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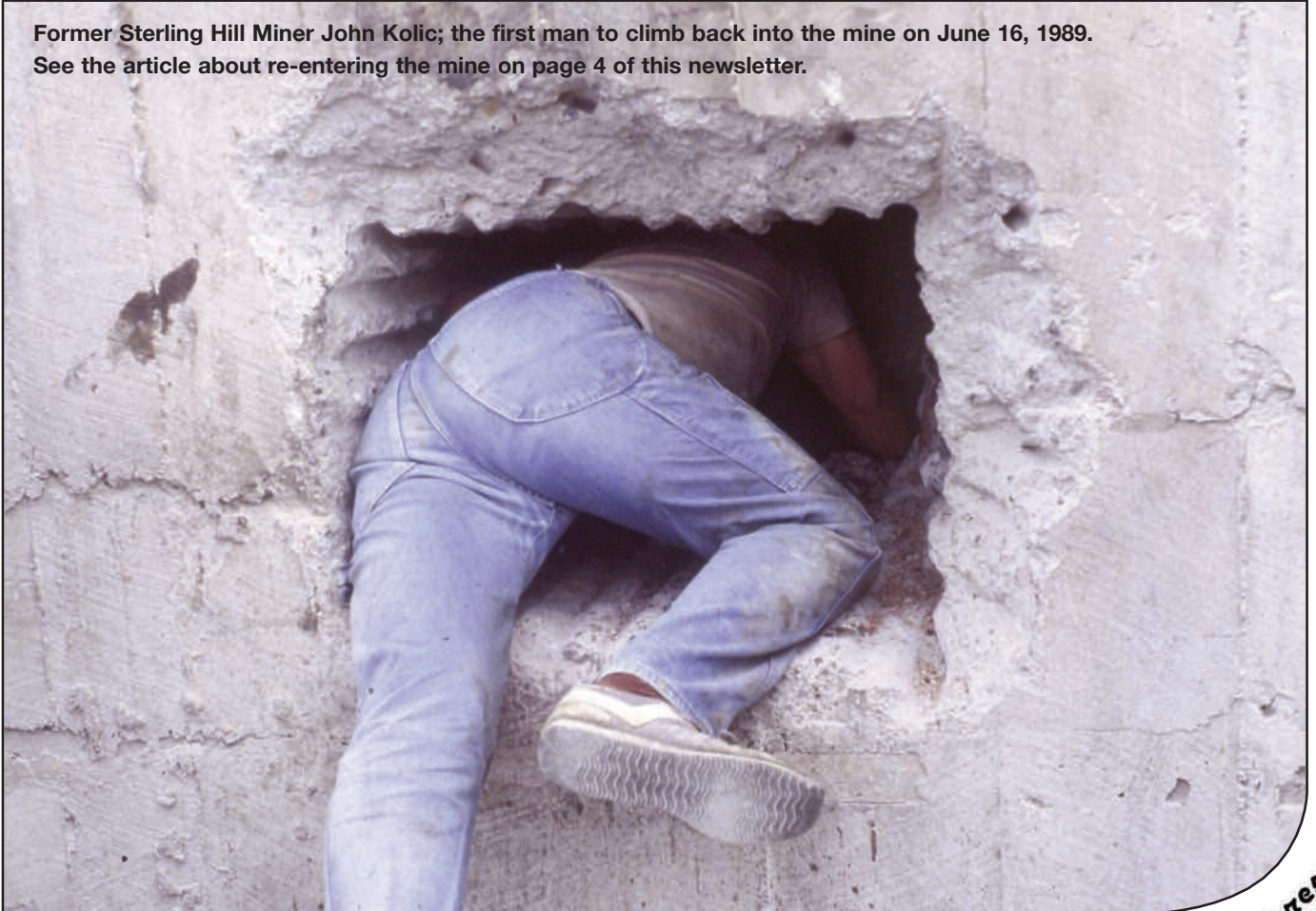


STERLING HILL NEWSLETTER

Special Edition Re-Entering the Mine

Recipient of the 1999 Carnegie Mineralogical Award

Former Sterling Hill Miner John Kolic; the first man to climb back into the mine on June 16, 1989.
See the article about re-entering the mine on page 4 of this newsletter.



preservation, scientific research and earth science education.



President's Message

Bill Kroth

As I assess the health of the Sterling Hill Mining Museum, I see that our most critical function – school visitations -- is recovering nicely as the pandemic wanes. We have been booking as many as 13 class trips in a day. That is a significant milestone. I was nervous about the lack of bus drivers, high cost of diesel fuel, and perhaps even school field trips being permanently sidelined; but I am very happy to report that we have made a strong rebound. To me, this is further evidence of the high quality and demand for our educationally focused presentations, the draw of our unique geology, and our focus on catering to needs of students and teachers. My motto is: we have to make all of our guests feel “at home,” leaving with smiles on their faces and wonderment in their minds.

So, I ask...how many times do you frequent or support a business because the folks there were friendly to you and made you feel welcome? For me, I often pay a little more to support a local business rather than purchase online simply because they make an extra effort to make you feel special and valued. That is our goal at Sterling Hill.

We are able to have our guests “leave with smiles and wonderment” because we have a wonderful geological treasure of fluorescence, the mine tour, our two museums, and gift shop. But museums cannot be successful if they simply continue making the same presentation, and do not update and improve their displays. When visitors know that they can return to get a different tour and see new displays and additions, they will certainly come again. All of our tour guides have their own personalized presentations and approaches while adhering to core educational standards that teachers want for their classes; so, guests will always get a fresh and new perspective when they return to Sterling Hill.

We have made a concerted effort to develop new displays. Our most recent is the fabulous double slabs of fluorescing ore provided from the trimmings of the American Museum of Natural History (AMNH) slab in New York City. While hardly “trimmings,” these slabs are nearly the same in area as those at the AMNH. Presently, they are illuminated with eight shortwave UV lights that we have assembled from units that are typically used for all of our fluorescent displays. While they are truly beautiful “as is,” we soon will have six additional

UV lights custom-designed by our friends at Ingenious Designs, LLC. These lamps will be the most powerful we have ever used. They have even been given the moniker “Sterling Hill Supernovas” as a hint of their wattage! These new lights, coupled with the pitch-black background of our tunnel will surely be a sight that no one will ever forget. No need to go to Manhattan and worry about parking or safety...see them here in beautiful Sussex County as part of the regular tour.

Our fluorescent display, behind the black curtain in the Zobel Museum has also been changed. We thank Dick Bostwick and his wife, Tema Hecht, for the many years of loaning us their superb fluorescent collection as a “primer” for our tours. We have changed all of the specimens in that display, and now all of the pieces are from Sterling Hill’s own collection (gifts from Jack Baum, Jim Rumrill, and John Kolic) as well as specimens from my own personal collection. I always enjoy hearing comments when visitors notice the change.

Board members Doug Francisco and Gordon Powers have added sound to both of our drilling and blasting displays. Visitors now can hear the actual sounds of rock drilling and the air-powered safety warning whistles. Both sounds echoing in our tunnels make the tour experience extra special.

One of my final concerns has now been alleviated...tour guides. Within the last two months we have added five tour guides to our training program. One has “graduated” to being a stand-alone guide already, and the others are well on their way. Two are very sharp, high school students from Ogdensburg with strong interests in geology and earth science. The benefit of having local guides is that we never know how many visitors are coming on weekends, and a local guide on standby can be here in a matter of a few minutes.

In closing, an old saying comes to mind... “Quality Never Goes Out of Style.” So many people have contributed to make the Sterling Hill Mining Museum the magic place it is today. That “quality” was certainly tested during the three-year pandemic ordeal; but we have emerged very strongly, with increasing visitation every day. I admit that there were days of pessimism for me and Sterling Hill. But now I truly know just how strong and special we really are. We have several movie shoots

PRESIDENT'S MESSAGE

Continued from page 2

booked for our mine tunnels this coming fall. These events always are welcomed, not only for the revenue, but for a nice change of pace from our focus on geology and mining.

We do all that we can, "looking outside of the box" at this time until schools get back on the visitation track. Our health as a museum is improving, and every new school booking is a sign that we are on our way to a full recovery! 🐛

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 "golden years" 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.

**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 non-renewable 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.

... "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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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.

Re-entering the Sterling Mine An Interview with Dick and Bob Hauck

The New Jersey Zinc Company ceased operations at the Sterling Mine on March 27, 1986. On June 13, 1989 the Hauck brothers, Dick and Bob, purchased the mine property with the lofty goal of creating what is now the Sterling Hill Mining Museum. This was a huge and challenging project, led by the Hauck brothers with incredible assistance from a group of dedicated volunteers. In a Fall 2022 interview, the Hauck brothers discussed their initial efforts to re-enter the sealed Sterling Mine, and to begin the arduous process of re-opening the mine, salvaging equipment and minerals, and preparing the mine for the public tours that have become so famous at this unique geologic site.

*Sterling Hill Mining Museum Newsletter Editor,
Jeff Osowski.*



The auction winners present a check to the Borough of Ogdensburg, for the total price paid for all sections of the property. From left to right: unknown, Richard Hauck, Ahmed Elbarki, Ogdensburg Mayor Paul Horuzy, Steven Phillips, Reggie Phillips, Bob Hauck (1989).

EDITOR: Were both of you ever in the mine when it was still operating?

DICK: I got in once on a tour of the mine in the 1980s, when it was still in operation, but that was a rare occasion. I then tried to convince the Zinc Company that they should save some of the ore, and sell it to mineral collectors, but they felt that was not practical from a financial standpoint, that it would be disruptive, and they wanted no part of it.

BOB: I was never in the mine while it was still operating.

EDITOR: So, Dick, you were in the mine only once, and Bob, you were never in the mine. Describe what it felt like going into the mine after it had closed, and you had purchased the property.



Sealed adit entrance and safety exit, as they appeared when the property was purchased in 1989.

BOB: You can see in the picture below former Sterling miner John Kolic and the crew that worked on reopening and getting into the mine. A lot of drilling has been done already, but we still had a long way to go. Those are the first holes drilled. The adit was sealed with concrete, and we had no idea how thick it was. We eventually found that it was three to four feet thick at the top, but at the bottom the form had fallen out and it was eight or nine feet thick; and it was all full of drill steel. So, we would drill in, remove the concrete, then go in with a torch, and cut the rebar out. Then, at the end there were two planks that were three to four inches thick, that we had to cut through with a chainsaw before we could actually get in.



John Kolic, starting to drill, with (from left to right) Bob Rome, Bob Hauck, Gary Van Houten.

Continues on page 5

RE-ENTERING THE STERLING MINE

Continued from page 4



John Kolic, standing by the safety exit, with holes drilled for air circulation.



Drill crew working at the adit entrance (from left to right) John Kolic, Bernie Kozykowski, Bob Svecz.



Bob Hauck using a chain saw to cut through timbers behind the concrete plug.



Bob Hauck using a torch to cut the drill steel that was used by the New Jersey Zinc Company as rebar in the concrete plug.

DICK: Kolic was the first man in. And he said: “I’m home again!” That to me is the quote of quotes. Yeah, “Home again!” That quote from John, a former Sterling miner has stuck with me. Many of our friends were Sterling miners – Dick Bostwick, Steve Sanford, and even Charlie Key. So, John’s “I’m home again!” gave all of us a feeling that we were making contact with the miners as we reentered the mine.



