Spring/Summer 2021
Vol. 30 No. 1

# STERLING HILL NEWSLETTER

Recipient of the 1999 Carnegie Mineralogical Award


The new motorized West Shaft man-cage exhibit has been completed and is fully functioning. The photo on the left, from the late 1970s, shows the man-cage when the Sterling Mine was in full operation. The photo on the right is the motorized man-cage exhibit as it appears today. The new man-cage and ore skip in the photo on the right were built on recycled chassis of actual shaft conveyances. See the President's Message in this newsletter for more information.

Volume 30, Number 1

# President's Message

Bill Kroth

By the time you read this article, the Sterling Hill Mining Museum (SHMM) will have been closed for a full year, due to the COVID pandemic. We attempted to open last summer for a few weeks on a very limited basis, but the necessary precautions and restrictions due to the pandemic impacted our ability to get tour guides and prevented us from providing cost-effective and worthwhile tours.

Fortunately, we continue to be on a good financial foundation at SHMM. Nevertheless, it appears that 2021 and even 2022 will present challenges regarding visitation and cash flow. Undoubtedly, our eventual post-pandemic reopening will, by necessity, be a gradual process, and new guides will have to be hired and trained. The only positive aspect is that reopening likely will be slow, and that will give us enough time to re-staff and re-group.

As with most museums, the vast majority of our visitors have been school children on class trips. Schools in our region are facing many challenges during the pandemic, and class trips will unfortunately be low on their priority list; so it is unlikely that we will be seeing school field trips for some time.

Fortunately, the COVID virus has not hit any of our staff or volunteers directly. But sadly, Dion Derkach (a friend, volunteer, and neighbor) lost his wife, Gail, from COVID in December 2020. That forced us to take even stricter precautions and limit the presence of staff at SHMM even further. Carol Dunn and Sue Conklin, our gift shop employees, come in four to five days a week for various projects, but other than Denise and me, no one is at SHMM regularly.

There is one upside to being closed -- we can take our time and really concentrate on new displays and exhibits without worrying about being ready for visitors the next day. Many of you may know Ken Daubert, who has been a part-time tour guide at Sterling Hill. Ken recently retired from his position as a transportation specialist with the Orange County, NY School District, and now is working several days a week at SHMM. Ken has a degree in geology, and is using that background and knowledge to help organize and identify minerals and collections we have acquired over the years. He also is an excellent handyman, and is working on our many projects and maintenance issues. Ken immediately installed the new rubber tile floor in our pavilion, which has really improved the atmosphere while cushioning one's feet. He installed the same tile in the hallways of the John Kolic GeoTech Center, as well as in the viewing room for the old East Shaft. This viewing room is a new feature we have created at SHMM by opening a previously off-limits area and installing three large panes of tempered glass, allowing visitors to view the old East Shaft adjacent to the old mill (our current GeoTech Center). This new station provides another historic landmark to include on our general tour.

**Tour guide and maintenance man, Ken Daubert, installs a new hi-tech floor in our pavilion. The interlocking/dovetailed tiles are free-floating for expansion and contraction, and are gently hammered into place. It is amazing how much difference a new floor makes in approving the overall environment.**

**The historic East Shaft is visible through three, newly installed, tempered glass frames. The viewing room will receive rubber-vinyl flooring and will be easily accessed via the existing stairway leading down to the GeoTech Center.**

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**PRESIDENT'S MESSAGE**

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I am happy to report that our motorized West Shaft man-cage is complete and fully functioning. John Gumbs completed the wiring, switch installation, and cabinet restoration several months ago. Doug Francisco and our staff installed new mannequins and dressed them with clothing saturated in borax to inhibit mold growth. By simply pressing one button, the man-cage descends while the ore skip ascends. This new exhibit has not been part of our regular tour experience due to our shutdown, but it was utilized with dramatic results in a music video recently recorded in the mine. In the video, the singer comes to the surface via our man-cage, and then jumps off to be greeted by his admiring fans. Proceeds from that music video have helped offset much of our cash investment in this project!

Rejoining us in February was ex-miner and board member, Doug Francisco. Doug flew in from his new home in California and is again helping us on major projects, including replacing the two fiberglass and wood roofs over the stairways leading to the Kolic GeoTech Center. He and Ken Daubert also are working on the very important task of preserving the structural steel and reinforced concrete "square sets" that support the less competent rock areas located 200 feet inside our main adit. This additional support collar, made of H-section columns and horizontal I-beams, would cost a fortune to replace, so we are now addressing the most vulnerable aspect -- the exposed steel.

**Ken Daubert and Doug Francisco use a pneumatic needle scaling gun to quickly remove rust from the structural steel supports in the main adit. The work is done safely, as the beams are soaked to keep dust to a minimum and respirators are worn, along with eye and ear protection. Once scaled, the steel will be power-washed, blown dry, gently heated, and primed with high quality industrial paint. This process will insure that this critical structure remains competent for decades.**

Corrosion here is very light, and we are using pneumatic needle and chisel guns to prepare the steel surface to accept a high quality primer along with two coats of an epoxy finish coat. This should last many decades and only require a simple, regular top coat of paint to keep it perfect.

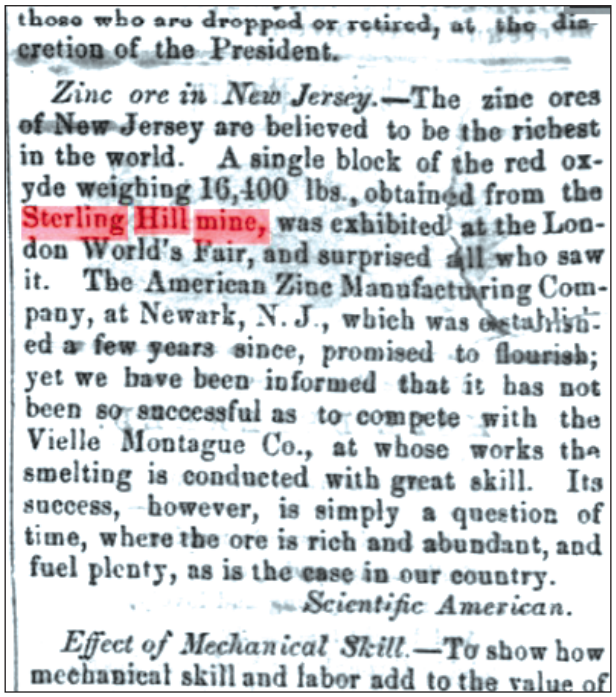
We plan to address all of our exposed underground steel over the next few years; including the shaft area, overhead crane, cat-walks, railings, and doors. We will break each area into manageable tasks, to ensure professional and long lasting results. Our biggest task is rust removal; but once we get a good primer applied, regular top coats of paint will be all that is needed.

Finally, now that our caboose is 100% complete, we are addressing the railroad signs and signals that are mounted next to it. We have several signal boxes, a three-light block signal, and a flashing highway crossing signal that were obtained locally. These items have been chemically stripped of paint, primed and painted, rewired, and given new colored lenses (many of the old lenses had been used for target practice when they were on the old NYS&W line). This has been a very relaxing and rewarding task. We can simply order what we need online from the original company (Union Switch and Signal), using the same part numbers. We plan to have all signals electrified and operating via motion detectors!

In closing, it is difficult to predict what the future will bring during the pandemic. Nevertheless, we continue to move forward safely, making improvements, and preserving what we have. We are acting to make sure that the SHMM experience in the future will be even greater than it was before the pandemic. That is all that we can do for now.

*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. Now in his mid 60's with plenty of "retirement time" Bill and his wife, Denise, are at Sterling Hill every day hoping to pass their love of science to the current generation and to help make the museum a world class attraction.*

## Article in *The West-Jersey Pioneer* (Bridgeton, NJ), February 9, 1856



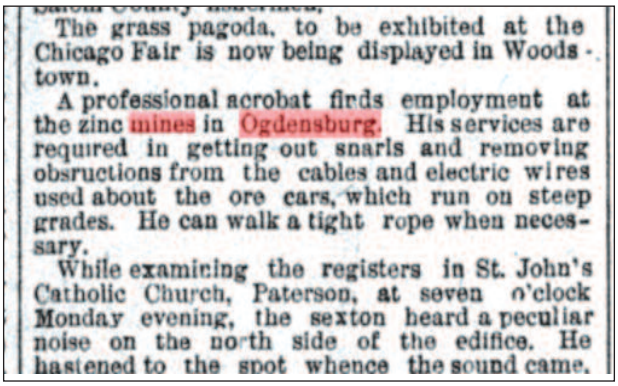
those who are dropped or retired, at the discretion of the President.

