

FRIENDS OF MINERALOGY/PENNSYLVANIA CHAPTER

SPRING MEETING

TOUR OF ADAMS COUNTY GEOLOGICAL
AND MINERAL LOCATIONS

JUNE 16-17, 1984



As most FM/Pennsylvania Chapter members know, the Commonwealth has a diverse and varied geology within its borders. Such varied geology has contributed over three hundred known mineral species of which we are aware. Adams County, is one of Pennsylvania's unique geological areas due particularly to the Pre-Cambrian meta-volcanic rocks of the South Mountains. The Executive Committee of our chapter has chosen Adams County as the site for its annual Spring Meeting.

The tour is being held on June 16-17, 1984. The object of the tour is to visit and observe some of the areas interesting geological features, and to collect mineral specimens where possible. June is not the ideal time to collect the area. Overgrowth is heavy and obscures some otherwise interesting localities. Permission to suitable group sites is difficult to obtain, and some occurrences are being lost to development. In spite of the difficulties, an interesting tour is planned and should prove worthwhile to those who want to learn more about the area.

For detailed information on Adams County, the Pennsylvania Geological Survey report "Geology and Mineral Resources of Adams County, Pennsylvania" by George Stose and Florence Bascom is recommended. The report was written in 1929, but has been reprinted and is currently available at the State bookstore. The authors were knowledgeable authorities on Pennsylvania and Appalachian geology.

The Executive Committee has requested that I guide the tour. I am happy to share what information I have. I am not an authority on Adams County geology, but an interested collector of Adams County minerals and mining information. I would like to acknowledge Jim Quickel of Carlisle who has been a partner in many of these endeavors and a long-time Adams County collector. He has been responsible for numerous mineral and locality discoveries in the County and may have covered more miles of the area than any other collector.

This booklet has been prepared to give an itinerary of locations to be visited, and to point out other areas in passing. Those with further interest may use the booklet as a guide for return trips.

Jay Lininger
Dillsburg, PA

DAY 1

◆1◆ The first site of interest and stop on the tour will be the Valley Quarry located two miles south of Gettysburg. Drive south on U.S. Route 15 until reaching the Gettysburg area. Watch for Baltimore Street (Rt. 97) and bear right. From Rt. 15, drive .6 mile to reach the entrance of the quarry. This quarry has been a well-known and popular mineral collecting site for many years. The quarry was opened in 1934 by John S. Teeter and Sons, Inc. Many collectors still refer to the locality as the Teeter Quarry. In 1974 the Harry T. Campbell Company acquired the Teeter and nearby Fairfield Quarry. The open collecting policy continued until the Campbell operation was acquired by the Flintcote organization. With the purchase of the quarries in 1983 by the Valley Quarry Company, collecting was once again permitted. We are grateful to the Valley Quarry Company and plant manager, Mr. Fred Crabbs, for permission to enter.

The quarry is geologically similar to the Kibblehouse Quarry in Montgomery County. The rock is hornfels, a metamorphically altered shale unit. The shale unit is the Triassic Gettysburg

shale which is analogous to the Triassic Brunswick shale of New Jersey and eastern Pennsylvania. The thermal metamorphism was produced by the diabase of the Gettysburg sill which is located less than 500 feet from the northeast corner of the quarry. The hydrothermal effects of the diabase also produced the mineral assemblage which can be found here. Also, note on the north quarry wall, the long lens-shaped skarn-magnetite zone, which was exposed during operations in 1974. This zone produced a host of minerals and mineral combinations not previously seen. A detailed description of the mineral assemblage and paragenesis can be found in an article in the November-December 1978 issue of *Rocks and Minerals* magazine. The article was written by FM member and William Penn Museum Earth Science Curator, Donald Hoff.

Common minerals in the hornfels include epidote, stilbite, hematite and calcite. Less common species include heulandite, natrolite, laumontite, chabazite, and chlorite. There was no blasting in the skarn zone when the quarry was checked out several weeks ago. Therefore, some of this interesting assemblage (including bornite, chalcocite, chalcopyrite, djurite, grossularite, magnetite, orthoclase, quartz crystals, titanite and tremolite) may not be available.

