



FRIENDS OF MINERALOGY

Pennsylvania Chapter

% Douglas E. Rambo, President (302) 893-1841 Evening
316 Shipley Rd. Apt. 423 (302) 739-9945 Day
Wilmington, DE 19809 (302) 738-2296 Fax
drambo417@comcast.net

It is Symposium time again.

I apologize to all for the late notice regarding this year's Pennsylvania Chapter Symposium. This year's event has come together in fits and starts, but has finally amassed to what looks like will be a great event.

This year we are kicking off the symposium with the field trip to the Dillsburg Iron Mines. Pen Ambler and Jeri Jones have arranged the trip into the locality and have said that good things can still be found. I won't say that this is going to be the last opportunity to collect at this location, but like it is in many places, the pressure to develop any open piece of property is great and development is encroaching on this area as well. Directions to the field trip appear toward the back of this mailing

On Sunday November 5 we will be meeting at the Delaware County Institute of Science in Media, Pennsylvania for the lectures and auctions. We have four interesting talks to bring you this year as our speakers include Mike Skebo (Burlington, Ontario) who will give presentations on the Lengenbach Quarry, Binntal Valley, Switzerland and a Collectors Tour of Italian Mineral Localities; Johnny Johnson (Finksburg, MD) who will talk on the Elizabeth Copper Mine in Vermont; and Arnold Mogel (Schuylkill Haven, PA) is going to speak on the Cash Mine, a "New" Telluride Mineral Locality in the Gold Hill Mining District of Colorado. There will be a silent auction and a voice auction and minerals sales by those interested in bringing a couple of flats of material. Arrangements for lunch will be "on your own" this year. We will not be having a group lunch at the Town House restaurant like we have done in past years. There are a number of options for dining around the Media area that range from inexpensive to more pricey.

We will be accepting registrations through the mail, at the field trip and at the door, so please join us if you can—and bring a friend who might not know what FM is like.

I look forward to seeing you at the Symposium.

Regards,

Doug Rambo, President
FM PA Chapter

Note: The following is part three of a six part article that was originally written for and published in ROCK BUSTER NEWS, an award winning newsletter produced by the Central Pennsylvania Rock & Mineral Club. Jay Lininger was well known in Pennsylvania mineralogical circles. He was the co-founder and publisher of MATRIX - A Journal of the History of Minerals, a prolific collector of Pennsylvania Mineral Specimens, and an officer and board member of FMPA. This article was borrowed from the website of Penn Minerals (www.pennminerals.com)

CHRONICLES OF CENTRAL PENNSYLVANIA MINERALOGY

Part Three
Jay L. Lininger
Dillsburg, PA

DILLSBURG: COULD IT HAVE BEEN ANOTHER CORNWALL?

In Part One of the CHRONICLE series, I discussed briefly the importance of the Pennsylvania iron industry during the nineteenth century. The development of this vital industry in our state coincided with the period in history which historians describe as the "American Industrial Revolution." The Susquehanna Valley was well represented by an active iron industry which had been established several decades before the American Revolution. Most of the local eighteenth century workings were comprised of the familiar "iron plantation" workings surrounding a fire-belching, charcoal fueled blast furnace. Lacking good roads and a major transportation system forced most of the enterprises to be situated near the source of raw materials. Thus, most iron producing furnaces were located near the ore mines, limestone quarries and vast hardwood forests which covered Pennsylvania. By the dawn of the nineteenth century, hundreds of self sustaining iron manufacturing complexes could be found throughout the region. The majority of ore was extracted from the abundant residual limonite deposits which were formed at the margins of the great sedimentary beds of sandstone and limestone across the Appalachian arch. Although the limonite was not high grade ore, it was desirable because the deposits were close to the surface and were often very large in width and length. Ore recovery could be conducted by the pick and shovel method, and mine shafts were rarely required.

Further east, successful iron mining was also being conducted on the high grade magnetite deposits which formed at the contact zones of intruding diabase and older limestone beds. Large mines and furnaces processed the high grade magnetite ore at Cornwall, Hopewell, Pottstown and Morgantown. In the Susquehanna Valley there were no known magnetite deposits, but the region was amply represented by dozens of the open-cut limonite deposits which were described as "ore banks." When the borough of Dillsburg was founded in 1833, the furnace and ore banks at nearby Boiling Springs had already been in operation for more than 80 years.

