

The same year he described a new mineral from Texas, Lancaster County, which he called gymnite, but Dana later named genthite–now known as Ni-deweylite. Over his career, Genth established 23 separate minerals–a dozen of which remain valid species today–including nesquehonite from here in Pennsylvania.

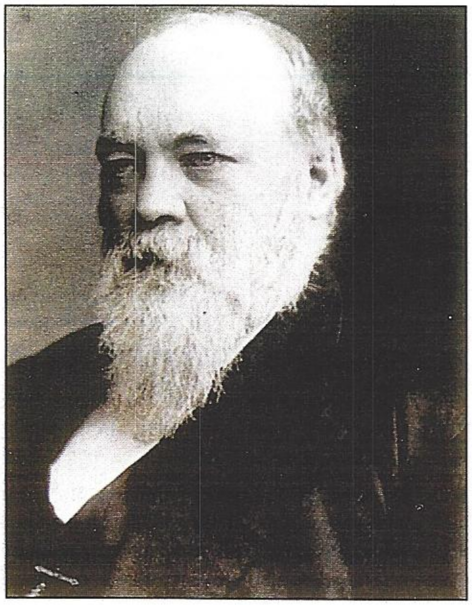
His investigation titled *Corundum: Its Alterations and Associated Minerals*, and published in 1873 probably ranks as his most important mineralogical research.

In 1874, Prof. Lesley, Director of the Second Geological Survey of Pennsylvania appointed Dr. Genth Chemist and Mineralogist of the Survey. By the end of that year, he issued a *Preliminary Report on the Mineralogy of Pennsylvania*–the first statewide mineralogy of Pennsylvania.

He also served as Chemist to the Board of Agriculture of Pennsylvania and did much by his chemical investigations to develop the state's agricultural industry–especially by his analysis of fertilizers (establishing a connection between mineralogy and B.S. that flourishes even to this day.)

His handwritten *Catalog of the Collection of Minerals of Dr. F.A. Genth* lists 5,873 specimens, "*arranged according to the* ***Descriptive Mineralogy—6th Edition*** *by Edward S. Dana 1892.*" As a format for his catalog, Genth adapted an old policy record book from the United Firemans Insurance Co. of Philadelphia.

Someone had previously used the book to record real estate descriptions. Consequently, entries for glaucophane, riebeckite



Professor Frederick A. Genth
1820–1883

and crocidolite, for instance, appear opposite the description of an Egg Harbor farm consisting of *"15 acres, 6-room house, barn, chicken and tool houses, all in good condition—barn needs a little repair."*

In his will written in October of 1891 Genth directed his executors to sell the collection as a whole, provided they could get at least $5,000. Otherwise *"these suits of minerals and typical specimens representing my scientific researches may be sold, being divided, so as to bring the best prices"*–spoken like a true Pennsylvania "Dutchman."

Genth's cabinet of minerals, fortunately however, remained intact, and his children eventually donated the cabinet of minerals to Dean Edward Steidle here at Penn State in 1945. *"To make the memorial to our dear father as complete as possible,"* they also gave Steidle their father's, *"reports, diplomas, letters, etc. from 1836, when he started preparatory school at Hanau (Germany), to the time of his death (in Philadelphia) February 2, 1893."*

I don't know by what masterstroke Steidle snatched this collection away from Penn. But papers among the Genth material indicate Penn exhibited the collection–complete with a large bronze building plaque–in "Dr. Genth's Mineral Room" at his former home on 3937 Locust Street, Philadelphia.

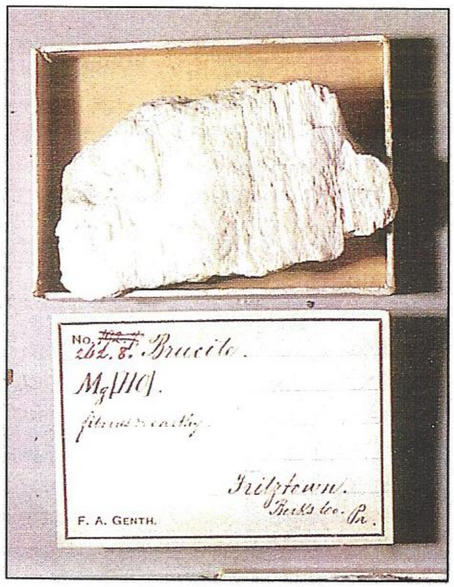
Traditionally, mineralogists at Penn State's College of Earth and Mineral Sciences curate this gift of Genth's fine assemblage of minerals. Unfortunately, the cramped storage facility for the collection and concerns for its protection restrict public access for viewing the specimens. However, thanks to the generosity of Dr. Peter J. Heaney, and the facilitating effort of Dr. Andrew Sicree, the author was priviledged to study and photograph the collection.