Cover photo: An early photo of the Advance Industrial Supply Co. quarry which operated between 1913 and 1926. This quarry located east of the village of Greenstone, was the forerunner of the greenstone industry in Adams County. Courtesy of Earl Shindledecker.

◆2◆ From Valley Quarry we will head north along Baltimore Street for a distance of two miles. Note the various diabase outcrops as we enter the Gettysburg sill area. At the Stonehenge Restaurant you will see large columns of diabase. The prominent hills south of the town which played such an important part in the Civil War conflict, are part of the diabase intrusion. Walls on the battlefield are constructed of loose diabase boulders.

At Middle Street (2nd traffic light), turn left. This street becomes the Fairfield Road (Rt. 116 west).

◆3◆ At approximately three miles from the turn on Middle Street we will be passing an outcrop along the Fairfield Road. We will not be stopping, but note the brownish and gray sedimentary beds. This rock is a lime-rich member of the Gettysburg shale. Jim Quickel and I have found calcite crystals and pyrite in this outcrop.

As we approach the Fairfield area, we will pass through the Granite Hill area. This is an offshoot of the Gettysburg sill. This is diabase not granite. I suppose Diabase Hill does not sound as attractive.

◆4◆ The next stop is the Fairfield Quarry, a distance of four and half miles from site 3. This quarry provides our best look at the Adams County limestone conglomerate (fanglomerate). This fanglomerate or fan-shaped aluvial bed was

derived from a deposit of Beckmantown limestone to the west of Fairfield and deposited during the mountain building process of the South Mountain range. Several other fanglomerates of quartz and rhyolite occur to the north, along the eastern slope of the South Mountain range (see illustration).

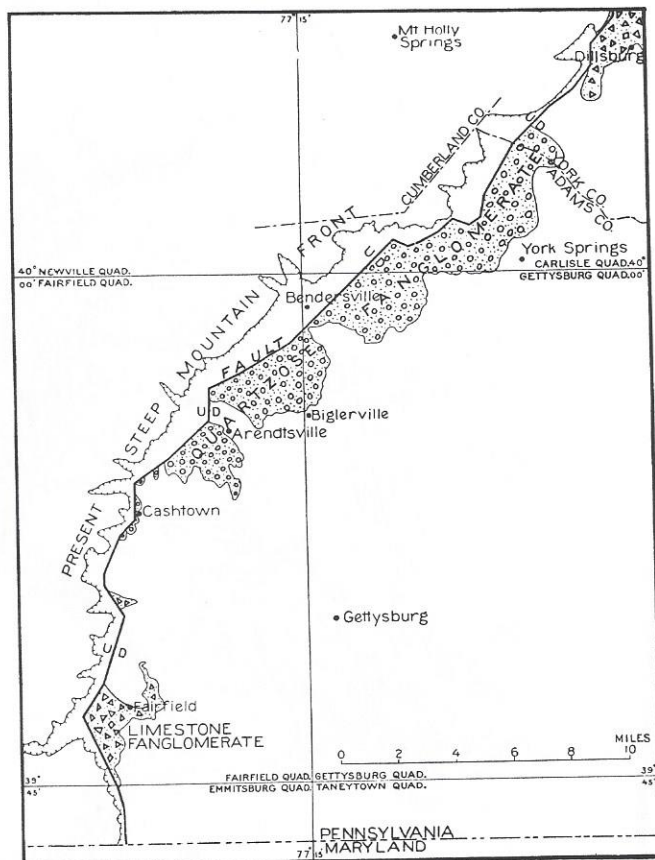
The Fairfield quarry is an old quarry stemming back to at least the mid 1920's. Most development has been in recent years. The conglomeritic nature of the rock is evident, but you will note an interesting green and brown horizontal bed along the west wall. This bed is pyrite rich and likely contributes to the color of the rock.

The mineral assemblage in this quarry is interesting and once again owes some of its existence to the diabase intrusion just north of the quarry. Note much massive garnet in some of the limestone. Zeolites are not plentiful, but interesting when found. This assemblage includes stilbite in small single sheaf-like crystals, apophyllite in simple tabular crystals, and some white acicular material. This mineral was first observed and collected by Bryon Brookmyer and subsequently proved to be scolecite and mesolite. Bryon was also responsible for the discovery of a large deposit of beautiful orange calcite crystals along the north wall. Some minor barite was noted in this area. Jim Quickel was responsible for the discovery of pectolite in the mid 1960's. An attractive blue chalcedony has occasionally been found near the entrance of the quarry.