John Kolic looking out (“I’m home again!”)



Dick Hauck entering the adit through the access hole.

DICK: The Zinc Company closed off the adit with that massive amount of concrete and rebar, after the March 1986 closing of the mine. That was required by the state. They also were supposed to remove all the “toxic” materials from the mine; later on, we found that there were things down there they should have taken out, like batteries. They had it pretty clean, but not totally clean.

EDITOR: Did you both go in on the day the adit was re-opened?

BOB: Yeah, I think Kolic was first, I was second, and Dick was third.

DICK: We also had an air quality detector, to validate whether there was methane, oxygen, whatever.

Continues on page 6

RE-ENTERING THE STERLING MINE

Continued from page 5



John Kolic standing at the adit after the concrete plug was totally removed.

BOB: Yeah, we didn't want to hit pockets of poison gas or anything.

DICK: We found that there was no bad air in the mine. But we were extremely careful about that. Surprisingly there was enough air movement in the mine, so that it wasn't stagnant. It wasn't toxic when we got in there.

BOB: When we got in, we were able to go all the way down to the 1300-foot level; that was the deepest we ever got. The water had risen by then to that level. Basically, we salvaged anything we possibly could from 1300 and up.

EDITOR: Was the mine almost half-filled with water by the time you got in there?

DICK: Yeah. And, of course the North Ore Body was abandoned many years before, and that was totally filled with water, even when the mine was running, which they never bothered pumping.

EDITOR: What year did you break through and re-enter the mine?

BOB: The mine closed in 1986; we purchased it in 1989; and we went in immediately.

EDITOR: What was it like when you crawled in there for the first time?

BOB: Kolic went in first, then I went in, then Dick; and a couple of other people, probably Gary Van Houten and Bob Rome; they were the other guys working on drilling the concrete at the adit entrance. Bob Rome worked for Ingersoll Rand, and he was able to get us equipment, because we had very little equipment at that time. Later

on, we salvaged from underground lots of mining equipment because the Zinc Company left everything the way it was when they ceased operations in March 1986.



The adit level, as found in 1989 upon re-entry to the mine.

EDITOR: Describe the experience when you first poked your head in the mine and crawled in.

BOB: We didn't know where the water was. For all we knew, it was flooded right up to the adit. We didn't know if there was anything that would be open or not. And then within a day or two, we immediately started to go down the ladders and the shaft to find out where we could go.

EDITOR: Was there anything mechanized that was working?

DICK: No; it was all ladders. The shaft was sealed up top also with a big slab, by the headframe. We even poked a hole through that slab to eventually be able to get better circulation of air through the mine.

EDITOR: It had to be really dark I would imagine.

BOB: There was absolutely no light in there. We used miners' lamps.

EDITOR: What's the first thing you saw when you went in there?

BOB: Well, we walked right up to where the air doors are, the ventilation doors. We went right into the adit, because that's what was important, to make sure everything was still there, which it was. And then we went over to the powder magazine, but the tunnel out to the Passaic Pit wasn't there. So that's all there was on the adit level.

EDITOR: What was in the powder magazine?

Continues on page 7

RE-ENTERING THE STERLING MINE

Continued from page 6

BOB: There was a bunch of empty blasting cap boxes. They had cleaned that out. There were no actual caps there. There were boxes and stuff there, but no explosives or anything. The Zinc Company had set everything off that was down there to get rid of it. Kolic searched to see if there were any blasting caps that might have been alive, but there weren't any.

EDITOR: It must have been thrilling for you.

BOB: Oh yeah. I mean we were mineral collectors, so we would go down the ladders which actually wasn't so easy, with a knapsack. We would pick up maybe 50 or 75 pounds of rocks, then come back up the ladders to the next level; but because of the weight we'd say we didn't really need all those rocks. So, we would lighten the load, then climb to the next level and get rid of some more of the rocks. By the time we got to the top, we had maybe half of what we started with.

EDITOR: So, you went in the adit to the Shaft Station. Where did you get the ladder to go down to the next the level.

DICK: The first set of ladders are just about when you enter the adit, to the left, at the safety exit.



Pat Radomski, climbing the ladders in July 1989.

BOB: The next level you went down to was 180. The ladders to 180 were lousy. They were in horrible shape. The ones at the shaft were much better.

EDITOR: So, you went to 180. What did you see there?

BOB: All kinds of stuff. They left everything, basically all kinds of tools.

DICK: There were two EIMCOs underground, which with a great amount of effort we were able to bring up. One story about the EIMCOS was really amazing. We had an EIMCO sitting at a lower level, but then there was an adjustment in territory called subsidence, and the access to that spot where the EIMCO was sitting became a huge hole. So Kolic, with his genius, rigged up a cable system, dismantled the EIMCO on that site, brought the pieces up, reassembled it, and drove into the Shaft Station. Kolic was just one of a huge amount of people who came together to make this project happen. It was a miracle. Bill Kroth's contribution in engineering in many phases was very critical. Chet Lemanski was one of the grunts on the project. There were many, many mineral collectors who wanted to have a piece of the history of being here, so they helped in many ways. And all we gave to these people was a free lunch and soda. One of our biggest jobs was to go down to Bloomfield to get cases of soda to keep the crew happy. We didn't bring beer because that would have been disruptive, but canned soda, which for many years was used as an extra attraction. What was that attraction, you might ask. Well, the raise that goes up to the adit level, goes level to level to level to level. There was no water down there till 1300 feet, so if you dropped a soda can down there, you could hear this thing rattling all the way down and the work crew loved the sound of the can clunking all the way down.

BOB: I remember one time, Kolic and I were working underground. You did more surface stuff Dick, and I was underground more. John and I worked together quite a bit. We were on 180, having our lunch right where the ore pass goes down, and the guys up top threw down some cans, and we yelled up: "Hey, quit throwing that junk down here!"

EDITOR: So how long did it take to go down all the ladders to get to 1300?

DICK: With great effort until we got the hoist involved. Because of Bob's many trips up to Cobalt, Ontario, Canada, he was able to locate that air hoist that's sitting at the Shaft Station at the present time. That hoist was used to bring up all the equipment, including the EIMCOs. Most of the minerals that went out on the collecting dump came up with that hoist.

EDITOR: How much does an EIMCO weigh?

BOB: I'm not sure. They were the smaller ones, but still very heavy; probably 3000 or 4000 pounds.

RE-ENTERING THE STERLING MINE
Continued from page 7

EDITOR: And on what level did you find the EIMCOs that you ultimately brought out?

BOB: I think one was on 430 or between 340 and 430 and I forget where the other one was. It might have been on 1100.

EDITOR: What is an EIMCO used for?

DICK: An EIMCO is a mucking or loading machine (LHD – Load, Haul, Dump), that was used underground in the mine. They were manufactured by the Envirotech Corporation.

EDITOR: So, you had a 3000-to-4000-pound LHD EIMCO down at the 430 level. How did you get it out?



Bob Hauck driving an EIMCO at the 340 level.



Bob Hauck driving a salvaged EIMCO out of the adit.



The EIMCO, as it looks today at the Sterling Hill Mining Museum.

DICK: Ah, that's another interesting situation. The Zinc Company left for us the rig that they used to lower those machines down underground. So, we were able to hook the cable to a cradle, or dolly, or whatever you want to call it, and you could actually bring that machine up in the shaft itself. The Zinc Company could have just cut the cord and let the rig go to the bottom. That was really fortunate for us.

BOB: The EIMCO was between 340 and 430, in a stope, halfway up, and it wasn't on a level. We had to get it down to a lower level to get it out to the Shaft Station. When the miners were filling up a stope, sometimes they had to put a brattice in to keep the fill from going to where you don't want it to be. It's a wooden fence, like a bulkhead. We had to break the brattice down and make a ramp down to get the EIMCO out. Yeah, that was quite a challenge.

DICK: I look back at some of these unbelievable situations. And of course, when there was a major, major subsidence, we lost one of the EIMCOs. That was a scary situation. The site was very active, with many people, volunteers, all trying to make the place come alive. There was one day, and one day only, when no one was underground. Not a single person. That was the day when the subsidence happened. Now, if maybe one, two or three people had been underground when that happened, they would have been history. And that would have closed the mine right then and there.

BOB: The subsidence happened on April 4, 1993, and it came all the way to the surface, with a huge hole back in the Passaic Pit and Fill Quarry. What happened basically is the Zinc Company used fill in the stopes, and as the water came up it liquefied the fill. Let's say you had 100 feet of fill in the stope, which might settle down to only 40 or 60 feet. Well, that ain't too bad, but when you go from level to level, up 10 or 12 levels; that's 10 or 12

Continues on page 9

RE-ENTERING THE STERLING MINE

Continued from page 8

levels multiplied by 40 feet per level. That adds up and that area of the stope is not supported anymore. All of a sudden, a great big piece of that let loose, fell down into the water, and acted like a hydraulic ram and pushed the water level up a couple of hundred feet all at once. Then it went up, and then it went back down and sucked everything with it.

DICK: It was really fortunate that no one was in the mine on that one day; a miracle.

EDITOR: How did you know the subsidence happened if no one was in the mine at the time?

DICK: We heard it. We felt it on the surface. People on the surface could feel it.

BOB: I wasn't here. I took the day off, and because I was in charge of underground salvage, nobody could go underground and do anything, including John. If any of us had gone down that day, none of us would have ever been seen again.

EDITOR: Was it like an earthquake?

DICK: The ground shook. It was pretty substantial.

EDITOR: Was there anything visible on the surface?

BOB: Oh, yeah, big time! Big holes opened up on the surface in the Passaic Pit and Fill Quarry. We filled them in, but after a few years, it all caved back in again, as the water was coming up. We hired dump trucks, and the dirt came from the property. There was a huge pile of dirt near the core shed; a huge hill, went up like 50 or 60 feet there. We just took all that dirt and shoved it into the hole.



Subsidence in the Fill Quarry.



Subsidence on the 700 level, being filmed by Rich Luzzi.



Filling in the subsidence hole in the Passaic Pit.

DICK: The amazing thing is that the Zinc Company, looking to the future, needed a lot of backfill for the stopping operations. So, they hired companies to bring sand, and they filled up the Fill Quarry, up to the brim. It was thousands of yards of soil, and the quarry was filled to 20 to 30 feet higher than the floor level there now.

BOB: The Zinc Company used a “cut and fill” type of mining operation. They used gravity in their favor. They would take a “bite” off the top, then they had to fill in the bottom. Once the water came in, this fill shifted; a huge chunk of the hanging wall, which was on an angle and, as a result unsupported, just gave way.

DICK: As you know, water has tremendous weight itself. Down below the pressure was immense at the 2400-foot level. That's a supporting factor in the mine. So, take the water out, and you'd have a real problem.

EDITOR: Bill Kroth wrote a great article for the Fall 2022 edition of the Sterling Hill Newsletter, on why we cannot and should not pump out the mine.

DICK: Oh yeah, if you pumped it out now you would cause big problems. So, we decided not to pump out the

RE-ENTERING THE STERLING MINE
Continued from page 9

mine. Instead of bringing people down into the mine, we brought the mine up to the people, by extending the tunnels on surface level.

EDITOR: So Bob, you were the underground foreman overseeing the operations. Who was down there with you?

BOB: Oh, me and Kolic, all the time. Yeah. And then, whoever we could get to go down.



The Mine Run Dump at the Sterling Hill Mining Museum, as it appears today, loaded with minerals salvaged from within the mine.

