# REGIONAL SHOWDOWN

## Chester County VS St. Lawrence County

B. Naugle '09

UVITE
Power's Farm
New York

Quarterly Magazine
THE-VUG.COM
vol. 2 no. 2

www.the-vug.com

# THE-VUG

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Official Magazine of The-Vug.com

VOLUME 2 Number 2 Spring Shows 2009

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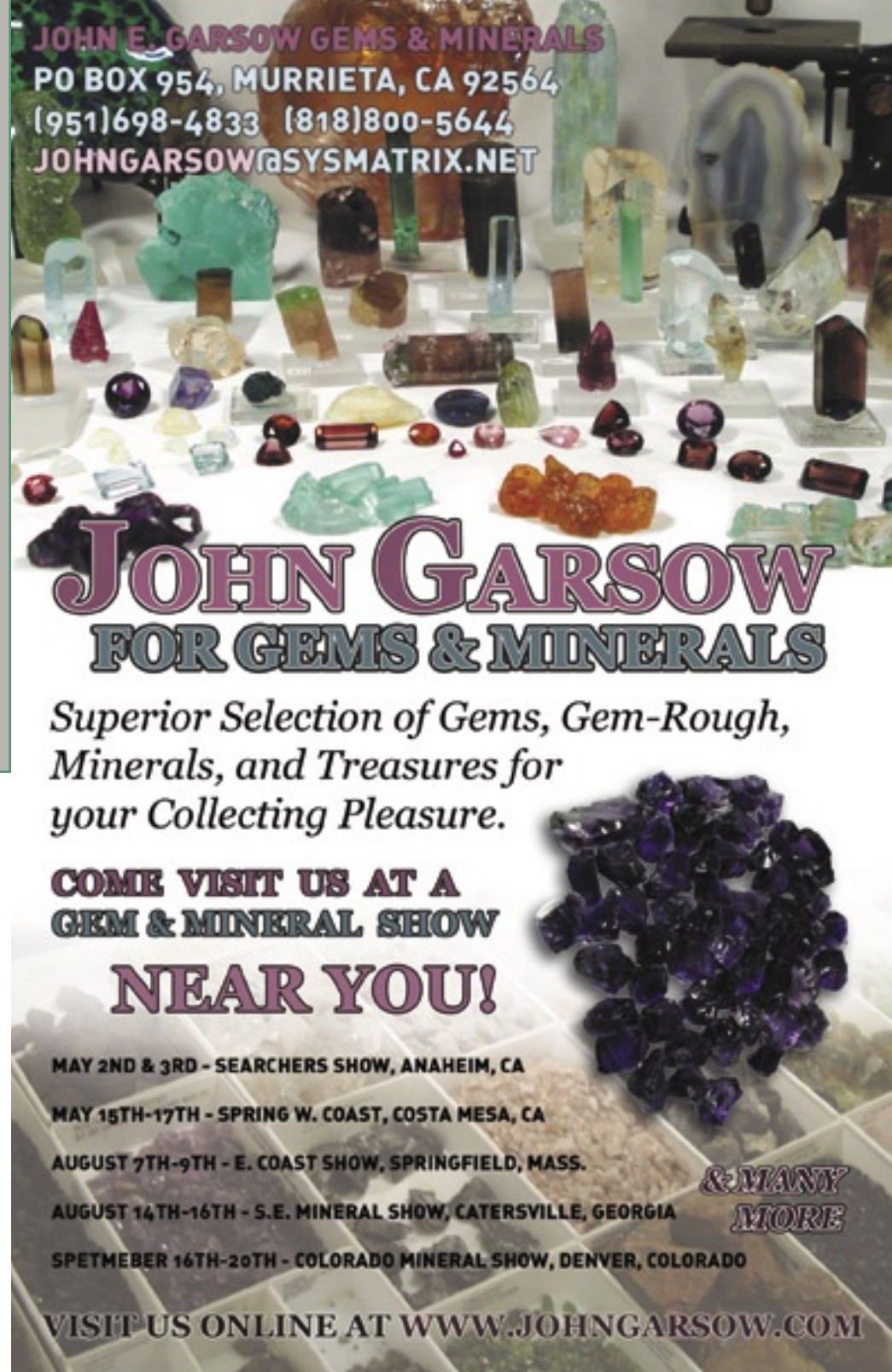
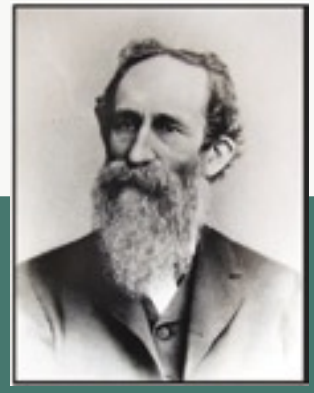


# REGIONAL SHOWDOWN

## Chester County VS St. Lawrence County



**Wiliam W. Jefferis**
**(1820-1906)**

During the late 19th century there were thousands of mining locations up and down the Eastern coast of the United States. The vast resources from the Western states had not yet eclipsed these early mines and regional pride was running high in both of these counties. Chester County had served as a wonderland of mineral collecting adjacent to the cradle of American Mineralogy in Philadelphia. In St. Lawrence County, several large deposits of desired minerals, strategically positioned in the industrial area adjacent to the Canadian border.

Nobody realized this fact more than William W. Jefferis, a long time supporter of mineral studies in Chester County, curator and author of *Minerals of Chester County*. Spending time in both counties, collecting at famous mineral locations during their glory days of specimen production, Jefferis had interesting conversations with fellow collectors, debating the importance of both counties.

While arguments never got too heated, one can look at both sides and find that each county served to help America grow during its industrial age. Which region produces the best minerals? That is the answer you are going to have to decide for yourself. Join us for a tour of four locations from each county, including locations you can still field collect at today.

# SELLECK ROAD, ST. LAWRENCE Co.

## Article and Photos by Michael Walter

The Selleck Road locality has been popular both with local mineral collectors and visitors to the region due to the ease in which it can be located, the fine minerals found there and the fact that the site has only begun to be explored. Large numbers of excellent specimens of green tremolite and brown uvite have found their way into mineral collections worldwide. The locality is on state land, is reached by a short stretch of gravel road which accesses a hunting camp. In the past, collecting at this site has been unrestricted; however, the 2008 passage of a new state law (6NYCRR Part 190.8) may change this.

The mineralized ridge is located in the township of West Pierrepont on the Selleck Road east of the village. To reach the collecting site, turn east on Selleck Road just north of the three-corners in the village and proceed about 1.8 kilometers to an unpaved road on the right that runs south along a wetlands. This is the access road for a hunting camp, so collectors should avoid blocking the road with their vehicles. Proceed along this access road and up a small rise and park in the clearing to the right. The various exposures that together comprise the locality extend both to the east (left) and west (right) of the access road at the clearing. The latitude-longitude coordinates of the clearing are 44° 29' 26"N, 75° 02' 19" W. on the 1969 U.S.G.S. 7.5 minute West Pierrepont Quadrangle topographic map.

It appears that this site was first discovered by the late Robert Dow in the early 1960s. The locality quickly became known to local mineral clubs which frequented the site once it became clear that fine mineral specimens could be acquired there. Robinson and Alverson (1971) included the locality in their guidebook, Minerals of the St. Lawrence Valley. This book attained great popularity as a local guide for collectors in the region and drew even greater attention to the site. Since that time the site has been frequented by collectors, school teachers leading field trips and college and university classes doing fieldwork.

The collecting area is a long ridge which exposes crystalline Precambrian rocks that are part of a regional metasedimentary sequence (Central Sedimentary Belt of the Grenville Province). This ridge runs roughly east-west and is approximately one quarter of a mile long. The area rocks include marble, a calc-silicate unit with various lenses of finely crystallized tremolite, diopside, and phlogopite, and locally undulating layers of massive quartz. Minerals of interest to collectors largely occur in pods, seams, or pockets in the calc-silicate unit and are often in contact with a coarse-grained, pink to orange-pink calcite. Loose crystals occur in the soil and seams in the rock due to the weathering of the calcite which once contained them. The walls of these seams are most productive producing the various species to follow. Collectors should expect to be digging in soil, for the most part, so shovels, hand cultivators, pry bars and screens are important tools. Crack hammers and chisels could also be helpful.

The minerals known to be found at the Selleck Road occurrence include albite, apatite (CaF), calcite, chalcopyrite, diopside, goethite, malachite, marialite, microcline, phlogopite, pyrite, quartz, talc, tremolite and uvite. Only three however, present themselves with frequency and in collector grade specimens.

