

**Friends of Mineralogy
Pennsylvania Chapter
and
West Chester University
Earth and Space Sciences Department**

2025 Symposium for Mineral Collectors

**Symposium, November 8, 2025
Field Trip, November 9, 2025**

**Presented Online and In Person at
West Chester University**



Doubly terminated amethyst crystal, East Bradford Township, Chester County, PA,
6.5 cm. Collected in 2025.

Ron Sloto collection and photograph.

Friends of Mineralogy

Dedicated to the advancement of serious interest in minerals and related activities

We are collectors, professionals, and curators who share a love of mineral specimens and the desire to promote understanding and appreciation of mineralogy.



FM's objectives are to promote, support, protect and expand the collection of mineral specimens and to further the recognition of the scientific, economic and aesthetic value of minerals and collecting mineral specimens.

National FM newsletters, links to other chapters, and much more can be found on their web site: **www.friendsofmineralogy.org**



Friends of Mineralogy - Pennsylvania Chapter provides:

- the benefits of membership in the national organization
 - an annual Symposium in November
 - field trips
 - quarterly illustrated Newsletter
- an extensive WWW site with news, downloadable books, and more
- **NEW!** Membership in EFMLS with its many benefits

Membership application forms are available on our web site

Please explore the FM-PA web site at
www.rasloto.com/FM/

Symposium Zoom information

The Zoom link is being sent via e-mail. The session opens at 8:00 a.m.

Please join promptly so that the Symposium can begin at 8:30 a.m.

Start by muting your microphone to avoid extraneous noises in the symposium.

Please submit questions via Chat (move cursor near bottom of screen to make line of icons appear).

Professional Geologists: Professional Development Hours

Certificate for 6 PDHs for full lecture attendance provided to those who listed license # on registration form.

Friends of Mineralogy Pennsylvania Chapter and West Chester University Earth and Space Sciences Department 2025 Fall Symposium for Mineral Collectors

November 8 & 9, 2025 West Chester University

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Parking, building, field trip road maps 4

SCHEDULE of EVENTS

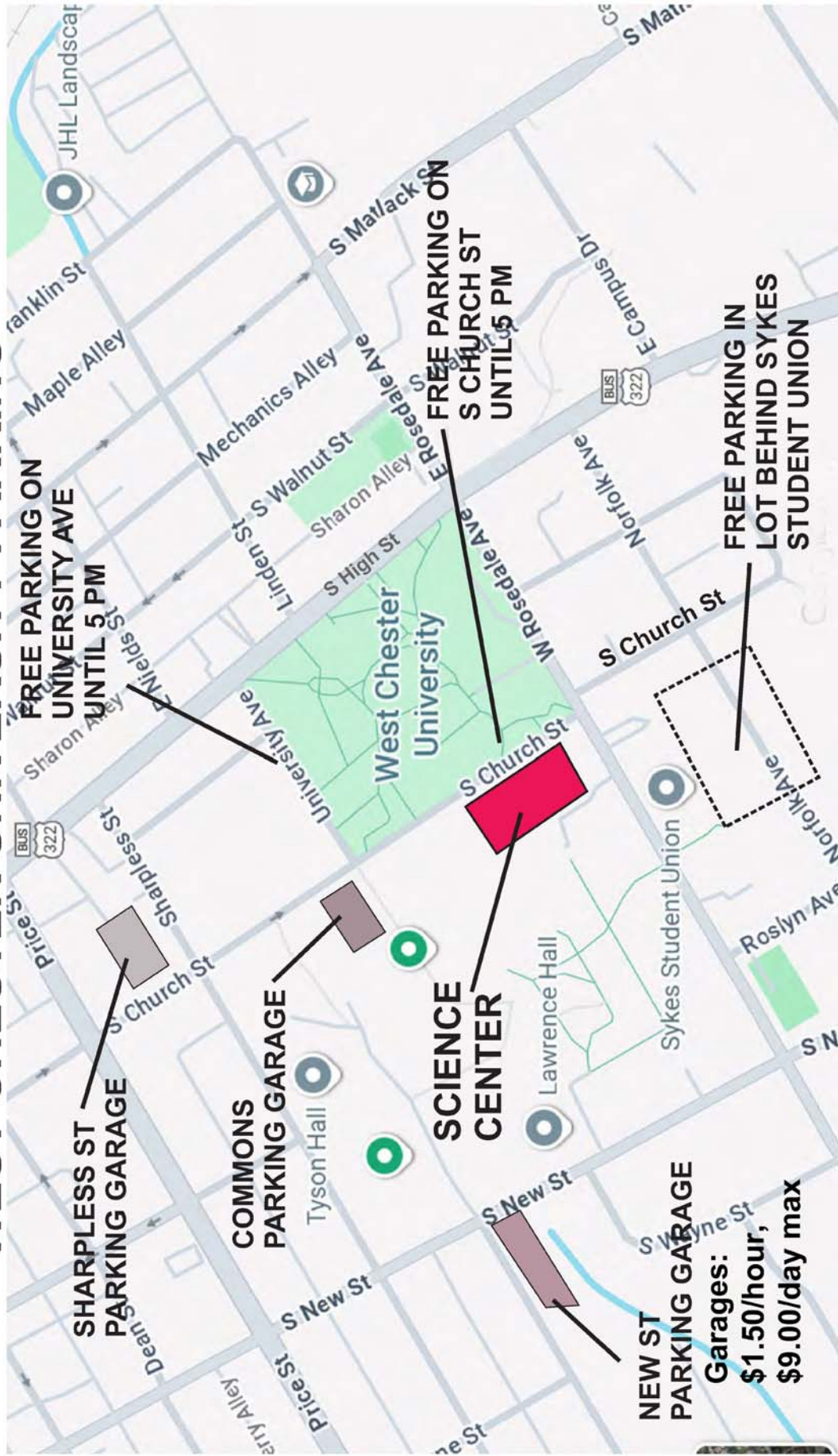
Saturday, November 8: SYMPOSIUM, Merion Science Center room MER-112