DICK: We hauled up all the rock that is on the Mine Run. That was a huge job. We cut 275 old oil tanks in half and made them into ore skips to haul all the rock up. All the rock on the Mine Run came from down in the mine. We wanted to have a good supply of specimens for collectors. There was a lot of broken rock still down in the stopes. It had already been drilled and blasted, but not sent down to the crusher. The Zinc Company abruptly made the decision to abandon the mine, so it wasn't like it was well-planned. They didn't clean it up; they just left town.

BOB: We put the hoist in the Shaft Station in 1990 or 1991. The hoist that's in there came from Cobalt, Ontario. Al Chupa was working with us in the mine; he kicked everyone out and said: "Get away from me!" The next thing I knew it was mounted on the concrete abutment with the bolts in; and Al wouldn't tell anybody how he got it on there.

EDITOR: Once you got in, did you celebrate in any way, or were you just interested in getting around to find things?

DICK: No, we didn't break open a bottle of champagne, nothing. We were just so exhilarated to be going back into the mine -- going to Mecca. We sort of appreciated the fact that at the time we were able to do things that today we couldn't, I'm sure. The world has gotten too complex, too regulated, too controlled. If we tried to today what we did back then, there'd be 100 people telling us "No." Even when we were running our hoist, inspectors got on our back telling us we couldn't use it to run people up and down in the mine with it. They put a chain on the hoist for a while, so we couldn't even use it.

EDITOR: Describe what it was like to go down into the mine.

BOB: We went down the safety exit, down a series of ladders. It wasn't straight down; it was down, offset, down, offset, down, and so on, to each level every 25 or 30 feet to a platform. So, you climbed down on the ladders and got off on a level; and maybe right next to you or within five or ten feet, was a door, and you went in there, then down another set of ladders to the next level. Now in the shaft it was ladders all the way down, with a platform every 30 feet or so; just like you see in the adit Shaft Station now. It was that way all the way down to the 1300 level.

EDITOR: If you entered the mine at nine o'clock in the morning, how long would it take you to climb down to the lowest level you could get to -- 1300?

BOB: If we were just climbing down the ladders, it would take you at least an hour to get to 1300. And depending on what you were trying to carry on the way up, it could take an hour and a half, or two hours; and you were real tired when you got to the top.

DICK: You had to be in really good shape to manage that.

BOB: That's why we put the hoist in as soon as we could, because we knew we weren't going to be able to salvage anything climbing up and down the ladders. That's the hoist you see now in the Shaft Station. We used to ride the man-cage. You'd look up the shaft and see this little dot of light. We used to come right up the shaft when the tours were going through. They loved the sound of the air-powered hoist because it sounded like an old steam locomotive -- chugga, chugga, chugga.

EDITOR: When did you start the first tour?

DICK: It would have been 1991. In 1989 we reopened and reentered the mine. And we started tours for the public in a year and a half. But the tour wasn't anything like it


Continues on page 11

RE-ENTERING THE STERLING MINE
Continued from page 10


GOING, GOING, GONE!
THE LAST ZINC MINE IN THE WORLD!




Mill



10,000 Sq. Ft. Shop Building



6,350 Sq. Ft. Plant Office



Garages Near Open Cut





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2. Public and Quasi Public Uses, Public purposes uses, public works, common recreational facilities and open space and quasi public uses.
3. Density: Maximum density of units per acre pursuant to the following calculations: (a) provided that the development provides for waste water disposal by way of an on-site treatment plant, five units per acre for lots less than one acre; (b) provided that the development provides for wastewater disposal by way of connection to the regional sewer system (Upper Watchkill Valley SCSWRA), eight units per acre for lots less than one acre.

A Tax Abatement Program for all commercial and industrial development in Ogdensburg allows for a complete exemption on the taxes for approved improvements for a total five-year period (improvements may not increase the volume of the structure by 30%). New facilities (improvements greater than 30%) are subject to three options: Cost Basis, Gross Revenue Basis, or Tax Phase-In. Projects involving improvements and new facilities for all commercial and industrial development are subject to Mayor and Council review and approval. Specifics are available in the Borough Ordinance which constitutes the Tax Abatement Program. It is an excellent incentive for any commercial and industrial development in Ogdensburg.



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Main Office Building

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The original brochure for the tax sale of the Sterling Mine.

is now of course. The Edison Tunnel wasn't done, the Landmesser Tunnel wasn't done. The Zinc Company shut down the mine in 1986, and we bought the property in 1989. The brochure from the real estate company was fun, because to enhance the property they announced that this was "the last zinc mine in the world." There's a statement for you, although certainly not true.

BOB: The initial tours were limited, and we were still down in the mine salvaging stuff, as long as we could still get to the 180 level. Once 180 was flooded, that was the end of our salvaging operation.

EDITOR: So, during that time you were bringing rock out to the Mine Run.

DICK: There were several things going on with the collecting of minerals. First of all, John Kolic was ingenious. The guy had X-ray vision; he knew where to look for things, where to find the best minerals – the mcgovernite, the barite, the wollastonite. He knew the geology all the way to the surface. In fact, he showed us where the wollastonite outcrop was right up there in that little place between the Noble and the Passaic Pits. The man was a genius as far as that's concerned. He was responsible for finding, I believe, six new minerals from the area, one of which was named, of course, in his honor -- kolicite. The

guy was gifted in so many ways. So, a lot of the success of this project belongs to these kinds of people who made such substantial, lasting, important contributions.

BOB: There was a stope between 340 and 180, in a shaft pillar under the mill. The Zinc Company had gone up several cuts, but they never pulled ore out of it. There was all this East Vein ore in that stope. John and I emptied that stope out, brought everything up to the surface, and that's what a good portion of the Mine Run is made from.

EDITOR: Were there any really interesting minerals in that material?

BOB: Lots of green and red, and a few oddball minerals, but nothing special. It was just good East Vein ore.

EDITOR: The barite find was special, wasn't it?

BOB: Yeah, that and the wollastonite. The barite was in a couple locations, but I don't remember specifically where.

DICK: We have Kolic's diaries. There's your record that is irrefutable. He was not only observant, but accurate and persistent. So, from his notebooks you can find out just about anything you want to know; what happened on any



RE-ENTERING THE STERLING MINE

Continued from page 11

specific day that he was here, which was most days; Sterling Hill was basically his life.

EDITOR: And we have been gradually making sections of John Kolic's diaries available through our newsletter (Ed. Note: The Kolic diaries can be accessed on the Sterling Hill Mining Museum website at <https://www.sterlinghillminingmuseum.org/kolics-work-diaries>). Board member and former Sterling miner, Doug Francisco, is handling that.

EDITOR: What were some of the special fluorescent minerals you found down there other than the barite or the wollastonite?

DICK: On the surface there was a lot of fluorescent genthelvite. And there was a graeserite crystal, only one; I think it was the biggest in the world, and best for species. And a lot of other little things, like corundum in a couple of places underground. I don't think we ever came up with an uvite underground.

BOB: There was a lot of sphalerite all over the place down there; more than most people realize. I could never figure out how you could get an oxide, a silicate, and a sulfide all in the same piece. Very interesting geology.

DICK: You should talk with Dick Bostwick, who actually worked in the North Ore Body; he could tell you about the amount of sphalerite that he encountered down there. He was bringing it up in bucket loads and getting like 40 cents a pound for it. Whoop-dee-doo!

DICK: In the whole world, sphalerite is the main ore mineral. I mean, these other secondary minerals are so obscure. But that's the thing about the Franklin and Sterling mines; of the three ore minerals, two (franklinite and zincite) have never been mined anywhere else on the planet. And the other one – willemite -- is an auxiliary mineral on occasion, but I think only one or two mines on the planet ever mined willemite as an ore. That's what's so unique about this crazy place.

EDITOR: What other memories can you share about re-entering the mine?

DICK: At the time, there were huge pressures on all of us. We were exhilarated, but motivated to move and get things done. We were up against a very serious economic problem. We put all the money we could lay our hands on to get the place purchased, but we were running out of

money to get the place fixed. Thank God the Phillips family joined and bought the upper part of the property, which gave us the money to actually renovate the place. And there was another bizarre situation because the Phillips family had such a hard time on trying to bring their business up to the upper level. They were required to have curbs, sidewalks, trees, water mains, on and on. They had such a hard time that the Phillips family basically donated the upper property to Sterling Hill. So, we got all that property back, plus the money they paid for it in the first place; which gave us a double advantage. It was a real challenge financially to get the place up and running. Bob sold some of his property; I sold my book collection; we sold a whole bunch of things to keep this place alive and running. So, we didn't have a lot of time to sit around and enjoy the successes; we had to get the project to be self-sufficient. That self-sufficiency is something that is extremely unusual about Sterling Hill.

Sterling Hill is really unique. I can't tell how many people I've run into who think this place is the best thing they've ever seen. We have a real jewel here. It took a lot of polishing to bring out its full brilliance; a lot of dedication, and a lot of hard work by a large group of enthusiastic volunteers.

EDITOR: How hard was the work? How long were the days?

DICK: Remember, we come from a family business growing flowers. It was a tough, hard, demanding business. We don't know any better. We don't know what hard work is because we always do it. And fortunately, Bob is very gifted in his areas of expertise, his creativity and his dynamo of energy. We sometimes call him "buzz saw Bob." Sometimes we battled back and forth; sometimes minor disagreements, but ultimately, we came to conclusions that were even better than any one of us thought of. Hard work, common sense, dedication to a project helped to make this place succeed.

EDITOR: Bob, you were leading the effort in the mine, right? Where did you get the knowledge, skills, information?

BOB: Well, I had been interested in minerals and mining artifacts for a very long time. And I had been working in physical labor, so I was in good shape. I could run a bulldozer. I knew a whole lot about a whole lot of things. And I had a lot of friends who could do the other things that I was not familiar with. Like Ron Tibbetts. He's the one who got the EIMCOs going, even though they were sitting down there unused for many years. You think we only had to put in a battery and they would start? No way.

Continues on page 13

RE-ENTERING THE STERLING MINE

Continued from page 12



Bob Hauck in 1990, salvaging an early-style ore car in the Passaic Pit.



Some of the equipment salvaged from underground.

Ron got all the salvaged equipment going. I brought in all my friends and imposed on them. A lot of the people who volunteered to help got nothing out of it other than satisfaction and being part of an exciting and challenging project. Other people were here because they wanted to collect rocks. So, they'd work for eight hours, then we'd let them take home rocks. That was OK; we didn't mind.

DICK: Here's one interesting example. One guy who was helping as a volunteer in the earlier stages of our work at the mine took advantage of the situation. I was wondering why we had such little success selling Sterling Hill minerals. Well, we learned that this guy was undercutting us; bringing home tons of minerals. We didn't realize how extensive until finally his wife told him to get all the rocks out of the house. He invited us over to his house right here in Ogdensburg, and it was loaded with Sterling Hill minerals. We were amazed by the amount of material this guy had "rescued" out of the mine.

EDITOR: When you went into the mine, what were the biggest surprises?

DICK: One surprise was the amount of equipment. You see all the ore cars that are out there at Sterling Hill; the EIMCOs we brought up; the track drills we brought up. It's interesting that the Zinc Company had leased a couple of rare ore cars that now are over by the Edison adit. They were leased, and the Zinc Company left them behind because they were trapped by a cave in. Bob and John Kolic dug them out and brought them up to the surface.