Dillsburg was a village founded at the crossroads of commerce in the northern York County farming community. Its bucolic setting in the shelter of the South Mountain, and its fertile and well drained soil gave no hint of the mineral wealth which lay just under the surface. The science of geology was in its infancy, and knowledge of Pennsylvania's geology was non-existent in 1833. The rapid growth of mining in the Keystone State began to fuel the desire for practical geological information, so the state legislature commissioned the First Geological Survey in 1836. The eminent Henry D. Rogers was appointed as state geologist. Rogers began the awesome task of exploring and interpreting the vast and complex geology of Pennsylvania. His many years of effort culminated in the publication of a major work -- the three volume series entitled the GEOLOGY OF PENNSYLVANIA (1858). This hard to find series is highly prized by serious Pennsylvania mineral collectors. As Rogers traversed the state, he issued a series of preliminary reports. One of the early reports (1840) noted that geological indicators in Dogwood Hollow, near the village of Dillsburg, could be a possible clue to the presence of large iron deposits. His prophetic comments would be confirmed many years later when large limonite and clay deposits were discovered and developed in Dogwood Hollow.

What Rogers couldn't know about was the presence of much higher grade iron ore in the form of magnetite, which lay beneath the fields in the flatlands and rolling hills about a mile east of Dillsburg. The discovery of this important ore deposit was credited to a local resident. During the spring plowing in 1847, Dillsburg farmer Abraham Mumper was perplexed when his plow unearthed some dense black boulders in one of the fields on his property. His curiosity and expectations were fulfilled when the mineral was identified as a rich grade of magnetite ore. Although the magnetite contained an excess of sulfur (due to included pyrite), the percentage of iron was higher than the local limonite ores. More importantly, local iron masters had learned through experience that a judicious mixture of limonite and magnetite produced a better grade of boiler plate iron. The ore mixture produced an alloy of sorts that resisted the brittle cracking brought about by great heat. That quality was desirable for the manufacture of wood stoves and firebacks.

Abraham Mumper now possessed a commodity that was economically desirable. There existed a ready market in the Susquehanna Valley because of the many furnaces already in operation. Mumper could afford to sell the ore at attractive prices. He could eliminate the long distance shipping costs required for the eastern magnetite ores. He didn't need to refine the ore; simply mine it and sell it to local furnaces. The economics were simple. He treated the ore as just another "cash crop," and soon found himself on the road to prosperity. It is said that imitation is the sincerest form of flattery. Mumper should have been flattered, because his success spawned an active search by other residents over the acreage east of town. In time, several more surficial deposits were discovered. More mines were established, including one by Mumper's brother John. Within a few years the region began to take on the look of a mining district. This mining district, however, had one peculiar difference. All the ore was mined and sold by contract to other furnaces. No furnace or smelting operation was established in or near Dillsburg. This arrangement would remain in place until the closing of the last mine in 1908.

The magnetite ore at Dillsburg occurred in veins or pods, and was distinctly different from the residual limonite ore bank deposits so common throughout the lower Susquehanna region. The early workings at Dillsburg began as open cuts, but eventually were converted to mine shafts after the easily obtainable ore was exhausted. By the time of Mumper's death in 1868, he was wealthy, but the open cut mines were past their prime.

Mumper's property was purchased from the estate by his son-in-law Alexander Underwood. Although Underwood was a practicing attorney in Mechanicsburg, he was well aware of Mumper's success in the mining business. He was determined to develop the Mumper Mine in a much more ambitious fashion, and having no practical mining experience, turned to those who did. He hired the Wrightsville Iron Company to develop the property. Underwood's hopes were rewarded in 1872 when a large quantity of ore was discovered at a depth of 26 feet. Seams of pure magnetite up to 18 feet in width were encountered, and three drifts were developed to recover the ore. At the peak of production, 40 tons of ore per day were removed.

