THE PICKING TABLE

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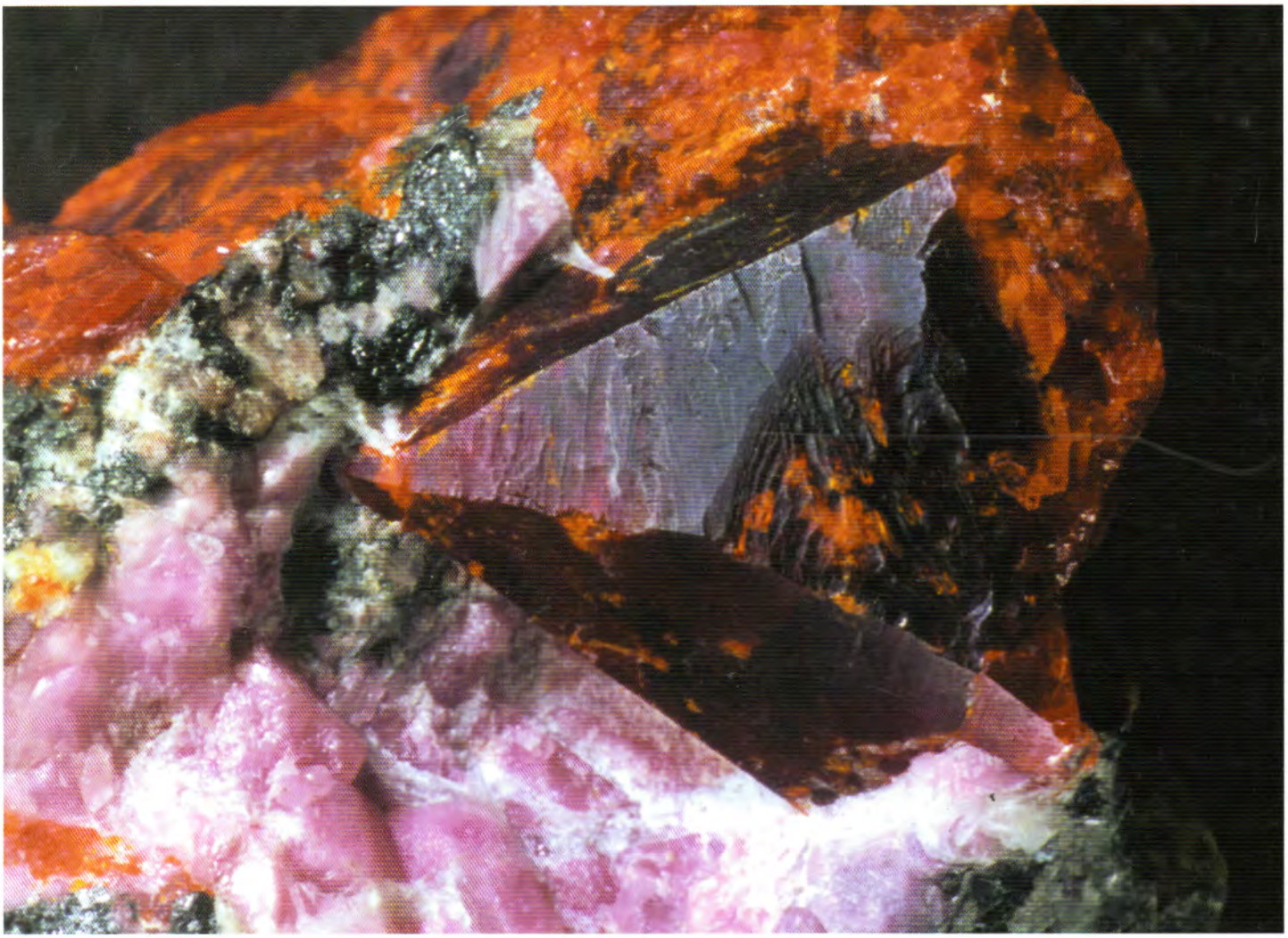