*Zinc ore in New Jersey.*—The zinc ores of New Jersey are believed to be the richest in the world. A single block of the red oxyde weighing 16,400 lbs., obtained from the Sterling Hill mine, was exhibited at the London World's Fair, and surprised all who saw it. The American Zinc Manufacturing Company, at Newark, N. J., which was established a few years since, promised to flourish; yet we have been informed that it has not been so successful as to compete with the Vielle Montague Co., at whose works the smelting is conducted with great skill. Its success, however, is simply a question of time, where the ore is rich and abundant, and fuel plenty, as is the case in our country.

*Scientific American.*

*Effect of Mechanical Skill.*—To show how mechanical skill and labor add to the value of

## Article in *The Jersey City News,* Thursday, March 30, 1893



The grass pagoda, to be exhibited at the Chicago Fair is now being displayed in Woodstown.

A professional acrobat finds employment at the zinc mines in Ogdensburg. His services are required in getting out snarls and removing obsructions from the cables and electric wires used about the ore cars, which run on steep grades. He can walk a tight rope when necessary.

While examining the registers in St. John's Catholic Church, Paterson, at seven o'clock Monday evening, the sexton heard a peculiar noise on the north side of the edifice. He hastened to the spot whence the sound came.

*...“there's no other place like it on Earth.”*

*Listed on the National Register of Historic Places since 1991*


# Sterling Hill Newsletter

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The *Sterling Hill Newsletter* is the official journal of the Sterling Hill Mining Museum Foundation, a nonprofit institution. It is published two times a year, in April and September.

Subscription to the *Sterling Hill Newsletter* is included with membership in the Sterling Hill Mining Museum Foundation. For details look for the membership form in this issue. If the form is missing, contact the museum for information.

# Subsidence at the Sterling and Friedensville Mines

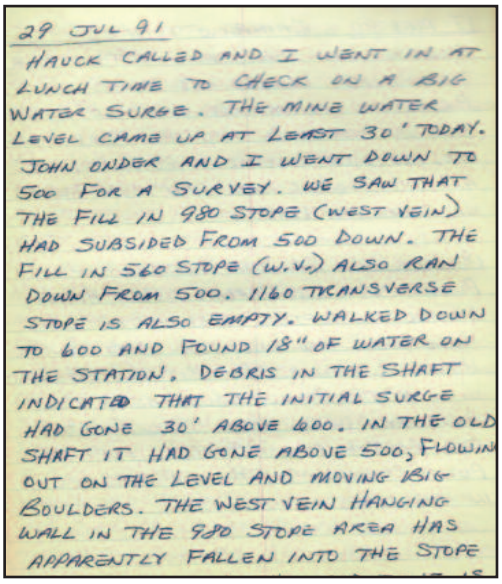
Haig F. Kasabach

As a hydrogeologist, I never participated in active mining operations during my professional career. However, as New Jersey State Geologist I participated in the mapping and evaluation of approximately 450 abandoned mines in New Jersey. As underground workings collapsed or material used to fill them became unstable, the ground subsided. Several of these abandoned New Jersey mines were in populated areas and caused considerable property damage when some of the workings collapsed (e.g., at the Schuyler copper mine in North Arlington Borough, and several iron mines in Mine Hill).

I was an active member of several professional associations during my career, and at one of the meetings I met Bob Metsger, the geologist at the Sterling Mine in the 1970s. Bob gave me my first tour of the Sterling Mine, during which I eagerly collected some of the richest zinc ore in the world. After becoming State Geologist in 1985, I went underground one more time with Bob, and got all the way down to the lower pumping station.

When the mine suddenly closed in 1986 and the Borough of Ogdensburg foreclosed on the property, several of us at the New Jersey Geological Survey (NJGS) and New Jersey State Museum tried to save some of the geologic information that had been accumulated over many years. The NJGS was particularly interested in preserving rock cores that could be located precisely. The cores were in a shed at the Sterling Mine, and some had already been disturbed, making them useless for future geologic studies. However, we were able to remove a flatbed trailer of undisturbed cores with detailed locations, and catalogue them at Rutgers University. The State Museum also recovered some historical items, including Bob Metsger's beautiful model of the mine, showing each level on glass plates.

When the NJ Zinc Co. abruptly closed the mine, they swiftly sold off what they could at bargain prices, and sealed the adit with concrete. I tried to persuade the Director of the NJ Division of Parks and Forestry to acquire the property; however, all of the State's attorneys saw a huge liability, and the property remained abandoned until purchased at auction by the Hauck Brothers in 1989. This gave me my third opportunity to visit the mine, at the invitation of Dick Hauck in 1991. By that time, the pumps had been turned off and there was no electricity. With two other NJGS geologists, I climbed down the ladders to the 500-foot level, a very eerie experience. Although the Sterling Mine was considered very dry (averaging only 100 to 200 gallons per minute or less than 200,000 gallons per day), it was slowly filling up and things were shifting around. We noted that some of the timbers were sagging and there were disconcerting rumbles as the fill became saturated and began to shift around and collapse. This caused several sinkholes to open up on the property in the early 1990s (as seen in the two photos above), requiring that the Sterling Hill Mining Museum fill and stabilize the area.



29 JUL 91
HAUCK CALLED AND I WENT IN AT LUNCH TIME TO CHECK ON A BIG WATER SURGE. THE MINE WATER LEVEL CAME UP AT LEAST 30' TODAY. JOHN ONDER AND I WENT DOWN TO 500 FOR A SURVEY. WE SAW THAT THE FILL IN 980 STOPE (WEST VEIN) HAD SUBSIDED FROM 500 DOWN. THE FILL IN 560 STOPE (W.V.) ALSO RAN DOWN FROM 500. 1160 TRANSVERSE STOPE IS ALSO EMPTY. WALKED DOWN TO 600 AND FOUND 18" OF WATER ON THE STATION. DEBRIS IN THE SHAFT INDICATED THAT THE INITIAL SURGE HAD GONE 30' ABOVE 600. IN THE OLD SHAFT IT HAD GONE ABOVE 500, FLOWING OUT ON THE LEVEL AND MOVING BIG BOULDERS. THE WEST VEIN HANGING WALL IN THE 980 STOPE AREA HAS APPARENTLY FALLEN INTO THE STOPE

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## SUBSIDENCE AT THE STERLING AND FRIEDENSVILLE MINES

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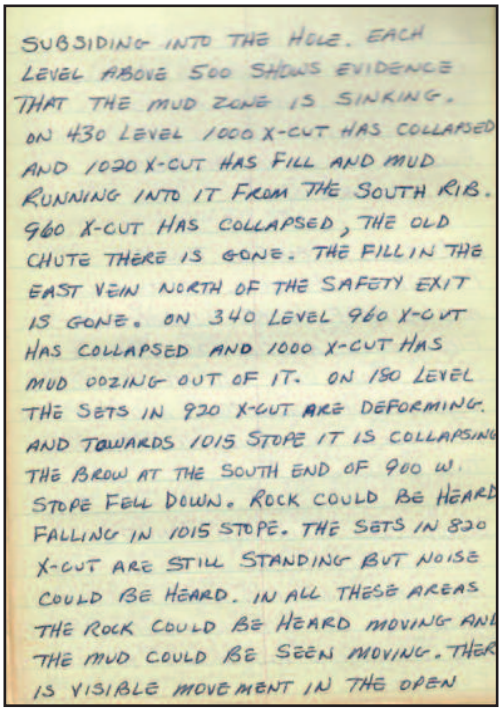

SUBSIDING INTO THE HOLE. EACH LEVEL ABOVE 500 SHOWS EVIDENCE THAT THE MUD ZONE IS SINKING. ON 430 LEVEL 1000 X-CUT HAS COLLAPSED AND 1020 X-CUT HAS FILL AND MUD RUNNING INTO IT FROM THE SOUTH RIB. 960 X-CUT HAS COLLAPSED, THE OLD CHUTE THERE IS GONE. THE FILL IN THE EAST VEIN NORTH OF THE SAFETY EXIT IS GONE. ON 340 LEVEL 960 X-CUT HAS COLLAPSED AND 1000 X-CUT HAS MUD OOZING OUT OF IT. ON 180 LEVEL THE SETS IN 920 X-CUT ARE DEFORMING. AND TOWARDS 1015 STOPE IT IS COLLAPSING THE BROW AT THE SOUTH END OF 900 W. STOPE FELL DOWN. ROCK COULD BE HEARD FALLING IN 1015 STOPE. THE SETS IN 820 X-CUT ARE STILL STANDING BUT NOISE COULD BE HEARD. IN ALL THESE AREAS THE ROCK COULD BE HEARD MOVING AN THE MUD COULD BE SEEN MOVING. THER IS VISIBLE MOVEMENT IN THE OPEN

The photo above and the one on the previous page are from pages in the notebook of Sterling Hill miner John Kolic, in which he described what he saw when he entered the mine on July 29, 1991 after a major collapse had occurred. He noted that a sinkhole had opened up in the Passaic Pit as a result of a collapse in the "mud zone" in the mine.