8:00 to 8:30 a.m. EST	Registration (outside room MER-107)	
8:30 to 8:40 a.m.	Opening Remarks - Hal Bosbyshell, PhD, Earth & Space Sciences Department Chair, West Chester University	
8:40 to 9:30 a.m.	Ronald A. Sloto, PG, West Chester University Famous Mineral Localities of Delaware County, Pennsylvania	6
9:30 to 10:30 a.m.	Bill Stephens, PG, Stephens Environmental, Inc. The Hogg Mine: A Tale of Two Machine Digs Revisited	8
10:30 to 10:40 a.m.	FM-Pa Members: Chapter Membership Meeting <u>ALSO</u>	
10:30 to 11:10 a.m.	BREAK- <i>SILENT AUCTION</i> and COFFEE BREAK in MER-109.	
11:10 a.m. to 12:00 p.m.	Ryan Mathur, PhD, and Jonathan Burns, PhD, Juniata College Importance of lead mineralogy on the historic Pennsylvania frontier	10
12:00 -1:30 p.m.	LUNCH BREAK - lunch available nearby, see <u>map</u> <u>Silent auction continues in MER-109 until 1:50</u> - Room open during lunch	11
1:50 p.m.	Silent Auction ends	
2:05 to 2:55 p.m.	Luke Jackson, West Chester University Fossils of the C&D Canal, Delaware	12
2:55 to 3:15 p.m.	BREAK	
3:15 to 4:05 p.m.	Anatoly Bitny, Natalis Gems Amethyst from East Bradford Township, Chester County, Pennsylvania	13
4:05 to 4:55 p.m.	Ross D. Elliott, PG, Delaware Mineralogical Society and Bill Stephens, PG, Stephens Environmental Minerals of the Phoenixville Mining District	14
4:55 to 5:05 p.m.	Field Trip information	
5:05 to 5:15 p.m.	Distribution of Professional Development Hours certificates to PGs	

Sunday, November 9: FIELD TRIP to Phoenixville sites (road map page 5):

10:00 a.m. to 4:00 p.m.	For Symposium Registrants Only. Meet by 10:00 a.m. at Pickering Valley Golf Club (see map for parking lot location - back right lot) 450 S Whitehorse Rd, Phoenixville, PA 19460.	site map 16
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WEST CHESTER UNIVERSITY PARKING



Garages:
\$1.50/hour,
\$9.00/day max

Street parking on Saturday FREE UNTIL 5:00 PM - PAY via FLOWBIRD APP or kiosk after 5:00.

