The Sterling Hill Mining Museum (SHMM) has weathered a rather difficult few years, largely due to the pandemic. While school field trips have decreased, we still have large numbers of students coming to our museum for a first-class educational experience. Museums such as ours cannot remain static. We must change by adding new components to our experiences and offerings. You will see below and in other articles in this newsletter numerous examples of how we have freshened and enriched our offerings and experiences.

James Zigras, a mineral dealer, Arkansas quartz mine owner, and previous benefactor to SHMM has donated approximately 80 wonderful mineral specimens to our museum. Many of these pieces are incredibly rare, historical, and valuable. We picked up the collection in December at James’ home in Bergen County and as we began unpacking them, we quickly realized their importance. My favorite from the Zigras collection is a crystalline specimen of pyrargyrite, a silver and antimony sulfide that originally came from the R. Ferguson Collection (well-known by mineralogists in the early part of the 19th century). Ferguson’s mineral collection disappeared from public knowledge until being sold by his descendants in 1997. Called “ruby silver ore” by many, this pyrargyrite specimen from the Hartz Mountains of Germany resided in the Ed David mineral collection for many years until James acquired it.

Breck Kent has been a lifelong resident of New Jersey, and retired after 33 years of teaching high school biology and earth science. His interest in geology began when he found a shell fossil while in elementary school. When in high school during the early 1960s he began to seriously collect minerals, and would often hitchhike to the Franklin and Paterson areas to dig for “rocks.” At that time, he developed a special interest in zeolites from the Watchung Ridges. His personal collection is primarily USA specimens, with a suite of Indian zeolites and European classics.
A second good surprise occurred when I received a call from Victor Yount (a high-end mineral dealer and collector from Virginia who used to be quite involved in our local shows and banquets). Victor informed us that he was steering a very large collection of Arkansas and Colombian quartz to our museum through a mineral dealer who was also from Arkansas. This gentleman, Tom Nagin, was winding down his mineral business and was looking for an institution that could use and really benefit from huge amounts of quartz crystals, quartz clusters, amethyst, petrified wood, and really showy display specimens including world-class and huge specimens of vivianite. You may have seen Tom’s television program, Mineral Explorers, which is still available on YouTube. Well, a few months after Victor contacted us, 23 pallets, weighing over 20,000 pounds arrived at SHMM with enough quartz crystals and clusters to keep our gift shop stocked for the next 100 years! We must wait three years according to IRS rules to sell any of this material and more importantly, must keep it at “normal” temperatures to avoid stress-cracking the crystals. As such, we have converted our old “banquet area” in the Kolic Geotech Building to a secured storage area by having a glass and aluminum curtain wall installed (similar to our pavilion exterior) by our friend, Tom Horuzy, of Bathing Beauties Company located on Main Street in Ogdensburg.

Combined, these major collections have been appraised for at least $750,000. Many of the larger specimens will be put out on display within the next few months to give our museum a fresh change of “eye candy.” As I always say, change is paramount in a museum to keep visitors coming back. We owe tremendous gratitude to these benefactors, James Zigras and Tom Nagin, in giving us these very special gifts!

Another windfall for SHMM occurred during January 2024 when NBC/CBS/Universal TV used our mine as a set location for the very popular “FBI: Most Wanted” series. Our reputation for cooperation and a great exotic backdrop brought a very large film crew here for nearly a week to film an episode for this series. The show aired on CBS on March 19th at 10:00 PM. We have had major films use our site, and the exposure on the screen is usually only a minute or so. But we were assured that the “FBI: Most Wanted” mine scene would extend for about 12 minutes. The plot is centered on an exclusive high school debating team being kidnapped and held hostage in a mine in upstate New York. The film crew group was incredibly careful using our site, invited us for many really good meals in the pavilion, and cleaned up well beyond our expectations. We love minerals and our mine from a geological standpoint, but it is nice to have a change of pace on the property... not to mention the $25,000 donation they gladly made. The Ogdensburg Middle School used this opportunity to have a few of their young students act as reporters to cover the event for their school newspaper. The Ogdensburg Police Department (Chief Steve Gordon and Sgt. Joe Sanfilippo) also was hired by the film crew for traffic control and security. So, everyone benefited and had a good time.

Finally, we have added a very special “scavenger hunt item” to our list of five things to find in our Zobel Hall introduction. The sixth item is the second meteorite to have ever been found in the State of New Jersey. We are the only museum in the State to own a large piece of this visitor from outer space, and what makes it so special is that it actually hit a home in Mercer County and penetrated the roof and bedroom ceiling. We have a slice of the meteorite and an actual piece of ceiling drywall with its meteorite induced hole! Please see in this newsletter issue the special separate article on this new meteorite acquisition.

From the Tom Nagin donation, one of my personal favorites is this water-clear copal amber specimen from Colombia, weighing 3.9 kilograms (8.6 pounds). The are a few insects and air bubbles that add to its character. It measures 9 X 9 X 8 inches.
One of the most valuable and important specimens of the Nagin donation is this double spray of vivianite from Bolivia. This fresh specimen maintains a wonderful deep green color, whereas most on display have turned black. This piece is 18 X 12 X 7 inches and is destined for its own display case in our Zobel Museum, where its fresh green color will be preserved.

From the James Zigras donation, this superb and historic specimen of pyrargyrite shows well-formed and perfect crystals covering the matrix. It is from St. Andreasberg, Hartz Mountain, Germany. This specimen measures 3 X 3 X 3 inches. Once belonging in the famous R. Ferguson Collection (1777-1846) and then the Ed David Collection, it now is on display in our Zobel Museum.