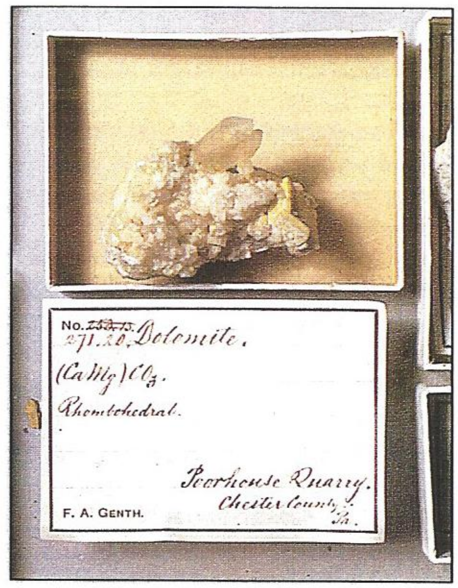
Most of these specimens fall in the 2 x 3 inch to 3 x 4 inch size ranges. I photographed them in their original cabinet trays along with their original paper tray labels. Genth's suit of Pennsylvania minerals consists mainly of specimens given to him for analysis and identification.

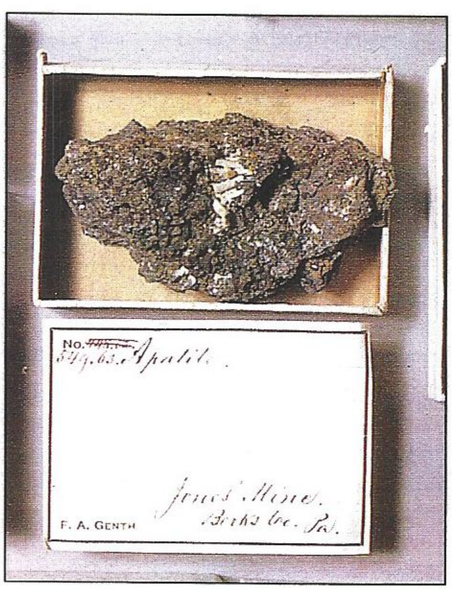
His papers indicated he received minerals from many of Pennsylvania's mineralogical giants, including Fellows, T.D. Rand, and Professor D.B. Brunner of Reading. Others were acquired from members of the Geologic Survey such as Charles Asburner, E.V. d'Invilliers, F. Prime, Jr., and Persifer Frazer, Jr., plus numerous other field collectors from that era.

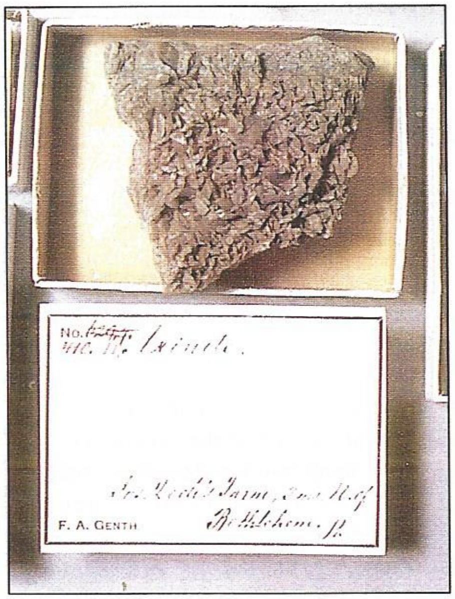
All of these specimens date back at least to the 1880s, and most even earlier. Unfortunately, many early mineralogists considered recording exact localities as unnecessary. Crosschecking Genth's labels and catalog entries against references from his published geological papers that Samuel Gordon cited in his later *"Mineralogy of Pennsylvania,"* helps identify the provenance of individual specimens more precisely.