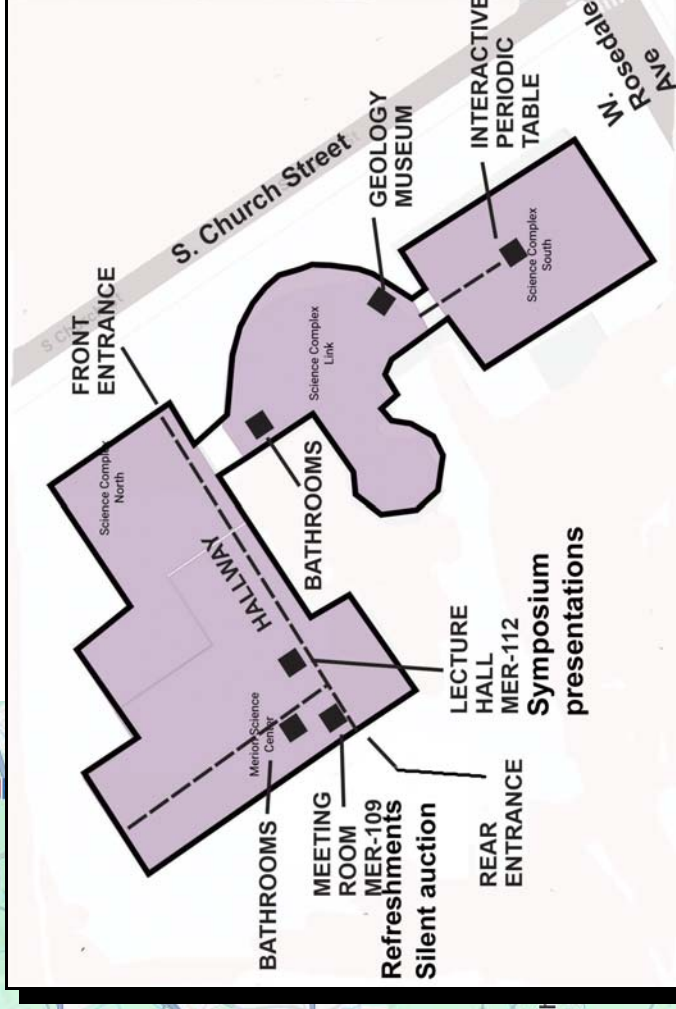
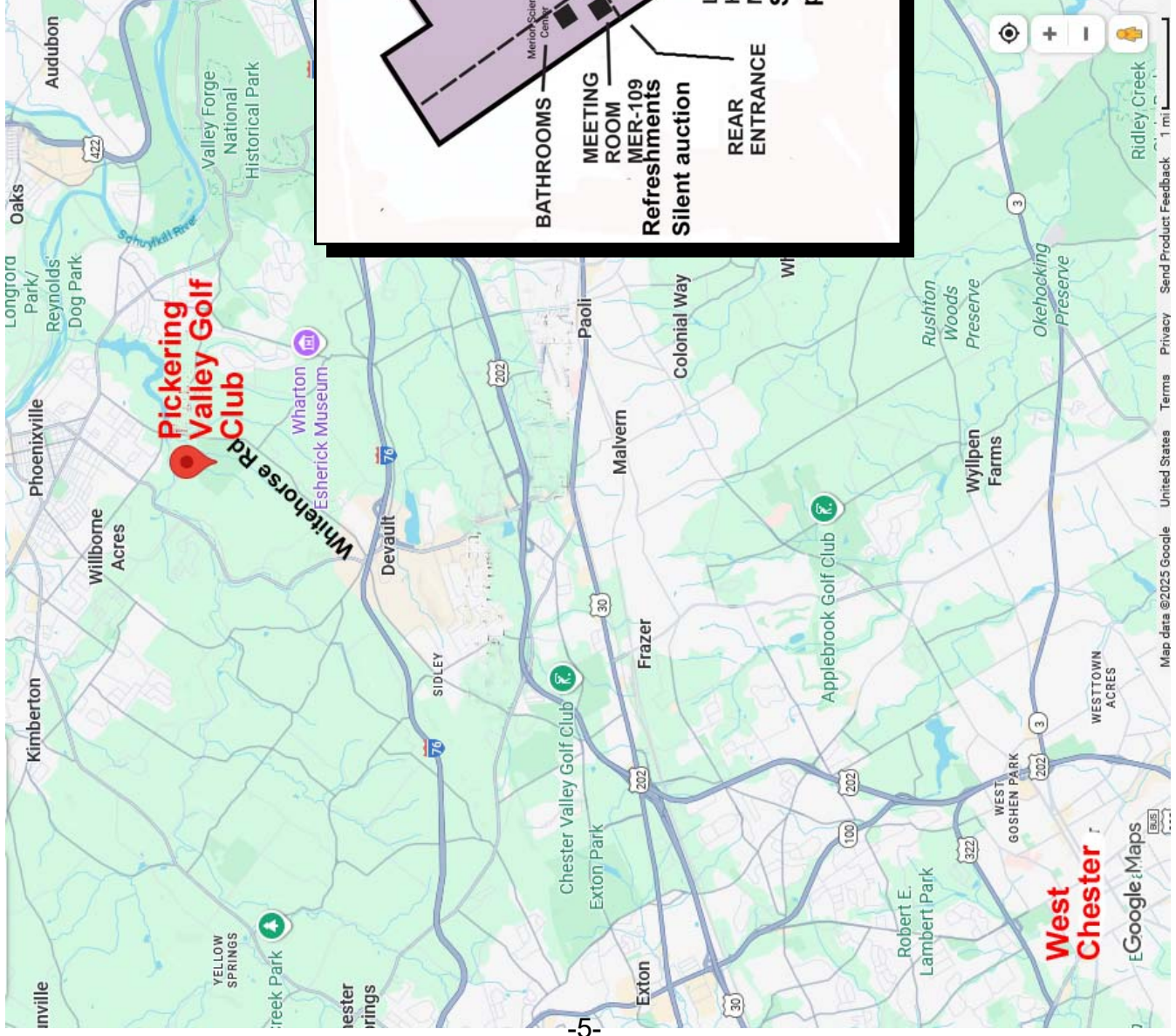
Field Trip Road Map

Pickering Valley Golf Club

450 S Whitehorse Rd

Phoenixville, PA 19460

see also site map on page 16



Science Center

West Chester University

FM-PA Symposium in Merion

(Science Complex North Building)

Famous Mineral Localities of Delaware County, Pennsylvania

**Ronald A. Sloto, PG
West Chester University**

Abstract

The mineral heritage of Delaware County is very rich; the county has produced many spectacular specimens of amethyst, beryl, garnet, smoky quartz, and schorl, among others. They were collected from farm fields, pegmatites, and stream exposures. Delaware County's metamorphic rock geology provides few economic mineral deposits. It is, however, an ample source of building stone. Pegmatites found in the building stone quarries were a prolific source of beautiful mineral specimens. Delaware county's most famous localities are described. These include the Leiper quarries, Deshong's quarry, the Shaw and Esrey quarry, Mineral Hill, the Boothwyn area, Avondale quarries, Sycamore (Bishop's) Mills, and Mullin's Bridgewater quarry. Also described are localities where minerals can be currently collected.