About one-half mile east of the quarry and north of the road in a small wooded area the site of an early copper mine can be seen. No specimens can be seen on the surface, but it bears testimony to the hydrothermal influence of the diabase on the limestone.

◆5◆ We will be heading northwest into the South Mountain range. As we leave the quarry note the hill to your right, which can be seen for the next half mile. The hill called Sugarloaf is a mass of diabase which is part of the Gettysburg sill offshoot which was mentioned earlier. The western edge of the diabase contacts a bed of Beckmantown limestone which lies between the South Mountain range and the offshoot. The resulting contact metamorphism produced large masses of garnet, which were considered to have economic potential. The garnet occurs at several places along the contact. Some crystalline material can be found. Accessory minerals include small vugs of albite crystals and occasional amethyst. The area is too overgrown to permit access at this time, but you may want to check it out in the fall or winter.

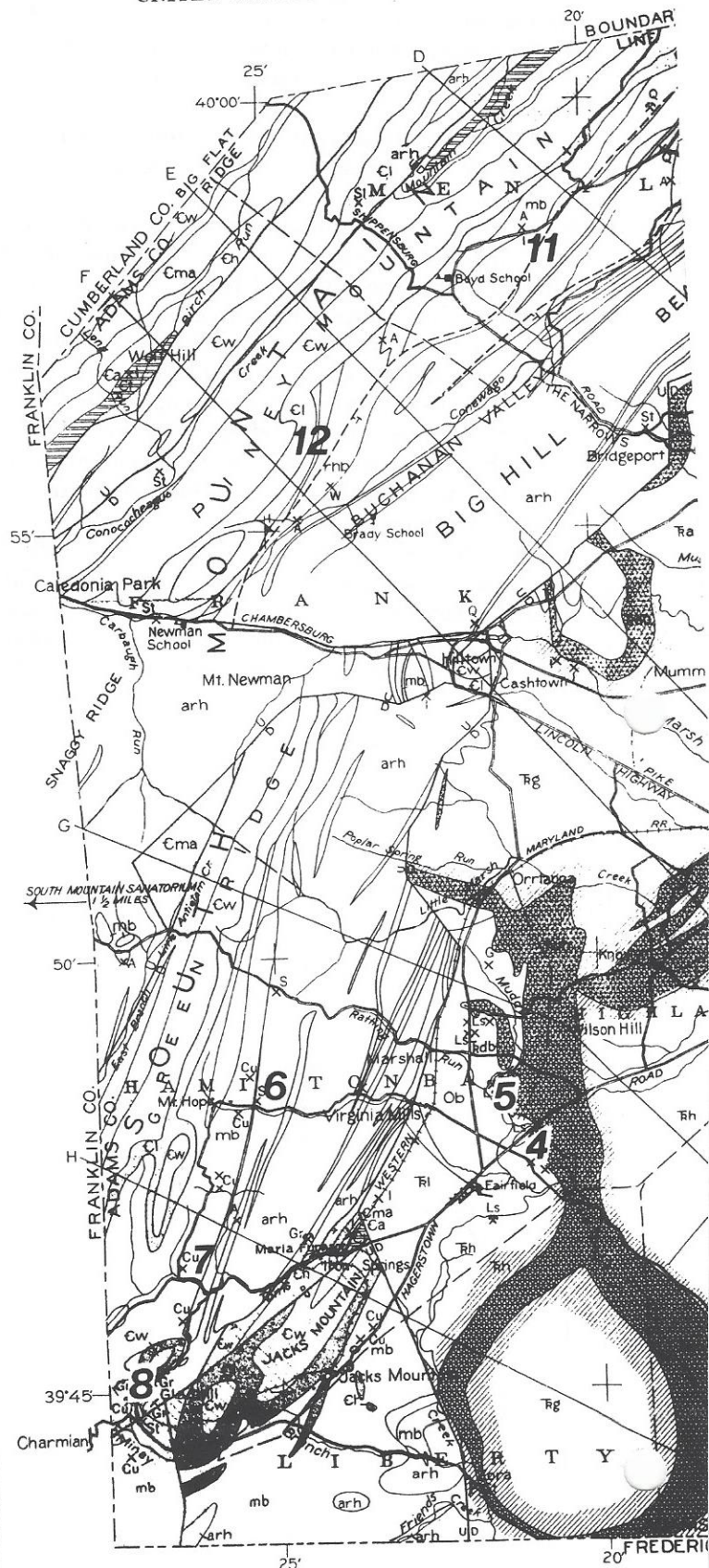
◆6◆ Our next destination will be a brief stop at the Mt. Hope sericite quarry which is about three and a quarter miles along the Mt. Hope road after