EDITOR: How many ore cars did you bring out?

BOB: A lot. Whatever you see around the Sterling Hill property. That whole big string of bigger ore cars that you see as you drive into the museum property came from down in the mine. The little ones came from Canada. They would have used those little ore cars at Sterling Hill in the early days of mining.

DICK: There was a guy up in McAfee who bought one of those older little ore cars from the mine when he was working for the Zinc Company. He brought it to his house, but then donated it back to us. It's the little one that's down there in the Zobel museum.

BOB: That one came out of where the Marshall Shaft was, so it would have been used in our mine in the late 1800s.

EDITOR: What were the greatest challenges once you re-entered the mine and started all the renovation?

BOB: Finances. We had every nickel either one of us could lay our hands on invested here. We had to make it work, or we'd be bankrupt.

DICK: Yeah, we really got down to the basics of selling anything we could lay our hands on. Imagine selling my whole book collection? That was a real sacrifice.

DICK: If you look at the old real estate brochure, you will see that it stated that future taxes would be predicated on the purchase price. The following year the town came up with a \$25 million assessment! So, we had to go "tax exempt" and form a 501C3 foundation, because they were gonna kill us on taxes, just like they killed the Zinc Company on taxes. Now here's an interesting situation. The guy who was a tax assessor in the town went in the mine, looked around and said: "This place has got ore all over the place!" They wanted to tax the mine on ore reserves. There's no geologist on this planet that could walk through a mine and tell what's there. None. Even if

RE-ENTERING THE STERLING MINE
Continued from page 13

you did an extensive drilling program, it would only be an indication, not definitive because you're gonna hit or miss where the real stuff is. So, after a major, major investigation, maybe you could ascertain the value of the property. But this guy walks through and said there was ore all over the place, BAM! But the Zinc Company then did something very interesting. He stayed a little bit too long in the mine, and the hoist man went home for the day. So, the town's tax guy had to climb all the way up from the 1200-foot level on ladders. That just didn't make a good impression on him for some strange reason.

EDITOR: Was it dangerous when you first went back in? Were there any close calls?

DICK: Not really. But you know, we were street smart. We knew enough to not walk into holes or do stupid things that could be dangerous. No explosives at all. Everything was wiped out on that aspect. The only things we found underground that should have been taken out were batteries, oil, and transformers, that kind of stuff. One of the things we were very concerned about when we were buying the property is the Glory Hole that was filled in the yard at the upper area at the top of the hill. We had some suspicions about what the Zinc Company might have buried there. So, we did some asking around. The competitors for the purchase of the mine actually brought in a backhoe, checked the ground to see if there's something in there that was buried. Fortunately, that proved there was nothing in the Glory Hole that was dangerous, and that solved that particular problem. No, we didn't find too much underground that was really excessively dangerous or toxic.

EDITOR: Was there anything in there that had to be left behind because of the rising water that you wish you had gotten that out?

BOB: We took out everything – equipment and supplies -- that could possibly have been removed, from 1300 up. Nothing was left. Of course, a lot of minerals got left, but you know you could only bring up what you could bring up. But everything below 1300 is still there.

EDITOR: Any franklinite crystals?

DICK: Oh yeah, there was one room in the mine where we were bringing out franklinite crystals fairly regularly. And unfortunately, the water came up and we lost that stope, between 700 and 800, I think.

EDITOR: Any other remembrances that might be interesting for people to know about?

DICK: Many, many good people came together for a project they believed in. And we paid nobody in the earlier days. Nobody got any salary because there wasn't any money to give. So, it took a long time for us to eventually be able to start paying people, a token amount to the people who were making the place happen. In the first couple of years everything was very, very lean, trying to get this thing going.

BOB: We got to a point where we decided that we needed to make more tunnels. The first leg was to connect the Shaft Station with the Passaic Pit. And then we figured we could run a tour route in a circle, through the Passaic Pit and around. We also drove the small drift over to the Rainbow Room. We knew that the West Vein was over there, so we drove that drift over there and it just happened to open up, just perfect, to show the fluorescence.

EDITOR: So why did you go in that direction? You didn't know the Rainbow Room was there, did you?

DICK: We knew that the ore could be intersected if you went in that direction. The ore there was too lean to be mined, but it was still there to be seen. There were at least four phases of drilling, but here again, unless you have the right people involved, it ain't gonna happen. John Kolic again takes 90% of the credit for that. And Steve Misiur was very much involved in those efforts. He did a lot of drilling along with John. There was a bit of a problem in that John could do the drilling and everything, but he wasn't licensed to do the blasting. There was a guy, Fred Strickenheimer, who did the blasting. So, we had to wait for the blaster to come and actually shoot the round. We did a couple of the other projects on a donation basis. That's why the Landmesser tunnel is so named; because he paid most of the money for that particular project, to bring the tunnel down to the lower stope and out into the GeoTech Center.

BOB: When the water came up into the Passaic Pit, John and I got into a boat and floated all the way over into what now is the Landmesser stope. And when we got in that room, there was a big pile of muck at the end of it. We crawled up that pile and busted through the concrete slab that ends up where that hole is with the "dog house" over it, where the fluorescent slabs were dropped into the old stope last year. The concrete slab was all decomposed, and from the outside we didn't know what was there because the hole was covered with leaves and debris. We broke through from the stope inside the mine. As we went down in, we found that little short tunnel that goes under

Continues on page 15

RE-ENTERING THE STERLING MINE

Continued from page 14

the ruins of the old Great Sterling Mill. We then figured out how to join the little tunnel and the stope together with the Landmesser Tunnel, to end up with a usable tour route.

DICK: In driving that tunnel there was a lot of genius involved; again, by John Kolic; to know where to go from one place in the mine to another, at what angle and what distance, to be able to hit it at just the right spot. Not too high, not too low; to the left or to the right.

BOB: Bob Svecz was doing the surveying back then.

EDITOR: So, you're in the adit, and you get to a spot where John Kolic said: "we should go that way to hit the ore body, leading to the Rainbow Room." How did that happen?

DICK: John said "let's go this way." We went a little bit to the right, then we hit the ore vein. It wasn't mined out, so that's where we made the Rainbow Room.

EDITOR: When you go out into the Passaic Pit and you look up to the northwest, there's a big black stripe coming down. Is that the ore body?

BOB: The Zinc Company didn't mine that because it was lower grade ore that they left behind. It was part of the pillar. The Passaic Pit looks a lot different now because we filled so much of it in. If we hadn't filled it in, there'd be a lake out there. That would have been another problem for us. We kept adding fill to stabilize the hanging wall on the East Vein. That vein hasn't moved in years, so I'm sure it's OK now as long as you don't pump out any of the mine.

EDITOR: When you were working on extending the tunnel, where did all the rock go that you removed?

BOB: Ok, we were working from the adit towards the Passaic Pit, and we dumped the rock down the ore pass through the grizzly that you see on the tour now. Yeah, right down. In fact, at one point it got filled up kind of high, and we wanted to let it go, so I went down and opened it up. We had air going down below so I could work the fingers, and the rock came out at one of the levels, probably at 1000. It was really heavy actually, and once it got started it wouldn't stop. There was nothing in it; no ore; only calcite. And once we had the opening out to the Passaic Pit, then all the rock was saved out into the Pit. Basically, from the Shaft Station to the Passaic Pit it

was just Franklin Marble. There might have been a little diopside in it once in a while, but that's about it.

DICK: In the Zoolander movie they turned our mine into a coal mine! They painted the rock black to make it look like a coal mine, but of course it was all fake.

BOB: They even brought in four or five big gondolas of real coal, and dumped that out in the pit too. It was a horrible movie, but it gave us a lot of great publicity.

DICK: There's a really funny story about Zoolander and the late Ron Mishkin, who worked in many mines, including the Franklin Mine for a short time. He was one of the last guys to work over there. The movie company hired Ron to be a consultant, so that it would be realistic. Ron kept interrupting. He kept telling them what they were doing wrong.

BOB: After a while they threw him off the set, and he was then relegated to being just an extra. He had to sit in the tent with all the extras and they'd say "Casting call; We need five extras as miners, but not Ron." And then a little while later, they would need three more extras as miners, but not Ron. They wanted him to quit so they would not need to pay him; but he was smart enough not to quit. He stayed for the whole thing, and they had to pay him.

DICK: He was giving them advice about mining that they didn't want to hear. It was a funny movie, not a documentary. Yeah, Ron was a character for sure; a unique guy; and he was one of our best tour guides ever because everybody was mesmerized with his ability to tell stories; which most of the time, were totally true.

EDITOR: And Ron did a nice job narrating that 20-minute video we made a few years ago, with the historic Sterling Mine videos.

DICK: The property had a cast of characters. We look back with great fondness at the people who worked with us.

EDITOR: Whose decision was it to drive the 240-foot tunnel from the adit to the Passaic Pit?

DICK: That was 1990. I think we just all put our heads together and decided that we needed that tunnel to make the tour route longer since we lost the ability to go deeper underground after the water level rose.

BOB: It would have been impractical to bring people down deeper in the mine anyway.

RE-ENTERING THE STERLING MINE

Continued from page 15

DICK: We realized that taking people underground was not gonna work, so we put our efforts in time and money into the upper areas. And that worked out really well initially, so we decided to make it even better by extending the tunnel. We realized that for the long term, for this place to have its full potential we had to have something more than just a short walk into and out of the adit, so we extended the tunnel. This place is really unique. New Jersey has well over 400 mines in its history, but there's only one in the entire state that you can actually get into. So, very near the New York/New Jersey metropolitan area we have one of the world's greatest mining locations and experiences. Within just a day's drive, probably 15 million people can visit our mine. That's pretty awesome.

EDITOR: Is there anything that you didn't do that you wish you had done?

DICK: The one tunnel that I would like to see that would make the museum even more spectacular would be to add a small addition to the Trotter Tunnel. There's a dynamite room in that area. There's 100 feet between that dynamite room and the bottom of the Fill Quarry where the big slab came from that is now in the American Museum of Natural History. But to drive a 100-foot tunnel from the bottom of that spot in the Fill Quarry where that slab came from, out on a very slight 5% incline into the little dynamite storage room, would make another great circle-line tour. That's the one thing I had hoped would happen someday. If at all possible, somehow, someday, that would be great. We do know that particular tunnel would produce barite. There's a very good chance that tunnel could enter mineralization.

BOB: The Trotter Tunnel is at the southeast corner of the mine property on Plant Street. It goes into the Noble Pit. Just before you get to the Noble Pit, there's a small room there where they used to store explosives.

EDITOR: Where would it connect to the existing tunnels?