Biography

Ron Sloto is an honorary professor at West Chester University. He serves as the curator for the mineral collection at the University and the Director of the WCU Geology Museum. He conducts research on the mineralogy of Pennsylvania. Ron retired from the U.S. Geological Survey after a 41-year career that included publication of over 80 reports, journal articles, and abstracts. The HYSEP hydrograph-separation computer program he developed is in worldwide use. Ron has been a mineral collector since the age of 5 and also has a keen interest in history. He has published books on the mining history and mineralogy of Chester, Berks, Montgomery, Bucks, and Delaware Counties (available from Amazon.com). He is currently working on a similar effort on Philadelphia mining history and mineralogy. His recent publications include "Phosphate Minerals from Lime Ridge, Snyder County, Pennsylvania" in the September-October 2022 issue of The Mineralogical Record and "A Unique Fulgurite from Rebersburg, Pennsylvania" in the Spring 2023 issue of Pennsylvania Geology.

Delaware County minerals



Beryl from the Leiper Avondale quarry.
Sloto collection.



Almandine from Sycamore (Bishop's) Mills.
Carnegie Museum of Natural History
collection. Debra Wilson photograph.



Microcline, var. amazonite, from Mineral
Hill. West Chester University collection.



Quartz, var. amethyst, from Aston
Township. Bryn Mawr College collection.

The Hogg Mine: A Tale of Two Machine Digs Revisited

Bill Stephens, PG

Friends of Mineralogy National President

Friends of Mineralogy Pennsylvania Chapter President

Eastern Federation of Mineralogical & Lapidary Societies, Inc. Immediate Past President

Herkimer Diamond Research Institute Board of Directors

President, Stephens Environmental Consulting, Inc.

Abstract

The Hogg Mine (a.k.a. The Hogg Estate, the Oxford Mine, Mineral Processing Mine, Foley Mine) is located approximately 1.2 miles south of Smith's Cross Roads south of the Town of Lagrange in Troop County, Georgia. The Hogg Mine has been commercially mined for beryl and co-produced kaolin, quartz (silica), and scrap mica as by-products since WWII. Records of commercial production, and when production began, are sketchy and conflicting, but collectors' interest in the rose quartz and deep blue aquamarine produced at this mine began at least as early as the 1950s. A USBM report states 172,401 lbs. of beryl were purchased from the mine between 1952 and 1957.

Gem production at this mine occurred both during later commercial operations and intervening collector driven mining. The mine has an elongate lensoidal quartz core containing world class cabochon grade asteriated (star) and facet grade rose quartz as well as less common cabochon and even facet grade aquamarine. The mine is also famous for large well-formed beryl crystals.

Collecting at the Hogg Mine today focuses on the No. 2 pegmatite of Heinrich et al. (1953), with some development of the northern edge of the No. 1 mine close to the road for terminated schorl crystals. The No. 2 mine contains considerable rose quartz and is known to have produced beryl crystals up to 50 lbs or more; some measured 18" wide by 4 feet long in the adjacent kaolinized feldspar and imbedded in the edge of the quartz core. Large negative crystal impressions are visible today in the No. 2 mine quartz core surface. The rose quartz contains oriented needles of either dumortierite or tourmaline, visible at 100x, that cause the asterism. Clear, milky, and smoky quartz are also found, and the rose quartz is known to fade upon long exposure to direct sunlight. Recently, well formed, opaque dark green garnets (andradite?) have been found.

Chris Painter acquired the lease from a new property owner several years ago and operates the mine for collecting on weekends. Chris formerly had a "machine dig" once a year (invitation only) late in the summer followed by a "Dig after the Machine Dig" on the Saturday following the machine dig which was open to the public for a fee (\$35/per person). Chris now has guided digs, and private machine digs by appointment during the week. This is the story of the Mine, the Man and my two Machine Digs along with an update from our recent visit.

Special Announcement: The FM National Leadership is organizing a private machine dig at the Hogg Mine for the Spring of 2026. The dig will be open to FM National members and all its chapters, and to members of our affiliate, the Young Mineral Collectors (YMC), who are also members of FM National or one of its chapters. Membership in FM National for any affiliate is only \$5 so we strongly encourage YMC and others to join up to participate in our activities including the annual symposium at Tucson, which will be fully hybrid this coming year.



View of the quartz core. Chris breaking large chunks of rose quartz off the top of the core with the machine.



A young fellow holding up two beryl crystals he had just found in this trench during the 2018 machine dig.



Beryl crystals collected at the Hogg No. 2 Mine.



Examples of cut and rough star rose quartz and aquamarine from the mine. *Photo courtesy Chris Painter.*

Biography



Bill Stephens, PG, is a licensed Professional Geologist (AL, DE, GA, MS, NC, PA, SC, UT, VA), current President of FM-PA Chapter and FM National, Immediate Past President of the Eastern Federation of Mineralogical and Lapidary Societies, Inc. (EFMLS, 2022-2024) and President of Stephens Environmental Consulting, Inc., a full-service environmental consulting, engineering, and surveying company serving in the Mid-Atlantic Region since 1995. Bill is also the current EFMLS Region IV & V RVP, and a past VP of Programs for the Delaware Mineralogical Society. Most recently Bill has become a Director and a key member of the recently formed Herkimer Diamond Research Institute and will be developing concept and full engineering plans for a new research facility in the Mohawk Valley of NY, most likely at Treasure Mountain in Little Falls.