Genth did not intentionally pursue the beautiful in assembling his collection, yet in it he created a beautiful instrument of scientific illustration. ⚒





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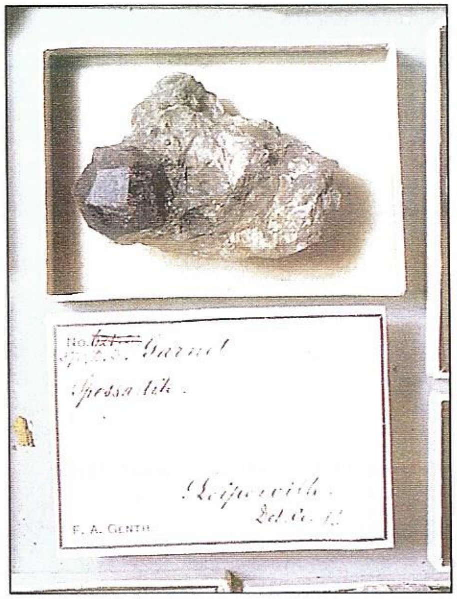
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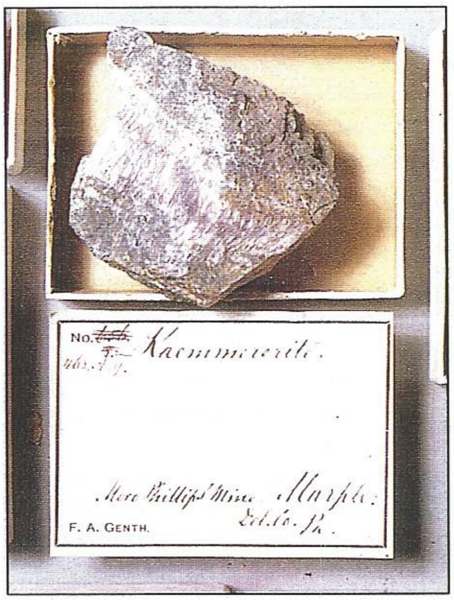
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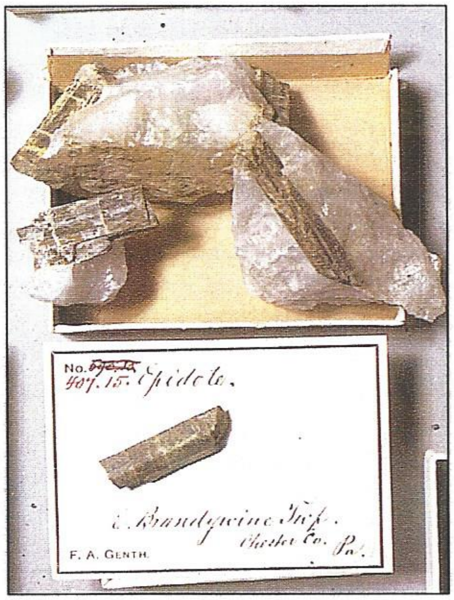
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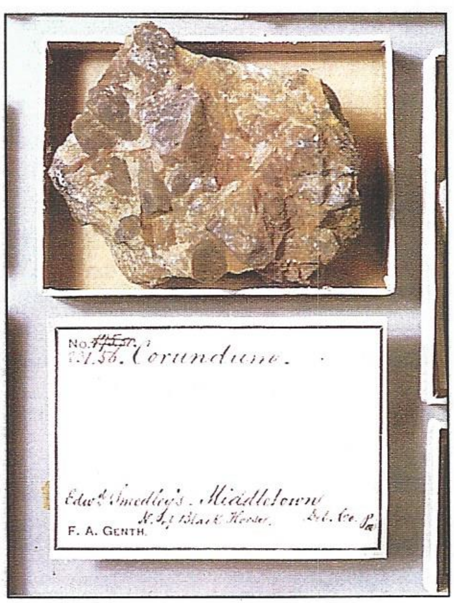
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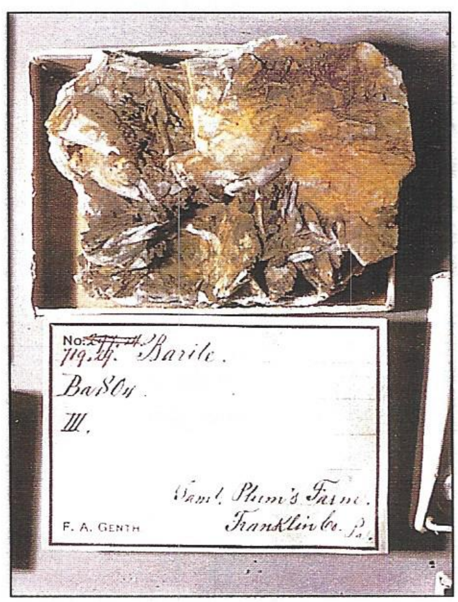
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F. A. GENTH