From the James Zigras donation, this large and very well-formed specimen of prehnite from the Lower New Street Quarry, Passaic County, NJ is certainly one of the best on display anywhere. It actually is an epimorph after anhydrite. The specimen measures 14 X 10 X 5 inches.

Tom Nagin donated over 20,000 pounds of quartz crystals and clusters. This photo shows a typical box containing over 200 pounds of individual crystals. Quartz crystals are a main staple of our gift shop sales, and this amount will last our museum several lifetimes!

Another specimen from the Thomas Nagin donation, this well-formed and colorful piece of cavansite from India measures 9 X 4 X 2 inches.

Another amazing specimen from the Nagin donation is this 193-pound amethyst cluster from Bolivia. Still in its shipping crate as we make room for this beauty, we hope to have it on display in a few weeks. This piece is 20 X 18 X 19 inches. Who doesn’t love amethyst?
The NJ Zinc Company had a strict disciplinary program. An employee could get “written up” for any number of infractions, that fell basically into two categories: (1) unexcused absences and (2) safety violations (e.g., air hoses not secured, smoking around explosives, horse play, etc.). Here’s how the system worked. If you were written up, you had 30 working days with no additional write-ups to clear that initial violation off the books. If, however, you received an additional write-up within those 30 days, you got a three-day suspension (without pay). Then you had to behave yourself for another 30-day period to get a clean slate. However, another write-up in this new 30-day period would get you a five-day suspension (without pay). If there was a final misdeed in the new 30-day period, you would get terminated! This plan was very effective and kept most (but not all) of us in line. You could “play” the system if you needed time off and could afford it. For example, one purposely could get one violation, then carefully plan another, so that your three-day suspension started on a Wednesday, giving you a long weekend. A few of us were guilty of playing this game. Here’s how I gambled one time with my mining career.

I was running a large stope on 1300 level. This particular contract took five months to complete, and we had broken close to 10,000 tons of ore. The bonus paid $11.26 an hour, and I earned what I believe was a record payout at that time. I had 646 hours and my bonus was $7,300! Apparently, the computers at the time weren’t geared for that amount, and no federal taxes were taken out. Wow a check for over $7000! That was a big paycheck. I put the money in the bank for many months while I decided what to do with it. Saving was not in my vocabulary at that time, so I finally figured I would take my girlfriend to Spain. I had already taken my allowed vacation, so I did not have any time left that year. Hmm what to do? I devised a plan. I would take an unexcused day off, get written up, then a week later take another day off, then a few weeks later do it again, resulting in five days off. With weekends included, that was a total of nine days. My trip itinerary called for 11 days abroad, but I had a plan for those extra two days. I could afford the time off with my newfound wealth, so I set the wheels in motion. There were stories of miners who got discipline days off, misread their calendars, and were fired because of poor math skills. That, I couldn’t afford!

Like clockwork my plan worked. I got my five days off starting on a Monday. So, off we went to Europe. It was a great trip. We rented a car and travelled all around, ending up in Paris. The return flight was for the following Thursday, so I still needed an extra two days off. Hmm. I had to time my call perfectly, as in Paris we were six hours ahead of Ogdensburg. At 12:45 pm Paris-time I placed my call. That was 6:45 am Ogdensburg-time.

The call, with a somewhat scratchy connection from the Paris phone booth, went like this. On the other line, I heard: “Hello, mine office.” I responded: “Marshall, this is Doug.” Marshall Frisbee was the lower section foreman at the time, and he said: “Yes Doug, what’s up?” I answered: “Marshall, I’m in France.” There was a pause, and I’ll never forget his reply: “You want to be friends?” I said: “No…I’m in France, and I missed my flight.” He just started laughing and said “Well ok, when will you be back?” I replied: “In a few days Marshall, hopefully we can get a flight.” He said: “Ok, see you then.” And that was it. After an uneventful flight back, I returned to Sterling Hill.

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On a side note, during the time I was gone, John Kolic worked in my stope. It was then that he found more kolicite (it hadn’t been seen for a few years). When I returned, John met me in the adit and explained where to look for more of his “baby.” Over the next month I found over ten pieces of kolicite and sold them all to John. Some of John’s diary entries are shown below describing the finds.

When I got back to work in the mine, I had to be an angel for 30 days. No safety violations. I couldn’t be late, no unexcused absences. I got this! The next 25 days passed without incident. On day 26 I woke up late. Oh no! I then was living on Main Street in Sussex and knew to the minute how long it took to get to the mine. It was 6:30 am, and I had exactly enough time to punch in by 7:00 am. I dressed, grabbed my stuff and ran out the door. There would be no lunch that day and if I had to, I’d wear my street clothes underground. I flew down Rt. 23, running a few red lights and pushing my luck, sped through Hamburg, passing cars left and right. Stop signs? Ha! Looking at my watch, I knew this was going to be a record. Right turn at the Franklin diner, left on Cork Hill Road, leaving the ground over the railroad tracks by what is now the Braen Quarry. Yay! Nope! As I rounded the last corner, I encountered a major problem. An 18-wheeler was backing up. He had taken Cork Hill Road not knowing about the backwards tunnel. There already were a few cars behind him and already a few behind me. A driver had gotten out of his car and was helping to guide this fool backwards. How the truck driver managed to get his license I’ll never know. Maybe it was a prize from inside a chewing tobacco pouch? He’d back up ten feet, hit a mailbox, pull forward 40 feet, and start again, this time bumping the other side of the road. What a mess. For sure this was the end of my employment at the mine. Cars were backing up and pulling into driveways hoping he’d back up past them to free them up, but there were too many of us, and it wasn’t working. I watched the precious minutes roll by, and when there were only five minutes left, I thought I might as well just make it to the mine (eventually), clean out my locker, and go home. The mess cleared up ten minutes later, and the parade of cars was able to pass. As a group, we all loudly cursed the driver. I, and others I’m sure, were tempted to get out and punch him in the nose.