In the meantime, another attorney by the name of John Logan was struggling with a quandary of his own making. The Dillsburg lawyer had once been the owner of some land located in the general vicinity of the newly expanding Underwood Mine. Logan had inherited the property from his father's estate, and during the initial mining "boom" had made a thorough exploration of the property. There existed no surface indications of iron ore, so Logan succumbed to an offer to sell his land to a local farmer. In light of the development of rich new veins nearby, Logan began to have second thoughts on the wisdom of selling the property in the first place. In an act considered impulsive by local residents, Logan convinced the owner to sell the property back to him for a figure described as "a vastly inflated sum." Logan's risk was turned from folly to fortune, however, when the same rich vein was discovered on the repurchased property. Is it possible that the disdain felt for lawyers is not a recent phenomena?

Meanwhile, the study of geology in Pennsylvania became somewhat inactive after the release of the Rogers three volume series. That would soon change, as the American Civil War and post war reconstruction pushed the development of iron mining and manufacturing to new heights. In order to meet the demands for updated information, the State Legislature was required to commission the Second Geological Survey. The new survey, now greatly expanded in size, was placed under the direction of Professor J. Peter Lesley of Philadelphia. The knowledgeable and outspoken Lesley was methodical in his organization of his staff. Responsibility for the study of specific areas was assigned to the best suited geologists. Exploration of the iron rich regions of Adams, Cumberland, Franklin and York Counties were assigned to Persifer Fraser and A.E. Lehman. During the summer of 1874 these two men made a visit to every iron mine in the four county area, no small task because there were hundreds of them. In their initial survey report of 1874, the two men recognized the uniqueness of the Dillsburg magnetite deposits, and determined to revisit the district for a more detailed study during the following year.

During the latter part of 1873, a nationwide financial depression (known as the panic of 1873) impacted much of the business community. As a result, many mining operations were closed or temporarily suspended. The Dillsburg ore fields were no exception. Several of the ten major magnetite mines were closed during the visit of Fraser and Lehman. Access to most of the mines was available to the geologists, however, and the report submitted after their investigation provides us with the most detailed and accurate account of the mines that was made available by knowledgeable observers.

The economy rebounded in 1876 and most of the operations resumed as before. Over the next two decades recessions would come and go, but the demand for magnetite ore helped to keep the Dillsburg mining industry reasonably stable. It was also during this period that a number of large orebanks were developed in the newly discovered limonite deposits located west of Dillsburg in Dogwood Hollow. These were the same mineralized zones predicted by Henry D. Rogers during the studies made for the First Geological Survey many decades before. The life of these newer mines were prematurely ended with the discovery and rapid development of the hematite ore masses in the Mesabi Range of northern Minnesota. Mining continued in Dogwood Hollow for a

few additional years because of the exploitation of white clay deposits which were found in proximity to the limonite beds.

Over in the magnetite ore fields, the large known reserves of high grade ore were approaching depletion by the turn of the century. Most of the older mines were closed, but the King and Jauss Mines, located in the southern most portion, were still producing. In August 1906, a brief flurry of excitement was aroused when the Jauss Mine was visited by the famous inventor Thomas Alva Edison. Although Edison was well known to the public for his remarkable inventions, he was also an entrepreneur with investments in iron mining and cement manufacture in central New Jersey. Edison and his son were escorted to the mine by John Morris, a local resident with a broad knowledge of the Dillsburg mines. Edison pronounced the ore to be high grade, but was apparently more impressed with Morris than with the Jauss Mine. He never invested in Dillsburg mining property, but he did hire Morris to serve as a mining engineer for a number of his other mining ventures.

Numerous attempts to inject financial resources into the old Dillsburg ore fields were of no avail. The Jauss Mine closed in 1908, and the district died a quiet death after producing 1,500,000 tons of ore. An epitaph of sorts was written by U.S.G.S. economic geologist Arthur C. Spencer. He had been preparing a field report on Pennsylvania's Cornwall type occurrences, and the timeliness of his investigation (1907-1908) permitted him to visit the Dillsburg district while several of the mines were still accessible. His observations provided a clearer picture of the geology of the ore occurrence, as well as additional information on the mines themselves. In spite of the mines being closed, there remained an unsettling aura of uncertainty. Could it be possible that a large amount of ore yet remained? When the district was active, the mines appeared to be random, covering an area much more widespread than any of the other Cornwall type occurrences. No systematic exploration or development had ever been undertaken by a major mining company. Instead, the deposits had been located by surface indications, or by the use of a dip needle device. This primitive instrument would show indications of the ore deposits by the magnetic attraction of the needle to deeper ore bodies. In the years that followed the mine closures, local landowners kept property intact in the hope that additional ore would once again be discovered. The advent of World War II set the stage for one final scientific evaluation of the region.