Bill holds a BS and MS in Geology from the University of Pittsburgh main campus (1982, 1988). Bill did his master's thesis in northwestern Sonora MX, producing a first generation 1:50,000 scale map of part of the Cucurpe quadrangle. Rocks mapped within Basin and Range fault blocks included 1.1 billion year old pink micrographic granite and older crystalline rocks over brittle deformed clastic and marine rocks of late Jurassic to early Cretaceous age, exposed in a window through Tertiary volcanoclastic and extrusive rocks. Bill has contributed to scholarly articles on his thesis findings as well as other important work, including but not limited to publications on Fort Hollingsworth, a War of 1812 fort in Elkton, MD, and periglacial features on the Delmarva Peninsula. He recently co-authored a privately published book on the discovery of world class "Herkimer Diamond" quartz crystals. Bill has become a sought-after speaker for many clubs as well as providing professional development seminars for the Professional Geologist community and the Maryland Society of Surveyors at their annual conventions.

Bill started collecting about age 11, after being inspired by a National Geographic article on gems of the Eastern Appalachians. Family and later college buddy collecting trips focused on collecting mainly in North Carolina, with incidental trips to southeastern Pennsylvania locations including Phoenixville, French Creek, and Cornwall. More recently Bill has developed a passion for "machine digs," including Diamond Hill, Hogg Mine, sites in Herkimer, and two machine digs for wavellite at Mount Pleasant Mills. Machine digs provide the opportunity to acquire meaningful understanding of these deposits from a geologic and mineralogic perspective. Bill has done extensive mapping at Mohawk Valley Mineral Mining in Sprakers, NY, and a private quartz mine known as "Area 52" in Canajoharie, and has initiated a mapping program at Treasure Mountain. Bill has mapped the now regionally famous wavellite occurrence at the National Limestone Quarry at Mount Pleasant Mills, Snyder County, PA. Bill uses his resources, including geological knowledge, GIS skills, survey equipment, and drones to develop programs designed to inspire others and help collectors to be more successful in their collecting adventures.

Importance of lead mineralogy on the historic Pennsylvania frontier

**R. Mathur, Geology Department, Juniata College,
J. Burns, Archaeology Department, Juniata College,
and a zillion students**

Abstract

For the past 10 years we have been collecting and analyzing lead balls from Forts and Battle sites in central Pennsylvania. Using a blend of archeology, geology and isotope geochemistry; we have identified the munition chain that operated in the French and Indian and Revolutionary War within multiple sites. Many different types of insights beyond metal tracing will be discussed in this presentation. For instance, we will explore the mine locations of Fort Roberdeau, the location of Fort Hartslog, and the battlefield dynamics of the Sideling Hill Massacre and George Washington's Friendly Fire incident.



Biography

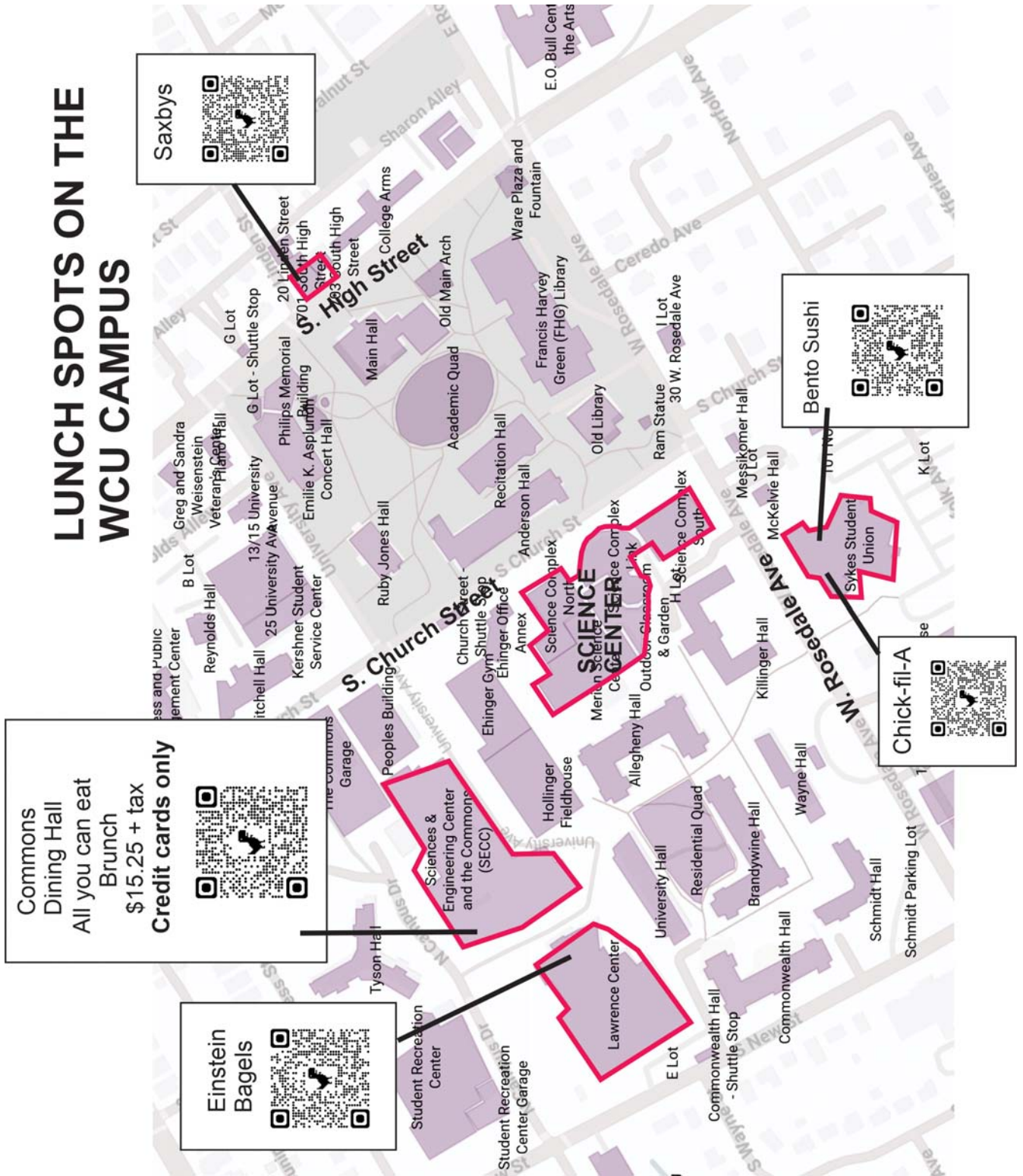
Ryan has been with Juniata for 25 years, starting as an Associate Professor of Geology in 2002 and is currently Professor of Geology and Chair of the Geology Department. He also operates as the CTO for a startup company to help the mining industry.