CLASSIC PENNSYLVANIA LOCALITY

Chloritoid from Pape's Orchard, Idaville, Adams County, Pennsylvania

by
Jay L. Lininger

Introduction

It is a well established fact that rich and varied mineral resources, particularly coal, iron and limestone, propelled the Commonwealth of Pennsylvania into a leading economic position in the United States. For the first 250 years of our history, mineral wealth was the backbone of Pennsylvania's economy. The complex Commonwealth geology contributed to a wide range of economically valuable mineral resources, both metallic and nonmetallic. As recently as the 1950s and 1960s, attempts were made to exploit some of the lesser known deposits. Among these, were barite, uranium and sericite. While these efforts were largely unsuccessful, the "residue" of the mining operations themselves offered an interesting selection of mineral species. This article features one example, a sericite mining operation located near Idaville, Adams County. It was at this location that fine specimens of the mineral chloritoid, $(Fe^{2+},Mg,Mn)_2Al_4SiO_{10}(OH)_4$ were recovered in some abundance in the 1960s and 1970s. Today this location has been totally obliterated, but enough specimens remain in collections to make a worthwhile account of the occurrence.

A Brief Overview of Adams County Sericite

Sericite is a synonym used to describe fine-grained mica-like rocks, usually consisting of an argillaceous muscovite. Metamorphic in nature, sericite can be formed in a variety of geologic environments. The Adams County variety is a unit of the Catoctin metavolcanic rocks. This distinctive rock type attracted the attention of geologist and entrepreneur alike, most likely because of its physical characteristics. Its greasy schist or slate-like appearance and gray-white to greenish color led it to be variously described as soapstone, pyrophyllite and volcanic slate. The true nature of Adams County sericite remained unrecognized until the 1890s, when George H. Williams and Florence Bascom first observed the igneous "markers" that revealed its origin. Earlier, Professor Henry D. Rogers of the 1st Pennsylvania Geological Survey described it as *"fissile talcose rock."*

Bascom theorized that Adams County sericite represented an alteration facies of the acid eruptive rocks (rhyolite) in the South Mountain region. She noted that *"the development of sericite stands in direct relation to the shearing and increases up to an almost complete, if not quite complete, replacement of the feldspathic constituents of the ground mass."* In the 1930s, George Stose, noted Appalachian geologist spent considerable effort studying the South Mountain metavolcanic rocks. Of the sericite units he would theorize that *"The rock is apparently a volcanic tuff altered to a schist by metamorphism through intense compression and shearing."* Stose also made the interesting observation that a number of sericite deposits were located at the contact of metabasalt and metarhyolite formations. This led to the suggestion, based upon the work by Fauth and Freedman, that the pyroclastic nature of South Mountain sericite represented the remnants of altered volcanic ashbeds. Fauth reported that *"cleavage is the most conspicuous planar structure in these rocks. . . . Many of the phyllite zones are marked by the occurrence of prominent veins and float of milky white quartz."* At the Idaville site, quartz fitting this description was seen in abundance.

> ***"The hexagonal-like appearance is deceiving as the mineral is either monoclinic or triclinic; both forms can occur in the same matrix."***

Stose described numerous attempts to quarry the sericite in the 1930s, for a variety of purposes ranging from roofing slate to firebrick. None were successfully sustained however until the 1950s, when an emerging market in personal care products (baby powder, makeup, deodorants, etc.) evolved. These items required an extender or filler in order to add substance to the product. Fine-grained muscovite, a potassium aluminum silicate was ideally suited because it contained no toxicity for human consumption. Additionally, it was plentiful, easily recovered and inexpensively ground into powder. In 1957, the Summit Mining Company began working a large sericite deposit near the southern Adams County village of Mt. Hope. A processing plant was constructed near the railroad spur line at Aspers, and a lively business in ground sericite was soon underway.

A few years later, a high grade deposit of sericite was observed near Idaville, during the planting of an orchard on the Eva Pape farm. In August 1962, the Mauna Mining Company was established by several local business people, who leased the deposit and began mining operations. The ore was trucked to nearby Aspers for processing. Shortly after the opening of the mine, a black-green mineral in a small pseudo hexagonal crystals was observed in certain beds of the sericite. The mineral was identified as chloritoid, a neosilicate containing iron, magnesium, manganese and aluminum. Though the mineral is a common constituent in many low grade metamorphic rocks, chloritoid is uncommon in Pennsylvania, especially in well-defined crystals.