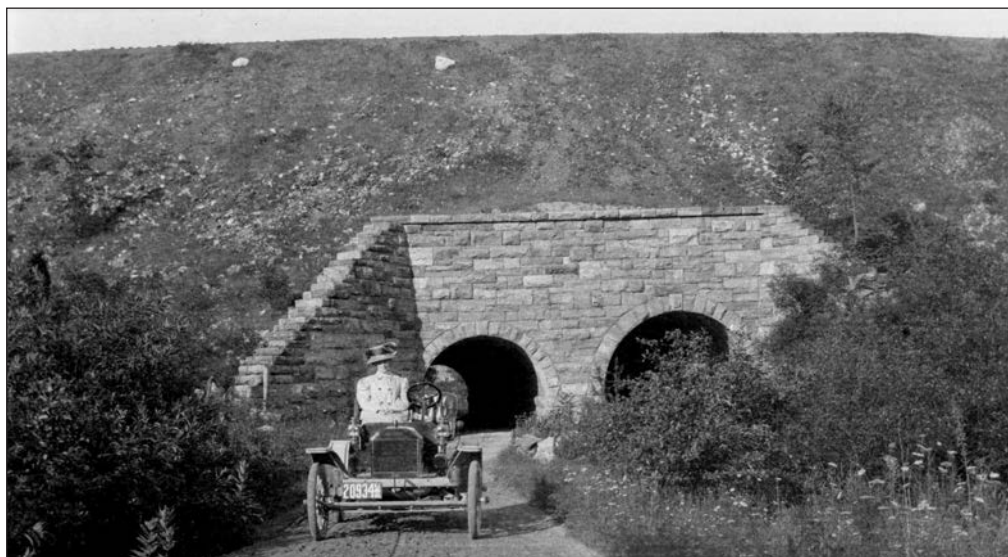
BOB: It wouldn't connect to any existing mine tour tunnels; only to the Trotter Tunnel.

DICK: There's another tunnel on the property that's in the "up top" area, by the Glory Hole. The Zinc Company used it to feed fill into it back into the mine. At one time we thought about driving a drift from where cap room is to meet the connection with that particular tunnel from "up top."

EDITOR: You did the new tunneling before 9/11.

DICK: Yeah, anything with explosives today is very limited, so driving new tunnels would probably be impossible.

DICK: People coming to Sterling Hill get their money's worth, don't they? Maybe it's impractical economically and logistically, but the one thing that I would like to have seen done is to be able to get the Trotter Tunnel to be a second tour route, which could increase the visitation. So, if it was ever feasible someday, it would be great to drive such a tunnel, much like we did with the Landmesser Tunnel, by engaging some people who are interested and skilled to do the work. But even if nothing else has ever done, this place is fantastic. 🎧



The Backwards Tunnel near the entrance to the Sterling Hill Mining Museum was built in 1871. This photo was taken in 1909.

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A NEW BOOK ABOUT THE STERLING MINE

THE DESCENT: A PICTORIAL HISTORY OF THE STERLING MINE

BY **CARISSA HORUZY**

The Descent: A Pictorial History of the Sterling Mine



OGDENSBURG, NEW JERSEY

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.

American Mineral Heritage Award (2023)

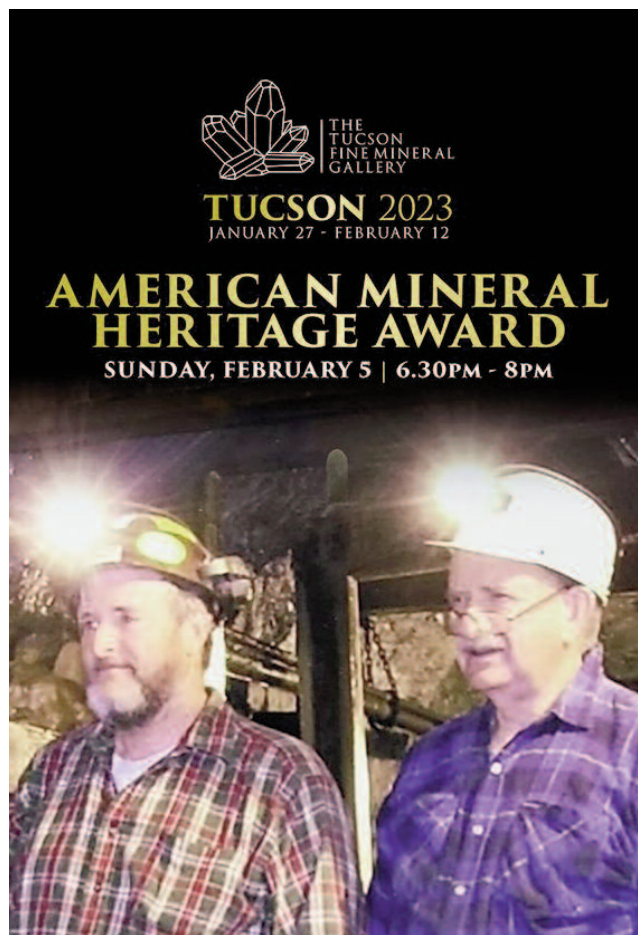
Richard and Robert Hauck

On February 5, 2023 at the Tucson Gem and Mineral Show, Richard and Robert Hauck were honored to receive the 12th Annual American Mineral Heritage Award (AMHA). The AMHA was established by the Mineralogical Record for achievements in field collecting. It recognizes those field collectors whose personal discoveries anywhere in the Americas have contributed most significantly to the cumulative heritage of aesthetic and/or scientific mineral specimens preserved in museums and private collections worldwide.

Previous awardees include:

- Ed Swoboda (2012)
- Wayne Thompson (2013)
- Bryan Lees (2014)
- Bill Larsen (2015)
- Skip Szenics (2016)
- Stan Esbenshade (2017)
- Rod Tyson (2018)
- Graham Sutton (2019)
- Mike New (2020)
- Joe Dorris (2021)
- Bob Jackson (2022)
- Richard and Robert Hauck (2023)

This is a veritable Who's Who among mineral collectors in the Americas. It is a true and fitting honor for the Hauck brothers, recognizing their efforts and success in rescuing the Sterling Mine and creating the Sterling Hill Mining Museum. The award was presented to the Haucks for creating an institution and organization that has promoted and supported the collection, acquisition, display, and study of the world's great mineral treasures. Gene Meieran, in his introduction of the Hauck's award, noted that they have created a place unlike any other museum in the world.



Bob was unable to attend, but Dick graciously and with his usual wonderful sense of humor, accepted the award. The next time you see Dick and Bob, congratulate them on this distinct and well-deserved honor. 🐼

Plate Tectonic History of the Sterling and Franklin Deposits

A.E. Gates

The Sterling and Franklin zinc deposits sit within the Franklin Marble Formation in the New Jersey Highlands. The Franklin Marble started as a thick limestone deposited about 1.3 billion years ago. Prior to about 65 million years ago, all thick limestone deposits were restricted to shallow marine conditions. This was likely a shallow shelf with thick stromatolite deposits, mounds made by cyanobacteria which are largely extinct, except for one location in Sharks Bay, Australia. These organisms produced much of the free oxygen we now enjoy on Earth. Assuming that the climate of the Earth was similar to today, this area would have been in the tropics, because thick limestone deposits require warm climates. All current shallow marine limestone deposits are in the tropics.

This limestone shelf would have been quite laterally extensive. There are thick marbles with zinc deposits in the Adirondack lowlands and into the Grenville Province of Canada, all with approximately the same age. The current interpretation is that these sedimentary rocks formed in a back-arc basin behind a subduction zone to the east. However, there is so much time between the events and so much uncertainty in the ages that it could have been a true ocean basin. In this case, the mineralization would have

occurred when the ocean first formed in a situation similar to the Red Sea today. The problem is that so much rock has been eroded away over the past 1.3 billion years and there have been so many continental collisions in eastern North America through time that complicated the relative positions of all rocks; thus, we may never know for certain. After the Franklin Marble basin formed, a continental collision took place that closed it, deforming the rocks and metamorphosing them at high temperatures as a mountain belt was built on this area. The timing of the closing of this basin and ensuing continental collision has similar timing and character to the Elzevirian Orogeny in the Adirondacks at about 1.25 to 1.2 billion years ago, so this was an extensive event. It is interpreted that this was a collision between North America and a volcanic arc or landmass, possibly similar to if Japan collided with mainland China.

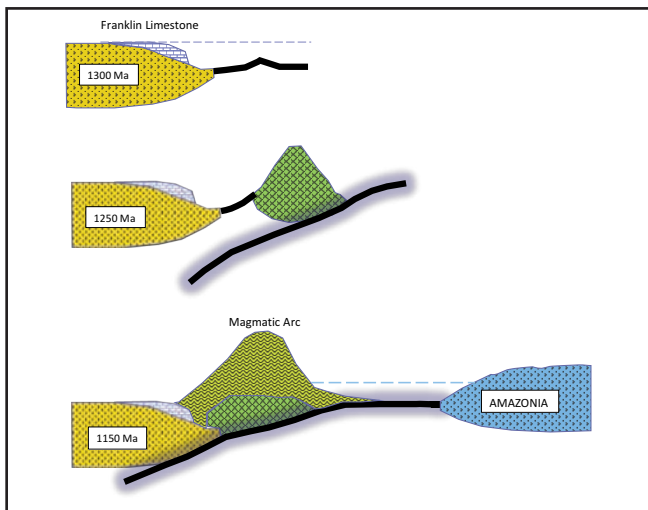


Figure 1: Interpretive three-stage plate tectonic history model for the formation of the New Jersey Highlands geology in the late Precambrian.

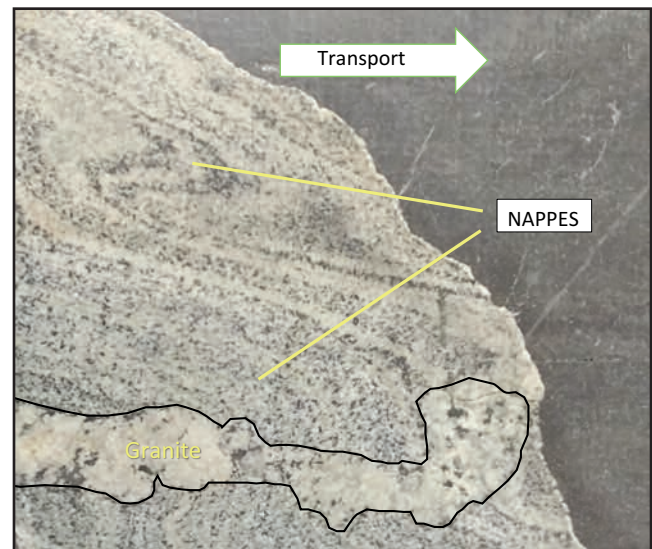


Figure 2: Photo of a small-fold nappe with intruding granite from the New Jersey Highlands, formed during the collision of proto-North America with Amazonia in the late Precambrian.

This wasn't the end of the plate tectonic activity in the area. To the east of the Franklin Marble area, there are younger rocks. These are metamorphosed volcanic rocks produced by subduction, probably in a margin that looked

Continues on page 20

PLATE TECTONIC HISTORY
Continued from page 19

like the Andes. The volcanism continued from about 1180 million to 1120 million years ago but probably longer. This is a huge amount of time, so the mountains were large. The subduction ended in a huge collision with the continent of Amazonia (now South America) that we call the Grenville Orogeny, from about 1080 to 1020 million years ago. In the Adirondacks and Canada, this event is called the Ottawa phase of the Grenville Orogeny. This collision produced an enormous mountain range from eastern Canada through the Appalachians, across to the Llano uplift of Texas and into Mexico (Figure 1). This was likely the longest and highest mountain range ever on Earth. The crust was thickened by the formation of fold nappes which form like folding a rug on top of itself (Figure 2). This heated the rocks so much that they melted, producing large granites.