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THE PICKING TABLE

Vol. 47 — Combined Issue 2006

About the Front Cover:

A world-class Franklin zincite crystal as lensed by the internationally famous mineral photographer Jeff Scovil. Nestled in a matrix of pink hodgkinsonite, this gem-quality zincite crystal measures $^{7}/_{8}$ inch (2.2 cm) on edge. A photo of the entire 8 x $5^{1}/_{2}$ x $2^{1}/_{2}$ inch (20 x 14 x 6 cm) specimen was featured on the cover of Ervan F. Kushner's 1974 book *A Guide to Mineral Collecting at Franklin and Sterling Hill, New Jersey*. The specimen was originally from the Arthur Montgomery collection and is currently owned by George Elling. *Photo used with permission of Jeff Scovil.*

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The Picking Table is the official journal of the Franklin-Ogdensburg Mineralogical Society, Inc. (FOMS), a nonprofit organization. *The Picking Table* features articles of interest to the mineralogical community that pertain to the Franklin-Ogdensburg, New Jersey, area. Articles related to the minerals or mines of this district are welcome for publication in *The Picking Table*. Prospective authors should address correspondence to:

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The views and opinions expressed in *The Picking Table* do not necessarily reflect those of FOMS or the editors.

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The Franklin-Ogdensburg Mineralogical Society, Inc.

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Books and Other Publications

Mine Hill in Franklin and Sterling Hill in Ogdensburg, Sussex County, New Jersey: Mining History, 1765-1900. Final Report: Part One, Volumes 1 – 7. Pete J. Dunn (2002). $15.00 per volume + $3.00 postage each; $75.00 per set + $20.00 postage

Magnificent Rocks: The Story of Mining, Men, and Minerals at Franklin and Sterling Hill, New Jersey. Susan B. Cooper and Pete J. Dunn (1997). Privately printed. $15.00 each + $3.00 postage

The Story of Franklin and Sterling Hill. Pete J. Dunn (1997). Privately printed. $15.00 each + $3.00 postage

Franklin and Sterling Hill, New Jersey: The World's Most Magnificent Mineral Deposits. Pete J. Dunn (1995). Privately printed. Parts 1, 3, 4, & 5 (Part 2 no longer available), $15.00 each; Supplements 1 & 2, $15.00 each

Structure and Mineralogy of the Franklin Zinc-Iron-Manganese Deposit, Franklin, New Jersey. From *Economic Geology*, Vol. 69, No. 2, pp. 157-180. Clifford Frondel and John L. Baum (1974). Available as photocopy only. $2.50 each + $1.25 postage

The Odyssey of Ogdensburg and the Sterling Hill Zinc Mine. Paul Horuzy (editor) (1990). Privately printed, Sterling Hill Mining Company. $6.50 each + $1.75 postage

Historical Notes on the Iron and Zinc Mining Industry in Sussex County, New Jersey. Elwood D. Shuster (1927). Privately printed, Franklin Mineral Museum reprint. $3.00 + $0.75 postage.

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The Good Old Days and the Good New Days

*A Message From the President**

Fred Young
234 Warbasse Junction Road
Lafayette, NJ 07848
*Served 2005-2006.

Throughout the 47-year history of the FOMS, its members have witnessed a kaleidoscope of Franklin/Sterling Hill milestones reflecting the significant and continuous efforts of hundreds of mineral enthusiasts, business leaders, and a few geniuses committed to telling the story of the Franklin/Sterling Hill zinc, iron, and manganese mineral deposits and preserving their history.

The early years of this history commonly referred to by the "old timers" in the club as the "good old days" began in 1956 with the first Franklin/Sterling Mineral show, followed in 1959 with the formation of FOMS, then later by the building of the Franklin Mineral Museum, the closing of the Sterling Mine and its reopening as the Sterling Hill Mining Museum, and still later with the publishing of the Dunn monograph. These major milestones secured the Franklin/Sterling Hill ore deposits' position as a permanent star on the world stage of mineral deposits.