Chloritoid at Idaville

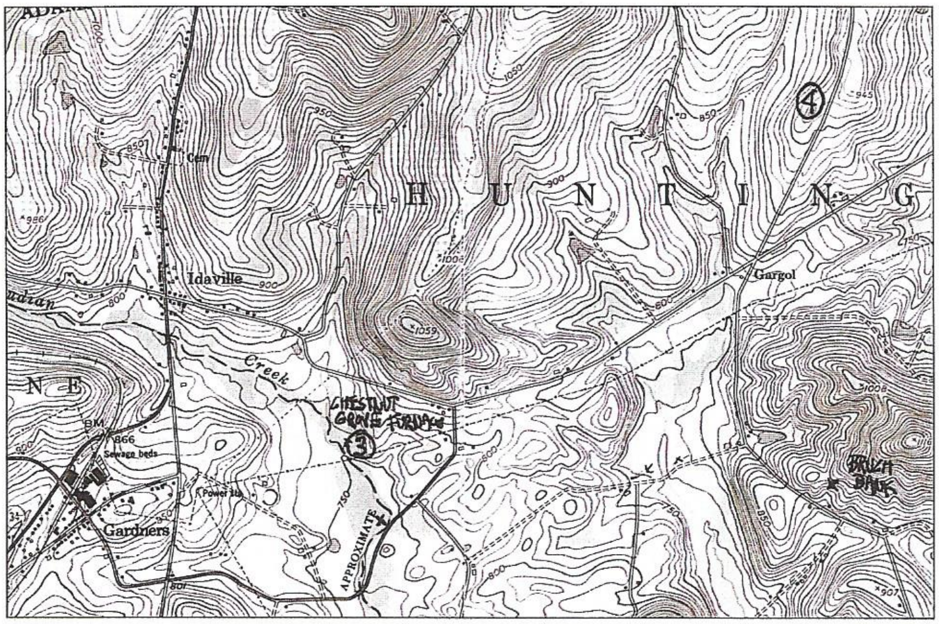
On the excitement scale, chloritoid would probably be assigned a low number by most collectors. It nevertheless is an interesting mineral which provides a clue to the regional geology in which it resides. Chloritoid is not a member of the chlorite group, in spite of its species name and its similar appearance to various chlorite minerals. The hexagonal-like appearance is deceiving as the mineral is either monoclinic or triclinic; both forms can occur in the same matrix. This can be better understood by considering the crystal structure of chloritoid, which consists of two types of octahedral layers oriented parallel to the (001) plane. The structure of the layers is determined by variable amounts of ferrous iron, magnesium, manganese and aluminum. This layered structure results in a perfect (001) cleavage similar to the (001) cleavage in micas.

Gordon reports four confirmed chloritoid occurrences in Pennsylvania. The Center Mills ore bank and Whitestown localities date back to the Genth era, when iron was still being mined in Huntington Twp., Adams County. Whitestown is an earlier name for Idaville, and Center Mills is located nearby. Thus, the 1960s Idaville chloritoid discovery was in actuality the newer iteration of an earlier locality. The author has never seen a 19th century specimen, but Genth describes the earlier chloritoid as being found in *"disseminated scales and plates."*

-Gordon also reported a chloritoid occurrence at the Pequa Mines, Lancaster County in phyllite. In the 1970s, Jim Quickel and I searched diligently through the Pequa dump material, and had success finding tiny chloritoid crystals in a dark phyllite associated with milky quartz. This is a mineral easily overlooked by the collector seeking metallic minerals. Gordon also records chloritoid from a phyllite at Conshohocken, Montgomery County.

The sericite mine at Pape's orchard was not a complex operation. The mine was a surface stripping worked by bulldozer and end loader. Operations were sporadic, most likely activated on an on-demand basis. One might visit the location over a several month span and observe no progress. Then, the next visit would be greeted by significant excavation.

Mining followed the purest outcrops of sericite. Those containing mineral inclusions tended to be avoided. Collecting them became an easy, and familiar exercise. As the word spread, many thousands of well-formed chloritoid specimens were preserved. Several other minerals found in the sericite were magnetite and pyrite in crystals. Occasionally, limonite pseudo pyrite in sharp cubes would be found. A persistent rumor that corundum could be found at the Mauna Mining Company operation, circulated for many years. This possibility seems unlikely, and an actual specimen has never been encountered by myself or any other collector who visited the occurrence on a regular basis.



Location of Pape's Orchard on 7.5 minute Mt. Holly Springs quad map.