The photograph below, taken by former Sterling Hill Mining Museum board member and miner Bernie Kozykowski, shows remediation actions taken after that collapse.

Bob Metsger also was involved with the NJ Zinc Co. mine in Friedensville, PA, in the Saucon Valley. He related how different the two mines were, both geologically and hydrologically, and asked if I would like to tag along on one of his visits to that mine. Unlike the Sterling Mine where the ore was hosted by the relatively impervious Franklin Marble, the ore at Friedensville consisted of sphalerite in a brecciated cavernous dolomite. I had visited several mines that pumped more water than the Sterling Mine, but I was totally unprepared for what I experienced at the Friedensville Mine. We were given the usual safety instructions and gear, including a complete set of rubber boots and heavy-duty raingear (I wore jeans and hiking boots at Sterling Hill). The mine tunnels were highways with trucks hauling ore and equipment. Water was everywhere, with rivers running along the sides of the roads. It was like being in an underground rainforest during a monsoon. The stopes were very high and I recall one being in a fog, with water pouring down. The pumps could handle approximately 40,000 gallons per minute (57,000,000 gallons per day). According to the utility company, only the Bethlehem Steel Co. used more electricity.

The Friedensville mine completely dewatered the Saucon Valley, causing domestic wells to dry up. The New Jersey Zinc Co. then constructed water lines from Bethlehem, PA., to supply the valley. Another consequence of the dewatering was subsidence throughout the valley as previously stable sinkholes collapsed, resulting in considerable damage to structures and roads, as seen in the photo below from the 1970s.

The cost of operating this mine, combined with depressed zinc prices, ended mining operations at Friedensville in 1983, three years before the shutdown of the Sterling Mine. In both mines, there still is a considerable quantity of ore in the ground.

*Haig F. Kasabach, a trustee at the Sterling Hill Mining Museum, practiced hydrogeology for 40 years and was the NJ State Geologist for 15 years prior to his retirement.*

# Babe Ruth and the NJ Zinc Company

Bill Truran, Earl Hornyak, and Jeff Osowski

This famous photo of Babe Ruth playing golf in Franklin can be seen in many local establishments. He is golfing with four other gentlemen at the nine hole course in Franklin that was built by the NJ Zinc Co. in 1910, for the use of the company's personnel. It is still in operation as the Walkill Valley Golf Course.

The Babe came to Franklin frequently. He was good friends with the Yankee pitcher from Sussex County, Russ Van Atta. They had a long relationship, doing all the fun things in the Franklin area that a retired sports hero would love: hunting, fishing, golfing, and carousing. Van Atta was with the Yankees from 1933 to 1935; career record 33-41, with a 5.60 earned run average. He was Sheriff of Sussex Co. from 1941 to 1944 (the Babe campaigned for him), and later became a Sussex County Freeholder.

The golfers probably are headed up from the 5th or 9th hole, having finished a round. Judging by his rather large size in the photo, the Sultan of Swat may have been heading to the clubhouse to down a few cheeseburgers and several Ballantines. The Babe looks to be beyond his prime (although he was always a bit large). His storied baseball career ended in 1935. There's a great photo of the Babe with kids in a line alongside him at the Wallkill Valley Golf Course, taken by Itchy Novak on August 27, 1947. The photo above was likely taken a few years earlier.

There is a rock that has been christened as the Babe's on the 6th tee. It has been reported that he liked to fish the Wallkill River at that spot. It is a cute area, near a little wooden bridge over the river, going to what is always a swelteringly hot and humid green that is tucked away between river and railroad embankment. The river emerges around a corner and under a magnificent stone arch bridge (one of several in Franklin that deserve preservation) where the old steam engine slowed for a whistle stop at the Franklin House on the other side. More recently, the Franklin House was owned by Watson

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**BABE RUTH AND THE NJ ZINC COMPANY**

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Littell; it burned down in 1913 and was part of the impetus for the formation of the Franklin Fire Department.

Now to the other golfers in the photo. The following is written on the back of the picture:

***Wallkill CC. Left to right: Babe Ruth, Harry Watt, Sam Munson (Babe Ruth's doctor), Joe Ayers.***

Sam Munson's family came to Franklin in the 1800s and owned a farm house in the area known as Munsonhurst, near the current location of the Brick and Brew. He was a state senator, and an entrepreneur. He was involved in the Franklin Entertainment organization, which established the theater in town. The Munson calcite quarry bears his name. The Ayers family was prominent in Sussex County for many years as well. Harry Watt was not involved with the mines. He had his own businesses.

*Bill Truran, PhD, is a historian, author, and engineer. He has taught at Stevens Institute of Technology, and currently works for the Department of Defense in project management with research and development. Bill is a lifelong local resident, has written five books, and is working on several others. He serves as the Sussex County Historian. His passion includes deep appreciation of our rich heritage: minerals, mining, and the melting pot community.*

*Earl Hornyak and his wife Tracy, as well as Earl's father John, are lifelong residents of Ogdensburg. Earl's grandfather immigrated here from Hungary to work in the mine. Earl was a teacher and coach at the Ogdensburg School for 30 years. He also served on the borough Planning Board and Council. He currently works at Wallkill Valley Regional High School, coaching soccer, basketball, and tennis. He holds a deep passion and a lot of pride for Ogdensburg and Sterling Hill.*

*Jeff Osowski, PhD, is Vice President of the Sterling Hill Mining Museum Board of Trustees. He has had a long and varied career in the education and science realms, including Vice President for Learning and Teaching at Liberty Science Center; Vice President for Education Policy at the New Jersey State Chamber of Commerce; Assistant Commissioner and State Director of Special Education, both at the NJ Department of Education. He also has been a school district administrator, psychologist, and teacher.*

# *John Kolic's Sterling Hill Mining Diaries*

Doug Francisco

John Kolic worked in the Sterling Mine for 14 years, from 1972 until the mine closed in 1986. He recorded his experiences in great detail, in eight nondescript dime store notebooks that contain invaluable daily entries about his mining experiences and mineral finds in one of the oldest mines in the country.

The previous batch of John Kolic's mining diaries, released in Fall 2020, took us through January 21, 1986. No one working underground at that time knew that the Sterling Mine would operate for only two more months.

John's entry on the last day the Sterling Mine was in operation ended in his usual fashion, with just one simple sentence. Read his diaries on the Sterling Hill website and see if you can find it.

Fortunately, John continued making notes in his journal after the mine ceased operation. This next batch of diaries, taking us to June 18, 1990, will be released in April 2021 on the Sterling Hill Mining Museum website at:

**www.sterlinghillminingmuseum.org/kolics-work-diaries**

# Outside Looking In

Earl Hornyak

I enjoy reading about the historic "old days" at the mine. My 95 year-old dad worked for the NJ Zinc Co. He likes to refer to Tennessee Ernie Ford's song *Sixteen Tons*, based on the coal mines of Kentucky, which also describes how things used to be in our zinc mining town of Ogdensburg. My dad's favorite line is: "I owe my soul to the company store."

My grandfather was a Hungarian immigrant who worked in the Sterling Mine. Many of my relatives worked in the mine at some point in their lives. My dad worked as a watchman, and he still has one of the keys that is attached to a chain connected to a small metal box. I have two hardhats, one from my uncle Pete Hornyak who worked in the mine in the earlier stages of operation, and one from my brother-in-law, Tom Laner, who worked in the mine in the later stages of the mine's operation.

My story is a little different. Even though many of my relatives and a classmate of mine, Rich Ramage (who was injured during a cave in), worked at the mine, I never did. However, I want to share some perspectives regarding what it was like growing up in a mining town in the 1970's. During that time, things began to change in our small mining community in Ogdensburg. No longer was the mine the center of the town's universe, but its presence was still powerful and influential to those of us who lived here. Adding to the many houses that were built over many years by the zinc company, new developments started to spring up in a flash -- Ogden Hills, Marianne Estates, and the Foothills North and South. A new addition had to be built on the elementary school to accommodate the increase in population. With commuting to work becoming the new trend, the majority of new residents were not moving to Ogdensburg to work in the mine. People started referring to Ogdensburg as a "bedroom" community rather than a mining community. Even with that trend, the Sterling Mine still stood as the founding "father figure" in town.

The Sterling Hill site was really a marvel to see, but of course living here and seeing it every day made it simply part of our environment; yet it always was an element of intrigue for us kids. We often wondered what was going on behind that blue tin fence, with the barbed wire on top, that you could not see through. We went about our business playing like kids do, but there was always that wonder about life on the other side of the fence.

I lived in a house in the old part of town on Plant Street, very close to the mine. Actually, I still live in the same house. It is funny that as a kid I always thought our street was named after nature – a living organism like a tree or a flower. I did not find out or realize until I was older that it was named Plant Street because the entrance to the mine (or plant) where the main buildings are located is on my road.