As the story of this mineral locality has been unfolding over the years, there have been many other significant milestones that have altered and illuminated the lives of all who chose to participate in the journey. The influential leaders in this history have had minerals named after them: bostwickite, gerstmannite, johnbaumite, cianciulliite, petedunnite, hauckite, kolicite, kraisslite. Every time a new Franklin/Sterling Hill mineral is discovered, another milestone is achieved.

Other influential leaders have built collections of Franklin/Sterling Hill minerals worthy of display in the halls of any world-class geology museum. Every time a collection of these minerals is displayed, another milestone is achieved.

Educational lecture series, seminars, and symposiums are offered to club members, students, and universities. Every time a story of the Franklin/Sterling Hill mineral locality is told, another milestone is achieved. Research and education grants are funded and awarded to deserving mineralogists and geologists with an interest in this locality. One study is currently underway into the age, origin, and timing of the zinc mineralization and metamorphic conditions of the Franklin Marble. Another study is now being done on the magnetite deposits and pegmatites as related to the zinc ores and the high-temperature reactions involving these ores. Every time a new scientific fact about this deposit is answered, another milestone is achieved.

Scientific papers, books, and journals are being published that increase the knowledge of the deposit and preserve its history. One such paper, titled "1.3 Ga Continental-Margin Magmatic Arc and Back Arc in the New Jersey Highlands and Implications for the Origin of Zinc and Iron Deposits," and a book titled *Mining for America: The Franklin-Sterling Hill, N.J., Zinc Mines* are being presented in 2007. The FOMS journal *The Picking Table* has evolved from a black and white mimeograph to an award-winning full-color glossy magazine, and plans are underway to begin exploring the possibility of utilizing a 400 color slide archive in the first color book devoted exclusively to the 360 minerals of the Franklin/Sterling Hill mineral deposits. Every time a new book or paper is published another milestone is achieved.

Membership in the FOMS is well below its all-time

high of 800+ members, but there has been a modest increase in new members during the last few years. Every time a new member joins the club, another milestone is achieved.

As old collecting sites are closed, new sites are offered, and those members who enjoy self-collecting have the opportunity of uncovering a new or unique mineral specimen. Every time a FOMS member collects a special mineral, another milestone is achieved.

The Franklin/Sterling Hill show celebrated its 50th anniversary in 2006. The Lime Crest Quarry celebrated its 100th anniversary in 2006. FOMS will celebrate its 50th anniversary in 2009. Every time a notable anniversary is celebrated, another milestone is achieved.

"Old timers" in the club have the memories of their active involvement in the "good old days" and the "new timers" in the club have an active involvement in the "good new days." The collective efforts of this dedicated group give the club a past it is proud of, a present it enjoys, and a secure future it can look forward to. FOMS has come a long way since its humble beginnings. The pace of the journey has not always been steady, but it has always been rewarding to those lucky enough to have been part of the trip.

I have enjoyed working with the many FOMS members and associates during the last two years. I am most proud of the ongoing research I encouraged into the age-dating of the Franklin Marble and its implications for the ore deposits. There has been no new information on the geological environment of the Franklin/Sterling Hill ore deposits in many years, and hopefully this new research is the beginning of a new era of enlightenment for our many club members and associates.

I wish the best to future presidents in their endeavors to shepherd the club into what will be an exciting and challenging future.

FOMS MEMBERSHIP INFORMATION

Since 1959, the Franklin-Ogdensburg Mineralogical Society (FOMS) has been devoted to fostering interest in the minerals, mines, and history of the Franklin/Ogdensburg, New Jersey, area. Membership in FOMS includes scheduled meetings, lectures, and field trips, as well as a subscription to *The Picking Table* and seasonal bulletins.

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Franklin Mineral Museum News

Lee Lowell
Collections Manager

Joe Orosz
Curator of Mineral Science
Franklin Mineral Museum
P.O. Box 54, Franklin, NJ 07416

Museum Facilities and Grounds

In early 2006, many improvements to the museum facility were completed. Several display rooms, hallways, bathrooms, and the lobby were painted thanks to the efforts of our staff members Leann Armstrong and Bill Harpell, and also Joe Longo, the husband of museum manager Doreen. All of the display cases in the Local Room (where the minerals of Franklin and Sterling Hill are displayed) were cleaned and painted thanks to the help of volunteers Paul Shizume and Ray Latawiec.