It is interpreted that there was a second back arc basin formed during the volcanism, and it is the source of the massive iron deposits in the New Jersey Highlands that were extensively mined in the 17th and 18th centuries. The Ottawa continental collision was a piece in the formation of the supercontinent of Rodinia. Apparently, every 500 million years or so, all continental mass on earth comes together to form a single supercontinent sur-

rounded by a single ocean. The supercontinent then breaks apart into multiple smaller continents. The last supercontinent was Pangea surrounded by the Panthalassa Ocean about 250 million years ago. It broke up into today's continents. Rodinia was the previous supercontinent and broke up beginning about 700 million years ago, but more vigorously about 550 million years ago.

The real problem with plate tectonic reconstructions in New Jersey is that the rocks were at the bottom of mountains as high as the Himalayas, and we have no idea what was happening at shallow levels in the crust. The second problem is that there is a somewhat continuous geologic record until about one billion years ago and barely any record until about 530 million years ago, when it became continuous again. This leaves close to 500 million years where we have no idea what was happening. This time span is almost as long as from the appearance of the first hard-shelled life until now. 🐛

Alexander Gates, PhD is a Distinguished Service Professor at Rutgers University in Newark. He has been a professor for 37 years at Rutgers and Lafayette College, but also held positions at the New York State Geological Survey and Chevron, USA. Gates specializes in Structural Geology and Tectonics but also has conducted research in economic geology and radon throughout the Appalachians and in Colorado.



Dr. Samuel Fowler: A Worthwhile Life

Ken Daubert

The purpose of this article is to acknowledge and give credit to one of the most important men in the history of the Franklin and Sterling mines in Sussex County, New Jersey -- Dr. Samuel Fowler. The Fowler estate burned in 1884 and, unfortunately, all of Dr. Fowler's letters, papers, and personal library were lost. With the help of articles written by Pete Dunn, Daniel Barr, A.A. Haines, Kenneth Lifshitz, Mary Estelle Fowler Washburn, and information on the internet, such as at Mindat.org, I hope to provide a glimpse of what this one man accomplished over a period of 65 years.



Dr. Samuel Fowler (1881) Dr. Samuel Fowler was born in Newburgh, New York on October 30, 1779. His father, John Fowler, was a descendent of Joseph Fowler who had settled on Long Island, New York in 1665. His mother, Glorianna Fowler was the daughter of John's uncle, Samuel Fowler. Dr. Samuel Fowler had a son and a grandson both named Samuel Fowler. That's a confusing number of Sam Fowlers. There is, however, only one Dr. Samuel Fowler. He had two siblings, a brother (Sylvanus), and a sister (Charlotte).

Dr. Fowler was well-educated, beginning at the Montgomery Academy. His medical education began under the instruction of Dr. David Fowler of Newburgh, New York. He then attended Pennsylvania Medical College in Philadelphia. After completing his studies and lectures, he was licensed to practice medicine on March 17, 1800, when he was just under 21 years of age.

In 1801 he arrived in Hamburg, New Jersey and set up his medical practice in a small house he had built that is still standing. These were exciting and challenging times in the early days of our new nation. The main modes of travel were walking, horseback, or horse and wagon. Despite this, Dr. Fowler treated patients in Hamburg and the five surrounding counties. He did it all -- births, broken bones, amputations, surgery, and a great deal of com-

forting when nothing else worked. He was fond of saying "The whole art of medicine consists in knowing when to stimulate and when to deplete."

Doctors from the surrounding areas would seek his consultation. Here are some quotes from his fellow doctors: "He was one of the leading minds of his time." "He was by far the best naturally endowed practitioner I knew." "Of acute perception, vivid imagination and yet of judicial mind and an original thinker, his talents place him far in advance of his day."

In 1808 he married Ann Breckinridge Thompson, daughter of Colonel Mark Thompson, a New Jersey congressman. Together they had three daughters before tragedy struck. On August 5, 1811, his wife Ann passed away. Within a few months, two of their daughters, Rebecca and Clarinda Ann also died; the cause of this great loss is not known. The heartache and loss he suffered must have been awful. Glorianna's sister and husband took care of his remaining daughter, Julia, until Dr. Fowler remarried.

In 1810 while continuing to practice medicine, Dr. Fowler started another career, that of an Iron Plantation owner. He purchased, along with partner John Odell Ford, approximately 4,000 acres, which included the Franklin Furnace, for \$11,000. This would be the start of many land purchases he would make in his life. In 1813, after living for 12 years in Hamburg, he packed up and moved for a fresh start, to his new property. He then continued to buy more properties in 1814, 1815, and 1817. With these wise purchases, he now owned - without fully understanding - one of the richest zinc deposits in the world.

One would think that, having two full-time careers going at this point, Dr. Fowler would have no spare time. But remember, there was no television or radio, so this enabled him in 1816 to court and marry Rebecca Wood Platt Ogden, daughter of Robert Ogden III. With this marriage came a vast parcel of land in Ogdensburg known as the Ogden Farm. After marrying, they moved into the Ogden Homestead as they built their new home. It was located at Stone Mill Road off North Church Road, which Dr. Fowler would name "Franklin at The

DR. SAMUEL FOWLER
Continued from page 21

Plains.” They moved into their new home in 1821. It included a gristmill off their stream, a cloth-making mill, a blacksmith shop, a storehouse, a tannery, barns, and several dwellings. Here they went on to raise eight children: Julia (from his first marriage), Samuel, Mary, Henry, Robert, John, Rebecca, and Clarinda.

His daughter Mary Estelle, would later describe her father as ‘Large and tall, of dignified and agreeable presence, courteous and affable in his manners. He was strictly temperate and exemplary in all his habits; an early riser, and of untiring industry, and endeavored to devote all his leisure moments to the attainment of useful knowledge.’

Dr. Fowler continued to purchase more property and by 1824 owned the ore-bearing land at the Franklin and Sterling mines. Unfortunately, they were still trying to figure out how to separate and understand the ore properties to process them successfully. It wasn’t until 1810 that Archibald Bruce analyzed ‘red oxide of zinc’ (renamed zincite in 1845 by Austrian mineralogist Wilhelm Karl von Haidinger). In 1819 Pierre Berthier analyzed and described franklinite. In 1824 Lardner Vanuxen and W.H. Keating analyzed and described willemite. Even with this knowledge the furnace technology to successfully process the ores was still lacking. It wasn’t until after Dr. Fowler’s death that they were able to profitably process the ore.

To relieve some of his frustration and possibly visit a patient needing care, Dr. Fowler found time on a fall afternoon in 1822 to travel to the “drowned lands” in Pine Island, New York. As he walked along a cart path on the Jesse Layton farm (near the New York-New Jersey border), he bent down and picked up what would become known as the remarkable “Amity spinels.” Other people must have seen the black rocks but, without a mineralogy background, dismissed them. Dr. Fowler with his third career (that of mineralogist and naturalist) knew he had discovered something special. He immediately dispatched samples for analysis to Charles Shepard of Yale University. Dr. Fowler kept his discovery secret, only sharing it with his fellow companions, Dr. James Young of Edenville, New York, Dr. William Horton of Goshen, New York and Dr. Heron of Warwick, New York. Shepard’s report on the Amity spinels would take nine years before it was published. This gave these doctors plenty of time to search, without competition, and discover a number of new minerals in the area. In fact, Dr. Heron found a 59-pound, well-formed crystal of spinel on Moses Posts’ farm, a half mile southwest of the Amity Meeting House. These discoveries, along with the ore

minerals of Franklin and Ogdensburg would awaken a great scientific interest in Europe. The communication and knowledge exchanged helped the country grow as a nation. In 1825 Dr. Fowler published in Silliman's American Journal of Science, “New and Extraordinary Minerals Discovered in Warwick, New York.”

While he was doing all of this, Dr. Fowler started his fourth career - in politics. In 1827 he was elected to the New Jersey State Senate. In 1829 he co-founded with others the District Medical Society of Sussex County, New Jersey.

Always working and experimenting with the iron and zinc ores and openly communicating and exchanging information with other scientists both in America and abroad, Dr. Fowler and George Ballou, in 1830, had success in utilizing zinc oxide to create a bluish white “lead-free” paint. They accomplished this several years ahead of their counterparts in Europe. This was not only amazing, but a life-saving discovery. Prior to this, lead-based paints had been long-established, and were known to be dangerous to the health of all those in the painting trade. Samuel Wetherill was one of the first prominent men to speak out against lead-based paints in spite of his family having a business in the manufacture and sale of white lead. He had observed the men who worked for him suffer from chronic rheumatism, paralysis of the fingers, hands and arms, excruciating pain in the stomach, and more. Most painters at that time lived only into their 30s.

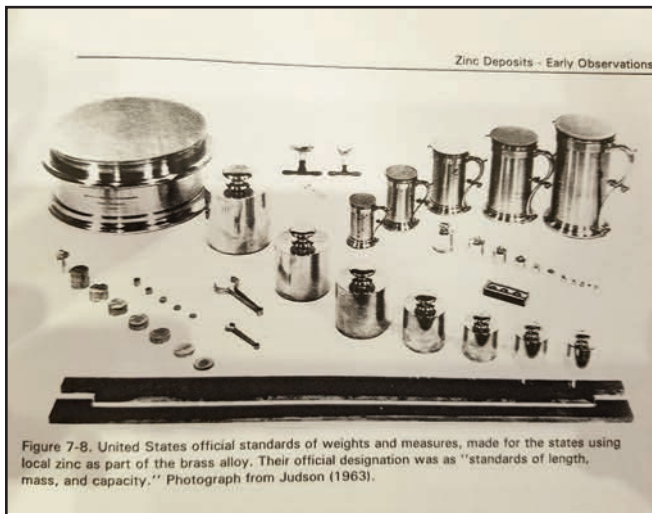
With this new discovery, Mr. Wetherill immediately engaged in manufacturing white oxide of zinc to produce the new paint. He observed no ill effect on his workers using the zinc oxide addition to the paint. In fact, he attributed his own improved health to working with the new product. We can only guess at how many lives Dr. Fowler saved during his decades of providing medical attention to his patients. However, with the new paint manufacturing industry that utilized the non-toxic zinc oxide, he and Mr. Ballou saved countless thousands of workers in the paint industry. We believe Dr. Fowler’s house was the first one painted in America with the new zinc oxide-based paint.

In 1832 Charles Shepard, professor at Yale University, named a zinc- and calcium-bearing variety of rhodonite fowlerite, in honor of Dr. Samuel Fowler. Wendy Nelson and Dana Griffin in 2005 and N.V. Shchipalkina in 2019 considered fowlerite to be a potential new species. In 1994, Roland Rouse, Peter Dunn, Shu-Chun Su, Peter Chi, and Herb Yeates honored Dr. Fowler again with a new mineral named samfowlerite, a minute, wedge-like, colorless crystal. Both were well deserved tributes to one

Continues on page 23

DR. SAMUEL FOWLER
Continued from page 22

of the leading scientists and naturalists of his time. From 1833 to 1837, Dr. Fowler continued with his career in politics. He was elected a United States Congressman, serving under President Andrew Jackson, with whom he became a close friend and advisor. During this period of service, he became instrumental in finalizing a government project that was originally approved by President Washington in 1791 to establish reliable standards of measurement for commerce and customs responsibilities. The objects used were made of brass alloy. They measured length, mass, and capacity. The task was assigned to Ferdinand R. Hessler, a man of great engineering skills. To accomplish this task, he had a new facility built at the Washington Arsenal in D.C., and he utilized local ores of copper and zinc to produce the brass. The copper ore came from mines in Pennsylvania, and seven tons of zinc ore was supplied by Dr. Fowler from his mines in New Jersey. The project was finally completed 40 years after President Washington initiated it.