I would pass by the change house and offices nearly every day walking or riding my bike. I always looked over through the high windows at the baskets hanging from chains with the miners' clothes in them. In the winter the icicles hanging from the buildings mesmerized me. They were always so huge and glistened when the sun was shining on them. I always looked forward to seeing them form in the winter months. The parking spaces for the mine bosses were across the street from the entrance. Thick chains hung across the front of the parking spaces with black name plates of the bosses hanging from the center of each draped chain. I would read the names and think those people must be important to have their names on parking spaces. There were parking spaces for the miners farther down the street; but there were no name plates in those sections.

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**OUTSIDE LOOKING IN**

Continued from page 9

Some miners in town still walked to work, like my uncle Steve Dekmar, who lived on Bridge Street just down from the mine. I remember Uncle Steve walking home from his shift at the mine with his lunch pail. He had a really cool mineral collection in his basement that he would light up for us with a UV lamp every once in a while.

Across from the mine entrance was the park. It was well maintained by the zinc company. I remember Ed Paiva working summers as a groundskeeper. There were several blue parking garages lining the Bridge Street side. I am not sure why they were there or who was supposed to use them. Ed and I attached a basketball rim to one of the garages, and we often practiced there. Not many cars traveled up and down Bridge Street throughout the day, so we were safe. The gravel was a bit slippery here and there, but we were used to it. The park was one of my favorite areas. There were paths that went through it, and I always rode my bike on them, pretending it was a racetrack. There was a big flagpole in the center of the park, and the base is still there.

Across from the park was Sterling Parkway. Some mine bosses lived in the houses on the Parkway. The building on the end was called the Marshall House. I believe it was used by the zinc company as a teen recreation center. It was not used for that by the time I was old enough to go there, but we still played on the grounds. There was an old see-saw and swing there next to the miner's parking lot. We played baseball in a small field next to the swing.

Behind the Marshall House there were two wooden backboards and rims, but we rarely shot hoops there because the surface was grass, and one basket was higher up the hill than the other. I am sure they were used by kids before us. There was a longer stretch of grass behind the house where we played football. We had some good games there. Once in a while we would go "uptown" to the ball field and challenge the kids from up there.

Just behind the area where we played football was a fenced in area with a small body of water we called the Sly Pond; maybe it was slime pond, but I always called it the Sly Pond. We knew it was zinc company property, but we did not know why it was there. We would go inside the fence to fish. My cousin Stevie caught a huge turtle in there one day. Just a short distance down from the Sly Pond was the Bridge Street bridge (we assumed that was how Bridge Street got its name), with the Wallkill River flowing under it. Next to the bridge was the pump house for the mine. There was a fence around that too, but it was one of the best spots to catch trout; so after seeing Ditty Marino climb in there on a number of occasions and catch one after another, I figured I would give it a try now and then as well. It was a hot spot!

Across from my house was the zinc company bowling alley. It still had its orange shakes, tin roof, and front porch, with two lanes inside; but like the Marshall House, it no longer was being used by the zinc company to provide recreation for residents. The porch was a nice spot for us to wait for the school bus on rainy days so we could stay dry. The zinc company did allow the scouts to use it for meetings and, at one point, there was a slot track to race cars. When it was no longer used for slot car racing, the bowling alley was designated as some kind of disaster relief center. A variety of nonperishable items were stored there in case of an emergency. I never remember it being needed, and I have no idea what happened to all the stuff that was stored there. I do know the emergency items were there though because we used to peek through all the windows.

Two cool things in the neighborhood worthy of play time and adventure were related to the trains and train tracks. The tunnel with its railroad bed on top was always a fun spot. Another great location was under the trestle that crossed Passaic Avenue where the tracks went into the mine property on the other side of the fence. We would climb up and hang out under the trestle, hiding from the cars coming up the hill on Passaic Avenue. When not under the trestle, I recall watching the trains going in and out of the mine property. My wife, Tracy, shown in the photo below, said she would enjoy waving to the folks working on the train. They were very friendly, and

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**OUTSIDE LOOKING IN**

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always waved back. I remember when the trains stopped coming, and the zinc company started using dump trucks instead, to haul away their product. The tracks over the tunnel toward uptown eventually were removed, leaving a pit where the railroad bed was taken away. That became a great area for riding our dirt bikes. The tracks leading away from the mine toward Franklin remained though.

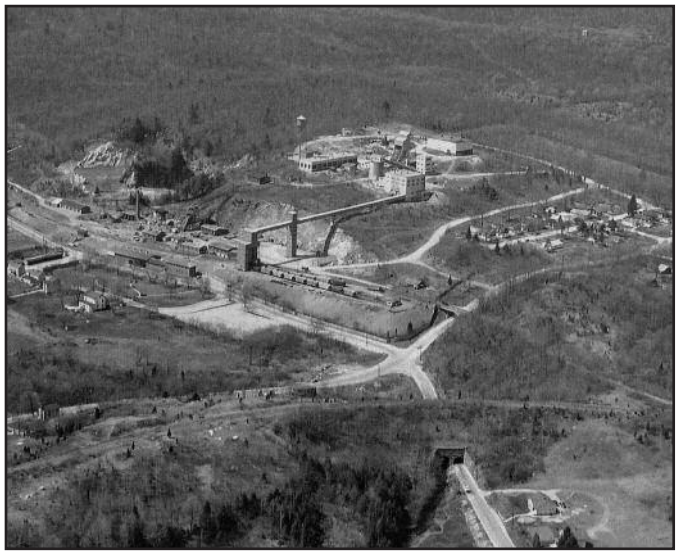
Tracy lived on Arch Street, near the top of Sterling Hill. Many of the zinc company bosses lived on Arch Street. My dad said they were the mansions on the hill. Tracy's grandfather was a chauffeur for the mine bosses. She recalls hearing goings on beneath the floor of her house. She and I both remember our houses shaking during mine blasts!

The ultimate, best play area, courtesy of the zinc company, was the "sand bank" across Plant Street, behind the blue garages, extending down to the pump house by Bridge Street. It was awesome; hours and hours of fun with no adult intervention! The sand bank was comprised of tailings from the mine. It was very high, like the Rocky Mountains (at least to us kids), and had huge slopes down each side. We would dive down and roll, play king of the mountain, and invent any game or contest imaginable involving that Ogdensburg treasure. What I remember most was throwing sand up in the air near the streetlight by the bridge as it was getting dark and watching the bats swoop at it.

That sand bank area is a recreation field for the youth soccer program in town now, but oh the stories it could tell about us playing on it before it was turned to grass! The zinc company turned it into a ball field with softball fields and backstops at each end after they hauled away the sand. The town maintained the field, but the zinc company owned it. I remember hearing that the zinc company offered to sell it to the town for a dollar. I worked for the town in the summers for a while and spent some time working in that area clearing trees and mowing. It was filled in, but was still always a bit soggy.

There was a swampy area below the sand bank, with a lot of cattails. This area was ideal for playing army, hide and seek, and millions of other games. There was also a small pond of water; not big and not deep, but it made a great ice hockey location when it froze in winter. We did not have real hockey equipment, but found makeshift stuff. My dad provided us with rubber puck-like objects he made for us while working at a factory in Franklin. There was a dirt road that started on top by Plant Street and went down and around to Bridge Street. There also were paths through the cattails. It was absolutely the best place for riding our bikes and motorcycles. That was so much fun! We also rode our motorcycles up in the woods behind my house, forming trails just outside the zinc company fence that stretched up and across the mountain.

This next part is what I find most fascinating about all of this. Not once, ever did anyone from the zinc company come up to us and say we could not be on their property! Sure, sometimes we were sneaking around a bit like going through the fence to the sly pond or climbing up under the trestle, but most of the time we were out there playing in the wide-open spaces on zinc company property. How cool was that! I thank them for allowing us to experience such a wonderful childhood on their property; that was very special. We always had respect for the zinc company. There was a huge milling display in the hall at school as well as a box display with Horsehead Industries pieces in it that is still there today. However, the milling display has been transferred to the Ogdensburg Historical Society museum next to the school.



The photo above was taken around the time period I am describing in this article. The big white house in the left center of the photo is the Marshall House. The grass area next to it is where we played baseball; and the area directly behind the house is where we played football. Behind that is the fenced-in, so-called Sly Pond. To the right of the Marshall House is the park, next to which are the parking spaces for the mine bosses. The mine offices are across Plant Street. Travelling south (to the left in the photo) on Plant Street, the next turn is Bridge Street; and if you turned left, you would see the blue garages lining the street. Continuing south on Plant Street you can see

Continues on page 12

**OUTSIDE LOOKING IN**

Continued from page 11

a dirt road to the left before the "Y" in the road. That is where we would ride our bikes and motorcycles. The house at the "Y" was Hete's Store, which was much like a deli. It was not being used as a store any longer when I was a kid. If you stay to the right at the “Y” on Plant Street you will come to a cluster of houses; my family lives in one of them. Across from our house is the building that was the Zinc Company bowling alley. Up behind my house are the woods where we would ride our motorcycles along the Zinc Company fence.