Ryan is a '97 alumnus of Juniata College, he graduated with a Bachelor's degree in Geology and History. Ryan earned his Doctorate degree in Geosciences at the University of Arizona in 2000 where he served as a research and teaching assistant.

Ryan's primary research focuses on using isotope geochemistry to find and investigate metallic ore deposits. His research and teaching interests are diverse and touch disciplines like hydrogeology, environmental geology, archeology, igneous petrology, geophysics, and history.

Ryan is married and has two children with Amy Mathur, Associate Professor of English at Juniata College and alumnus '96.

LUNCH SPOTS ON THE WCU CAMPUS



Fossils of the C&D Canal, Delaware

**Luke Jackson
West Chester University**

Abstract

The C&D Canal is a man-made connection between the Chesapeake and Delaware Bays, constructed to facilitate navigation and commerce along the Mid-Atlantic coast. Dredge piles produced during the canal's construction and ongoing maintenance reveal a rich assemblage of Cretaceous fossils from the region. These deposits provide a valuable window into the ancient marine ecosystems that once occupied the Atlantic Coastal Plain. A wide variety of vertebrate and invertebrate fossils can be found at the site, including cephalopods, bivalves, gastropods, shark teeth, and reptile remains.

For decades, both academic and amateur paleontologists have visited the C&D Canal to collect and study these specimens, contributing to a growing understanding of the paleobiology and depositional environments of the Late Cretaceous. The site continues to serve as an important resource for educational fieldwork and public engagement, offering a rare opportunity to observe well-preserved marine fossils within easily accessible outcrops and dredged material.

Biography

I am a Geoscience student at West Chester University and I'm in my senior year. My main interests lie in paleontology, and I'm hoping to be a professor in the future. I had my first paleontology job over the summer working at the Mammoth Site in Hot Springs, SD. In my free time I love to go trilobite collecting or hiking!

Amethyst from East Bradford Township, Chester County, Pennsylvania

**Anatoly Bitny
Natalis Gems**

Abstract

Amethyst crystals were recovered on an exploratory test dig I conducted at a location described in Ron Sloto's book "Mines and Minerals of Chester County, Pennsylvania" which included a written location description and a latitude and longitude, enabling me to get the general search area. Crystals from this general area were first described by Dana (1850) then by Brinton (1899). The occurrence, located on what was then the Lewellyn Entrikin Farm, now lands of West Chester University (WCU), was called out as a field near the cross roads. Five test excavations were conducted by me with assistance of Ron Sloto and friends with permission from WCU. Many richly colored, often color-zoned and even rutilated crystals up to small palm size were recovered. The best specimen(s) from each of the five digs now reside on display in the WCU Geology Museum. I also had several stones cut by Jason Baskin.

The rediscovery and in-situ recovery of amethyst from this classic Chester County locality was a great experience for me and proves the value of old, now out-of-print publications and the detailed treatise by Mr. Sloto.

Biography



Pennsylvania born and raised, I've been collecting minerals for 15 years now. I found my first crystal at 12 years old while fishing with my dad in the Poconos. I spent extensive time digging at Graves Mountain, Georgia, and discovered / coined the Skittles Pocket. I've studied Geology at Temple University, although I have not graduated yet. I never expected to be a full time rockhound, but now I am the owner of Natalis Gems!