By the late 1970s, all mining activity ceased. Sometime in the mid 1980s, Jim Quickel and I made a visit to the occurrence on a bitter cold winter afternoon, while on the way home from a field trip. With foliage all gone, we stopped at a nearby overgrown outcrop that was virtually impenetrable with brambles during the growing season. In the center lay a boulder of dense tan-gray sericite weighing several tons. It was studded with the best chloritoid crystals of any I had ever observed at the location. We broke off several chunks, vowing to return in the early spring and increase the world's supply by many times over.

I returned to Pape's orchard the following April and was greeted by a sight I could never have imagined. The entire area had been totally reclaimed. The pits were filled to ground level and all outcrops, including the overgrown area, had completely disappeared. In its place, an orchard had been established. Apart from some random chloritoid-bearing sericite found around the base of the new trees, there existed no evidence that mining had ever taken place. A classic Pennsylvania mineral occurrence was once again relegated to textbooks and those specimens saved by earlier collectors.

Little has been previously published about this notable locality. This article has been published to clarify the facts regarding the occurrence. For the observant collector who may encounter chloritoid specimens, they may be labeled as the Mauna Mining Company, Pape's orchard, Idaville, Gargol (an unincorporated village nearby), or simply Adams County. ⚒

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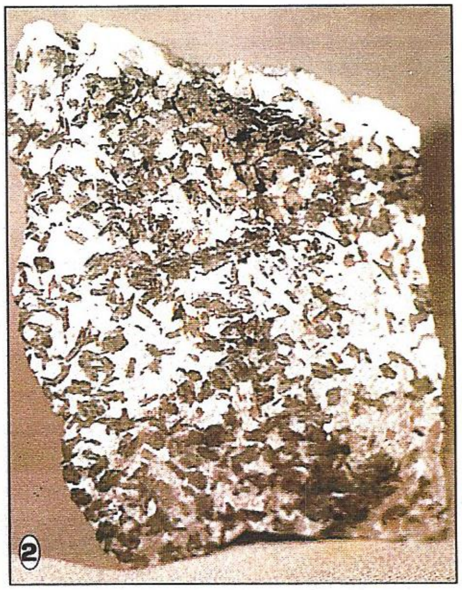
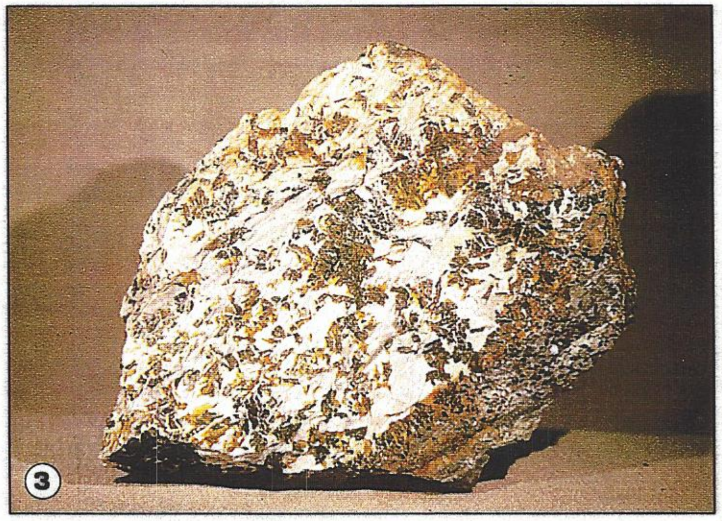
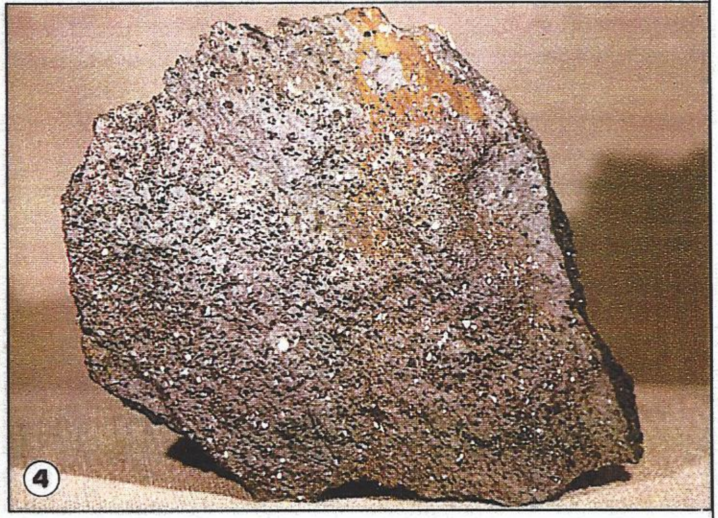
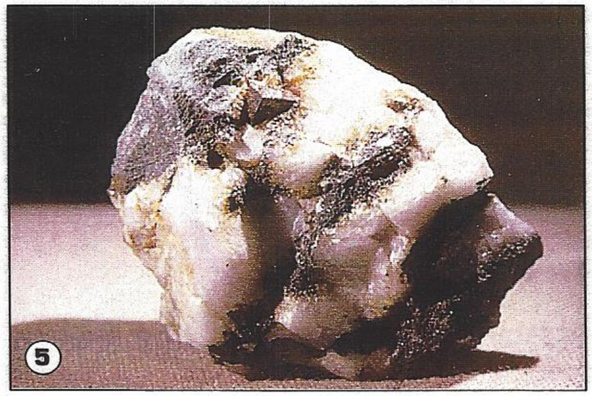