A large depression in the parking lot was filled and repaired. The paving contractor probed the hole and reported that it didn't extend to one of the underground iron mines that once existed in that area.

The Buckwheat Dump was turned over in April to expose fresh collecting material. The "jungle" of overgrowth around the Buckwheat Dump was cleared by Fred Lubbers with a new powerful museum weed whacker. While Fred worked in the summer's heat around the dump, he watched his collecting friends dig deep holes and retrieve specimens of cuspidine, hardystonite, and radiating willemite.

Exhibits

The cabinets in the worldwide mineral exhibits in Welsh Hall were cleaned by Kasey Phillips, curator of the Phillips family collections. The mineral specimens were cleaned and the display presentation was significantly improved by her.

Additions to all of the mineral collections were made over the interim, thanks to various donations and purchases. Efforts to improve the museum's fluorescent display were conducted by Richard Bostwick, Dr. Earl Verbeek, Mark Boyer, and Tema Hecht. Eight new Way Too Cool 190-watt shortwave display lamps were installed on March 30, 2006, and the fluorescent display looks the best it ever has.

All of the minerals in the Local Room have been examined to see if they were numbered, labeled, and measured correctly. Many corrections were made and an up-to-date computer catalog of the Franklin-Sterling Hill collections on display was generated thanks to the great help of one of our outstanding volunteers, Paul Shizume. This project took almost a year to complete. The catalog of the reference collection in the curator's office is currently being examined and updated by Joe Orosz.

The museum displayed fluorescent minerals at the April 2006 NJESA Show. The museum also displayed a collection of minerals from the Lime Crest Quarry in Sparta at the 100th anniversary celebration of this quarry.

Preparations are underway for displaying at the 2008 Tucson Show, which will feature famous mines of the United States. This museum and the Sterling Hill Mining Museum will provide daylight displays. Jeff Scovil, the prominent mineral photographer, visited the museum to take photos of 24 specimens. Some of these photos will appear in a showbook that the Tucson show committee will publish. Text on this mining district as well as other historic mining districts will also appear in the book. This show will provide considerable exposure for the Franklin-Sterling Hill mining district.

Both local museums are scheduled to display 50 cases of diversified exhibits including fluorescence at the 2007 Springfield Show to be held August 10–12.

So, we are spreading forth the word from coast to coast that the Franklin-Sterling Hill mineral locality is still very active and this mining district is a thriving historical feature.

Research

The museum is partnering with the Hudson Institute of Mineralogy, which is a nonprofit educational and research organization. This Institute is seeking grant funding to support a mineralogical research laboratory. The museum, as a partnering organization, will have the opportunity to conduct research studies at no cost on minerals in our holdings using state-of-the-art equipment.

The museum's research and education fund was so low during the fall of 2006 that we had to solicit contributions. Thanks to the contributions from the Sterling Hill Mining

Museum, the Franklin-Ogdensburg Mineralogical Society, and several individuals, this fund is now adequately funded for the foreseeable future. This fund pays for research efforts of Dr. Pete Dunn, who has contributed more to the mineralogy and history of the Franklin-Sterling Hill mining district than any other scientist.

Dr. Richard Volkert, senior geologist for the state of New Jersey, has been researching the age of the Franklin-Sterling Hill ore deposits. He is publishing a series of reports that address this fascinating topic. Funding for his research is also provided by the Franklin Mineral Museum, the Sterling Hill Mining Museum, and the Franklin-Ogdensburg Mineralogical Society.

Mineral Science

Joe Orosz is continuing the work of examining specimens within the museum's holdings to validate identities and possibly add to the local species list. Specimens are examined using analytical methods. Most turn out to be exactly as labeled; however, some of the specimens were found to be mislabeled.