There was no hurry now, I was done. I made it to the change house along with a few other miners who’d been caught in the same predicament. I sadly changed for the last time to go to the mine office to get my lay-off papers. I loved my job as a miner at Sterling Hill, and my six years there had been amazing and rewarding. To this day it was the best job I’ve ever had -- drilling holes, blasting the ore, climbing ladders up tunnels that you had made yourself with just a little light on your head. Many days not seeing another person, but hearing their drills pounding through rock hundreds of feet away in their own little world. It was surely a unique experience for a young guy of 25 years. With my head hung low I pushed through the mine office door only to hear Marshall say: “Hurry up Doug or you’ll miss the cage.” What? The two miners who’d made it in before me had told the story about the truck blocking the road, and we all got a pass. The blanket of doom I’d just been under for the last 45 minutes lifted, and I walked to the lamp room, got my gear, and rang for the cage. Life was good, and I worked in the mine for another six years until it closed.

About 20 years later John Kolic called me and asked if I’d do some drilling for a display for the museum tour. I told him I would love to do that. While there, I got a Sterling Hill bumper sticker, and proudly put it on my bumper. A few years after that I was at a truck stop gas station in Montague, and when I came out of the store, I saw a guy standing by my truck. When I approached, he said in a serious southern drawl while pointing at the sticker: “Do you know this place?” I proudly said: “Yes, I used to work there.” “Well,” he said, “about 25 years ago I was driving my truck and came to this tunnel. It was too low and I had to back up all the way.” I thought about the punch I’d saved all those years, but let it go, and we had a laugh together.

Doug Francisco, a trustee at the Sterling Hill Mining Museum, is a graduate of the Brinker School of Surveying and Mapping. For 12 years he was a miner at Sterling Hill; and he worked for 30 years in heavy highway bridge construction. His love for Sterling Hill runs deep.
People generally think that finding a meteorite is a relatively common occurrence. Every month at the Sterling Hill Mining Museum (SHMM), someone stops by with what they assure me is a real meteorite that they found while walking in the woods or along train tracks. So far, in my 30+ years at Sterling Hill, all have proven to be slag, iron ore, or common basalt. I call these items “meteor-wrongs.” Even verified using modern high-tech equipment such as our X-Ray Fluorescence Gun, these folks are still not convinced and will not fully accept my findings, with many thinking that I am trying to simply obtain it at a low price for our museum.

In all of New Jersey’s recorded history, only two meteorites have ever been found. The oldest and first one fell on the beach in Deal, Monmouth County, on a Sunday afternoon in the summer of 1829. It made a small crater in the sand and was immediately picked up by beachgoers nearby. The 28-gram mass was about an ounce in weight and resided in the Philadelphia Academy of Sciences until its sale about 12 years ago. SHMM was part of the team that tried to purchase the entire meteorite collection when the Academy sold their geology collection; however, we were not the winning bidder. Months later we were contacted by the winning party from Germany to see if we wanted the Deal meteorite, however the $35,000 asking price was out of our league and in my opinion was excessive for such a small specimen. We tried several times to get the specimen for a lower price but the seller would not budge.

In May 2023, at approximately 1:15 in the afternoon, a second meteorite was witnessed to have landed in Mercer County, NJ in the town of Titusville, north of Trenton. It appeared all over the national news since this meteorite announced its arrival by crashing through a home. First, it penetrated the roof, next it traveled through the attic and through the drywall bedroom ceiling. It hit the hardwood floor and then bounced back up and damaged another part of the bedroom ceiling. No one was home, but it was discovered by the homeowner’s daughter a few hours later when she arrived home. The police were called because of all the damage and originally it was thought to be vandalism, until a local university (The State College of New Jersey) tentatively identified it as a stoney meteorite. Several folks from Sterling Hill arrived at the home in Titusville along with many other meteorite collectors and dealers all wanting to buy this treasure from the asteroid belt. Unfortunately, the family after being besieged by buyers, scientists, reporters, and curious onlookers more or less clammed up until the frenzy diminished. Two purchasers quietly bought the 999-gram mass for an undisclosed amount, and that transaction included a section of the shingle roof and two sections of the bedroom ceiling… one where it penetrated and one where it ricocheted. During mid-November, 2023 we were contacted by one of the buyers (Roberto Vargas) who offered to sell to us an 86.3-gram end-slice of the meteorite for our museum. Naturally, cutting a meteorite into many smaller pieces diminishes the overall viewing experience, but also causes the owner to waste part of that meteorite as each blade pass produces basically worthless “sawdust” powder from each kerf (known as “cut loss”).

The Titusville homeowner was happy that no further cutting was required and that the specimen would remain intact at a New Jersey museum for all to see. Also included was a 24 X 20-inch section of drywall ceiling from the final ricochet. Our specimen has a thick black fusion crust formed from the exterior melting as it traveled through the Earth’s atmosphere.

All is peaceful now at this home in Titusville, NJ, after being hit by the meteorite. The home now is famous after being targeted by material from the asteroid belt. The meteorite entered through the back portion of the roof. Only a handful of homes have ever been hit by meteorites. Our specimen is considered to be a very special "witnessed fall," having been captured by cameras, having a real, known timeline, and damaging a home. Photo by Derek Yoost.