Minerals of the Phoenixville Mining District

Presented by: **Ross D. Elliott, PG; VP, Delaware Mineralogical Society**

Prepared by: **Bill Stephens, PG; Friends of Mineralogy National President;
Friends of Mineralogy Pennsylvania Chapter President; Eastern Federation of
Mineralogical & Lapidary Societies, Inc. Immediate Past President;
Herkimer Diamond Research Institute Board of Directors;
President, Stephens Environmental Consulting, Inc.**

With Contributions from: **Ronald A. Sloto, PG, West Chester University**

Abstract

This talk delves into the fascinating world of pyromorphite, a unique lead phosphate mineral renowned for its striking green hues and intricate crystal formations. We will explore its chemical composition, formation processes, and distinguishing features that make it a sought-after specimen among mineral collectors. This talk will focus on the historic Wheatley-Chester Lead Mine district, located in Phoenixville, Pennsylvania, representing a significant and unique site of historical and geological interest in the context of 19th-century mining practices in the Eastern United States. The mining district recovered a lead and zinc ore with galena, sphalerite, and cerussite as primary minerals, with pyromorphite, wulfenite and associated minerals as secondary enrichment mineralization. The suite of zinc and lead minerals found at these sites is extensive. By examining both the mineralization and its historical backdrop, attendees will gain a deeper appreciation for pyromorphite as a natural wonder and its role in the legacy of mining in southeast Pennsylvania.

Summary

The famous Phoenixville District orebodies yielding world class pyromorphite specimens were initially discovered by Charles Pickering who arrived here from England with William Penn. Charles Pickering thought he had discovered silver ore, in the sands of Pickering Creek while exploring up the Schuylkill River. In 1682 he obtained a grant of 5,358 acres known as Pickering or Mine Hole Tract. Returning with a miner named Tinker, at a place now called 'Tinker Hill' they mined enough ore for eight flour barrels and shipped them for assay, which may not have been favorable as mining never commenced until 170 years later (Sloto, 2009, p. 131).

In 1850 Charles Wheatley, manager of the Perkiomen mines, found an abundant lead vein around Tinker Hill, including pyromorphite, while prospecting on the John Williams farm. Afterward he leased 46 acres, and mining progressed in the district until the company declared bankruptcy in the Panic of 1857 (Sloto, 2009). The Wheatley mine was the most extensive and productive of the mines in the area. The lead mining boom of the 1850s produced "some of the finest lead minerals the world had ever seen. Especially notable, and best known to collectors is the bright green pyromorphite from the Wheatley Mine." (Sloto, 1989). In Exhibition at the Crystal Palace at the New York exhibition of 1853, Wheatley's collection from his mines was described as the most magnificent in the world and unequal to anything we have seen in Europe and was awarded the highest medal (Sloto, 2009, pp. 142-143).

Afterward mining in the district renewed during the Civil War. Mining operated under the New York and Boston Silver Lead Company, with Wheatley as manager, but records of operation are non-existent after 1865, and mining have ceased completely in the 1870's when Wheatley fell ill in 1870 and declared



Pyromorphite

R. Sloto photograph

bankrupt shortly after. The mines were not operated for several decades until activity briefly resumed from 1917-1920, and the shaft was re-timbered at the Wheatley lode under the Eastern Mining and Milling Company (Sloto, 2009). No mining activity has occurred since then.

The Wheatley Lode was re-evaluated as part of the US Bureau of Mines strategic assessment of mineral deposits following WW II, and 2,280 ft of core hole were drilled, and described by Reed (1949, p. 7-11), as containing no significant lead and zinc mineralization, but one hole penetrated 4.5 ft of open stope, and 5.5 ft of vein rock at approximately 208 feet below ground surface, and below this about 13 ft penetrated a 6-inch vein of massive sphalerite. Smith (1977, pp. 269-270) believed the drill holes may not have been located well enough and may not have reached the vein if the vein dipped more steeply than believed.

Beneath the gossan zone at the surface, shallow zones of pyromorphite constituted the majority of the lead ore, which may account for the abundance of pyromorphite in the dumps. Many superior specimens of pyromorphite from the Phoenixville District reside in world class private and museum collections around the world. Today, the Wheatley dumps are on private property and are closed to collecting. The Brookdale and Chester mines reside on a golf course which does allow collecting. The Brookdale dumps around the old steam engine stack are picked over, but still produce micros. The Chester dumps, if one can find them, still produce nice thumbnail to small cabinet size specimens.

References

- Reed, D. F., 1949, Investigation of Pickering Creek lead-zinc deposits, Chester County, Pennsylvania: U. S. Bur. Mines Rept. Inv. 4451.
- Sloto, Ronald A., 1989, The Phoenixville Lead-silver Mines, Chester County, Pennsylvania: Mineralogical Record, v. 20, September-October 1989, p. 369-386.
- Sloto, Ronald A., 2009, The Mines and Minerals of Chester County, Pennsylvania. [The definitive work on the subject matter for the County. Available from Amazon.com along with a supplement containing color photographs]
- Smith, Robert C. II, 1977, Zinc and Lead Occurrences in Pennsylvania: PA Geol. Survey 4th Series, Mineral Resource Report 72 (M 72), 318 p. [Contains essential maps included herein and used to georeference the old mine locations]
- Note:** Other resources, particularly for photographs of significant specimens, can be found on the web on sites such as MinDat. [PA Geol. Surv. G-33 is out of print and unavailable]