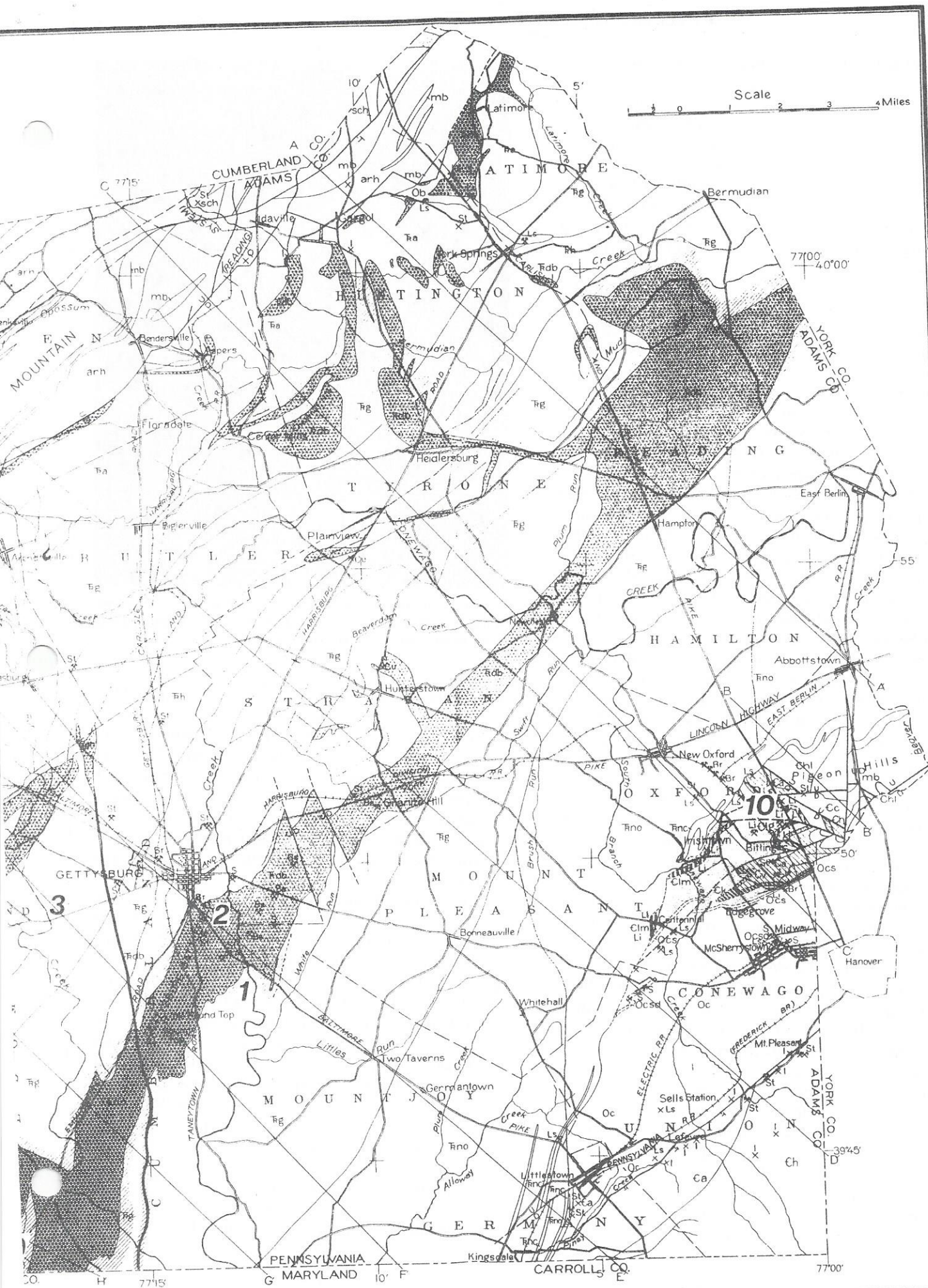


**GEOLOGIC MAP OF
ADAMS COUNTY, PENNSYLVANIA
WITH CROSS SECTIONS
BY GEORGE W. STOSE
OF THE
UNITED STATES GEOLOGICAL SURVEY**

LOCATION KEY

- 1 Gettysburg (Valley) Quarry**
- 2 Baltimore Street outcrops**
- 3 Marsh Creek Valley outcrop**
- 4 Fairfield (Valley) Quarry**
- 4 Sugarloaf Hill garnet area**
- 5 Mt. Hope sericite quarry**
- 7 Reed Hill Mine**
- 8 Greenstone (GAF) Quarry**
- 9 Carroll Valley Quarry**
- 10 Hanover (Bethlehem Steel) Quarry**
- 11 Garrettson's Orchard**
- 12 Cole's Iron Bank**

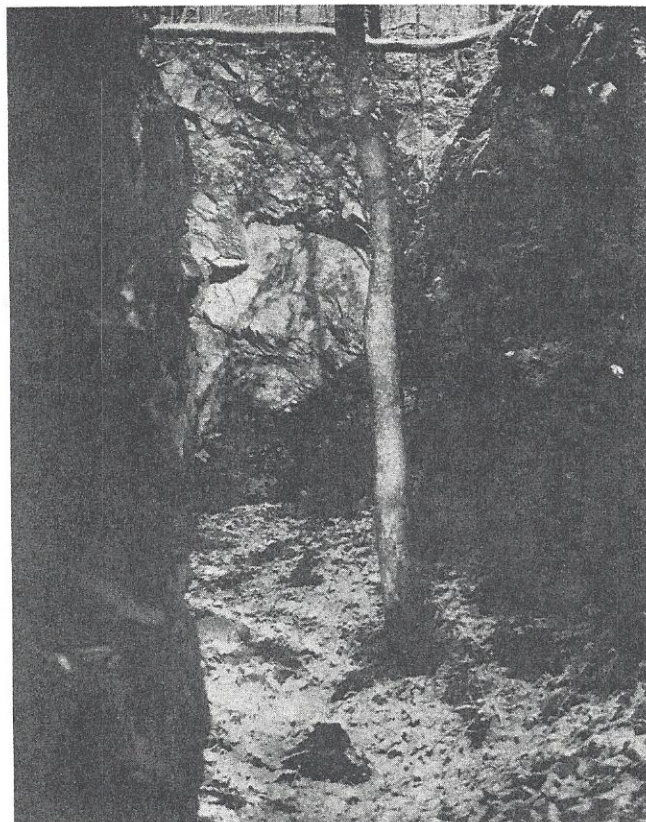




crossing the Ortanna Road. This quarry is also shown on the Gettysburg-Fairfield folio dated in 1929. This indicates the quarry was worked for a long period, which terminated in the early 1960's.

There are a number of sericite schist "slates" in Adams County. These schists were quarried, ground up, and used for a number of purposes including the manufacture of fire brick and fillers in fertilizers and powders. The material was hauled to Aspers where the grinding mill was located. This particular quarry shows much distortion and compression of the schist, which is located at the contact of a large mass of metabasalt and aphorhyolite. The schist is believed to have been derived from the compression of volcanic tuff (ejected ash and particles). During operation of the quarry, excellent dendrites on the sericite could be found, as well as crystalline clinochlore, and copper carbonates. On the hill north of the quarry the slumped shaft of the Snively copper mine can be found. On the hill south of the quarry, are several other un-named copper prospects. An old copper shaft is located under the road next to the quarry, but was drilled into to serve as a drainage ditch for the quarry. The pond on the other side of the road, is the result. These abandoned copper mines, as well as our next stop were areas mined in Pre-Cambrian metabasalt.