Derek Yoost (member of the SHMM Board of Trustees) and Anthony Tomaselli (friend, meteorite collector, and our graphic artist) initially were involved in attempting to purchase the entire specimen from the homeowner. They were not successful, but a long-time friend and meteorite
A SPECIAL METEORITE!
Continued from page 7

A collector (Darryl Pitt) purchased most of the specimen for his museum in Maine. That museum is the new Maine Museum of Minerals and Gems, and Darryl is the head of their meteorite department. They now own the main mass of the meteorite, about 700 grams. Roberto Vargas (a meteorite hunter from Connecticut) was part of the initial purchasing group along with Darryl and he received approximately 100 grams. Roberto contacted Derek and Anthony, and they bought 0.9 and 2.0 grams for their personal collections at $750 per gram. Once seeing that every aspect of their transactions was perfect, I was contacted and a telephone meeting was held with Roberto. Once Roberto stated that the full remaining 83.6 gram “end cut” along with the damaged drywall ceiling panel was available, I immediately committed to purchase the package for $50,000! Whether it was for the Sterling Hill Mining Museum or for the Kroth Meteorite Collection, I was not going to pass on this opportunity.

Meteorites are classified according to their contents. Approximately 85% of meteorites are called chondrites (seed-like), named for the small, round particles they contain. These particles are composed mostly of iron silicate minerals that appear to have been melted while they were free-floating objects in space. Chondrites are typically about 4.55 billion years old, are thought to come from the asteroid belt, and represent material that never coalesced into large bodies. They are considered to be the building blocks of the planets. Our specimen belongs to this class, and you can see the thick black fusion crust on the surface that is the result of the meteorite rapidly melting as it hit the Earth's atmosphere at 40 miles per second!

Meteorites general come from the asteroid belt where Jupiter’s immense gravitation field keeps these broken asteroids and remnants from the formation of the solar system corralled. Occasionally they bump into each other and are ejected from this belt into the path of Earth’s orbit, and we see them as meteors in the sky and then meteorites when they land. While our specimen will most likely be called the Titusville, New Jersey meteorite, the final name is not certain until the governing body for meteorites (The International Society for Meteorites and Planetary Science) does the required research and makes that announcement in their Meteoritical Bulletin database in a few months. Traditionally meteorites in the USA are named after the closest post office. Also in the USA, meteorites are considered the property of the finder unless they are found on Federal Land. In other countries, such as Canada, the specimens are automatically owned by the government regardless of where they are found and by whom.

Being only the second meteorite from New Jersey and having hit a home and punctured the roof and interior ceiling adds so much to its uniqueness. We also have an amazing photo of the meteorite leaving a dust trail in broad daylight over New York City taken by a camera from EarthCam. I notified the Sterling Hill Board of Trustees, and a unanimous positive vote put the specimen in our possession in the Zobel Museum Building. Roberto delivered the meteorite to us the very next day. I built a red oak display case which houses the specimen, the damaged drywall, and laminated glass photos depicting the event. Anthony Tomaselli is developing eye-popping graphics for the display.

So excited by our new acquisition, I quickly fabricated an oak case and mounted it to the wall adjacent to our other meteorite display. The back panel of this case consists of the actual bedroom ceiling drywall after being penetrated by the meteorite. A photo taken by EarthCam shows the meteorite leaving a dust trail behind the Empire State Building as it heads for the Trenton, NJ area. The Sterling Hill Mining Museum now has the “complete package” to tell the story... photo of the atmospheric entry, actual specimen, and damaged part of the home! Once the artwork is completed and mounted to the display; we will contact the local newspapers to share our good news!
Twenty grams of the original specimen resides with the Meteoritical Society where this international agency will classify it, name it, and even list Sterling Hill as a major owner. This will be a great attraction. I have full confidence that our acquisition will make the front page of many newspapers, giving us added notoriety. Along with the recent declaration of franklinite as the State mineral, Sterling Hill now has a major second link to the State as we proudly own one of its visitors from outer space!

Bill Kroth is a retired geotechnical and civil engineer who has been involved with the Sterling Hill Mining Museum since the early 1990s. Bill developed a love of minerals in the 7th grade and an interest in amateur astronomy in high school. It was only natural that these two passions led him to become very interested in meteorites. Bill is a meteorite expert and has identified and prepared specimens for museums and universities. His personal collection includes over 900 specimens (mostly famous witnessed falls) including pieces originating from Mars and the Moon.

Deaths in the Sterling Mine

Stephen Gordon

[Ed. Note: Working in a mine is very dangerous, to be sure. Fortunately, the Sterling Mine was quite safe. It was a hard-rock mine, so cave-ins were not a major problem, as is the case in soft-rock mining, e.g., coal mines. Nevertheless, miners in the Sterling Mine had to be very careful after blasting to ensure that the rock was stable, by scaling down loose rock or by installing roof bolts. Further, the Sterling Mine did not have dangerous gasses, as is the case in coal mines, so gas explosions were not a problem. However, mining of any sort is dangerous, and there was an average of approximately one death per year in the Sterling Mine, although there were no fatalities in the later years, from 1972 to the closing of the mine in 1986. We will be publishing some of the old newspaper obituaries in the Sterling Hill newsletter; the second of which is below. Ogdensburg Police Chief, Stephen Gordon, has done extensive research on this matter. Through his research, we have learned much about mine safety and danger; but also a great deal about the Sterling miners who perished, their heritage, personalities, families, and more.]