1. Sericite outcrop worked by the Mauna Mining Co., circa 1964. 2. Chloritoid crystals in sericite from the "overgrown" outcrop, 4" in height. 3. Chloritoid in sericite, Mauna workings, specimen 7" in width. 4. Magnetite crystals in green sericite, specimen 6" in width. 5. Limonite pseudomorph in quartz, green sericite; specimen 3" wide. 6. Reclaimed sericite mine area. Note sericite around new trees.







FM/PENNSYLVANIA CHAPTER NEWS

SPRING FIELD TRIP: Approximately 30 FM members assembled on March 27th for the annual spring outing. After a "rocky start" in the morning, the trip settled into a productive afternoon. The accidental death of a Hansen employee earlier in the week led management of the Lime Bluff Quarry to deny access to the property. The group then held an impromptu meeting in the parking lot and then moved onto the tour of the Priestley House in Northumberland.

After lunch, the group made a quick stop at the old copper adit located at the Shikellamy Overlook. This outcrop of the Bloomsburg Formation is leached with copper carbonates and silicates and represents one of the southern most occurrences of this formation. The group then headed southward to Mt. Pleasant Mills.

The weather developed into a bright, clear afternoon, providing ideal collecting conditions. The assembled group was greeted by Eric Stahl, owner/manager of the active quarry operation. Along with providing the usual safety stipulations, this congenial gentleman exhibited specimens of recent finds. Among them was a well crystallized wavellite recently recovered from the high wall on the south side of the quarry. FM attendee Mike Sheasley searched that portion of the quarry, and collected additional wavellite with minute hairs of cacoxenite. This may well represent a first time occurrence for Snyder County. Unfortunately microphotos of this specimen didn't reproduce well enough to be included.

Most collecting efforts were directed along the east wall where several large vugs of strontianite and calcite yielded some fine specimens. Skip Colflesh, whose personal relationship with the quarry owners was instrumental in arranging the trip, also provided a number of flats of specimens for those who were unsuccessful in collecting worthwhile strontianite.

Good specimens of calcite and crystalline fluorite in purple masses were abundant. The Mt. Pleasant Mills Quarry is destined to be a future Pennsylvania classic occurrence. Commonwealth collectors owe a debt of gratitude to the Stahl family, whose philosophy of specimen preservation is a refreshing change from the corporate mentality of larger operations. We all need to foster continuing respect and positive communication with these "friends of mineralogy" (see field trip photos, page 12).

FALL SYMPOSIUM (NOVEMBER 6-7, 2004): The change of location and format for last year's symposium held at the Delaware County Institute of Science, met with general approval from our membership. A number of our members expressed a desire to return our programming to a locality theme. Several members also requested that a registration form not be presented as one of the Newsletter pages. The Board of Directors were in agreement; the registration form is included as a separate item and this years' programming will begin with a new series entitled "Classic Eastern Localities/Part One." A revival of interest in these locations offers an opportunity to educate collectors with valuable information in a visual and enjoyable style. The first speakers in this ongoing series include the noted mineralogist, Steve Chamberlain, mining historian Johnny Johnson, and field collector, Steve Okulewicz.

Last year's auction, featuring material from the Wychunas Collection, was the most successful in years. The Board urges members to keep this momentum going by digging deep to donate your excess specimens. This spreads the mineral wealth and helps to sustain our chapter. A silent auction will also be featured for the first time. Several tables will be available for members or dealers willing to share a percentage of sales to help support FM activities. There will be a three flat maximum for this event.

More details, including field trip information, will be included in the Fall Newsletter.