The first mineral is diopside. These blocky, low luster crystals range from a very light green to a medium green in color and can reach 15 centimeters in length. They are relatively common as wall coatings in seams and less so as loose crystals in the soil. Collectors who find pure white ones may have encountered one of the rare talc pseudomorphs after diopside. These will be easily recognized as they will feel greasy to the touch. Another unusual find is to encounter diopsides with epitactic overgrowths of tremolite. The overgrowths will look like hundreds of parallel to semi parallel needles of tremolite on the diopside's crystal faces. Thin overgrowths show up as a lighter green due to the translucence of the tremolite and thicker overgrowths appear as a darker green due to their masking the underlying diopside's light color. The internal bodies of the crystals retain not only the morphology of the initial diopside crystal but also all other physical and chemical properties associated with that species.

**Left: Tremolite and Philogopite on Microcline pseudomorph after Marialite. Found by Michael Walter, 2007. Selleck Road Occurrence, West Pierrepont, New York. 4 cm**

**Right: Tremolite epitacticovergrowth on Diopside. Diopside crystal with tremolite coatings and minor phlogopite. Found by Michael Walter, 2007. Selleck Road Occurrence, West Pierrepont, New York. 7.4 cm**

The second mineral is the most common species, tremolite. In the past, including in published accounts, this mineral has commonly been labeled actinolite (which it is NOT). Tremolite occurs as colorless to grey-green to medium green to dark green, almost black, crystals to 10 centimeters or more in length, although most crystals are less than three centimeters. Crystals are often glassy, and show light striations the lengths of their prism faces. Single crystals and clusters of several crystals with no visible points of attachment are relatively common, apparently having formed in and subsequently weathered out of calcite. This species is so common at the Selleck Road site that it is difficult not to find nice examples! First time visitors often spend a great deal of time amassing piles of tremolite specimens only to high-grade them later or switch pieces out with all the great examples they find a short time later. Once one becomes bored with the great tremolite specimens which seem to be everywhere they remember that there are tourmalines to be found.

**Above:**
**Tremolite epitactic overgrowth on Diopside. A pair of diopside crystals with tremolite coatings and minor phlogopite. Found by Michael Walter, 2007, Selleck Road Occurrence, West Pierrepont, New York. 5.5 cm.**

**Above:**
**Tremolite and Quartz. Found by Michael Walter, 1990s. Selleck Road Occurrence, West Pierrepont, New York. 5.1 cm.**

Uvite, sometimes mislabeled as dravite by collectors, occurs as dark yellow-brown to reddish-brown lustrous crystals often showing the characteristic hemimorphic development that the species is noted for. Specimens which are noteworthy will exhibit good translucence and occasionally be striated. Exceptional crystals can reach 16 centimeters in length but are usual much smaller. Specimens will be found with effort in the soils and as matrix specimens on seam walls. This is the primary mineral species that is most difficult to find in good specimens. When they are good, however, they are comparable to some of the finest tourmalines around.

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# PROFESSIONAL PROFILE

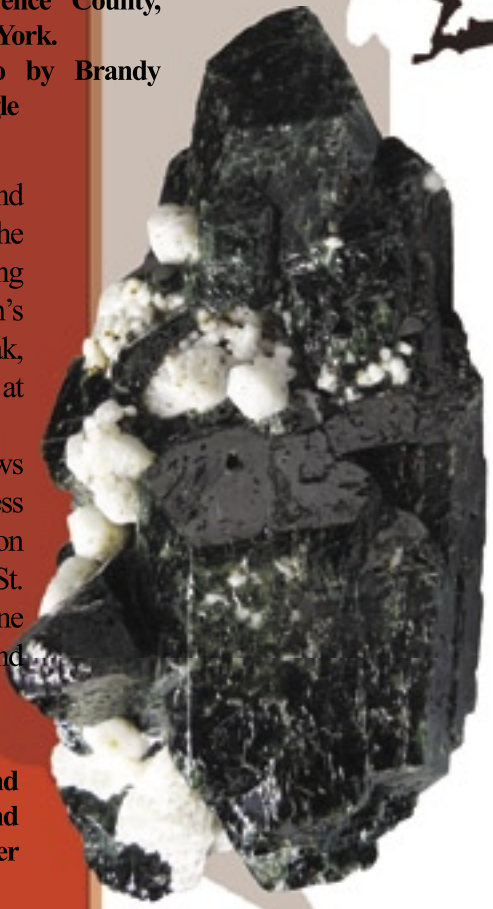
**Above:**
**Uvite, Bower Powers farm, Pierrepont, New York. Found by Scott Wallace 2004. 5.8 cm. Michael Walter collection and photo.**

Location, Location, Location. Not only is that the mantra for real estate, it rings true when we talk about history makers. Scott Wallace had the advantage of living nearby the classic Power's Farm Uvite location. Putting in hundreds of hours of hard work along with learning about the deposit from other collections, it is no wonder that Scott ended up finding a long lost trench at the farm, producing countless flats of world class Uvite clusters. After the satisfaction with that world-class find in 2005, Scott and his digging partner Mike Walter hit the Pitcairn Diopside location. Wiggling and elbowing his way into earth's voids, Scott continued his streak, pulling of the finest specimens found at the location out of the ground.

You can find Scott at many shows throughout the year, under the business name Majestic Minerals. In addition to sniffing out fine minerals in St. Lawrence County, Scott presents fine gem crystals and minerals from around the world.

**Left:**
**Scott Wallace at home digging in St. Lawrence County, New York.**
**Photo by Brandy Naugle**

**Left:**
**Scott poking around the dump, showing us the location of his world class find at Pitcairn New York Photo by Brandy Naugle**



**Right**
**World Class Diopside crystal found at Pitcairn by Scott Wallace. Found in 2006 15 cm tall. Michael Walter collection and photo.**

## FIELD COLLECTOR, SCOTT WALLACE

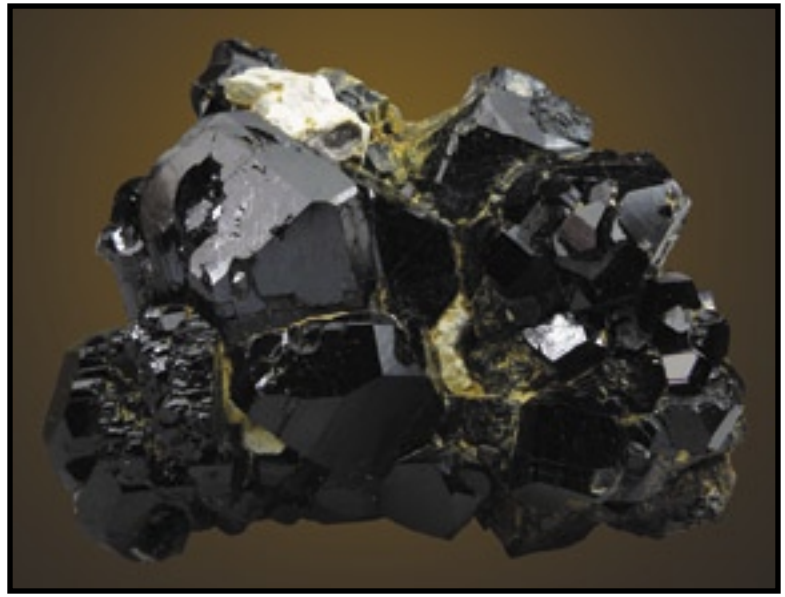
# POWER'S FARM, ST. LAWRENCE Co.

Article and Photos by Michael Walter

The tourmalines from the Power's farm occurrence in Pierrepont, New York can be found in private collections and museums worldwide. Although this is a classic Dana site a thorough review of the occurrence is lacking in the literature. Presented here is a more modern discussion regarding this famous site and the mineral found therein.

Introduced to the mineral collecting world of the 1800's the tourmaline crystals from the Bower Power's farm, Pierrepont, St. Lawrence County, New York, have achieved worldwide notoriety. Dana (1877) notes the occurrence of these unusual tourmaline specimens while Kunz (1892) describes the locality in his text Precious Stones of North America. To this day Pierrepont tourmalines, uvites, are still noted and, or, photographed in almost any book on minerals (Chesterman, 1989; Dana, 1966; English, 1934; Jensen, 1978; Klein, 2002; Mottana, 1978; Pellant, 1992; Robinson, 1994; Sinkankas, 1964; Sorrell, 1973; Walter, 2007; etc.). Specimens of this tourmaline and its accessory minerals can be found in most of the world's top museums and private collections. The Powers farm tourmaline site has been universally recognized as a classic tourmaline locale.