As kids we were always proud of our roots in Ogdensburg. The zinc mine was, and still is, a major part of our town. I was thrilled when Sterling Hill was transformed into a museum so our special piece of the world could forever be available for others to see and enjoy. The progress that has been made at Sterling Hill since first becoming a mining museum is phenomenal! I am thankful our school children are involved with excursions and learning experiences at Sterling Hill that help preserve our rich heritage. Yes, Sterling Hill has provided me with some of the greatest experiences of my life. Although I never worked there or stepped foot inside the fence until the actual mining operation shut down, I certainly learned and experienced a lot at the mine, from the outside looking in.

# How to Make Beautiful Florescent Spheres from Sterling Hill Minerals

Paul Williams

*[Note from Jeff Osowski: Several years ago I attended the San Diego County Fair, to see the San Diego Mineral and Gem Society exhibits. The exhibit that I found most fascinating was by Paul Williams, a superb sphere-maker. He wasn't there that day, but I later contacted him and asked if he would be interested in making fluorescent spheres. He gave an enthusiastic “yes” reply. Paul and I have since established an on-going relationship. I periodically send him boxes of fluorescent specimens from Sterling Hill and Franklin (usually willemite/calcite, but not always). Paul fashions them into spheres, and sends some back to me for my collection. I now have 18 fluorescent spheres in my collection; plus some other non-fluorescent spheres. They all are beautiful, especially the mylonitized ore from Sterling Hill. In the article below, Paul describes his artistic and technical process of sphere-making.]*

First, find a big rock that is approximately the same size in each of the three dimensions. The shortest dimension of the rock is the maximum size of the sphere that can be made. If one dimension is significantly smaller, then it may be possible to saw the rock to make two or three spheres. The rock shown in Photo 1 was an awkward triangular shape, so I decided to cut it to make two similar-sized spheres, rather than one slightly larger sphere.

**Photo 1**

Continues on page 13

## HOW TO MAKE BEAUTIFUL FLORESCENT SPHERES FROM STERLING HILL

Continued from page 12

The rock has to be very stable, with no fractures. And of course, it needs to be brightly fluorescent, as shown in Photo 2, under shortwave ultraviolet light.

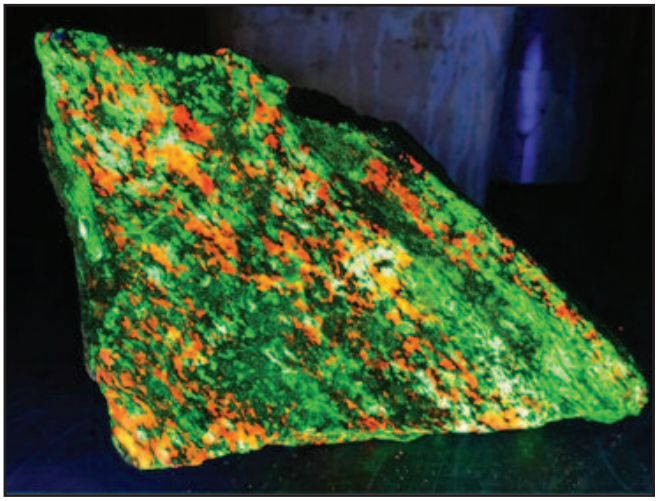


**Photo 2**

The next task is to make what is known as a preform from the rock, which is a rough spherical shape. In this example, I made two preforms. Next, I made one flat surface using a lapidary diamond-blade slab saw.

**Photo 3**

The rock in Photo 3 is in the vice of the slab saw. The vice moves slowly past the spinning blade, which cuts off the section of the rock that is sticking out of the wooden jaws of the vice. The saw works in a bath of cutting oil, which is why you can see mud (oil and rock dust). In Photo 4, taken from above, you can see the saw blade cutting the rock in a line between the ends of the vice jaws. Once I have a flat surface, I turn the rock 90 degrees and

**Photo 4**

put the flat surface on the bottom of the vice. The result is that the second cut will be at a 90 degree angle to the first cut. Then I turn the rock 90 degrees again, so the newly cut surface is against the rear vice jaw, and the first cut is still on the bottom. The third cut will then be 90 degrees from both the first and second cuts, which forms the corner of a more-or-less cubic shape.

The shortest distance from the cut surfaces to the opposite

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## HOW TO MAKE BEAUTIFUL FLORESCENT SPHERES FROM STERLING HILL

Continued from page 13

uncut side is the maximum size of a cube that can be formed; and the cube will contain the largest sphere that can be made. Hence, the shortest side is cut first, and then the remaining two sides of the cube are cut the same distance from their opposite flat surfaces. The result is a cube as shown in Photo 5. Note that the missing pieces on the sides and corners do not matter, as they will not be part of the sphere, which is "inside the cube."

**Photo 5**

The rock now is a regular shape, but it definitely is not yet round. We sphere-makers are famous for saying "we cut corners!" and actually do, so the next step is to cut all 12 corners to further make the preform, as shown in Photo 6. How many sides? The answer: six sides of the cube, plus the 12 edges = 18 sides in total.
The preform now looks more spherical, and it could be put in a sphere-making machine, but I prefer it to be smoother. Which is a "bit of a grind!" Yes, I grind off the sharp edges, using what is called a "monster grinder," as seen in Photo 7. This grinder has a wheel with ten, ten-inch diamond saw blades, and it literally eats the rock!

**Photo 6**

**Photo 7**

**Photo 8**

Continues on page 15

## HOW TO MAKE BEAUTIFUL FLORESCENT SPHERES FROM STERLING HILL

Continued from page 14

I grind off all the edges, and halfway through the process, the rock looks like Photo 8 on the previous page, where the ground-off edges are seen at the front, with the sharp edges still at the back.

Next, I continue to grind off the rest of the edges, resulting in the preform seen in Photo 9. Some flat spots can still be seen, which were the middle of each cut surface. Now the preform is nearly spherical and is perfect to put in the sphere-making machine.

**Photo 9**

I designed and built all my sphere-making machines. All are three-gear-motor designs, where the gear-motors are 120 degrees apart, around a central point, as seen in Photo 10. The motors are mounted on sliding vice-like structures which screw in and out, to allow adjustment for different diameter spheres, and to increase or decrease the pressure on the rock. The grinding cups are connected to the gear-motors by spring-loaded telescopic drive shafts. The amount of pressure being used can be determined by viewing the amount the springs are compressed. The grinding cups shown are two-inch to one-half-inch concentric pipe reducers with industrial diamonds brazed into the rims. Different size cups are used for different size spheres.

**Photo 10**

I have to make sure the rock turns within the cups in a random fashion, to ensure that it makes a sphere. If the machine is left unattended it will not make a sphere. To make a sphere the operator needs practice and skill with the tool and must pay attention.

Photo 11 shows the two parts of the rock I started with; the one on the left is nearly round; and the one on the right is waiting to have the corners cut off.
The nearly spherical rock in Photo 12 still has a flat spot

**Photo 11**

Continues on page 16

## HOW TO MAKE BEAUTIFUL FLORESCENT SPHERES FROM STERLING HILL

Continued from page 15

which I marked using a Sharpie marker pen, one of the sphere-maker's most important tools. This so-called over-spill is nothing to worry about as it will be ground off. Photo 13 shows the rock in the sphere-making machine

**Photo 12**

after a short grind; the circular flat spot can still be seen. This is what we sphere makers call a witness mark; we grind it away until no marks are left. If done correctly, the

**Photo 13**

rock will be spherical.

Photo 14 shows a comparison of the completed ground sphere on the left, aside the second preform on the right, with corners cut off. Note the sphere is dull compared to the preform; this is because the preform is oily, and the sphere is covered with scratches from the grinding cups. To remove the scratches I change the metal grinding cups,

**Photo 14**

to plastic polishing cups, as shown in Photo 15. For this, I use plastic concentric pipe reducers with sticky-back Velcro on the slope, and then two rows of flexible diamond polishing pads attached to the Velcro. This is a multiple stage process starting with a coarse 50-grit pad to remove the grinding scratches; then gradually changing the grits, ending with a very smooth 3000-grit pad that will make the sphere so smooth it will be shiny.
Photo 16, on the next page, shows a sphere on the left

**Photo 15**

after grinding; the sphere on the right has been fully polished, and it so shiny that you can see the reflection of the strip lights in my workshop. The spheres are now so round they would roll off the table.

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## HOW TO MAKE BEAUTIFUL FLORESCENT SPHERES FROM STERLING HILL

Continued from page 16

**Photo 16**

Photo 17 shows both spheres polished. They have been made from the original rock shown in Photo 1, on page 12.

Photo 18 shows the finished product under short wave

**Photo 17**

ultraviolet light.