Recent efforts have focused on the reference collection contained in the drawers within the curator's office. A very fine terminated zincite crystal was rediscovered. The specimen, which has a zincite crystal over 2 cm long, was judged to be superior to any then on view and was moved to the local display area.

The fluorescent response of anorthite has been verified. At the request of Richard Bostwick, a museum specimen labeled as anorthite, margarite, and corundum from the Sterling Hill marble was analyzed with the hope of finding fluorescent anorthite. Powder X-ray diffraction verified anorthite as the cream-fluorescing mineral. The possibility had to be considered that the fluorescence was actually caused by margarite intermixed with the anorthite. The major peaks of the margarite diffraction pattern are very close to those of anorthite. Fortunately, the refractive indices of the two minerals are significantly different. Simple optical methods were used to rule out the possibility of margarite in the fluorescent powder used for the X-ray diffraction. Anorthite appears to fluoresce cream under SW, MW, and LW UV light.

This past year cuspidine was again found on the Buckwheat Dump, and a find of bementite has also been verified.

Acquisitions

The museum was fortunate to acquire the fluorescent minerals that Steve Chuka had on display at the museum. The museum also acquired two important Franklin rhodonite crystal specimens, a transparent willemite crystal, a roeblingite nodule, and an excellent specimen of marsturite for its collection.

Other News

The 80-year-old nephew of Frank and Eva Phillips sent a message to the museum stating that he believed his aunt and uncle were the originators of the fluorescent pictures which museums and many collectors possess. Frank did the grinding up of the minerals and Eva arranged the particles over glue on canvas. He also wanted to know if the unknown mineral they found on the Buckwheat Dump in the 1950s was named after them. Jack Baum stated that this mineral, which was listed as baumite at the time, was analyzed by Harvard and it turned out to be a mixture of minerals and was discredited.

A bronze plaque with the bas-relief sculpture of John Cianciulli's face was prepared thanks to the efforts of Al Grazevich. It presently hangs in the museum on the wall outside the curator's office.

The 2006 inductees to the museum's "Hall of Fame" are Alice and Fred Kraissl, who contributed enormous time and funds to the museum in past years. Both have passed away, but their legacy will be remembered with the plaque on the wall.

Miners/Volunteer Appreciation Day was held on May 6, 2006. Many Sterling Hill miners attended and told stories about their mining experiences. The Franklin Band provided the music. Museum manager Doreen Longo provided lots of food and drinks for the attendees. Franklin school superintendent Dr. Tom Turner presented the museum's sponsored student science awards to several of the winners.

The museum's program for honoring the school students from four local schools who excel with their science studies is managed and funded by Anne Wronka, a super museum volunteer. Bonds and certificates are presented to the winning students. Anne generously donates her time and money to support this annual program.

The Fall Night Dig on Nov. 4, 2006, attracted an unprecedented 145 people. With that many people scouring the Buckwheat Dump, many great finds were made. Collectors turned up esperite in calcite, several pieces of hardystonite (including one double-fist-sized solid mass with clinohedrite), two specimens of barite in calcite, a dime-sized complete rosette of radiating willemite, and, most amazingly, margarosanite on feldspar in association with hardystonite.

Mineral sales continue to be strong. Collections received through donations or purchases are sorted, identified, and priced for sales. This effort is led by Steven Phillips with the assistance of Steve Sanford and Ray Latawiec. ⚒

News From Sterling Hill

Joseph Kaiser
40 Castlewood Trail
Sparta, NJ 07871

The ore bins and conveyor belt system have been power-washed both inside and out and painted. It has a guarantee of ten years, which will make it stand until the next generation starts on their planning. The patio area on the gift shop building has been enclosed to provide an additional protected area for snacking — particularly for school children. This is very important in the Fall and Spring when the weather makes eating lunch outside unpleasant.

An organization has been formed, the Sterling Hill Astronomy Group, which is open to the public so anyone can join for a modest annual membership fee. Club membership is $25.00 per person and $35.00 for a family and will provide monthly viewing as well as special event observing. For further information, please contact Bill Kroth by e-mail at WKROTH8394@aol.com or telephone at 201-933-3029 after 5:00 p.m.