On September 1, 1836, Dr. Fowler sold the Franklin Furnace and most of his ore bearing properties to William L. Ames and Nathaniel Witherwill for \$31,247.75. Nothing is known regarding his reasons for selling. Perhaps politics had kept him away for too long, or he had concerns for his health. Maybe he just wanted to relax and enjoy life a little more, which he certainly deserved.

Of the great men who contributed to our nation's success in science and industry, Dr. Samuel Fowler should be remembered as a leader. His great foresight and energy advanced our knowledge and prosperity. He died at his home on February 20, 1844 of heart disease at the age of 64. Science and humanity owe a great debt to this man who lived such a worthwhile life. 🕒



Samuel Fowler tombstone in the North Church Cemetery, Hardyston, New Jersey

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- Ken is a member of the Sterling Hill Mining Museum Advisory Council. He has a Degree in Geology from SUNY at Stony Brook. Ken is retired from Monroe-Woodbury Central School District, after 30 years as Transportation Supervisor. He now enjoys being a tour guide and working on special projects at Sterling Hill.*

My Path to the Geologic Sciences

Bruce Bannon

With my family background, I was destined to become a geologist/metallurgist and to love collecting rocks and minerals. To be honest, my rock/mineral collection is not especially valuable, nor do I have rare mineral assemblages. On the other hand, I can remember where I collected all the specimens in my collection, who was supporting me, and why I collected each.

My family connections are the primary drivers for becoming a geologist/metallurgist in both my education and my career. My Irish father lived in an orphanage on the New Jersey Palisades overlooking the Hudson River. After leaving the orphanage at the age of 16, he worked as a miner in the New Jersey zinc mines. Then he was moved to Arizona where he worked in the famous Bisbee copper mine. After acquiring a skin allergy to copper minerals and/or chemicals used in the copper concentration process, my father went to Italy to fight in World War II.

My father was the strong quiet type. He never told me what to do, but he sure would guide me. The perfect example would be the college I ended-up attending. In high school, I studied hard, especially in the sciences. I also was an All-State football player as well as the New Jersey High School athlete of 1969. I was recruited by about 100 colleges. Personally, I was favoring an Ivy League college like Princeton or the University of Pennsylvania. I visited and favored both of these colleges, with strong education but "so-so" athletic programs. Penn State also was recruiting me, and both of my parents supported my visit to this college. My father decided to take some time off from work (remodeling bathrooms and floors) to drive me to Penn State for the weekend. We left after school on Friday, drove about four hours and stayed at a nice hotel in downtown State College. The next day we had a pleasant breakfast with a professor from the outstanding College of Earth and Mineral Sciences. For all of Saturday we visited with every important educator, including the Dean in the College of Earth and Mineral Sciences, where we also visited the laboratories, museums, and libraries. That night we had dinner alone. I complained to my father that I had not yet met any football person or seen any facilities for football. He told me to be patient.

The next day my father and I went to church, then drove to the football offices. I was happy that I was finally going to meet someone with whom we could discuss Penn State football. Well, we did meet somebody, head coach Joe Paterno. We spent at least two hours with him, discussing our day with the college professors, the great education that was available in geology/metallurgy, and the opportunity to play big time college football. Penn State had just finished two undefeated seasons, each with a win in the big time Orange Bowl. Coach Paterno spoke as much about my education as playing football at the university. As we were wrapping up our breakfast, coach Paterno's final words were: "Bruce, you may never be good enough to play football at Penn State. Being a Penn State football player will depend on your working hard and being a part of the team. What I will promise is that you will receive a great education from the College of Earth and Mineral Sciences." We then said goodbye and started driving home.

On the drive home my father was very quiet; he was thinking of all the things we did, but focused especially on the final words of coach Paterno. I said little because I thought coach Paterno would talk more about my football future at Penn State. Finally, as we approached Stroudsburg, Pennsylvania on Route 80, my father said to me: "I am not going to tell you what to do as far as a college. That is your decision. Of all the coaches and colleges with whom we have talked, only coach Paterno promised you an education and an opportunity to play big time football." Needless to say, I made one of the best decisions of my life – Penn State had outstanding football teams. I played in four bowl games, was an All-American Football Player, and became a Miami Dolphin for two years (including one Super Bowl win). My education at Penn State was also great -- two time Academic All American, Evan Pugh Scholar, National Collegiate Athletic Association Top 10. Listening to my father's thoughts during our trip to Penn State enabled me to have a very rewarding career, in which I helped improve products/processes, grow sales and profitability, solve problems, visit 50 countries, make strong long-lasting friendships, and have lots of fun and challenges. Thanks coach Paterno and Dad!

Continues on page 25

MY PATH

Continued from page 24

It was my mother and her Slovak family that really got me interested in minerals, rocks, and metals at a young age. Many Slovaks and Eastern European people left Europe because of the breakup of the Austria-Hungary Empire and the decades of wars and revolutions. They saw the United States as an opportunity for a better life for them, their families, and their children. My grandfather, uncles, and other relatives had quite a bit of experience in mining so they were sought after to work in the iron, coal, and zinc mines in New Jersey and Pennsylvania. It is interesting to note that little New Jersey contained some of the richest zinc and iron mines in the world.

My older brother, Richard, my parents, and my grandparents lived together in a small house that my grandparents rented from the iron mining company in Hibernia, New Jersey. We lived in walking distance to several mine entrances and to a series of crevasses formed when several mine shafts collapsed. We had two small bedrooms for the adults and cots for the kids. The house had no plumbing except for a hand pump for water in the kitchen. Scariest of all was an outhouse located about 20 feet from the house. Frankly, we did not want to go to the outhouse in the dark because of the scary sounds from the mines and crevices. The scary stories of ghosts and creepy animals did not help.

My mother and several of my aunts and uncles knew that I was interested in science from a young age. My uncles would bring me interesting samples of iron and accessory minerals from the mines in which they worked. Close to where we lived, there was a small stream which contained loads of rounded stones from a glacial moraine. Here, my friends and I would hunt for a wide variety of stones including fossilized shale with trilobites, Greenwood conglomerate, and mica masses in quartz. For my birthday and Christmas, my mother started giving me books about minerals and fossils. My most interesting present was a kit with dozens of minerals and various tools to identify various minerals.

My mother started taking us on fun trips to dumps from local iron mines, rock outcrops, and the Morristown Museum with its beautiful mineral collection. Then we went on a trip to a place which seemed far from our house, to Franklin where there was a mine in which my father had worked. We went to the Buckwheat Dump which was loaded with beautiful and interesting rocks. My mother bought me two wonderful rocks for \$.50 and \$.75 for my birthday. They are the stars of my collection. 🗿

Bruce has a significant background in mining. His father worked at the Franklin and Bisbee mines. His Slavic grandfather and uncles worked in Northern, New Jersey iron mines and Pennsylvania coal mines. Bruce studied geology and metallurgy at Penn State where he worked at several mines and quarries including the Sterling Mine. He worked in the titanium industry in various roles including production, new market development, and customer support. He then evolved into the aerospace/military industries where he played a leadership role in the design/production/aftermarket support of fabrications and systems. Bruce now returns to Sterling Hill, where he enjoys supporting visitors and maintaining facilities.



Mineral collecting on the west wall of the Passaic Pit on June 9, 1962.

John Kolic's Sterling Hill Mining Diaries

Doug Francisco

his latest batch of John's diary pages takes us to December 21, 2000, and covers a time well after the mine was closed and subsequently reopened for tours as the Sterling Hill Mining Museum. John was instrumental in preparing the mine and surrounding areas for public tours. In this set of diary pages, we find our friend working diligently in the basement of the Old Mill or Great Sterling Mill, which was built in 1913. John reports on his work chipping away at the old concrete machinery bases to level the floor. This was tedious and time-consuming work, and it filled many pages in the diaries. The area he was working on became the GeoTech Center.

John also reports scaling loose rock to prepare the mine for the tour route. And he writes about his work out in the Passaic Pit, drilling and wedging out ore for specimens and material for the Mine Run Dump. All this might not be so exciting, but it shows the kind of work required to turn an operating mine into a fabulous museum.



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.



John Kolic working at the site of the Great Sterling Mill.

Students

We would like to feature your questions about mining and the Sterling Hill Mine in future

Ask a Miner articles.

Please send your questions to:

jvotmo@comcast.net

Include your first name, grade level, and school.

Thanks

Element Boron

Gordon Powers

his sixteenth article in the continuing series on our periodic table display in the Zobel Hall will focus on the metalloid, boron. 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 boron is dark and amorphous in shape. Its melting point is 3771° F. Boron has an atomic number of 5 and is not found in its pure elemental form in nature except for some small amounts in meteoroids. It is much more likely to be found in borate minerals.

Boron has an unusual origin. Most of the elements below iron on the periodic table are formed by nuclear fusion of lighter elements in stars; however, a few elements, including boron, are formed by cosmic rays impacting interstellar clouds. These impacts can break the nuclei of the elements in these clouds and release lighter elements such as boron. This process is not very efficient, and as a result, boron is not very abundant in the Earth's crust. It is the 37th most abundant element in the crust at 0.001%; however, it can be highly concentrated by the action of water due to the solubility of many borates. Its chemical symbol is B. Out of the over 200 borate minerals four -- tincal, kernite, colemanite and ulexite -- account for 90% of the borates used by industry.

It is very difficult to isolate pure boron. The first person to do so was the American chemist Ezekiel Weintraub in 1909. In 1808 Sir Humphry Davy, Joseph Louis Gay-Lussac, and Louis Jacques Thénard came close enough to isolating it that they were able to confirm a new element. It was identified as an element by Jons Jacob Berzelius in 1824. The name boron comes from borax, the mineral from which it was first isolated. In 2022 the four largest producers of boron were Turkey, the United States, Russia, and Chile.

The first use for boron was as a glaze in China around 300 CE, and around 1600 CE borax was reported to be used as a flux in metallurgy. The major world industrial use (about 46%) of boron is in glass fiber for insulating and structural fiberglass. In the United States about 65% of the borates are used in the glass and ceramics industries. Pyrex and Duran make use of borosilicate glass with its low coefficient of thermal expansion to provide resistance to thermal shock. Boron carbide, with its extreme hardness and toughness, is used in ceramics and as abrasive compounds. Boron steels have increased hardness. It also is used in nuclear reactor shielding and control rods, due to boron's ability to absorb neutrons.

Borax is used in laundry and cleaning products. Boric acid is used as an insecticide, and boron is used in semiconductors, as a dopant, in eye drops, and in mild antiseptics. Boron is found in neodymium magnets which are used in MRI systems, small motors in items such as computer hard drives, CD, and DVD players, and in mobile phones. The green flame produced by boron finds use in flares and fireworks, and as a rocket fuel igniter. Borates also are used as an environmentally friendly wood preservative. Boron also is an important plant nutrient where it is essential for cell walls.

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 determine how boron may have played a part in their production. And if you want to collect minerals containing boron at Sterling Hill or Franklin, there are 14, and 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.

An Unusual and Unexpected Source of Income for the Sterling Hill Mining Museum

Bill Kroth

When you really care about the financial health of an organization, especially one that receives zero support from the Federal or State governments, a backup plan is critical. At the Sterling Hill Mining Museum, we generate approximately 70 per cent of our revenue from school trip visitations. The closure of schools during the COVID pandemic had a major detrimental impact on our cash stream. I have always worried what would happen if class trips became obsolete; how would we survive? We got a bitter taste of that over the past three years; fortunately things are bouncing back regarding school and university visits.