◆ 7 ◆ We will proceed west and then south along the Mt. Hope Road for a distance of two and three-quarter miles to the Reed Hill Mine. Along the way we will pass the site of the Russell and Bechtel Mines, which were the most important early producers of the metabasalt-copper occurrences. The Reed Hill Mine was a surface trenching operation which culminated when the finish of the deposit was encountered in two tunnels at the end of the trench. Its easy access makes it ideal for a quick stop, and it provides an atypical look at what the early copper mines looked like. We thank the Glatfelter Paper Company for permission to visit the site. In recent years the area has not provided much in the way of mineral specimens. From the Reed Hill Mine we proceed a half mile east on Gum Spring Road to Iron Spring Road. Turn right and proceed south on Iron Spring Road. In slightly more than a half mile we will pass the area of the Bigham Mine, which is well-known to collectors for its cutting material. This locality provides the one known exposure where the copper can be found in some abundance in the aporhyolite. The exact machination of exchange of copper from the metabasalt to the rhyolite is unknown. Beyond the Bigham Mine we will crest Jacks Mountain and head toward the village of Greenstone. East of Greenstone and several hundred yards along the railroad track is the site

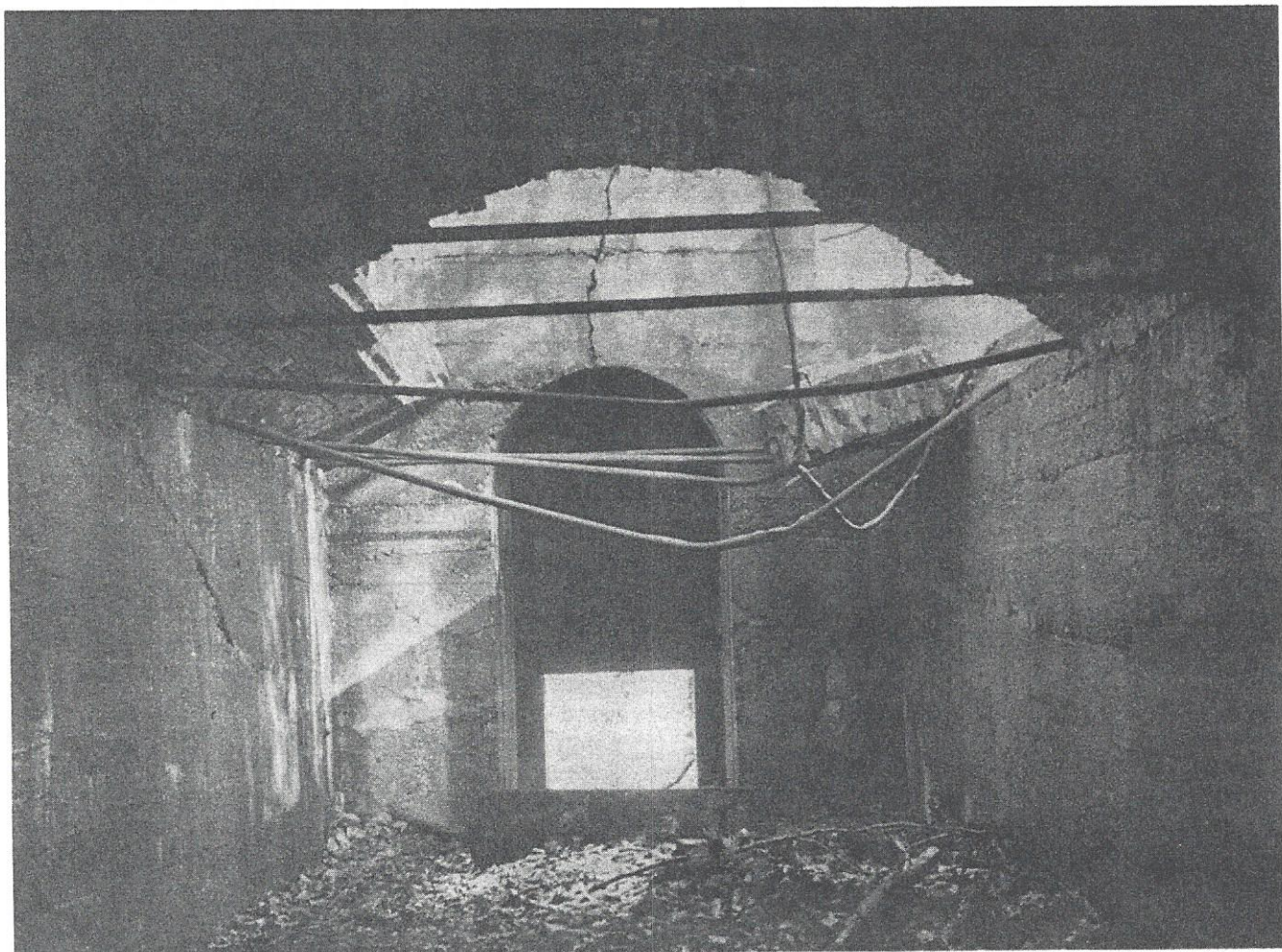


A view of the Reed Hill Mine open cut. Part of the underground workings can be seen at the end of the cut. The wall rock is metabasalt. Photo courtesy of George Buchanan.

of the old Advance Industrial Supply quarry. This quarry which is now heavily overgrown, was started in 1913 and thus launched the "greenstone" industry in Pennsylvania. The next decade or two saw the beginning of several other quarrying operations in the cove. These were eventually consolidated and went through the ownership of several companies, including the Funkhouser Company, Rubberoid Corporation and GAF Corporation.

◆ 8 ◆ Proceeding a total of two miles from the Bigham Mine to the GAF entrance through Fountaindale, the workings of the Chairman operation are clearly seen. The metabasalt is quarried for use in roofing granules. There is no marketing use for dust which is a by-product of the crushing, and the large piles below the mill are easily seen. The GAF Corporation has maintained a closed door policy to groups, so we are most grateful for the opportunity to visit the operation. We extend our thanks to Mr. Michael Shelbert, plant manager, and the GAF Corporation for a chance to look at this best example of a metabasalt exposure.