In the 15 years I have been making spheres, I have made

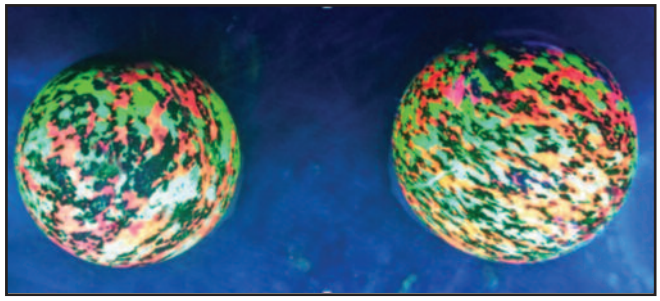


**Photo 18**

approximately 700, of which approximately 80 are fluorescent. Photo 19 shows a case of my fluorescent spheres, exhibited at the San Diego County Fair. Note that all the spheres in the front row and many of the others came from the rocks Jeff Osowski supplied from the Sterling Mine.

**Photo 19**

I also like to demonstrate my sphere-making skill to the public at the San Diego Fair and at our own club events. I am on the left in Photo 20, and one of my best students, Dave, is on the right, demonstrating sphere making at our club show. The large sphere in the front is about the largest I have made, using a much bigger machine than the portable ones we usually use.

**Photo 20**

*Paul Williams has been a member of the San Diego Mineral and Gem Society for over16 years, serving on the board of directors for 15 years, and as president for two years from 2014 to 2016. He teaches sphere-making, lapidary skills, gem faceting, wire wrapping, and silver jewelry fabrication. He exhibits cases of his spheres at the San Diego County Fair; has won many first place awards, best exhibit case across all classes at the show, and best single lapidary work twice. Paul works for Northrop Grumman in communications, and is a world expert in his field.*

Volume 30, Number 1

# Ask a Miner

Doug Francisco

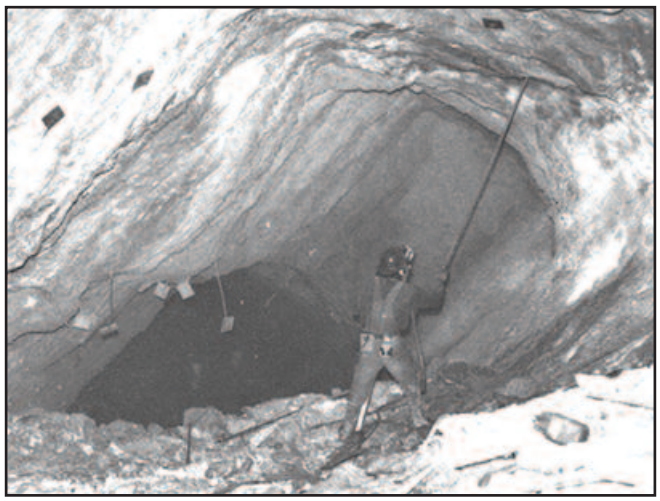
Each edition of the Sterling Hill Mining Museum newsletter will include this Ask a Miner feature. We have gathered questions from curious students who have visited Sterling Hill. Doug Francisco, a miner at Sterling Hill from 1974 to 1986, will answer the questions.

***Was there a lot of water in the mine? How did you get it out? Giordana, 4th grade, Holland Brook School, Readington Twp., Hunterdon Co., NJ***

The Sterling Mine was pretty dry compared to many other mines, but we still had to pump out lots of water. We pumped out about 100,000 gallons every day; enough to fill about ten big swimming pools! There were five huge electric pumps at the bottom of the mine, almost a half mile underground. The photo below shows one of the big pumps in the mine. They pumped the water through a large pipe, up the shaft, and out of the mine. That water ended up in the Walkill River and helped the fish because it was so clean. Most of the water in the mine came from old pits or openings at the surface that were mined out and filled with waste rock and sand. Rain water or other surface water passed through that rock and sand in the openings, and down into the mine. The mine is now almost completely flooded with water because the pumping stopped when the mine closed 35 years ago.

***Were you ever scared of the mine collapsing? How did you know when the mine might collapse? Ava, 4th grade, Ogdensburg Elementary School***

I like to think of the Sterling Mine as if it was a big building, and every miner was like a skilled carpenter who built the building. We weren't really afraid of the mine collapsing because we built all of the rooms in the mine that we worked in. A carpenter isn't afraid of going into a house he built, because he nailed up the roof and supported it, and made sure it wouldn't fall. We miners treated our rock work areas the same way, carefully securing the roof over our heads in the mine, to make sure it wouldn't fall. In the photo below a miner is using a metal bar to knock down loose rock from the ceiling after a blast. This is known as scaling. We did safety checks every day, because there was a lot of blasting in the mine, and the vibrations could loosen the rock. And we always wore safety equipment, including a hard hat. We were always very careful because we wanted to go home at the end of each day happy and healthy.



***How did they know that the mine was there? Bailey, 4th grade, Ogdensburg Elementary School***

We were lucky because our vein of zinc ore in both Ogdensburg and Franklin mines was a dark reddish brown color, which was very different than the white

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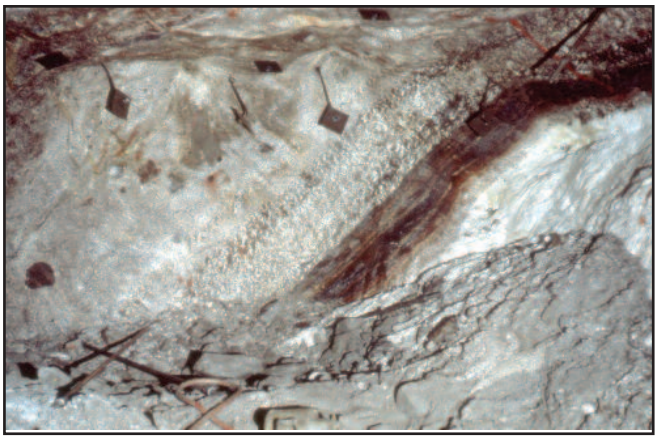
**ASK A MINER**

Continued from page 18

marble color that was around it. That made the minerals we were after easy to see and to follow. In the photo on the right, you can clearly see the red vein of zincite ore, surrounded by white marble. Geologists say that our ore veins were formed over a billion years ago and were pushed around by earth quakes and earth movements over long periods of time, during which our zinc ore was pushed to the surface. Once miners realized how valuable this ore was, they started drilling and blasting it, first on the surface where it was easy to get to, then underground, deeper and deeper until the ore ran out, at a depth of about two Empire State buildings. Our ore was very rich in zinc. No other place on Earth has the same high quality zinc ore, making the mine in our little town famous and known all over the world.



*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.*


**The Sterling Hill Mining Museum now has extensive train exhibits, with many restored historic pieces of equipment in and around our 1942 caboose. This photo shows a Lehigh and Hudson River Railway locomotive hauling ore from the ore bins to the processing plant in Palmerton, PA. For more information regarding Sterling Hill train exhibits, see article on page 20.**

Volume 30, Number 1

# Our Railroad Tribute Continues

Bill Kroth

Now that our caboose is totally refurbished and detailed, we started looking at the train equipment displays in the surrounding area, with the goal of restoring them to a similar level of preservation and function. With plenty of time on our hands due to the pandemic, and with an empty and warm Gift Shop available, we decided to concentrate on the many railroad signals that are part of our collection.

One might ask: "Why the interest in railroads at a mining museum?" Simply stated, Sterling Hill was a huge railroad switching yard during its heyday; and we felt it appropriate to pay tribute to the railroad system that was so important to delivering our zinc ore to the processing plant in Palmerton, Pennsylvania.

I am a life-long serious collector of Lionel trains, including all of the dozens of signals that were made; so I decided, to tackle the real deal. The restoration bug is still in my blood from the telescope project last fall, and this task seemed like a logical progression.

We have a wonderful historic railroad signal and sign collection, thanks to the fine efforts of Tom Hauck. He was a major railroad lantern collector, but also was able to find some nice local signals and signs. They were initially placed around the property at Sterling Hill, especially in our collecting mine run dump. With the acquisition of the caboose, we moved everything to our dedicated railroad area. Now we seek to fully restore these artifacts to the same degree and conditions as our caboose. Sadly, Tom passed away over a year ago; the signal and sign restoration project will be a nice tribute to his memory. We want to restore them perfectly and to actually get them functioning electrically!