We are looking for different ways of utilizing the Sterling Hill property beyond Earth Science and Geology. In 2000, we allowed the cult-classic “Zoolander” movie to be filmed here. Since that time several other movies have used Sterling Hill as their sets, including both western- and horror-themed plots. We also have had photo shoots and fashion shoots here. Just a few years ago we teamed up with New Jersey Paranormal; they hold regular meetings/investigations at the mine on a monthly basis, on Saturday evenings. All of these events not only give us good exposure, but extra needed income.

Our best and most lucrative “non-geology” use occurred during November 2022 when we were contacted by Amazon Prime Movies. They had selected our mine as their set for the Harlan Coben teenage thriller series, *Shelter*. The production staff visited us several times, asked many questions, and took hundreds of photos. I had almost given up hope that they would actually film here; but then we were given the contract. We had every type of background for the set for their filming!

The plot follows high school junior, Mickey, as he navigates his new life with a mom in rehab, a dead dad, an annoying aunt, and a new school in New Jersey. A lady, who may or may not be a ghost, pops up to tell him that his dad is not actually dead, Mickey assumes he’s losing his mind, and instead, focuses on befriending a new student, Ashley Kent. But when Ashley goes missing, Mickey discovers that her and his father’s disappearances are connected to a terrifying conspiracy.

Author Harlan Coben, who lives in Ridgewood, NJ, is the best-selling author of over 35 novels, including *The Boy from the Woods*, *Tell No One*, and *Win*. Additionally, he serves as the creator and executive producer of numerous Netflix dramas, including *Stay Close*, *The Stranger*, *Gone for Good*, and *The Woods*. *The Shelter* series marks his first Amazon Prime Video partnership.

The set preparation at Sterling Hill took approximately two days, filming a day and a half, and set breakdown/cleanup another day. A consecutive Monday through Friday period was all that was needed. The three locations that were used were: the Lamp Room, the Flooded Stope, and the exit to the Passaic Pit (adjacent to the Rainbow Tunnel). The only modification we had to provide was to empty out the Lamp Room. I thank tour guides Tyler Kurtz and Rachel Goldstein for moving (and then replacing) all of our battery powered miners’ lamps. I never realized just how many we had in those five charging racks!

I was hesitant to stop all school tours during the preparation work; but when I asked teachers if they minded the movie props, they all saw it as an extra bonus and agreed that it would make their tours extra special!

AN UNUSUAL AND UNEXPECTED
Continued from page 28

During the peak filming period, we had over 150 people on site, including a special COVID testing trailer, food trucks, flat-bed trailers, special lighting trucks, wardrobe trailers, a parking consultant and crew, and many union specialists such as carpenters and electricians. The local Ogdensburg police were hired to help with traffic and maintaining order as folks entered and exited the property. So many large vehicles came that our parking lot including the observatory field were inadequate. The movie company rented space at the Ogdensburg Fire Department parking lot to help with the spillover.

Everything went extremely smoothly. The movie crew left the mine as clean and orderly as they found it. Our staff was treated to all of the same good food as the workers and actors. I can still close my eyes and almost taste those fluffy and tasty bacon, egg, and cheese breakfast sandwiches or the dripping hot gyros at midnight! The two young supervisors with whom I dealt were super professional and respectful of our site. I knew that our property was in good hands between these folks and the local police, so Denise and I were able to get some sleep at our home and not have to worry.

The fee was suggested by the Amazon Prime folks, and to be honest it was significantly more than what I would have asked. But then again, I never would have imagined the actual scope of the production. The very generous \$35,000 rental fee was a godsend as we came out of the COVID lockdown. The use of the Ogdensburg Police and Fire Department property was also a nice financial boost for the town. Finally, it was a very pleasant change of pace from the usual science-themed use of the property. I hope that this exposure of Sterling Hill to the film industry will help to drive more of this type of use where all parties benefit!

And be sure to watch for the release of *Shelter* on Amazon Prime. 🎬

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 "golden years" 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.

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Sterling *Hell* Haunted Mine 2022

Ralph Bonard

We had an incredible weekend with the Ogdensburg class of 2023 Haunted Mine Fund Raiser. The weather was beautiful, and we had a new record number of visitors. We raised more funds than we could have imagined! What started a few years ago as a small idea has blossomed into an amazing haunted Halloween attraction that now is famous throughout northern New Jersey, and beyond!

With great participation from the Ogdensburg students and their parents, we were able to fill the spots necessary to make this a smooth-running success. The local community folks have stepped up year-after-year to help out and make this an incredibly memorable scary show! We added some new attractions this year to the already horrific scenes, both inside and outside the mine. We extended the outdoor tour after visitors exited the underground lake, and thus, eliminated the need to walk through what had already been experienced on the tour. This added about ten minutes to each tour, but since it is now a full loop with no back-tracking, timing was much less of an issue. As a result, we were able to sell even more tickets, and make more money.

The highlight of each tour was most definitely the headless horseman, who forced visitors to retreat into a long tunnel full of fear! Thanks to the technical “blood, sweat, and tears” of Alex and Gary Kerstanski, we had the sounds of darkness and death permeating throughout the entire mine all night. All of this was accomplished with the hard work and dedication of the entire Sterling Hill Mining Museum staff, the Ogdensburg School eighth-grade class along with helpers from the seventh-grade class, and many volunteers from the community, all coming together for a great event. A very special thank you goes to Bill and Denise Kroth, the Sterling Hill Mining Museum, the Borough of Ogdensburg, the Ogdensburg Police Department, the Ogdensburg Fire Department, the Ogdensburg Department of Public Works, the Ogdensburg Historical Society, Dave Astor, Corey Houghtaling, Zack



and Andy Bonard, Laine Hissett, Laura and Landon Balunis, Paul Michael Kane, Jane Kreuger, Rena Lambert, Judy Perentin, Wallkill Youth Football, the Sussex County Sheriff's Department, and all of the great people and donors that came together to make this such a huge success. We are getting an early start on the planning and plotting for the October 2023 Haunted Mine event. It promises to be even better than last year! 🦇

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 hunters and organizers of the Sterling Hell Haunted Mine event and have been involved since its inception in 2017, and have been an integral part of the Sterling Hill family for many years. Zack is a freshman football player at Wallkill Valley Regional High School. Ralph runs the Ogdensburg Post Office, is President of the FOMS (Franklin Ogdensburg Mineralogical Society), and serves on the Wallkill Valley High School Board of Education.

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 22, 2023 **Spring Mineral Sale**

Christiansen Pavilion, Sterling Hill Mining Museum, 30 Plant Street,
Ogdensburg, NJ

Great Deals. Huge Discounts on a large variety of rocks, minerals, fossils, crystals, stones, books, and much more!

10:00 AM - 5:00 PM

Sunday, April 23, 2023 **Spring Mineral Sale**

Christiansen Pavilion, Sterling Hill Mining Museum, 30 Plant Street,
Ogdensburg, NJ

Great Deals. Huge Discounts on a large variety of rocks, minerals, fossils, crystals, stones, books, and much more!

10:00 AM - 5:00 PM

Sterling Hill Mining Museum

30 Plant Street • Ogdensburg, NJ 07439-1126

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For more information contact:

Membership Chairman

Sterling Hill Mining Museum

30 Plant Street

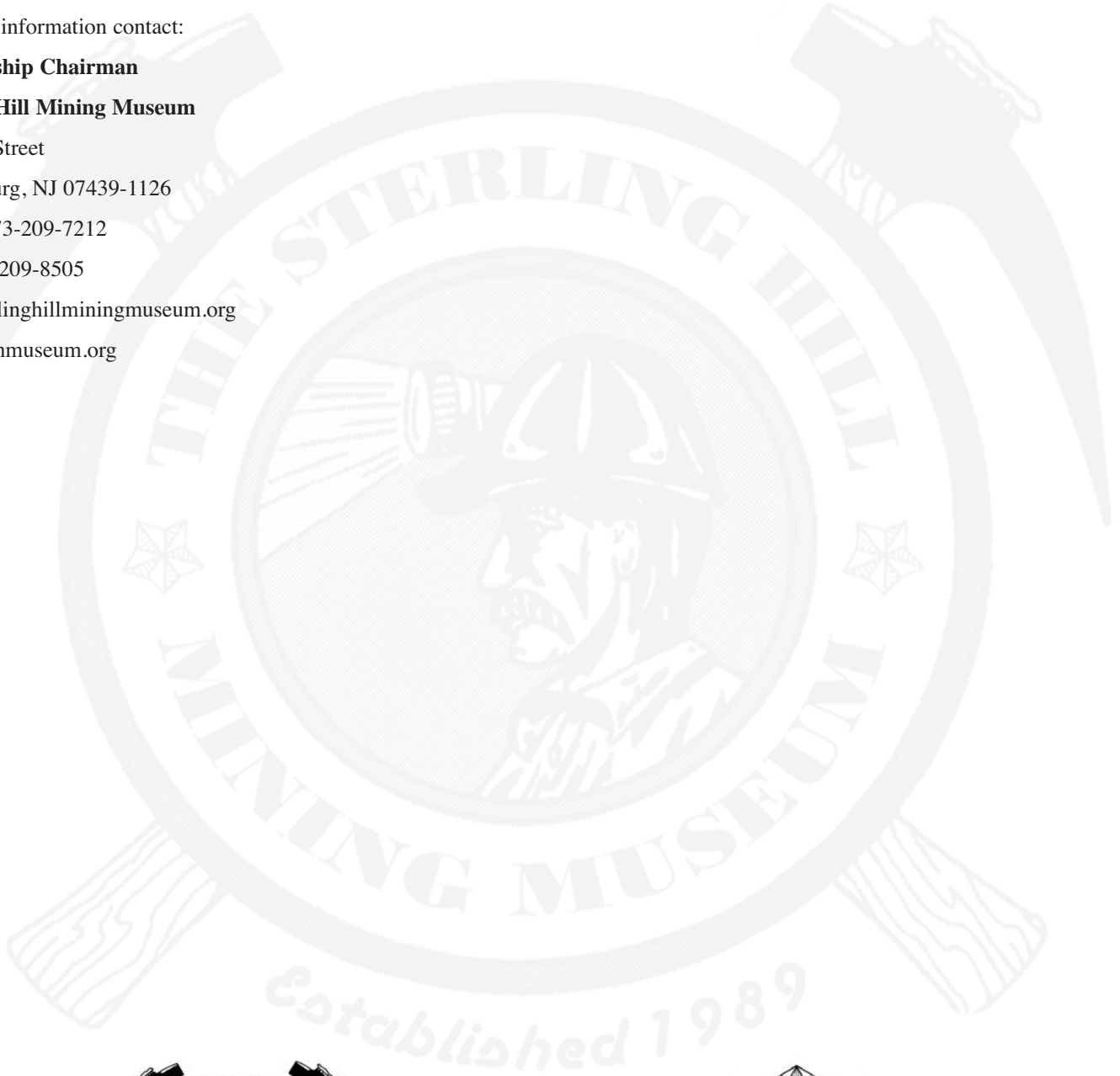
Ogdensburg, NJ 07439-1126

Phone: 973-209-7212

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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