The metabasalt shows several different forms at the Greenstone Quarry. The schistose or bedded variety can be clearly seen at the entrance of the



A view of the deteriorating copper smelter located at the Eagle Metallic Mine, near the village of Fountindale. Photo courtesy of George Buchanan.

plant. The vesicular variety can be seen in the quarry, and provides ample evidence of its volcanic origin.

Copper mineralization within the quarry is found in the west wall area. This was the original location of the Virgin Mine, which was the richest producer of copper in the South Mountain area. The mine was removed during quarrying operations. Mineral assemblage includes epidote, jasper, clinochlore, quartz, calcite, amphibole asbestoes, native copper, cuprite, bornite, chalcocite, malachite, azurite, chrysocolla, hematite, and more recently tiny white albite crystals. Piemontite was found on the west slope of Pine Mountain in the rhyolite area north of the quarry.

From the GAF Corporation plant we will proceed west for one mile to Monterey Lane. Near the track at Chairman Station we pass the site of the old Clermont Hotel which burned in 1942. The Clermont Hotel was the field headquarters of Florence Bascom when she did her excellent South Mountain report in the 1890's, and is also sited as one of the Adams County piemontite

occurrences in the early literature. The piemontite is actually found on the grounds of a summer residence east of the tracks and south of the road.

Turn left on Monterey Lane to Rt. 16 (Buchanan Trail). Turn left on Rt. 16 and proceed east. One and a quarter miles from the turn we pass the site of the Eagle Metallic Mine. The water-filled open cut can still be seen. Above the mine are the remnants of a copper smelter, the only one to be seen in the South Mountains. If time permits we will visit one more site in the Carroll Valley area.

◆9◆ Just beyond the intersection of Rt. 16 and Rt. 116, can be found the abandoned Ginzell Bros. Quarry. This quarry is another example of Gettysburg shale being partially baked into a hornfels. On the hornfels there is a blue mineral which was believed to be riebeckite. The material was recently analyzed by David Hess at Western Illinois University, and shown to be magnesioriebeckite. I thank Dave for this information which was supplied in time for this report. We are grateful to Mr. Wilmer Shank, owner of the property, for permission to collect.