Miner Killed at Sterling

October 14, 1933

A miner in the Sterling Mine of the New Jersey Zinc Company, at Ogdensburg, was buried alive shortly after 1 o’clock Monday afternoon. The miner was Joseph Casanicki, aged thirty-seven, a native of Czeche-Slavakia, who came to this country in 1928 and had been since in the employ of the Zinc Company.

He was working in the 780 pillar of the 1400 level and met his death when some slabbing on the south side of the pillar gave way. His body was recovered about 5:30 o’clock that afternoon. He was considered one of the best pillar-men in the mine and was known to his buddies as “Safety Joe.” He leaves a wife and son and daughter in his native country.

Stephen Gordon has been a Police Officer in Ogdensburg from 2000 to present. He also works at the Sterling Hill Mining Museum, and was a tour guide at the museum from 1990 to 1996.
Element Silicon

Gordon Powers

This eighteenth article in the continuing series on our periodic table display in the Zobel Hall will focus on the metalloid semiconductor, silicon. The six-foot by ten-foot periodic table display in the Zobel Hall is a teaching tool that helps people understand the science behind the everyday items they use in their lives and the role of mining in producing those items.

Pure elemental silicon has a blue-grey metallic sheen/luster. Its melting point is 2577°F. Silicon has an atomic number of 14 and is very rarely found in its pure elemental form in nature. It is the second most abundant element in the earth's crust, and given its high chemical affinity for oxygen, silicate minerals make up 90% of the Earth's crust. Its chemical symbol is Si. Silicon's wide use, the wide variety of minerals containing it, and the fact that it can be used commercially without much processing such as separation means it has no single predominant ore.

The high affinity of silicon for oxygen (silicon dioxide or silica) made early attempts to isolate it very difficult. Early researchers included Antoine Lavoisier in 1787, Sir Humphry Davy in 1808 (who proposed the name silicium from the Latin word for flint), Joseph Lussac, and Louis Thénard. They prepared an impure form of silicon in 1811. A pure form was finally isolated in 1824 by Jöns Berzelius. In 1817 Thomas Thomson coined the name silicon by retaining part of Davy's name for it and adding -on at the end because he thought it similar to boron and carbon.

With silicon being so ubiquitous in the Earth's crust, ancient civilizations made early use of it. This included sharp flints, beads, small vases, mortars, building structural components, and glass containing silica. Today silicon is one of the useful elements known to mankind and as such finds a great number of uses. Silica is used as sands in structural compounds such as concrete and cement, and structural components of buildings, countertops, and memorials. Other uses include fire brick, porcelain, enamels, glass, abrasives, waterproofing, silicone oil in rubber, and in steel and aluminum alloys. Due to its semiconductor properties, silicon finds extensive use in almost all facets of electronics. In addition to its use in electronics due to the semiconductor properties, it also is valuable in fiber optic cable and lasers.

There are extensive uses of this important element in today's world. You don't have to look very hard to find the items you use throughout your day to see how silicon may have played a part in their production. And if you want to collect minerals containing silicon at Sterling Hill or Franklin, there are over 150 minerals found there containing this ubiquitous element, far too many to list here. A list of these minerals can be found at the Franklin-Ogdensburg Mineralogical Society (FOMS) website at: www.fomsnj.org/Franklin_Mineral_PeriodicTable.aspx.

If you enjoy these brief articles on the elements, you may also want to watch the many YouTube videos available on this topic. The Periodic Videos channel from the School of Chemistry at the University of Nottingham is one that is very good.

Gordon Powers, a trustee at the Sterling Hill Mining Museum, worked for the US Army as a civilian mechanical engineer for almost 39 years before retiring in 2017.
On October 21, 2023 teachers from around New Jersey came to the Sterling Hill Mining Museum (SHMM) for an interactive day, exploring the many facets of mining, including the steps in the process that took place at the Sterling Mine. This GeoSTEM academy, *An Earth Science Journey from Ore to Store*, engaged teachers in exploring the role of natural resources in our everyday lives, and the importance of mining to ensure access to these resources that are necessary to sustain society. The participating teachers explored the geology of northern New Jersey to build the story of how zinc became concentrated in our region. After an in-depth tour of the mine by Bill Kroth, SHMM President/Executive Director, the teachers tried their hand at mining by using a cookie and various materials to model the process. In the afternoon, teachers sampled the variety of classroom activities found on the SHMM website, and they completed a “connection circle” to identify all the connections between mining, natural resource access, human needs, economics, environmental concerns, etc.

The teachers were awed by the unique qualities of the minerals found in the Sterling Mine.

The goal of the academy was to connect teachers with the natural resources and the actual processes necessary to access those resources; and the goal was to support the participating teachers in developing methods to translate these processes for their students in meaningful/investigative ways. The academy met these goals based on the very positive feedback from attending teachers. They appreciated learning about all the mines in the state, the hands-on activities, sharing and collaborating with each other, and learning about particular natural resources and teaching resources. In addition, they enjoyed the format of the workshop, and the connections to all the fields of science, not just Earth Science. They are looking forward to coming back to SHMM for future GeoSTEM academies.

A special thanks goes to Bill and Denise Kroth for their behind-the-scenes support (and an amazing tour!), and to Natalie Macke, President of National Earth Science Teachers Association, for her assistance in hosting this event. Watch for announcements about future academies and please share them with the teachers in your life.

Missy Holzer, PhD, Sterling Hill Mining Museum Trustee and Board Secretary, has taught Earth and Space Science for over 30 years to high school and college students. She also provides professional development for teachers on many topics.
Most of us rely on mobile phones to have information at our fingertips, either from a search engine like Google or from a variety of apps. Speaking of apps, did you know that there are a number of apps for those of us with a passion for geology? Here are a few you may be interested in acquiring for your mobile phones.