In the saddle area between the Passaic and Noble Pits, Fred Rowett using his tracked hoe has removed glacial till and general overburden including trees to expose the East Limb footwall contact in this area. Material was dropped in the upper Passaic Pit area and in the back corner of the fill quarry. There have been some interesting things found such as gahnite crystals, azurite, and malachite. There is still a layer of dirt that needs some heavy rain before it can be determined how good the mineralization zone will be.

John Kolic is still working on the ridge of the Passaic Pit removing unstable rock masses to reduce dangers to the collecting public. The plan is to enclose the ore pillar in the fill quarry so the fluorescence can be viewed using high-power UV lamps during daylight hours when we are giving regular tours.

The Travel Channel did a piece on the Sterling Hill Mine during the day and evening, which took place over three days. They filmed at night and got some good shots of the ore pillar, which was made possible by a six-man crew holding the high-power UV lamps. They filmed throughout the property, and even John Kolic had an interview. It was aired on TV in early 2007.

Night collecting takes place in the middle of October and May for members of the Sterling Hill Mining Museum. The museum is still trying to move the locomotive from Palmerton, Pennsylvania. The difficulty is in not having any nearby tracks and the weight of the engine with all the limited weight allowed on some roads and bridges. Internet users can check the status of ongoing events by visiting our website, www.sterlinghill.org.

Miners Day and Volunteer Appreciation Day, May 7, 2006

Tema J. Hecht
600 W. 111th Street
New York, NY 10025

On this fine Sunday afternoon, Richard Bostwick (or Dick, as most of us call him) was the Master of Ceremonies once again for the Franklin Mineral Museum's annual tribute to miners and volunteers. Dick welcomed us one and all and thanked Lee Lowell for doing an incredible job organizing the curator's office after John Cianciulli's death. Dick went on to tell us that "Franklin is a slice of Americana [with] a real collection of oddballs all working for the common good."

Dick presented the Hall of Fame award, which this year went to Fred and Alice Kraissl. The Kraissls gave money to the Franklin Mineral Museum for the building of Kraissl Hall, donated a large and impressive mineral collection that can be seen in the museum's Hall of Minerals, and had the mineral kraisslite named in their honor. Alice Kraissl also had a fabulous micromount collection.

Lee Lowell presented a plaque to recognize and honor the late John Cianciulli, who was curator of the Franklin Mineral Museum until January 2005. Then Dick introduced the miners who were present. After that we had the pleasure of a wonderful concert from the 136-year-old Franklin Band. Throughout the day, additional "music" was provided by Joe Bongiovanni, a local railfan who set up a live steam boiler and train whistle on the museum front lawn.

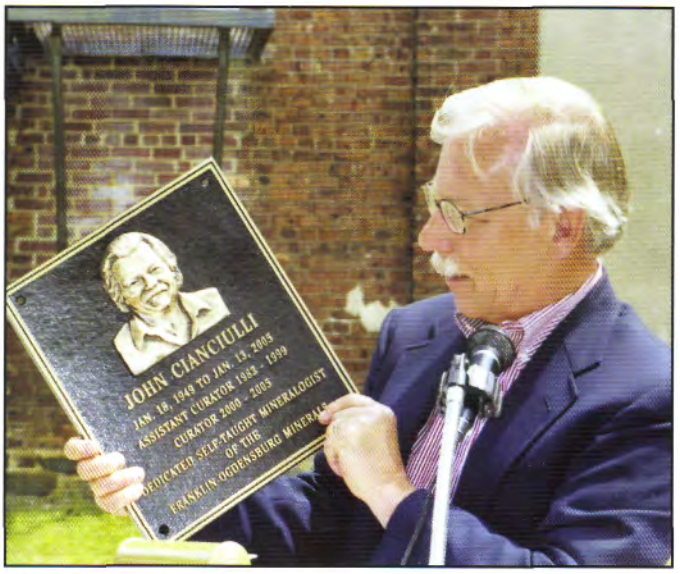
Museum President Steven Phillips introduced the museum staff and board of trustees and welcomed everyone to the event. Among the dignitaries present was Dr. Tom Turner, who gave out the Franklin Mineral Museum's Science Awards to two young people present: Ashley Napovier from the Franklin Elementary School, whose topic was titled "Ring, Ring," and Christian Rohde from the Ogdensburg Elementary School, whose topic was titled "Nuclear Fusion."