DAY 2

◆10◆ Our first visit will be the Hanover Quarry near Billinger. Proceed south on Rt. 15 to York Springs, and then proceed south on Rt. 94. One mile south on Rt. 94 we pass a diabase outcrop in the Bermudian Creek valley. At this location there are minor amounts of prehnite and anorthite. Crossing over the Gettysburg sill once again we enter the flatlands of the New Oxford formation. This shale member can be considered analogous to the Stockton Formation of New Jersey and eastern Pennsylvania. At Bittinger we encounter an area of Kinzer Formation, Vintage Dolomite, and Ledger Dolomite. The depth of these calcareous beds are estimated to be about 2000 feet, with the ledger providing a very high grade material. These are economically important formations, and have quarried since the earliest days of county development. At Bittinger we will pass two abandoned but large quarries which were the forerunners of the current operation. We are grateful to the Bethlehem Corporation and in particular Mr. William Spooner, plant manager, for permission to visit the quarry.

The mineral assemblage at Hanover is not extensive but is interesting. Fair amounts of specular hematite are seen, and provide good specimens. The hematite is a non-desirable item in the quarrying process. Large calcite crystals are also found as well as occasional quartz crystals. Crystalline chalcopyrite is common, and attractive limestone concretions are sometimes encountered. Several years ago an ancient sinkhole was quarried into and provided a large amount of Pleistocene animal bones.

From here we will backtrack to the York Springs area. At the upper end of York Springs make a left hand turn on the Idaville Road. One and half miles along the Idaville Road (in the curve of the road) note the water-filled pit. This abandoned iron mine marks the northern-most magnetite occurrence in the county. Here an isolated segment of the diabase intrusion contacts a segment of Beekmantown limestone. One half mile further we will cross Oxford Road in an area known as Gargol. Just a half mile north of this intersection is the site of a sericite quarry which was very rich in the mineral chloritoid. The quarry was removed and reclaimed as an orchard producing area about 2 years ago. Some float can be found in the fields.

We will continue on to Idaville and cross over Rt. 34. Proceed another six and half miles to the Wenksville Road.

◆11◆ Turning right on Wenksville Road, we are now entering a predominately rhyolite area which will be evident by outcrops and wall rocks: About two miles from the turn, notice a fresh rhyolite outcrop on the right hand side of the road. This outcrop exhibits a rhyolite-greenstone contact and fairly abundant in the mineral piemontite. One mile from the outcrop is the site of Garrettson's Orchards. The orchard site is one of two locations at the head of the Buchanan Valley which Stose mentions as a producer of fine piemontite specimens. We thank Mr. Harold Garrettson for permission to visit this location. Please respect fences and growing trees. The piemontite is common throughout the orchard area. Piemontite can be seen in place in the large boulder in the field.

Continuing west on the Wenksville Road, we will pass the old Boyd School (now a residence) about one mile from Garrettson's. This school was referenced as a landmark in the early textbooks as the site of the piemontite occurrences. A mile beyond the school we will make a turn on Club Road heading south into the Buchanan Valley. About three-quarters of a mile along Club Road note the rhyolite outcrop to your right. This dark brick red rhyolite is an example of rhyolite baked during contact with the basalt. This has led Stose to conjecture that the rhyolite is older than the basalt.

Club Road connects with the Buchanan Valley Road at the top of the hill. Look to the left and you will observe the Narrows, a prominent Adams County geological feature which is a water course cross-cutting the rhyolite and metabasalt flow.

Heading onto the Buchanan Valley Road, observe the green asbestos-sided residence about one and half miles from the intersection: This is the site of Musser's Store of the early literature and marks another piemontite occurrence in the valley. It was near this spot that the scheelite described in Montgomery's "Mineralogy of Pennsylvania" was found.

◆12◆ One and half miles from Musser's Store, we arrive at the site of the Cole's Iron Bank. The shaft was covered over during recent house construction, but some waste piles can still be seen near the residence of Mr. Gene Dillon. This occurrence produced some fine specular hematite in quartz, and for those desiring to collect a specimen, Mr. Dillon has kindly consented to allow a visit to the area.



This stop is the conclusion of our tour. We are just two miles north of U.S. Rt. 30 which provides fairly easy access to other major roads such as Rt. 15, Rt. 81, and the Pennsylvania Turnpike.