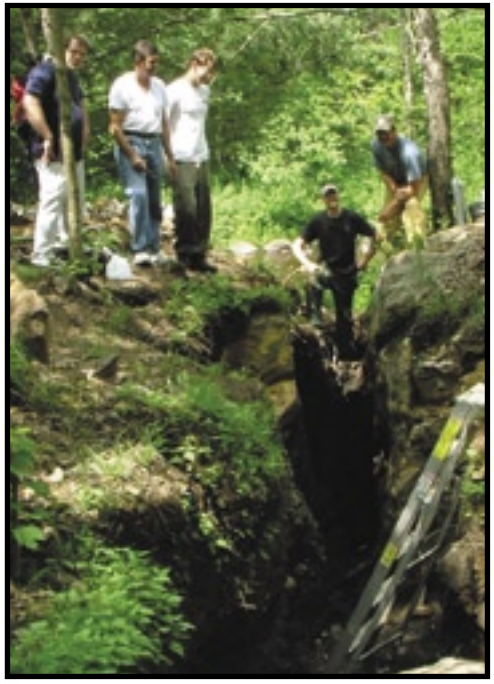
There are three primary areas which have been worked for minerals at the Powers farm locale that will be referred to within this work: The Main Diggings, The Hill Top Diggings and The Streamside Trenches will be mentioned. This does not imply that mineral specimens have not been found at other locations on the property. There are over 30 acres of land which hold potential for great discoveries at Powers farm and much of it remains unexplored due to the bedrock's coverage by glacial till.



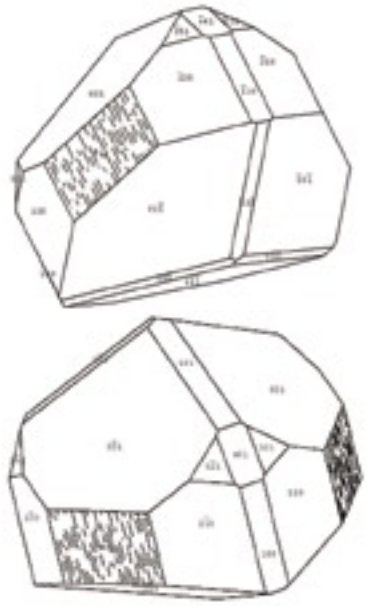
**Above:**
**Uvite and Quartz, Bower Powers farm, Pierrepont, New York. Found by Michael Walter, 2004. 9 cm.**

The Main Diggings are the primary spot which most collectors work when visiting Powers farm. It is located on the edge of a small rise on the northwestern section of the property. This site is the historic location where most 19th century specimens were recovered. The Hilltop Diggings are on the eastern edge of the property and have been worked most heavily in modern times. The Streamside Trench area is a site just upstream (south) of where a small foot bridge once existed which collectors used to access the Main Digging location. It is being worked under private claim by the author and Scott Wallace and is at 44° 33' 21.32" N, 70° 1' 16.20" W, at an elevation of 177 meters above sea level.

Today thick brush and young trees have replaced the open fields that were present in the 1800s. In fact, the entire property where minerals are found has been overgrown by a mixed deciduous forest.



**Above:**
**Scott Wallace inside the Wadell Trench, a site originally dug back in 1959, rediscovered in 2004 and still producing fine specimens to this day.**



The only truly open areas are the small clearings where visitor's park near the old bridge and the area of the Main Diggings which keep cleared due to the activity of present day collectors.

The minerals found at Powers farm have been studied in greater depth by the author and others in recent times. The following is a comprehensive list of species know from the locale but only the primary target species of note to most collectors will be described in detail. The species found include: allanite (Ce), apatite (CaF), calcite, chalcopyrite, chamosite, chlorite, diopside, goethite, gold, gypsum, microcline, phlogopite, pyrite, pyrrhotite, quartz, magnetite, malachite, marcasite, rutile, scapolite, talc, titanite, tremolite and uvite, vermiculite, zircon, as well as at least five unknown species. Pseudomorphs are very common to this locality and some represent the only known occurrences for their respective mineral replacements in the world.

**Left:**
**Uvite Idealized Crystal Model, Bower Powers farm, Pierrepont, New York. Crystallography by Michael Walter using SHAPE software.**
**Right:**
**Apatite (CaF) with various other species, Bower Powers farm, Pierrepont, New York. Likely the finest apatite ever recovered form the locale, collected by Michael Walter, 2008. 7.5 cm across**

Apatite occurs in well formed translucent to opaque crystals to 10 centimeters in length. They are usually light green in color and typify the basic form seen in many New York State apatite crystals. Crystals are normally small (less than a centimeter) and have a moderate to low luster. They can be found in association with pyrite, uvite, mica, calcite and other minerals attached to host rock as well as euhedral crystals totally suspended within calcite vein fracture fillings. Phlogopite is found in great quantities at all the diggings on the property. The one area, which has small amounts of mica, is the Stream Side Trenches. At this location the micas are light brown due to their alterations to chlorite or vermiculite. At all the other diggings micas are plentiful. They can attain large size, up to 20 centimeters and form thick hexagonal books. Normally, they are dark black in color and in some areas compose as much as 80% of the rock. Pyrite occurs in massive form as a vein filling and rarely as well formed crystals. Crystals to four centimeters on edge have been encountered but these are seldom recovered as stable specimens.

Quartz is found in two generations with distinctly different appearances and crystal forms. The first generation quartz crystals form barrel shaped Tessin habit crystals with tapered terminations. These crystals are common and attain sizes to over 30 centimeters in length. They are almost always poorly formed, looking as if they have been partially melted, white to smoky in color and most commonly found in association with uvite or as floater clusters and individuals within calcite seams. Seldom will this generation of quartz make for presentable specimens. Second generation quartz crystals are very rare but spectacular in their form, clarity and luster. These quartzes are often in parallel growths and sometimes in divergent groupings. Often water clear and sometimes showing smoky tints, these alpine quality quartz specimens are some of the most coveted of Powers specimens. Scapolite occurs as blocky, low luster, gray to brown colored crystals which can reach 15 centimeters in length. Rarely are they double terminated. Scapolite crystals are usually well formed and found alone or in association with pyroxenes. The nicest scapolite crystals from the

property are bright white, high in luster and well formed. Most are a dark green color and have a lower luster. None seem to be fluorescent like many of the scapolite crystals from other St. Lawrence County locations. On rare occasions this mineral is replaced by talc. Talc not only occurs as pseudomorphs of minerals like scapolite and quartz but as small white to clear primary crystals to a centimeter in length. The talc pseudomorphs from Powers farm rank among the best found anywhere in New York State and the talc crystals may be the best found anywhere in the world! Uralite, a pseudomorph of a clinopyroxene, probably diopside, in green crystals, often striated to 10 centimeters in length is common at the occurrence. It forms in association with the most sought after species, uvite, on many areas of the property.

The uvite occurs in spectacular groupings and as individual crystals to 20 centimeters in diameter (though any crystal over four centimeters is uncommon) and as vein fillings in the area bedrock. Plates of uvite and associated minerals have been recovered up to 60 centimeters in maximum dimensions. Crystals appear black and opaque although they can actually be seen to be brown and slightly translucent under intense light. The luster can range from dull to glassy. A great degree of internal fracturing is present in most specimens. Calcite often acts as a cementing agent for such crystals leading to their destruction, in most cases, when they are etched from this calcite with acid. Specimens naturally weathered from calcite are more stable, yet, less common in modern times.

**Above:**
**Uvite and Quartz, Bower Powers farm, Pierrepont, New York. Found by Michael Walter, 2008. 7.3 cm.**

On many areas of the property pockets and narrow seams lined with uvite have been subsequently filled by massive calcite through hydrothermal deposition. Uvite crystals are also found fully suspended within the calcite filling these openings yet euhedral crystals not exhibiting damage or regrowth of crystal faces seem to be absent. When inspected carefully, what appear to be perfectly euhedral crystals, sometimes referred to as "floaters" can be found to have one or more points of attachment or crystal regrowth that camouflages such attachments. Because of the calcite's sensitivity to chemical weathering those openings found at or near the surface have had this filling dissolved away over the centuries. As a result, the crystals within have been naturally exposed. Seam and pockets that are naturally weathered out are becoming uncommon to find on the property at the three sites noted in this article. They are highly sought after because the crystals found within them tend to be some of the finest examples of uvite specimens available to collectors. The idealized crystal model shown here exhibits ten forms: 100, 110, 010, 021, 01-1, 101, 10-2, 00-1, 401 and 321 are all present. The model has been shown with striations in order to emphasize the fact that sometimes these crystals are striated. Most previous authors have described the uvites from Powers farm as never having striations which, in fact, is obviously not always the case.