**RockD (iOS):** This free app was developed by the Department of Geosciences at the University of Wisconsin-Madison as part of a grant. Current funding is through donations; however, donations are not required to set up an account and use the app. The app will give you the local geologic context (history, geologic maps, geologic history, etc.), and it has a global reach for those of you who want to know the geology of your travel spot. It even has suggested field trips, and you can contribute field observations to the community using the app.

**Flyover Country (Android and iOS):** This free app was built with the support of a grant from the National Science Foundation, and it works offline and online. If you are flying, put the app in airplane mode and it will use the GPS feature to show you what is in your flight path. If you are driving or hiking, put the app in ground mode to learn about the landscapes and wonders along the way. Simply create a path (flying or driving), and select the features you are interested in seeing (geologic maps, landscape features, mammal fossils, fossils, Holocene volcanoes, etc.), and tap to set your path. This is your reason to snag a window seat on your next flight!

**Soil Web (iOS):** A free app developed by the University of California-Davis enables access to soil survey data from the USDA Natural Resources Conservation Service for your location. The same application can be found online (https://casoilresource.lawr.ucdavis.edu/gmap/), but it is much more fun and informative when you can access the data for the soil under your feet! The app will provide soil profiles with estimated proportions of soil components, estimated water holding capacity, soil taxonomy, soil property depth profiles, land classification ratings, hydraulic and erosion ratings, forest productivity, and soil suitability ratings. It also links out to acquire additional information about your soil.

There are plenty more apps available, including numerous good and not so good rock and mineral identification apps, and you can find them with a quick web search or a search in the app store on your mobile phone. However, there are numerous caveats for consideration before downloading the apps and using them. Here are a few:

- Some apps will work on iOS and/or Android operating systems, however, some may have been designed to work with one or the other, and not both.
- Some apps use quite a bit of memory on your mobile phones, whereas others may point to a web application. If it is the latter, then a wifi or cellular connection will be needed.
- The commercial apps (ones with built-in fees and advertising) may be collecting information about you, and therefore it is important to check the fine print in the app before you download and use them.
- There will likely be a little bit of a learning curve with each app; so, be patient as you navigate all the capabilities of each app.
- Be sure to check the ratings and comments for each app before downloading to learn more about how others have used the app or if they ran into any glitches.

Once you’ve explored your app store for other geology apps, share your favorites on the Sterling Hill Mining Museum Facebook site. Have fun technologically exploring our geologic world! 🌍
Mooreite is a rare mineral, originally found only at its type locality, the Sterling Mine, where it occurred in cavities and veinlets. More recently, it has been found at one other locality, in North Rhine-Westphalia, Germany. It was named in 1929 by Lawson H. Bauer (former Head Chemist for the NJ Zinc Company) and Henry Berman (former Professor of Mineralogy at Harvard University) in honor of Dr. Gideon Emmet Moore. Mooreite is colorless to tan, with a sub-vitreous, pearly luster, and micaceous fracture. It has a hardness of three on the Mohs scale, a density of 2.5 g/cm³, and is in the monoclinic crystal system. The chemical formula for mooreite is Mg₁₅(SO₄)₂(OH)₂₆·₈H₂O.

Mooreite specimen from the Sterling Mine, 11 x 9 x 6.5 cm, Franklin Mineral Museum specimen #2097.

Close-up photo of the above specimen, field of view = 3.8 cm.
Gideon Moore was born in New York City on August 21, 1842, the son of George H. Moore and E.L. Moore. His father, whose family resided in Maine, became one of the first settlers in San Francisco, 11 years before the 1849 gold rush. His father owned a shipping and warehouse business which became one of the foremost of the time. Gideon’s grandfather, Dr. Gideon Humphrey, for whom he is named, was one of the leading physicians of Philadelphia and became renowned for his service during the War of 1812.

Gideon Moore’s early life was spent between New York City and Burlington, New Jersey. His education began at Dr. Bartlett’s Academy in Poughkeepsie, New York. He then entered Yale Scientific School in the autumn of 1859 and graduated with a Bachelor of Philosophy degree in the summer of 1861. He did post graduate work there until the spring of 1862.

Gideon started going deaf in his teen years and lost his hearing completely prior to his graduation from Yale in 1861. He preferred to use writing to communicate; however, he could read lips. The Deaf community at the time did not accept him because Gideon did not become deaf until he was an older child. He also struggled to communicate with hearing people. Despite this difficulty, he learned five languages, Greek, Latin, Hebrew, German, and French. He also became an accomplished violinist and a published poet.

Upon graduation from Yale, Moore spent four years working as an assayer for the Gould and Curry Mine on the Comstock Lode in Virginia City, Nevada. After this valuable experience, he set sail in 1867 for Europe, studying one year at the University of Wiesbaden, Germany, then graduating summa cum laude in 1869 from the University of Heidelberg, Germany with a PhD degree in chemistry.

In September of 1871 he married Marie Louise von Hildebrandt, in Budapest. Marie was the daughter of Field Marshall von Hildenbrandt of the Austrian Army.

In 1872, Gideon returned to America, set up his own laboratory in New York City, and worked on a government project to make sugar from sorghum, a type of grass. His brother, Henry Humphrey Moore, who also was deaf, worked with him during these years. During this time, Gideon took a position as a chemist with the Passaic Zinc Co. He continued both careers until his death.

Gideon Moore is credited with the documentation of four new minerals: brushite, crytocallite, hetaecrolite, and metacinnabarite. He was a scholar and poet who had a passion for science and literature. He was remembered by all his colleagues as a kind, gentle, and generous friend.