I started with my favorite….the block signal, a heavy iron casting that contains three vertical colored lights similar to a common traffic light. Its purpose was to prevent trains from running into those ahead of them. I brought it in from the cold and the elements, so I could work on it in the Gift Shop on the tables. There, I could fully inspect it and make a list of missing and damaged parts. Sadly, these signs and electrified signals were targets for everything from rocks to high-powered rifle bullets…and the colored lenses took a terrible beating. I figured that I might get lucky and find the lenses on eBay, but surprisingly they were not available, or if they were, the prices were outrageous. I was able to get enough information from what was left of the broken lenses to determine the manufacturer and part number. To my sur-


**The Gift Shop is a comfortable area for working on our signals. Here you can see the completed block signal and illuminated signal box (right and center). The highway crossing flashing signal (left) is awaiting power-washing and paint stripping.**

**The cabinet base and mast for the block signal have been stripped of paint and await power-washing and painting. They are protected from the elements under our conveyor tower for now. This unit will be set on a new concrete pad, with electricity fed from below into the cabinet to make the signal fully operative.**

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**OUR RAILROAD TRIBUTE CONTINUES**

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**The interior of the block signal also was restored and rewired. Electrical components were remarkably in excellent shape for their age, so restoration was quite easy. Notice the double bulb arrangement for each signal in the event that one burned out.**

prise, the company that made them (General Signal) was still in operation, and they were more than happy to help with our restoration. We placed the order and, in a few days, the exact Lexan replacement lenses arrived.

The iron housings were in very good condition with minimal rust. I believe they were cast in the 1950s; they were able to survive because the metal has a rather high nickel content. The screws and nuts were badly corroded, but I had plenty of that hardware in stainless steel from my days installing the monorail system at Newark Airport in the 1990s. I replaced all of the interior wiring and sockets, and cleaned the bulbs. Fortunately, extra long-life bulbs were stored within each unit. Each of the lenses had two bulbs, in the event one burned out.

I found this restoration task both interesting and relaxing. We matched the original colors with Rustoleum paint after chemically stripping the original. As I write this, we have completed the block signal and a signal box donated by Doug Francisco many years ago.

We have a very nice highway crossing signal still to be restored, along with another very large signal box. All major units will be supported on new concrete pads, and all will be electrified, with motion detectors, which will enhance our night security system.

By spring, another important aspect of Sterling Hill's history will be fully preserved and functioning again!

## 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.

Volume 30, Number 1

# An Unfortunate Event Turns Into a Great Collaboration

Jeff Wilson

The North Jersey Mineralogical Society (NoJMS) has always had a relationship with the Sterling Hill Mining Museum (SHMM). Our organization has been a paid member of SHMM since the museum opened in the early 1990s. We held field trips through the years, have had many mine tours, and have had our annual club picnic at the SHMM pavilion every fall. But in October of 2014, an unfortunate series of events put our organization in a pickle, and the SHMM was there when we needed them, to bail us out of the crazy hole we were in! This led to the wonderful collaboration we are enjoying today, and hope to continue in the future. It all started one fall day in 2014....

The NoJMS had held its Annual Indoor Show in Clifton every spring, and for the previous five years or so we held spring and fall Swap-n-Sells at the Glenburn Estate in Riverdale. It was October 2014, time for our Fall Swap. Three days before the date of our Riverdale show I received an e-mail from the Borough of Riverdale saying that they had accidentally double-booked the Glenburn Estate for that weekend, and well, too bad-so sad, we had to move our show somewhere else. To them, it was no big deal, but for our club, which had done extensive advertising and planning, it was the ultimate disaster. We literally did not know what to do.

The following evening, after word got out, I received an e-mail from Freddie Lubbers saying that we should ask Bill and Denise Kroth if we could hold the Swap-n-Sell at Sterling Hill. It was a great opportunity, and before we knew it, we were in the SHMM pavilion and parking area, with about 25 dealers all set up and ready to go! Bill and Denise did not hesitate to offer us the facility, and we had a very successful show. We could not have been more grateful for the bail-out.

After the show was over, our NoJMS board members were relaxing in the pavilion with Bill and Denise, discussing where we should go for our future "swaps." Bill told us not to worry, we were welcome at Sterling Hill any time we wanted, and we could hold our shows there

forever as far as he was concerned. The rest is history, and we continue to have our swaps at Sterling Hill to this day. But there is more to the story.

Bill and Denise have made us all feel completely at home at Sterling Hill. Whatever we want or need, they do not hesitate to get it for us. Over the years, we have become like one big family, with smiles and hugs every time we visit. They have opened the doors for the NoJMS to have our club meetings, board meetings, holiday parties, get-togethers, work sessions, and other events, with no questions asked. We have held special blackout tours in the mine for our members and upper mill tours guided by yours truly. So, during a NoJMS board meeting in 2017, we decided it was time to give back. Not just a monetary donation, or a "thank you," but something more. The SHMM deserved it, and we really wanted to show our gratitude. That is when we devised a project to create a picnic patio by the SHMM pavilion.

For years, the picnic area outside of the pavilion was a dirty, overgrown, and unappealing place where few people actually spent time. We decided to have a NoJMS work weekend, where we could prep, level, and lay down paver bricks to make the area a showpiece for the museum, an enjoyable area for visitors, and a place where everyone could spend some quality time relaxing

Continues on page 23

**AN UNFORTUNATE EVENT TURNS INTO A GREAT COLLABORATION**

Continued from page 22

outdoors. We presented the idea to Bill, and he did not hesitate in saying, "Go for it!" Sterling Hill already had the bricks, so we provided the labor, and in a couple days, we got the job done, in style. When we finished, we dedicated the patio area to our dear member, and life-long member of the SHMM, Sarna Strom, who had recently passed away, by laying a plaque, and building a planter in the corner of the patio. The area turned out beautifully, and in Bill's words, "It is like a magnet,

drawing people to it every day." Everyone loves the patio, which we built to last for years to come.

NoJMS members continue to enjoy our time spent at Sterling Hill, our relationship grows, and more wonderful things continue to happen.

- A few of our members have joined the SHMM Board and Advisory Council.
- A small group of our members has taken over the duties of running the annual Garage Sale at Sterling Hill, and we have formed a Garage Sale committee.
- SHMM has offered some unused space in the core shed building on the grounds to construct a NoJMS Lapidary shop.
- I was asked by Bill to be an historical consultant on the caboose project. I have since documented the progress on the caboose restoration with photographs, as well as providing historical insights on the caboose. I wrote an article for a major nationwide railroad magazine documenting the restoration, and I established a Facebook page following the restoration, that has hundreds of followers.

The NoJMS collaboration with SHMM demonstrates that when we all work together for the good of the hobby, great things can happen! We thank Sterling Hill for everything they have done, and continue to do, to make us feel totally at home, and we cherish this very special relationship.

*Jeff Wilson, a life-long rock and mineral collector, has been a member of the Sterling Hill Mining Museum since 2009; and is a member of the Franklin-Ogdensburg Mineralogical Society, the Orange County Mineralogical Society, the St. Lawrence County Rock and Mineral Club, and the North Jersey Mineralogical Society (where he served as President and Show Chairman). Jeff works as an area manager at The Home Depot in Matamoras, PA.*

Volume 30, Number 1

# Memories of a Tour Guide At Sterling Hill

Ray Latawiec

The moniker, Miner Ray, was given to me by a young child many years ago on one of my tours at Sterling Hill, and it has been with me ever since. Many of the tour guides seemed to like it as well, as I often heard them introducing themselves, for example, as Miner Jim. It has a certain ring to it. Although we were not actual miners, we were in character and tried to play the role of a miner. Sometimes I got carried away, giving the impression that I actually worked in the mine to enhance the experience, but I always corrected that during the tours. There were many tales told to me by real miners, and I relied on this valuable information in making my presentations during tours. Not the least of these miners' tales were those related to me by my grandfather who was a coal miner in Poland before immigrating to America. I can still recall his heavy accent and bone-chilling stories of his mining days in Europe. He was a "tramp miner," and sometimes had to travel great distances to find work. His greatest trip was when he traveled to America, where he promised he would never again work in the mines. Too many close calls, he would say, and chances were good I probably would not be here today had he continued as a miner.

In a previous Sterling Hill news letter article, I paid tribute to two of the best people I ever met, miners John Kolic and Ron Mishkin. Keeping their stories alive on my tours was always a thrill for me, especially after their passing. I felt I was honoring their memory, and they certainly contributed to the quality of my presentations.

Another local legend was Ewald Gerstmann. Although not a miner, he nevertheless brought some old Franklin and Sterling Hill miners to my acquaintance. Although the names of these miners escape me, some of their tales and rocks will remain with me forever. I could not help being awed while in their presence, especially when they regaled me with their mining stories, and parted with some of their self-collected minerals that they actually brought out of the mines. I was introduced to them by Ewald, who arguably had some of the best local minerals in his collection, most of which he acquired directly from the miners. Indeed the Gerstmann Mineral Museum in Franklin was a focal point for miners, collectors, and scientists. I was very fortunate to have been a participant at some of Ewald's legendary meetings. It was usually hard to find a parking place on Walsh Road on a Saturday morning. Ewald was like a mineral collecting godfather to me. He is actually the one who brought me to Sterling Hill. He was associated with Dick and Bob Hauck, and was given the opportunity in the late 1980s to visit their newly acquired property at Sterling Hill. He extended that privilege to me one glorious afternoon, when we toured the Sterling Mine as it existed when operations ceased in 1986. I eventually became a tour guide at Sterling Hill, and stayed on in that role for over 16 years.