This classic site is still available to collectors unlike so many other mineral occurrences in the northeastern United States. Mineral enthusiasts are encouraged to take advantage of the opportunity that exists to actually find their own specimens at this historic locality. Responsibility is also encouraged. The author has known this family for at least 35 years. They have no personal interest in mineral collecting, yet they do allow others to collect on their property for the small fee of five dollars per day per person at the time of this writing. The site has sometimes been closed to collecting due to the irresponsibility of collectors who demand their money back or litter the property. To reach the Powers farm in Pierrepont leave Canton, New York and travel south on route # 68 toward the town of Colton. Just 1/4 mile before entering the town of Pierrepont you will see Powers Road to your left. Turn left on Powers Road and drive to the first house on your right. This is where Mr. Bower Powers lives. After securing permission to collect at the site he will explain how to reach the diggings.

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# Collecting Minerals In St. Lawrence County New York


Two locations that produce two very different fine suites of minerals and are available to the general public. The two locations, Power's Farm Uvite and Selleck Road Tremolite, are a must visit. Find your way to the cross roads of Route 68 and Country Road 24 and you'll be able to collect gemmy green Tremolite off Selleck Road. From Country Road 24 turn onto Selleck road and drive 1 mile to a dirt road, drive into the road and park, then explore the location for loose crystals and vuggy massive specimens. To go collect black Uvite, visit Mr. Powers, the first house on the left on Powers Road. Pay him $5.00 per person and he will tell you where to go collecting. You would be well served with a crack hammer and basic tools at both locations.

The boat arriving from Europe with Pennsylvania founder William Penn also brought with it Charles Pickering. This early English explorer traveled up the Schuylkill River and thought he struck a silver deposit. After getting the grants for the land and doing preliminary mining he discovered his metallic metal mineral was lead. He tried to make the best of the situation but the courts convicted him of counterfeiting silver coins out of lead. This turn of events meant the deposit would not see any more action until Mr. Charles M. Wheatley hit the scene in 1849, serving as the manager of the Perkiomen mines in Montgomery County. Exploring the area, Wheatley made discovery of the outcropping of lead Pickering had mistaked for silver. In 1850 he made his first move to lease land across county lines, establishing mines which all followed the same deposit, mining for ores of lead, in the form of massive galena. By 1852 a minor silver boom has struck the town into a frenzy and around a dozen mines opened up around the land Charles Wheatley leased. All the activity lead to a couple smelters popping up, which was to the benefit of the new Wheatley Mine.

Mines and prospect holes are found nearly every day around the world, however, the vast majority of the fine crystals end up in the ore cart. In the case of the Wheatley Mine, Charles Wheatley was so fascinated by the fine crystallized lead minerals that he saved many for himself and traded fine specimens with other collectors. While tons of fine Galena, Pyromorphite, Wulfenite, Anglesite and others went into the ore sacks, many well-crystallized specimens survived. A slump in the price of lead made the mines crawl to a halt around 1854. By 1857 all thoughts of the mine as a profitable enterprise were dashed and the company owning the Wheatley mines at the time closed down for good. 1857 was the start of a miserable time in the Northeastern states, the start of a two-year economic slump. People had been relying too much on debt and as banks failed many businesses went under. It was only at Mr. Wheatley's final desperation that he offered up the collection to Union College. With the sale went the offer to donate any new collection to the college upon his death. The college found funding for the purchase and the collection was obtained for $10,000, quite a considerable amount, especially during an economic crunch time like that. Over time most of the collection was stolen from the college, making its way into collections across the world to this day.

# PHOENIXVILLE, CHESTER Co.

Article by Justin Zzyzx

The demand for lead to make more bullets for the Civil War caused a renewal of interest in the district. Charles Wheatley purchased the Wheatley and a few neighboring mines and returned back to work under the new business name New York and Boston Silver-Lead Company.

The whole mining district became known as the Wheatley district and a fine array of specimens from the various mines were produced over many years, both during active mining times and post mining field collecting. Over 30 minerals were found in the area, including a rare new mineral aptly named Wheatleyite. Of course not all of the minerals found at the location we found in well-crystallized specimens, or even in any sort of quantity, but of the fine abundant crystals, Wheatley pyromorphite crystals can hold their own with many world famous rivals. The specimens of pyromorphite are very fine and it is almost shocking to think that this material was so abundant as to serve as an ore product. That is right; imagine sacks of these crystal clusters getting tossed around on the way to the smelter…criminal!

The pyromorphite crystals formed in many different habits, from solid hexagonal crystals, hollow casts, botryoidal spheres and in nearly every shade of green. Many specimens feature multiple forms of pyromorphite, with solid deep green hexagonal crystals resting on top of a matrix full of bright green botryoidal. In addition, many other fine minerals from the mine are found in association with pyromorphite, including well terminated galena, which serves as a matrix for the pyromorphite, or along with anglesite, cerussite, and wulfenite.

**Below:**
**Large thick crystals of Pyromorphite on matrix measuring 6.6 x 3.7 cm.**
**From the collection of Dr. Gary Hansen**
**Photo courtesy Dr. Rob Lavinsky Irocks.com**



**Above:**
**Pyromorphite crystals with a barrel shaped casts. 2.7 x 2.5 x 1.7 cm**

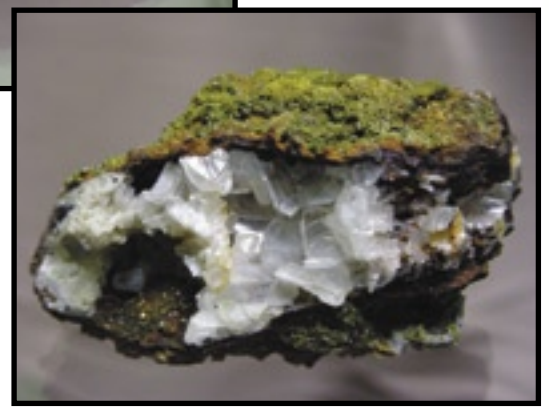
**Photo courtesy Dr. Rob Lavinsky Irocks.com**

**Right:**
**This Pyromorphite cluster shows off large solid barrels on matrix. The specimen was originally in the Washington Roebling collection, then donated to the Smithsonian Institution. 5.8 x 4.5 x 1.2 cm**

**Photo courtesy Dr. Rob Lavinsky Irocks.com**

**Left:**
**Wulfenite crystals rarely exceded 4 mm in size, but the bright colors ranging from canary yellow to bright red. Most, if not nearly all specimens of Wulfenite from this location are on matrix alongside Pyromorphite crystals.**
**8.8 x 6.2 x 3 cm**

**Photo by Justin Zzyzx**



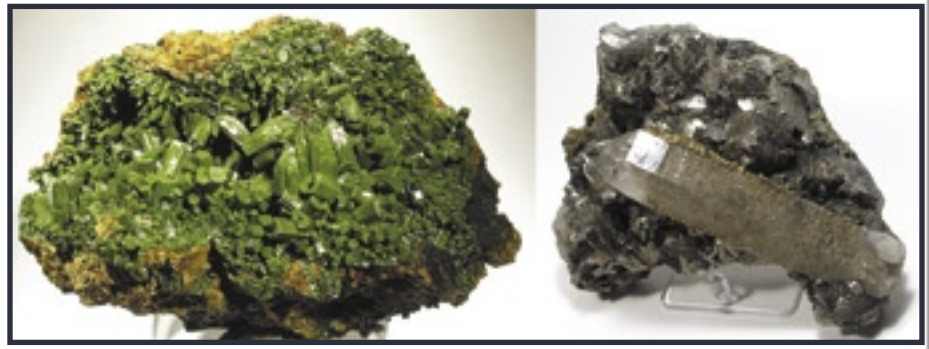
**Right:**
**Vug of Cerussite crystals in between layers of Pyromorphite micro-crystals. Cerussite was found at the location in several habits including single crystals, reticulated and other twins. Some crystals were reported to be over 5 cm.**
**5.5 x 3.3 x 2.5 cm**

**Photo by Justin Zzyzx**

**Left:**
**Bundles of Pyromorphite crystals in a "hay-stack" formation.**

**Below:**
**Matrix specimen showcasing one side covered with Pyromorphite crystals. the other side hosting a large Quartz crystal, along with other smaller crystal. 9.1 x 7 x 4.5 cm**

**Photos courtesy Dr. Rob Lavinsky Irocks.com**



**Right:**
**Sphalerite terminations over 1 cm wide. Deep colored crystals like this one made up much of the zinc ore found in the mine.**

**Photo by Justin Zzyzx**

**Left:**
**Cleavages of deep orange brown Sphalerite in Quartz, exhibiting some crystal faces near the top. Ranging in color from dark brown to honey yellow in color, specimens of well crystalized Sphalerite recovered from the Wheatley Mines in the 19th century were described as possessing "great beauty." Specimen size: 6 x 4.2cm**

**Photo and Specimen Mark Heintzelman**

Many different minerals found during the course of mining prove useless at one time, then valuable at another, like these sphalerite crystals. At first there was no use for sphalerite and it was discarded on the dump. Later on it became a commodity, used as an ore for zinc. The sphalerite crystals were reported to reach almost 10 cm in size and large clusters were common. Sphalerite was often associated with calcite, fluorite, galena and quartz. In 1865 a shipment of 12 tons of sphalerite ore was sent away to the smelter.