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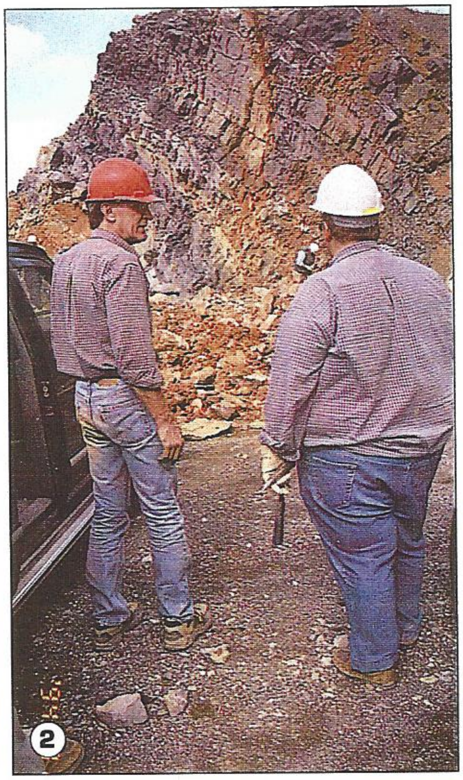

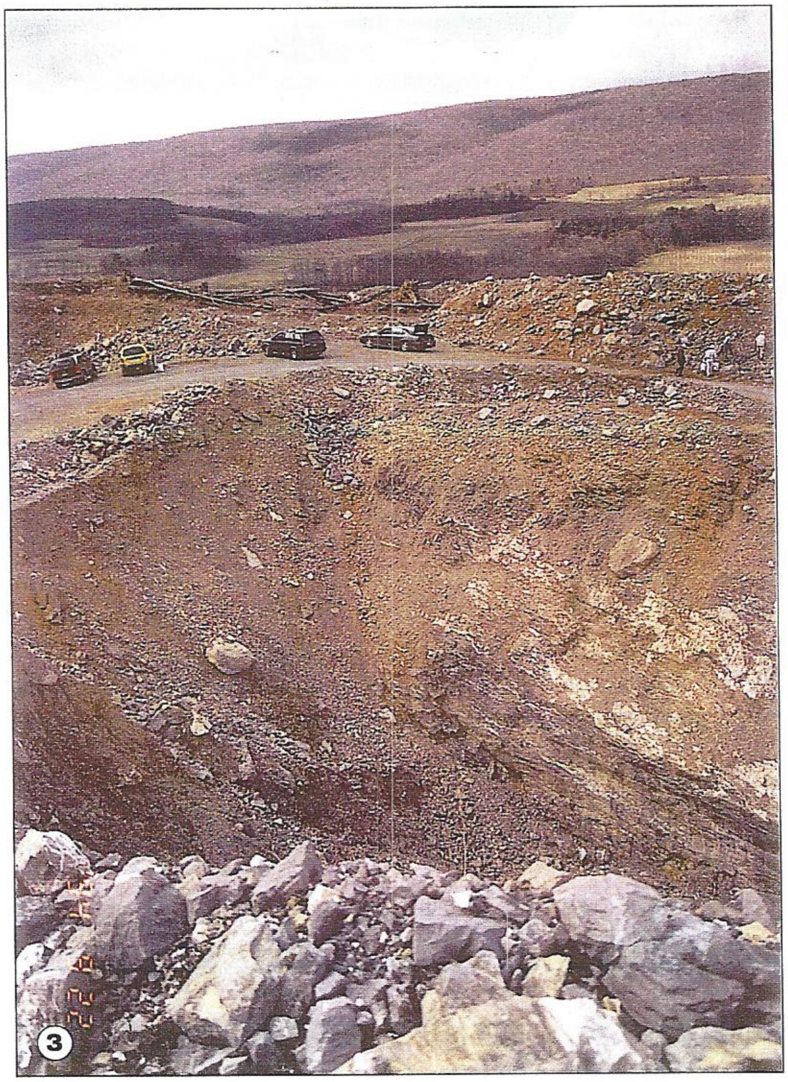

PA/FM FIELD TRIP TO MT. PLEASANT MILLS

1. Folded and fractured formation of Silurian limestone rich in calcite/strontianite mineralization. 2. FM member Skip Colflesh and quarry owner Eric Stahl discuss the merits of mineralization at this location. 3. Overview of the Mt. Pleasant Mills Quarry nestled at the base of the Applachian front. 4. Vug rich in strontianite and calcite. MATRIX photos.