Before Ewald passed, he and I shared many coffees and stories together, and many of his specimens for sale wound up in my collection. He particularly kept an eye open for the veins, bands, and ribbon-ore I became so fond of. About such specimens, I remember him saying: "Shouldn't be a problem holding 'em, cause nobody wants 'em." Ewald always spoke his mind. He shared with me many other words of wisdom, for example, encouraging me to get smart about the hobby, and not to buy "junk." He noted that "every collector starts out dumb," and that he could save me time and money and educate me pretty fast: "Don't trust them bums out there. Me, you can trust." When asked exactly who he was referring to as "them bums," he would note that they were the ones "that ain't got no class." Classic Gerstmann. I really miss that man. Many of my "nobody wants 'em" specimens are still on view in Zobel Hall at the Sterling Hill Mining Museum.

Over the years, as Ewald's health began to fade and our friendship cooled, my contact with the legend became sparse, but my memories of him remain solid to this day. A grin comes to my face whenever I think of all those happy times we spent together. I thank Ewald for the memories, and whenever I am in Zobel Hall, I pay my respects to him at the locker where he now resides. It is very fitting that his ashes remain there. "Rock on Ewald," and give my regards to Miner John Kolic, Miner

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**MEMORIES OF A TOUR GUIDE AT STERLING HILL**

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Ron Mishkin, Dr. Pete Dunn, Miner Nick Zipko, John Cianciulli, Miner Stanley Hocking, geologist Jack Baum, and all the others that I had the opportunity to know and learn from.

*Ray Lataweic is a long-time collector of Franklin and Sterling Hill minerals, a grandson of a Polish coal miner, and has been a long time tour guide at Sterling Hill. He retired from the NJ State Police after a 25-year career, leaving as the Station Commander of the Sussex Barracks in Augusta, NJ. He graduated from Moravian College with a BA in Criminal Justice.*

# Then and Now

Gordon Powers

To show how Sterling Hill has changed over the years, the newsletter occasionally will include an article comparing an historic photo of the mine with one taken at the present time. To the degree possible, we will try to replicate the position and view of the older photo.

**Photo 1**

**Photo 2**

Photo 1 was taken in the mid 1950s, when the West Shaft Complex was under construction. The West Shaft Complex was completed in 1957, and began operation in 1961, until the Sterling Mine closed in 1986. Photo 2 was taken in February 2021 using the Sterling Hill Mining Museum drone, from a similar vantage point as the first photo.

In the 1950s photo you can see the framework of the central tower under construction, upon which the Shipping Bin Conveyor was built. The second photo shows the conveyor and bins as they look today. The conveyor is 570 feet long.

At the bottom right of Photo 1 you can see what was the Sterling Hill Supply House, and now is the Gift Shop at the Sterling Hill Mining Museum. The Backwards Tunnel can be seen on the top right in the older photo, but is blocked by the Shipping Bins in the 2021 photo.

How many differences can you find between the two photos? Can you identify the buildings and structures still in existence today?

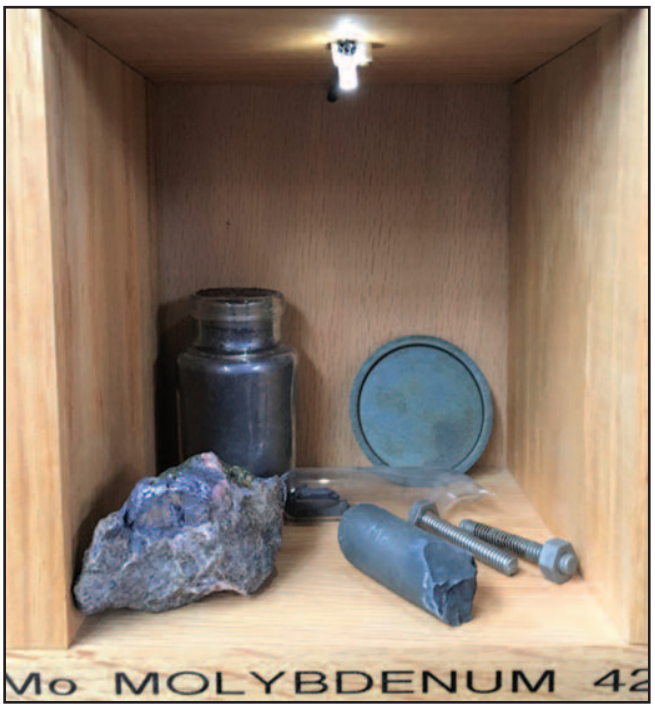
The drone is a tool that provides great flexibility as we capture photos such as these. We hope to have more for your viewing pleasure in the future.

*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.*

Volume 30, Number 1

# Element Molybdenum

Gordon Powers




This twelfth article in the continuing series on our periodic table display in the Zobel Hall will focus on the transition metal, molybdenum. 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 molybdenum is a silvery-white metal. It has the sixth highest melting point (4753° F) of the elements and has one of the lowest thermal expansion coefficients among commercially used metals. Molybdenum has an atomic number of 42 and is not found in its pure elemental form in nature. Its chemical symbol is Mo, and it is the 54th most abundant element in the Earth's crust.

The name molybdenum derives from the Greek molybdos, meaning lead, because molybdenite ($MoS_2$) was thought at first to be a lead ore and was confused at times with lead minerals, such as galena. In 1778 the Swedish chemist, Carl Scheele, determined that molybdenite was neither graphite nor galena, and that it contained a new element, molybdenum. As you can probably guess, molybdenite is the principal commercial ore for molybdenum. Peter Jacob Hjelm, another Swedish chemist, was the first to isolate molybdenum in 1781. It wasn't until the early 1900s, however, that molybdenum was used in industry, given the difficulties in extracting it.

According to U.S. Geological Survey (USGS) estimates, China, the United States, and Chile had the largest mining production of molybdenum in 2020. Between the available world's deposits of molybdenite and recycling rates of 10 to 30% it is projected that resources of this element are adequate for the foreseeable future. Molybdenum is also recovered as a by-product of some copper mining.

Approximately 70% of molybdenum is used globally in the production of steel alloys to increase strength, hardness, weldability, and corrosion resistance. These alloys include structural steel, stainless steel, tool and high speed steels, and super alloys. The high melting point and low coefficient of thermal expansion of molybdenum make it useful in high temperature environments such as military armor, aircraft parts, motors, electrical contacts, and light bulb filament supports, where it has minimal expansion or softening. Compounds of molybdenum account for 14% of its global applications. These compounds include solid lubricants, high temperature anti-wear agents, conductive ceramic heating elements, adhesives, catalysts, and pigments. In its elemental form it is used as a fertilizer for some plants, in pollution control analyzers, and anodes in some x-ray sources. Molybdenum also plays an important biological role. It has been found in at least 50 enzymes, mostly in bacteria. In humans and some animals it is involved in the production of uric acid.

There are many uses of this important element in today's world. Look a little closer at the items you use throughout your day to see how molybdenum plays a part. And if you want to collect minerals containing molybdenum at Sterling Hill or Franklin, the primary

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**ELEMENT MOLYBDENUM**
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ore molybdenite (moderately rare locally) as well powellite (fluorescent) are found in both locations; ferrimolybdite and wulfenite (extremely rare locally) are found at Sterling Hill. A good resource for a listing of local minerals containing specific elements is the Franklin-Ogdensburg Mineralogical Society (FOMS) website at: http://www.fomsnj.org/Franklin_Mineral_PeriodicTable.aspx.

# STERLING HILL MINING MUSEUM
## Calendar of Events

**Due to the coronavirus (COVID-19) pandemic, and out of an abundance of caution, the Sterling Hill Mining Museum currently is closed for tours, mineral collecting, and events. We hope to fully reopen in the not-too-distant future. Please check the Sterling Hill Mining Museum website (https://www.sterlinghillminingmuseum.org/) for updated information and announcements.**

**To our members and newsletter readers: We request your input regarding topics for future articles in the Sterling Hill Mining Museum newsletter. What topics would you like to read about?**

- **Mining history?**
- **Mineral collecting?**
- **Local history?**
- **First-hand accounts regarding the Sterling Mine?**
- **STEM (Science, Technology, Engineering, and Mathematics) education topics?**
- **People associated with the Sterling Mine and Ogdensburg?**
- **Miners' experiences in the Sterling Mine?**
- **What other topics would be of interest to you?**

**Please send your ideas for topics to the Sterling Hill Mining Museum newsletter editor, Jeff Osowski, at jvotmo@comcast.net. And we are always looking for new authors for the newsletter. If you would like to write an article, please email the editor at the address above. Thank you.**

# Sterling Hill Mining Museum

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Mines, Metal & Men Site

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