The vast majority of the ore consisted of galena, pyromorphite, cerussite and sphalerite. All of these minerals contained varying amounts of silver along with the lead and zinc. A ton of galena could contain as much as 36 ounces of silver.

**Right:**
**Dozens of cubes of clear Fluorite grouped together surrounding a core of matrix. Some of the largest crystals reported were up to 1.5 cm across. Clear was the most common color for the specimens and around the 73 meter level they discovered a huge deposit of Fluorite. 7.5 x 5.8 x 3.8 cm**

**Photo by Justin Zzyzx, Private Collection**

**Left:**
**Azurite was not very common at the mine, but was found occasionally along with other copper minerals, like this sample featuring sharp crystals along with green Malachite. Crystals never excede 13mm in size. 5.0 x 4.0 x 3.3 cm**

**Photo by Justin Zzyzx, Private Collection**

The mines closed down in 1860 they sat vacant until 1917 when a company Eastern Mining and Milling Company started working on the vein again until giving up in 1920, three short years later. Afterwards the area was a popular location for field collectors. The dairy farm which hosts the Brookdale, Phoenix and Southwest Chester County Mines, turned into a golf club in the late 80's. The owners have been amazing, keeping intact the historical mine dumps and smoke stack. They even allow collecting on the Brookdale dump. It is a true rarity that a mine owner would save the best specimens found at the beginning of mining and equally uncommon that the location would still be available to mineral collectors over 100 years later. The mineral collecting community owes a great debt to the caretakers of the Wheatley Lead-Zinc district.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# PITCARIN, ST. LAWRENCE Co.

## Article and Photos by Michael Walter

Not well known to the mineral collecting world, the small hamlet of Pitcairn, St. Lawrence County, New York offers the serious field collector ample opportunity to find some truly outstanding specimens. The property falls on the western edge of the Fine quadrangle, 1:24,000 series, south of Rose Road, approx. 400 meters west of Route # 3 in the town of Pitcairn, St. Lawrence County, New York. Parking is on a small dirt drive that is at 044 degrees 11' 57.58" north latitude by 075 degrees 13' 57.87" west longitude. The primary digging areas are on the east side of a small hill approx 200 feet north of this parking area. Recently, a cell phone tower was placed on the hill just north of the primary dig sites. This landmark is easy to locate from Route # 3 and makes finding the locale far easier than in the past. The improved roadway into the site also makes getting gear to the dig site a simple affair.

The two primary collecting areas are on the exposed ledge approximately 200 feet north of the parking area. This exposure is on the east side if the small hill and obvious even to the casual observer. Because the minerals found at each of these two areas are often quite different in their form, size, color and commonness the sites will be referred to as the North and South Slopes. Given the appearance of the older specimens found in private collections and museums, these two exposures are also believed to be the first or historic collecting areas on the property.

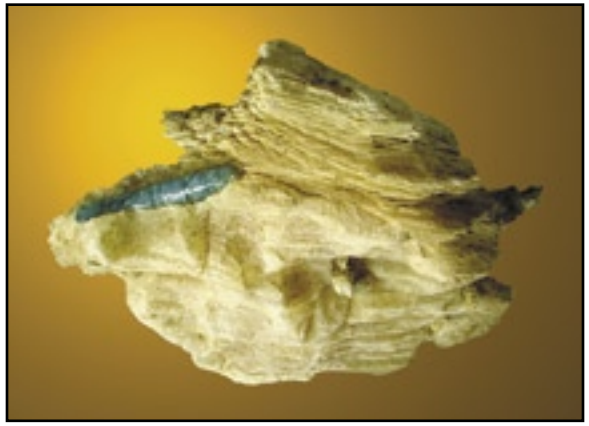
In its long history little has appeared in the literature regarding this locale (Chamberlain, 1998, Walter, 2005) so for decades few collectors have been aware of the site and relatively little serious collecting has been conducted there. The fact that specimens dating back over 100 years are preserved in private collections and in various museums attests to the locale's longevity.

Collectors should come prepared to work the rock ledges and the tailings and soils surrounding them. Following seams in this metamorphic terrain produces the best results. This is one of those sites that everyone will find something interesting. Great pieces represent some of the finest mineral specimens found in New York State but they are hard won. Be prepared for serious work if your intention is to work the ledge rock. There is a great deal of potential for finds of significance to be made at this location in the future. Much of the exposure's flanks remain covered by glacial till and are awaiting exploration.

Numerous species can be found at the Pitcairn locality. Actinolite rarely appears as an alteration product (likely uralitization) on the surfaces of diopside crystals. It has a blue gray color and is almost indistinguishable

from ferro-actinolite that appears on diopside crystals at the A and B veins in the town of Natural Bridge, New York (Chamberlain, et. al., 1987). Albite (var. antiperthite) is the most common species and is found in euhedral single crystals to 7 centimeters and in clusters with diopside, titanite and apatite. The crystals are generally the primary coating on pocket and seam walls often showing a high degree of morphing due to dissolution. As a result, the crystals often take on the appearance of melted candle wax. The albite is almost always a bright shade of white with a high luster. Often both sharply formed and highly corroded crystals will present themselves in the same specimen inviting the notion that there is more than one generation of this mineral present at the locale. Albite twinning in the form of surface stria is not uncommon. Manebach and Carlsbad interpenetration twins can both be found, sometimes in the same specimen at Pitcairn. Crystals of tabular form and good translucence are not uncommon. The twin crystals of albite appear to be isolated to the North Slope of the occurrence and will on rare occasions be found together in the same specimen. Diopside crystals of high luster and good form found in combination with the albite make for some of the most colorful and aesthetic specimens to be found in St. Lawrence County, New York. The contrasts in color and crystallography are exceptional for these otherwise common minerals.

Apatite (CaF) is found as well formed, transparent, euhedral crystals of a light blue to medium green color but more often as small grains in or on the matrix. Fine crystals from this location can reach 15 cm in length. In these larger sizes, which are rare, the crystals tend to show a far greater degree of internal fracturing and often a less intense color and transparency. Most specimens show a bluish yellow fluorescence under short wave ultraviolet light. Crystals are almost always malformed due to a large degree of dissolution. When small, up to approximately a centimeter, they can be very gemmy. If found in massive calcite they are difficult to extract due to their strong tendency to cleave. On matrices of feldspar they are most common and on diopside less so. The best apatite specimens are those found naturally weathered out of calcite lying loose in the soil within seams and pockets of the host rock. The specimens recovered form the North Slope generally have a richer blue color which closely resembles the apatites found from Lake Baikal, Russia. Crystals from elsewhere on the property, including calcite seams to the north and north west of the primary dig site, are often larger yet duller in color and luster.



**Right:**
**Apatite in Calcite found by Michael Walter, June, 2007, Pitcairn, New York. 10 cm piece and 3.4 cm crystal.**



Diopside is one of the primary minerals at the location. It forms large crystals up to 30 centimeters in length, of a deep forest green color that occasionally exhibit a glassy luster. They are almost always found in combination with albite and occasionally with the other minerals mentioned in this section. The surfaces of the crystals are seldom smooth. More often the diopsides surfaces are pitted or highly corroded; likely from the same dissolution event that created the effect in the area's other crystals. This pitting is sometimes organized but is usually random. Larger crystals are seldom high in luster more often being earthy and opaque, sometimes granular. Small crystals less than a centimeter are more likely to be glassy and translucent, even transparent in some cases. They sometimes show well developed stepped terminations, as well. The diopsides from Pitcairn are represented in most of the major museums of the world. When well formed and large they are considered by most to be some of the finest of their species for New York State and among the finest of their species in the world. Graphite can be found in platy grains and crystals to 2 centimeter. They are not noteworthy as collectable mineral specimens. Goethite appears as an alteration product of pyrite in small brown patches on all the minerals mentioned in this section. They are most obvious on the white albite crystals and with high magnification can sometimes be seen to show crystallization. Quartz rarely occurs in poorly formed anhedral masses on matrix in combination with other minerals. At one time these masses may have been crystals that could have been altered by dissolution as previously mentioned regarding albite and diopside. It is also rarely found as a thin surface coating on diopside and other crystals. Quartz also is responsible for replacing wollastonite along with other minerals forming impressive pseudomorphs.