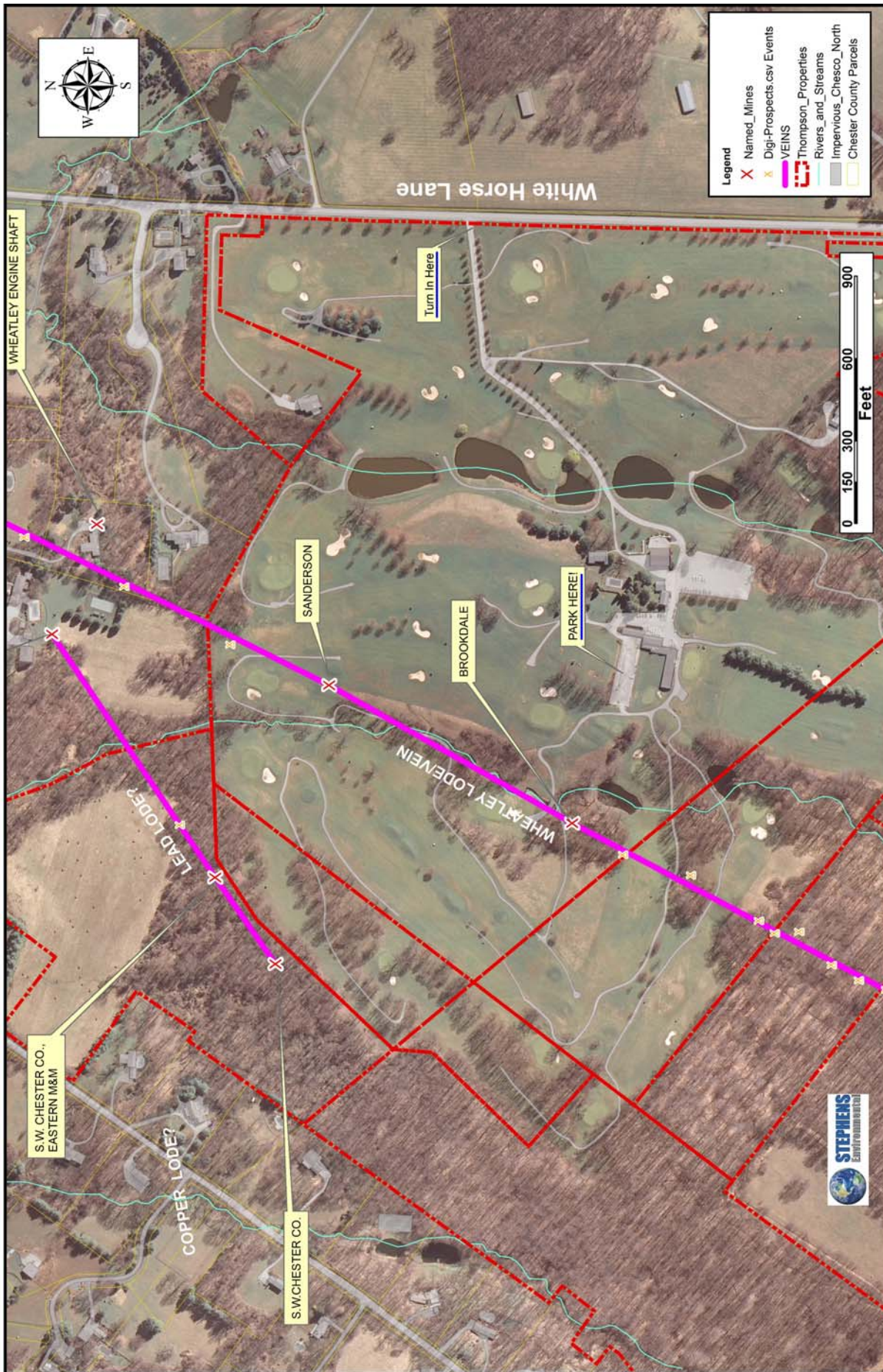
Biography



Ross D. Elliott, PG, is a licensed Professional Geologist and for the past ten years has worked as a hydrologist for the State of Delaware Department of Natural Resources and Environmental Control Waste and Hazardous Substance Remediation Section, specializing in groundwater remediation and petroleum cleanup. Ross served as the EPA Region III representative for the Association of State and Territorial Solid Waste Management Officials Tank Leaking Underground Storage Tank work group. In addition to these duties, Ross manages the States Heating Fuel Underground Storage Tank Assistance Program.

Ross studied geological sciences at the University of Delaware with a bachelor's in Geological and Earth Geosciences and a minor in coastal and marine geomorphology. Ross is a licensed Professional Geologist in Delaware. Before working for the State, he was a field geologist for the environmental engineering firm Environmental Alliance Inc. Previously, he worked at the Delaware Geologic Survey as a research assistant for the State Map Program publishing the Geologic Map of Millington, Claymont and Smyrna Quadrangles, Delaware. In addition, for the past ten years he has served as the Vice President for the Delaware Mineralogical Society and serves as chair of field trips for DMS and FM-PA.

Biography See page 9 for Bill Stephens' biography.



Lead / zinc mineral sites, Pickering Valley Golf Club, Phoenixville, PA. See also road map, page 5.