Because of the demands of war for ever increasing amounts of natural resources, many of Pennsylvania's older mining districts were reevaluated for mineral deposits which may have been overlooked. The renewed search at Dillsburg was conducted by a team of U.S.G.S. geologists under the leadership of G.L. Neumann and Preston Holtz. Extensive drilling throughout the orefield was commenced in 1942 and produced some conclusive results. Additional ore, estimated at perhaps the same amount already mined, was discovered. The random nature of the ore pods was confirmed. There existed no large massive orebody such as was found at Cornwall and French Creek. The ores at those two famous mines represented a major contact zone between the older limestones of the region and the newer diabase intrusion producing metasomatic replacement of limestone with enriched magnetite. Holtz's interpretation of Dillsburg's occurrence pointed to a deep seated diabase intrusion which included several thin offshoots or sheets of diabase, perhaps of newer origin which ascended upward. Holtz discovered that the pods of ore were replacements of sandstone which developed on the underside of the sheets, perhaps accounting for their random placement. Some ore pods were close to the surface (thus accounting for Mumper's surficial discovery), and some were deeper along the underside of the sheets. Although limestone occurs in the immediate vicinity, Holtz determined that the replacement occurred in the sandstones of the area. This may account for the fact that Dillsburg never produced the broad mineral assemblage seen at Cornwall and French Creek.

The Dillsburg orefield, perhaps because of its random nature and lack of large mine dumps, has not been an area of great interest to mineral collectors. It takes a dedicated effort (usually in the winter) to locate the mine areas and scope the terrain just to get a grasp of the earlier layout. In the 1970's, the area was studied by Robert C. Smith of the (Fourth) Pennsylvania Geological Survey. His efforts, in conjunction with the study of local diabase, produced an interesting mineral assemblage. Smith elected to include the locality in the most recent version of G33, the popular "Mineral Collecting in Pennsylvania." Although most of the minerals are microscopic in nature, 19 distinct species have been identified. Among the most interesting are small, but brilliant, octahedral magnetite crystals, datolite in clear to pale green crystals, small white apatite crystals, and a bright pink iron rich muscovite mica which appears as clay-like masses.

In 1992, a group of members from the Northern York County Historical and Preservation Society formed a committee to study and preserve all known information relating to mining in the Dillsburg area. The efforts of this dedicated group of volunteers resulted in a publication completed in 1995 entitled "Mines of the Dillsburg Pennsylvania Area". This work features a large number of historical photographs never before published. The object of the publication is to preserve a record of one Dillsburg industry whose landmarks are rapidly eroding. Most residents of the town are not aware that mining ever existed in the region.

We will be meeting promptly at 9AM at the McDonalds Restaurant just north of Dillsburg on Route 15 (Across from the Rutters). From there our leaders, Pen Ambler and Jeri Jones, will direct us to where we will be collecting for the day.

Directions to the Dillsburg Iron Mines Field Trip

From the East

Take the Pennsylvania Turnpike West past Harrisburg and across the Susquehanna River to Route 15 South toward Gettysburg. Follow Route 15 South for approximately 10 Miles +/- . The McDonalds will be on your right hand side.

From the West

Take the Pennsylvania Turnpike East towards Harrisburg to Route 15 South toward Gettysburg. Follow Route 15 South for approximately 10 Miles +/- . The McDonalds will be on your right hand side.

From the North

Take I-81 South and exit onto I-83 South / East. Take I-83 to Route 15 South towards Gettysburg and follow Route 15 South to the McDonalds Restaurant just north of Dillsburg (approximately 12 -15 miles)

From the South

Take I-83 North to Route 30 West in York. Follow Route 30 West to Route 74 West. Follow Route 74 until it intersects with Route 15 in Dillsburg. Take Route 15 North out of Dillsburg to the McDonalds Restaurant which will be on your left hand side.