**Below:**
**Diggings in soil, 2007, Pitcairn, New York. An area where collectors are moving old tailings. View is looking to north.**

**Above:**
**Diopside and Albite found by Michael Walter, June, 2007, Pitcairn, New York. 4.4 cm**

Titanite occurs as fine, dark brown blades to 12 centimeters in length. These represent what are likely the finest titanite crystals to be found anywhere in New York State. They are found as individual crystals and in combination with albite, diopside and wollastonite pseudomorphs. Smaller crystals can be gemmy up to approximately 1 cm. The crystals can be well defined or morphed much like the albite and diopside crystals most commonly found at this location. Wollastonite rarely forms as white, opaque, unaltered crystals to 10 centimeters in length. Almost all wollastonite crystals at this location are altered to one degree or another by diopside, calcite, quartz or any combination of these three minerals. In many cases the alteration is only on the outer surfaces of the crystals and the wollastonite pseudomorph retains its opaque, white wollastonite core. In other cases the alteration is complete or almost so. These are probably the finest pseudomorphs of this mineral species, which rarely forms as crystals, from anywhere in the world.

**Right:**
**Titanite on Albite, with Diopside, Apatite and Quartz pseudomorph after Diopside from Pitcairn, New York. Found by Michael Walter on July 6th, 2007. 17.8 cm, 8.4 cm titanite crystal.**

**Left:**
**Quartz and Diopside pseudomorph after Wollastonite with Titanite, Pitcairn, New York. Found by Michael Walter, 2007. 4 cm.**

The Pitcairn collecting site is on private property owned by the LaPlatney family. Richard, "Rich", LaPlatney, the current owner allows people to collect, on a daily fee basis which is currently five dollars per person per day, during the summer months. Deer hunting season is guarded religiously so no mineral collecting is allowed then. See him at his home on Rose Road, at the entrance to the locale for permission to collect. The cell phone tower road into the site is gated and locked so be sure to make arrangements with Rich before attempting to enter.

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# CORNOG, CHESTER Co.

## Article by Justin Zzyzx

Located in the rolling valley along the East Branch of the Brandywine Creek, the Keystone Trappe Rock Quarry pushed out many tons of stone destined for driveways and side roads across the county. Commonly referred to as Cornog, now Wallace Township, this location was first noted in 1933 as a deposit containing andesine, the predominate feldspar in the amphibole gneiss. In the 1950's collectors worked the quarry to collect fine clinozoisite crystals and radioactive allanite embedded in massive quartz. After years of blasting and rock removal, a series of pockets was revealed, allowing thousands of well crystalized mineral specimens to be collected.

Well formed clinozoisite and byssolite were common inclusions inside massive quartz veins at the active quarry. Collecting was allowed for a fee during the hours they were not blasting and moving about. At the end of 1964 Gerald Litner and Richard C. Haefner discovered pockets of the southeast face of the quarry. Members of the Mineralogical Society of Pennsylvania worked these pockets producing fine crystallized prehnite, axinite, byssolite, apatite and clinozoisite. These pockets were formed in a quartz vein in banded amphibolite gneiss consisting of dark green hornblende and gray andesine feldspar. Prehnite was very common in these pockets, serving as a base for actinolite, tiny yellow titanite, apatite, axinite and tiny cubes of pyrite which is giving off a staining of limonite whenever present.

**Left:**
**Actinolite and Clinozoisite included in Quartz. This specimen was from a pocket, however tons of massive quartz from the area contained the same inclusions**

These pockets were formed due to a hydrothermal solution melting the quartz and the amphibolite gneiss, creating the mixture of elements which crystallized, layer upon layer, on the surface of the now empty voids in the host rock. This limited find provided a small window of excellent finds in this unassuming rock quarry in Chester County.

**Above:**
**Typical crystal habit of Prehnite, included with Byssolite needles. Nests of fine white and light green Byssolite covers the specimen along with blades of deep green Clinozoisite. In the lower left corner two Pyrite crystals are perched on the Prehnite, indicating the source of the iron oxide staining on the surface of the other crystals. Field of view is 2.8 cm Private Collection - Photo by Justin Zzyzx**

Even after the series of vugs was extracted, the quarry still produced the same massive quartz which was full of byssolite, giving it a steely blue color. The quarry closed, fillng with water, now seen as a pond on a map, the fate of many quarries of the mid-atlantic states. Even still, if the quarry were to be pumped out, the pocket zones were worked out well before then, the treasures of Cornog already set free from the confines of the earth.

**Left:**
**Andesine crystals floating in a bed of fine thin Byssolite crystals. Deep green Clinozoisite crystals criss cross the byssolite. Field of view is 3.1 cm Private Collection - Photo by Justin Zzyzx**

**Left:**
**Ferro-Axinite and Clinozoisite crystals perched in a nest of fine Byssolite crystals. Metal bar at the base of the specimen is one inch long, with a mark for one centimeter. This specimen was photographed by Rock Currier, in the collection of the Smithsonian Institution National Museum of Natural History. The photographer mentions that this was one of the finest specimens he has seen from the location.**

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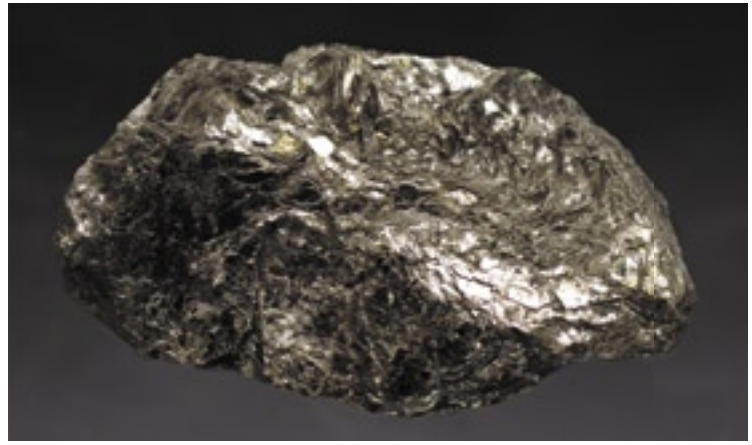
**Pennsylvania was the cradle of mineralogy in the United States. During the end of the 20th century Mr. Jay Lininger kept up that tradition by publishing Matrix Magazine, which featured articles about all sorts of mineralogial topics, especially locations in the Mid-Atlantic states. After he passed away his collection was auctioned off and I (JZ) traveled from California out to Pennsylvania to attend. One specimen really impressed me, a fine multiple inch staircase of Apatite with thin needles of Byssolite included. I had my eye on it for sure, but at the end of the day the sellng price was the highest for any specimen up for auction that day. For sure, everyone knew that was a fine Apatite!**
**Private Collection -**
**Photo by Steven Carter**

# FRENCH CREEK, CHESTER Co.

Article by Justin Zzyzx

The Falls of French Creek have been home to active mining since 1717, shortly after Samuel Nutt arrived in Southeastern Pennsylvania via Warwickshire England. A surface deposit of iron containing magnetite, pyrite and chalcopyrite was easily worked with pick and shovel, ore that lead to the gradual development of the village of St. Peters and producing countless specimens for over two centuries. Ore depletion inevitably closed the mine down in 1928, but the mine and the dumps were available to collecting, mostly on a pay to dig arrangement, up until the land was sold to a developer in 1988. The French Creek mine is now home to the French Creek Mine Estates and obviously, closed to collecting. Thousands of fine mineral specimens serve to promote the legacy of this classic Pennsylvanian mineral location.

With over 60 minerals reported from this mine, the metallic rich ore body of French Creek managed to produce seven minerals in fine crystallized specimens. Apophyllite, Calcite, Magnetite, Chalcopyrite, Pyrite, Actinolite and Garnet specimens could be found in well-crystallized form, often occurring as matrix groupings with one mineral serving as the matrix for the other. The formation of these minerals began with water being introduced to the country rock, Graphic granulite gneiss, then turning into HCl. This acid then dissolved the marble surroundings and leached the iron from the surrounding rock to form pods of pyrite and magnetite in the voids of marble, now converted in varying amounts to calcite. These pods continued in a 45 degree slope, down to over 1250 feet deep, then pinching out completely.