He passed away on April 13, 1895, of pneumonia at the age of 53. An ironic twist was his longtime mentor and legendary mineralogist, Professor James D. Dana, died the following day.

Along with his many scientific accomplishments he was the first deaf person in the United States to receive a PhD. As a respected scientist, he advocated for the rights and opportunities of deaf people, encouraging many to pursue higher education and careers in science.

I would like to dedicate this article to a good friend and fellow gold prospector, Barry Moore. Due to his recent health issues, we no longer go rock hounding together. However, I will always refer to him warmly as “Barite Mooreite.”

References:

American Chemist, Biography of a Deaf Scientist, Gideon E. Moore

Data pdf., 2023, Dr. Gideon E. Moore free download

Deaf Scientist Corner, TWU, Gideon E. Moore

Gallaudet University, Library Guide, Moore, Gideon E.

Mindat.org 2023, Mooreite, Mineral Information, pp. 1-4

Before moving away, Ken is a member of the Sterling Hill Mining Museum Advisory Council, and has enjoyed being a tour guide and working on special projects at Sterling Hill. He has a degree in Geology from SUNY at Stony Brook a long time ago. Ken is retired from Monroe-Woodbury Central School District, after 30 years as Transportation Supervisor.
Then and Now

Gordon Powers

The first picture below was probably taken sometime in the early 1960s and shows the Great Sterling Mill being disassembled. The Great Sterling Mill was completed in 1917 and was in use until the East Shaft was abandoned in 1958. It was demolished in 1961, and a new mill was constructed on the highest elevation of the property, next to the new West Shaft.

The picture above shows that the outer facade of the Great Sterling Mill has been removed, but the head frame is still intact along with much of the interior portions of the mill. There also are three smaller structures in the foreground that have yet to be removed.

The second picture was taken on March 14, 2024 and shows the metal roof of the Sterling Hill Mining Museum GeoTech building which is basically the basement portion of the old Great Sterling Mill. The small fenced in area at the back of the parking lot is where the head frame of the East Shaft was located. Both of these pictures were taken from the conveyor tower.
John Kolic’s Sterling Hill Mining Diaries

Doug Francisco

The next and penultimate batch of John’s diaries are pretty much the same activities day after day as when we left off in the last batch. He soldiers on in the quarries and the old west vein stope. Sprinkle in some entries regarding the renovation of the old mill and four years fly by. There are constant mentions of mineral finds and his dogged determination to free them. The work that might seem boring to us kept this man alive. There will only be one more batch in the next newsletter. You are nearing the end of John’s diaries, so read on!

I took this photo just one week after the mine was reopened by the Sterling Hill Mining Museum. Miners John Kolic, Chris Auer, and I climbed down to the 1300 level to check things out in the work areas. John is examining the ground conditions.

Sterling Hill Mining Museum

Mission Statement

Our mission is to tell the story of the Sterling Hill Mine and to inspire lifelong learning about earth sciences, engineering, and the responsible use of the Earth’s nonrenewable resources.

What We Do

1. We inspire students to pursue careers in science and engineering.
2. We inspire people to be thoughtful and responsible stewards of our environment.
3. We are committed to preserve our historic facility, rock and mineral samples, artifacts, and records to support research and foster understanding of this unique geologic area.
4. We provide visually stimulating, hands-on experiences in earth science and technology in an historic, immersive, real-world setting.
5. We promote an understanding of human involvement in our environment and how science and technology relate to that connection.
AVAILABLE NOW!
A NEW BOOK ABOUT THE STERLING MINE

THE DESCENT: A PICTORIAL HISTORY OF THE STERLING MINE
BY CARISSA HORUZY

In 1990, not long after the Sterling Mine closed, and shortly before the opening of the Sterling Hill Mining Museum, Paul Horuzy, then mayor of Ogdensburg, wrote The Odyssey of Ogdensburg and The Sterling Zinc Mine, describing the history of the mine and the Borough of Ogdensburg.

Carissa Horuzy, granddaughter of Paul Horuzy, has now written a greatly expanded book about the history of the Sterling Mine, including hundreds of archival photographs of mining activities. The book is published and sold by the Sterling Hill Mining Museum, and now is available for purchase ($29.95) at the Sterling Hill Mining Museum gift shop.
The Sterling Hell Haunted Mine 2023 was one for the record books; and what an amazing weekend it was! A community of wonderful volunteers, students, and parents from Ogdensburg School and Wallkill Valley Regional High School, came together with other local organizations to make this amazing event happen. Over the two days of the Haunted Mine Tour there were 1900 paid customers, and over $27,000 was raised! With these funds, the Ogdensburg 8th grade trip to Boston is FULLY funded. And after expenses were paid, a $5000 donation was made to the Wallkill High School Theatre Arts Group. This was a record-breaking year on every single level. Everyone had a great time and worked very hard to pull it all together. The participation of the Wallkill High School Theatre Arts Group this year was a great addition to what already was an amazing event. They brought a large group of super-talented and motivated actors to make this something above and beyond anything we ever anticipated. A large contingent of local volunteers contributed tremendously to this spectacular, one-of-a-kind event. This could never happen without their dedication and hard work. THANK YOU! And we cannot even put into words the amount of appreciation and gratitude we have for the Sterling Hill Mining Museum, and particularly Bill and Denise Kroth and the Board of Trustees, for their unending support, assistance, trust, and commitment. What started out as a little event in 2017 has grown into one of the top Haunted Halloween events in Northern New Jersey. The exposure for this event is huge, and will only continue to grow in the future. Plans are already being made for Sterling Hell Haunted Mine 2024. It will be like nothing ever seen before, with many new spooky features. For those who have not been to the Sterling Haunted Hell, please be sure to come to the 2024 event. Thanks to all who were involved, and we are looking forward to many new faces (and old and scary faces) next year. Happy Haunting! 🕷️

Wallkill Valley High School Theatre Arts Group.
STERLING HELL HAUNTED MINE 2023
Continued from page 18

Ogdensburg 8th grade class.