Dick mentioned the death of Ewald Gerstmann, whose collection became the heart of the Franklin Mineral Museum. "Ewald was a great and fantastic spirit," Dick said, and he called for a "posthumous round of applause for Ewald Gerstmann."

In closing, Dick stated that things keep going and Franklin keeps going. Many mining towns are ghost towns now, but not Franklin! It's been 52 years since the closing of the Franklin Mine. Dick reminded us that "real history is in these people [the miners], but the volunteers are what keeps this place going." Dick ended the day by telling all of us to "count our blessings and keep the traditions going. The roots here are very tight and run very deep."

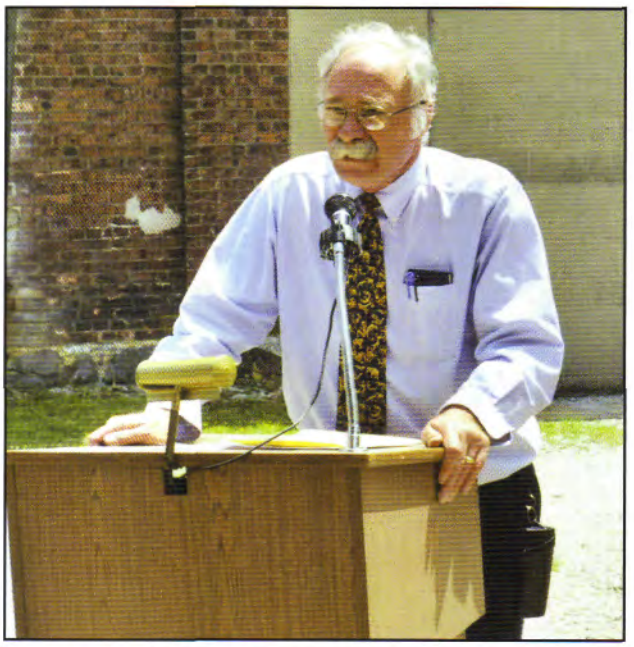
Miners Day 2006

Photo on previous page: Former New Jersey Zinc Company miners and other employees gather in front of the famous zinc miner statue. *Tema Hecht photo.*

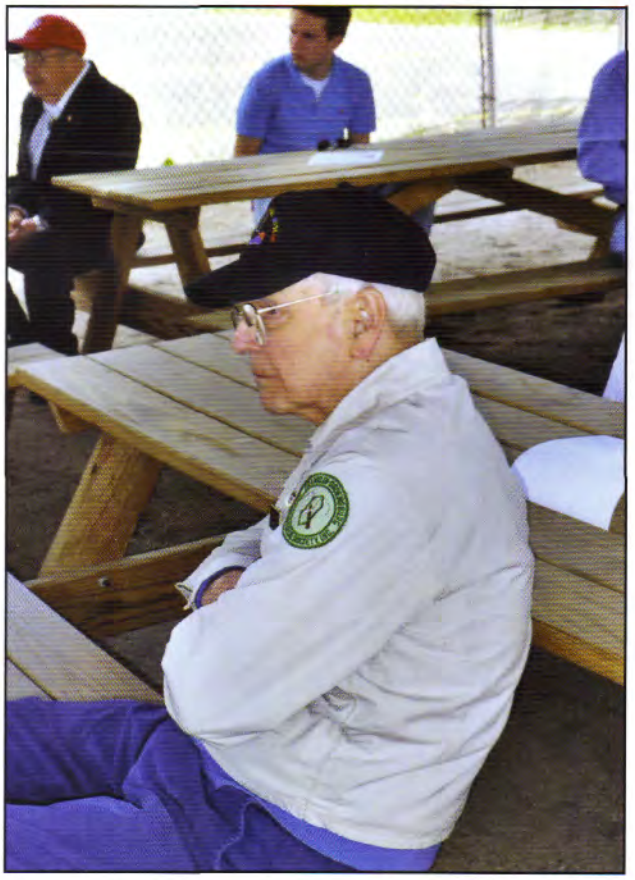


Museum collection manager Lee Lowell with the memorial plaque to John Cianciulli. *Tema Hecht photo.*