**Specimen of Platy Magnetite, associated with several dipyramidal crystals of Pyrite to 8mm. Originally collected by A. Lincoln Sherk MD on July 18th, 1931 from the Brooks Iron Co. workings at French Creek. Specimen size: 10.5 x 5.3cm**

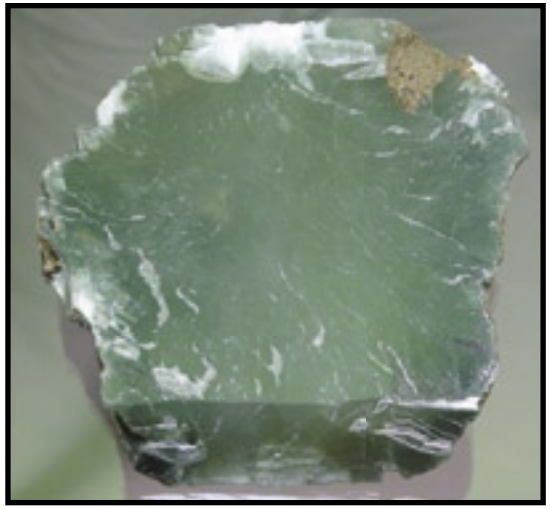
**Specimen and photo by Mark Heintzelman**

Right:
Pyrite, one of the most abundant minerals found at French Creek, is often found on plates of Magnetite or along with Calcite and Actinolite. No matter what the host matrix is, the Pyrite crystals tend to all have some sort of modification, giving them curved forms, such as seen on the specimen here. 3.8 x 2.5 x 2.3 cm

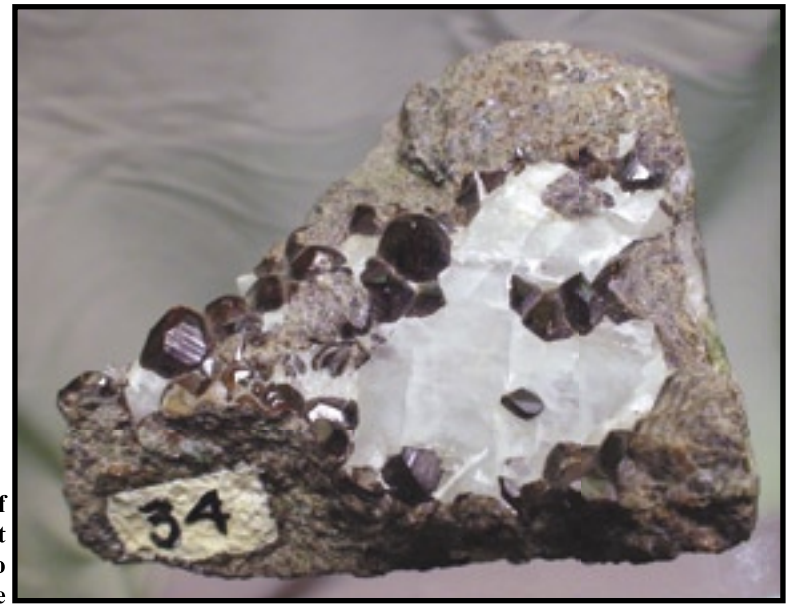
Left:
Fine crystallized Apophyllite from the French Creek area was quite an exciting find in the late 1800's and early 1900's. Before the influx of large Apophyllite crystals from India, these were some of the largest crystals known. Crystals up to 5 cm in plates formed over a base of Magnetite and in shades of yellow and pink as well as clear, French Creek Apophyllite set the standard for fine specimens of the time.

Apophyllite specimen and photo by Mark Heintzelman

Right:
Massive Calcite colored green from Actinolite inclusions. While Calcite is very common at the mine site, Calcite crystals are fairly uncommon. Calcite from French Creek occurs in white, black, pink, clear and green, such as this one pictured here. According to Samuel Gordon, green Calcite such as this one were the first to form in the deposit, followed by later development of crystallized Calcite up to 21 cm long. 6.8 x 5.8 x 2.5 cm

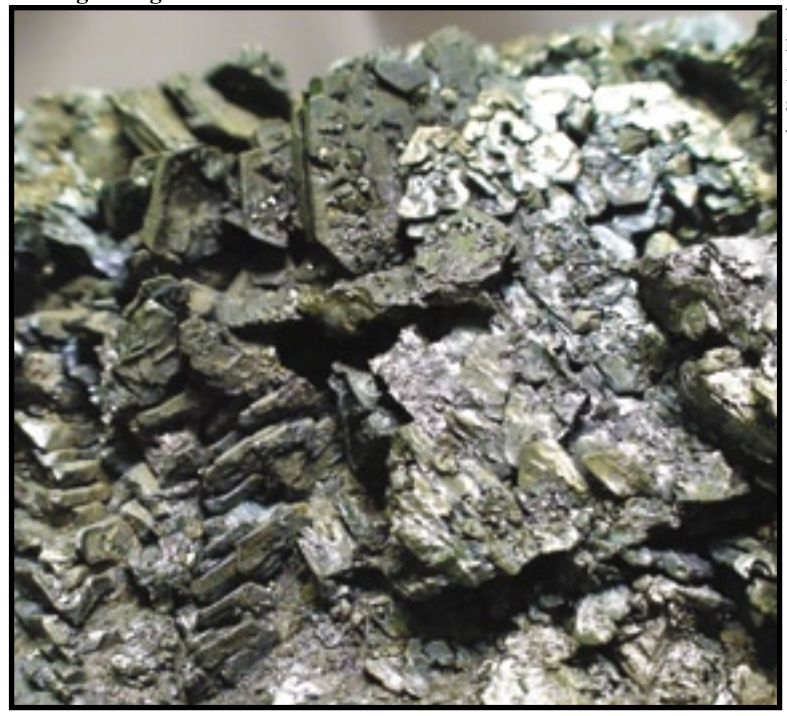




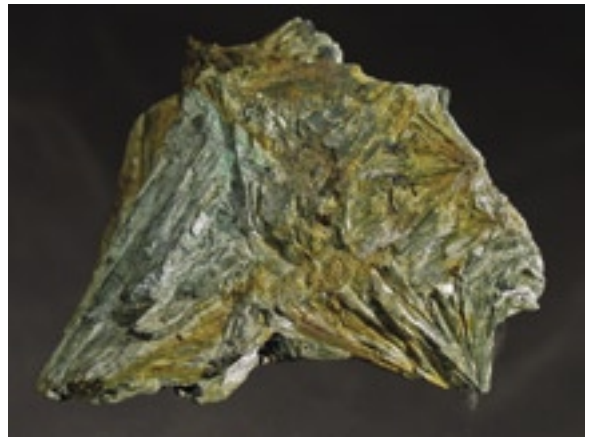



Right:
One of the first minerals to form in the deposit, Andradite garnets were abundant at the location. Reddish black crystals that can be as large as a few centimeters, but commonly, under 1 cm each with striated with modified corners. This specimen came from the Warwick mine, one of the neighboring mines in the district.

Below:
One of the ore minerals of the French Creek mines, Chalcopyrite formed as plates full of parallel crystals up to 2 feel long. Large specimens of well formed crystals were common and specimens from here made their way into mineral museums across the world.



Photos by Justin Zzyzx, except where noted.



**Left:**
**Bladed Actinolite with minor Malachite and limonite coatings (the extent to which both species occur at this site). Several di-pyramidal pyrite crystals, to 7mm, are also present on the specimen. Specimen size: 9 x 6.5cm**

**Photo and Specimen Mark Heintzelman**

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# THE BUSH FARM, ST. LAWRENCE Co.

## Article and Photos by Michael Walter

For decades the rich brown uvites from the Bush farm property north of Gouverneur near Richville, New York have adorned collections and museum shelves. The site enjoys a colorful history and to this day is accessible to the mineral collector. The property owned by the Dale Bush family of Gouverneur, New York. The Bush farm property appears in the south central section of the Richville quadrangle, 1:24000 series, at 044 degrees 23' 44.97" north latitude by 075 degrees 25' 49.63" west longitude. To reach the site one exits Route 11 just south of the town of Richville and proceed west on Welch Road for two miles until reaching a white house on the north side (right side) of the road. This is the Bush family home. Pay your collecting free (five dollars at the time of this writing) to Mr. or Mrs. Bush and head to the dig site. The diggings are found on the south side of the road by walking south west through the field and up the scrub brush covered rise. There are cow paths to follow once you get off the field and are in the brushy border land.

The history of this famous locality is put into perspective by the following quotation. William S. Valiant, Rutgers College curator, wrote a six part series of articles for the Mineral Collector Between March and August of 1899. In this account titled, "A Collector's Paradise", Valiant mentions the Richville tourmalines:

"…About five miles north of Gouverneur, near Richville, is Mr. Reese's farm (the Bush farm now). Some distance from the farm house, in the pasture, we found a mass of white rock forty or more feet in diameter, cropping out through the green sod (very little of this is left above the surface now) near a rail fence (perhaps replaced by wire later), which was a convenient coat- rack; but the first visit was in October, and our backs had use for the coats.