Sterling Hell’s own Headless Horseman!

The “undead” lie waiting in the bloody tunnels.

Continues on page 20
Ralph and Zack Bonard, residents of Ogdensburg, are a father and son team of Franklin and Sterling Hill mineral collectors. They have a passion for the geology, mineralogy, and history of the two mines. They also are avid haunters and organizers of the Sterling Hell Haunted Mine event and have been involved since its inception in 2017. They have been an integral part of the Sterling Hill family for many years. Zack is a junior football player at Wallkill Valley Regional High School. Ralph runs the Ogdensburg Post Office, is past President of the FOMS (Franklin Ogdensburg Mineralogical Society), and serves on the Wallkill Valley High School Board of Education.

What lurks in the shadows of Sterling Hell?

USES OF ZINC

The Sterling Mine yielded more than 11 million tons of zinc ore. Zinc is an extremely valuable and useful metal. Here are some of the ways zinc is used in our daily lives.

- PENNIES
- TIRES
- VITAMIN PILLS
- PAINT
- BRASS
- DIE CASTINGS
- PHARMACEUTICAL PRODUCTS
- GALVANIZED METAL
- SUNBLOCK
- BATTERIES
Local Mineral Names
“Golden” and “Silver” Sphalerite

Mark Boyer

Outside of the Franklin-Ogdensburg mining district, the term golden sphalerite is used to describe the daylight color of sphalerite from many localities, such as Balmat, NY; Madan, Bulgaria; Spain; and the Congo. But as used locally, golden sphalerite refers to its fluorescent color under longwave ultraviolet light. Golden sphalerite fluoresces a bright golden yellow and is known for its “delayed reaction” with blue-fluorescing overtones of cleiophane, an iron-free variety sphalerite. According to some collectors, this term likely dates to the early 1960s, when such specimens were brought out from the East Limb of the North Ore Body at Sterling Hill. Confusion over local use of the term is almost as old; for example, a 1970s vintage label accompanying a specimen of oil-colored sphalerite called it “golden sphalerite.” In the September 1976 edition of the Picking Table, Rev. Thomas Fitzpatrick of Syracuse, NY, reported that around 1973 he purchased from Franklin miner, Stanley Hocking, a daylight “drab grayish black” sphalerite that he said was old-time Franklin material. It fluoresced under shortwave UV a strong orange, and under longwave UV “a strong golden yellow” with “a strong and persistent phosphorescence.” This report called it “Golden Sphalerite—a new response ... for sphalerite from Franklin.” While the term golden sphalerite refers to its fluorescent response, there is also a “silver sphalerite” that describes a silvery daylight appearance of some sphalerite. The so-called “silver” appearance actually is not specular or metallic, but rather is sparkly due to reflections off the fractured surface of light gray sphalerite. “Silver sphalerite” often fluoresces “cleiophane blue,” and some specimens are triboluminescent as well. The Sterling Hill Mine produced most of the silver sphalerite specimens in collections.

Golden sphalerite, Mark Boyer collection No. MB2081, formerly in Lee Lowell collection, measures 6¾ inches x 3 inches, shown under longwave ultraviolet light.
“GOLDEN” AND “SILVER” SPHALERITE
Continued from page 21

Same specimen as previous page, shown in white light.

Silver sphalerite, Mark Boyer collection No. MB3664, formerly in Earl Verbeek collection, measures 7½ inches x 5½ inches, shown in white light.
STERLING HILL MINING MUSEUM
Calendar of Events

Private tours are available for groups of at least 15 paying people. We will try to accommodate your request on the day of your choice if we have staff and space available. Please call to discuss details, availability, and to make reservations. Reservations should be made at least two weeks in advance.

Mineral collecting on the Mine Run Dump is available and is recommended for avid rock collectors age 18 and older, but not for children. Sluicing for minerals, gemstones, and fossils would be a better option for children.

Please check the Sterling Hill Mining Museum website (https://www.sterlinghillminingmuseum.org/) for updated information and announcements.

Saturday, April 27, 2024
Spring Mineral Sale
Christiansen Pavilion, Sterling Hill Mining Museum
30 Plant Street, Ogdensburg, NJ
Great deals, with huge discounts on a large variety of rocks, minerals, fossils, crystals, stones, books, and much more!
10:00 AM - 5:00 PM

Sunday, April 28, 2024
Spring Mineral Sale
Christiansen Pavilion, Sterling Hill Mining Museum
30 Plant Street, Ogdensburg, NJ
Great deals, with huge discounts on a large variety of rocks, minerals, fossils, crystals, stones, books, and much more!
10:00 AM - 5:00 PM

We will have a 1:00 PM tour on Monday May 27, 2024 in observance of Memorial Day.

We will begin our summer season tours at 1:00 PM starting Monday July 1, 2024 through Monday September 2, 2024, Labor Day.
For more information contact:

Membership Chairman
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30 Plant Street
Ogdensburg, NJ 07439-1126
Phone: 973-209-7212
Fax: 973-209-8505
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info@shmmuseum.org

Home of the Thomas S. Warren Museum of Fluorescence, the official fluorescent museum recognized by the Fluorescent Mineral Society