Drill; sledge hammer; powder; then an explosion. Several hundred pounds of rock, all of which was carried away in our wagon, was the result. Other visits were made; but what we procured this time, will serve all present purposes. The small pieces were trimmed, and the large ones broken up to suitable sizes, varying with what they contained in the way of "impurities;" and this was a very poor lot- of limestone.

One specimen, 4 X 6 inches on the face, composed of calcite, tremolite and pyroxene, all white, showed a cinnamon brown crystal of tourmaline near the center. 1 ½ X 1 inches, less than half imbedded in the mass. We never saw a better one, for this was perfect…The mineral cabinet of Hamilton College has a brown tourmaline crystal from this locality, about 6 X 6 inches; a good specimen. Dr. Chester's collection contains the finest lot of brown tourmalines known to me; indeed, some of them have been exhibited as "gems", at Paris, New York, Philadelphia, etc.

**Right:**
**A view of one of the digging areas after recent work using a backhoe, 2003, Dale Bush farm, Welch Road, Richville, New York.**

Agar (1921) describes the site as, "…nearly exhausted of good material…", however he makes clear that specimens of both tourmaline and tremolite are still available. In 1938, Horace Slocum reinvestigated this classic location and wrote about the minerals found there in his series for Rocks and Minerals Magazine. In his description of the occurrence he notes the tourmalines being difficult to find without much work, yet touts the tremolite crystals as being exceptional. Those who visit the site today are likely to find these descriptions from the early 1900s to be reasonably accurate.

The dig site presents itself as numerous pits and ditches which are dug into the area soil and bedrock. Any of these locations hold potential for finding specimens even though some have been more extensively explored than others. Some areas of the property have even been excavated with heavy equipment to depths of five meters or more and others have been blasted. The rock itself is a dirty marble which outcrops in numerous locations dispersed on the several acres of collecting area. Within this marble lie the minerals to be targeted. In the soil surrounding these areas are weathered loose sections of rock which can also contain specimens. Collectors follow the seams, which are sometimes mineralized, in search of presentable specimens. Well prepared collectors will have shovels, pry bars, hammers chisels and sifting screens for collecting at this location.

**Right:**
**An exceptional Uvite grouping, Dale Bush farm, Welch Road, Richville, New York. Found by Michael Walter, 2003. 5.6 cm.**

**Right:**
**Tremolite on massive Uvite, Dale Bush farm, Welch Road, Richville, New York. Found by Michael Walter, 2005. 4.7 cm.**

The minerals found at the Bush farm are few in number. Apatite (CaF) forms in crystals to 8 cm, although they are usually smaller. They are well formed and light blue to light green in color. Apatite is one of the more uncommon species and good examples of this mineral are highly desirable. The second mineral found at this location is tremolite. It is an off white color and can be found in combination with tourmalines in both crystalline and massive forms. The large cleaves of this massive tremolite are also said to be suitable for lapidary purposes (Robinson, G. and Alverson, S., 1971). The crystals of tremolite do seem more resistant than the tourmalines to weathering and are more often preserved in specimen form. The crystals themselves normally have well developed prisms and more poorly developed or missing terminations. Their surfaces often look slightly etched and there luster tends to be rather low. Occasionally, wonderful crystals of tremolite are encountered. These exhibit nice form, high luster, are glassy looking and gemmy below their surfaces. The best specimens to be found at the Bush farm are combinations of both tourmaline and tremolite. Brown tourmalines on white tremolites leads to an attractive contrast in color and forms.

The tourmalines from the Bush farm are the "Cadillac" of specimens that collectors search for. They are common but uncommon in quality specimens. The crystals can be found to 25 cm in length and up to 20 pounds in weight! Fine, damage free specimens tend to be smaller usually ranging between five and 10 centimeters. They are dark brown in color and have been mislabeled for over a hundred years as dravite. The species is actually uvite, as are most of the tourmalines found in the marbles of St. Lawrence County. Normally, these crystals are found embedded in marble or massive calcite or in association with tremolite. They are normally non-striated and of a very high luster. The uvites are also translucent and in smaller specimens can be transparent. These last characteristics make them highly desirable as mineral specimens. Fine examples are among the most valued of east coast classics.

**Above:**
**Uvite cluster, Dale Bush farm, Welch Road, Richville, New York. Found by Michael Walter, 1999. 8.7 cm.**


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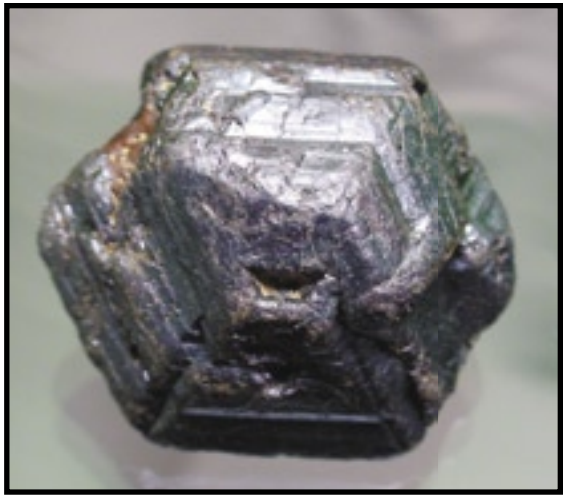
# PARKESBURG, CHESTER Co.

## Article by Justin Zzyzx

Fine Parkesburg Rutile crystals found their way into collections and museums for years, not as a by product of mining operations, but rather from the local farmers clearing rocks out of their freshly plowed fields. While a considerable amount of rutile had been found, the deposit was never destined to be a commercial source. Rutile is titanium dioxide, a sought after item for use in making dental implants. Some of the material from these fields was used for teeth, but by the early 1900's it was reported that only a few pounds per year were supplied for commercial use.



Rutile deposits will either be crystalline in nature, or found in massive form. Rarely are deposits of crystalline rutile worked commercially, which is a great thing for mineral collectors, as many of these fine crystals were saved from the crusher and still exist in collections around the world. Kunz reported in 1890 that fine double geniculted twins of rutile forming complete circles and weighing over a pound were being found in the topsoil of the area. These highly metamorphosed sediments containing the rutile are found in the valleys around Parkesburg, Pomeroy, Atglen, Coatesville, Chester Valley and into West and East Bradford. Most all specimens were recovered from the fields of the local farmers, as they plow the topsoil every year, specimens pop out of the ground. Local collectors make sure to make themselves available during the plowing season, helping the farmers get the rocks out of their fields.

**Right:**
**Not all of the Rutile crystals are twinned, some are enlongated such as this one.**
**3.7 x 3.0 x 1.8 cm**

**Photo by Justin Zzyzx**

**Left:**
**Complete sixling twin with worn sides, typical of these alluvial Rutile specimens. Since these are found in farmer's fields, many of them have worn, smoothed out sides.**
**3.3 x 2.8 x 2.3 cm**

**Photo by Justin Zzyzx**

**Below:**
**Well formed geniculate v-twin Rutile crystal with with minor Quartz attachments. Soil collected specimen, recovered along the Sadsbury Valley, Parkesburg, Chester Co., Pennsylvania. Originally from an older collection. Specimen size: 3.7 x 3.2 cm**

**Photo and Specimen Mark Heintzelman**

As the years go by, the rutile producing fields of Chester County continue to produce fine specimens, only being lost to urban development. These fine rutile crystals have only a handful of rivals for quality in North America. Now when you see a large rutile crystal in an old dusty museum you can picture a dapper looking gentleman in a vest, tailcoat and perhaps a bowler, picking up these chunky crystals from tracts of freshly plowed earth.

**Right:**
**Limonite after Pyrite, a common find around all of Southeastern Pennsylvania. Collected at the North Valley Hills in 1932. Originally from the collection of J. K. Fisher. Specimen size: 2 x 2 x 1.6 cm**

**Photo and Specimen Mark Heintzelman**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# Mineral Collecting in Chester County Pennsylvania


The town of Phoenixville hosts two mineral collecting locations that offer the chance to fine nice crystallized minerals to even the most novice field collector. The first location is the mine dumps of the Brookdale mine, just a few yards south of the Wheatly mine. The Pickering Valley Golf Course, on Whitehouse Drive, will allow you to collect on the dump pile of the mine, in trade for a mineral for their collection. Visit the pro shop and ask permission and they will direct you to the collecting spot. The mine dump is on the golf course so be VERY VERY VERY respectful when collecting here. Look for chunks of Quartz which, when washed off, might contain druzy green Pyromorphite and other minerals like Wulfenite, Galena and Anglesite. Another spot for collecting matrix specimens of Dolomite and Quartz is on Rt. 29 (also called Bridge St.) just south of the Schuylkill River. Alongside the river by the railroad tracks you'll see a large tailing pile. On the pile you'll see specimens of Ankerite, sometimes with small crystals of Quartz.

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