2006 museum staff: Manager Doreen Longo, Carol LaBrie, Fred Lubbers, Ray Lataweic, Tom Hanson, and Assistant Manager Andy Richter. *Tema Hecht photo.*



The Master of Ceremonies was Dick Bostwick, a former Sterling Hill zinc miner himself. *Tema Hecht photo.*



Jack Baum, former New Jersey Zinc Company geologist and Franklin Mineral Museum curator emeritus. *Tema Hecht photo.*

People, Shows, and Events

Graduate students in geology from University of Quebec at Montreal pose at the Franklin Mineral Museum during a visit to the Franklin and Sterling Hill mines on November 3 and 4, 2005, to view marble-hosted zinc and iron deposits in the New Jersey Highlands. Also present (not pictured) were geologists from SOQUEM, a Canadian mineral exploration company, who accompanied the group. Rich Volkert from the New Jersey Geological Survey (back row, second from right) and Earl Verbeek from the Sterling Hill Mining Museum (back row, far right) provided geologic interpretation of the ore deposits.

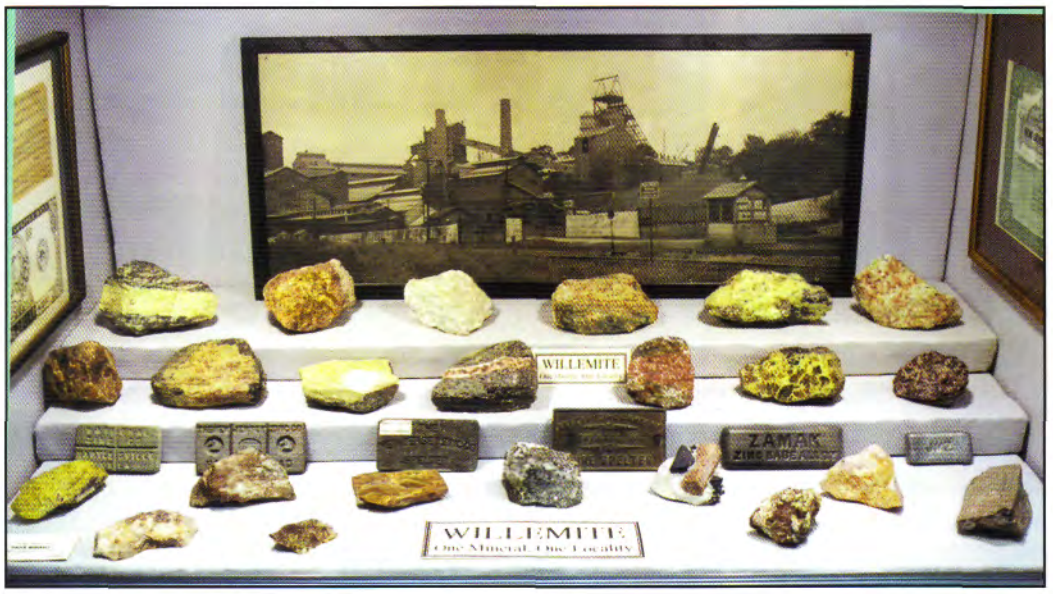
In 2006, the temporarily idle Franklin (a.k.a. Farber) Quarry was reactivated on a small scale. FOMS held a field trip here on June 17, 2006, not far from where this mobile limestone-crushing set-up was in operation. *Mark Boyer photo.*

Ray Klingler (a.k.a. the Steel-Drivin' Man) speaks softly but carries a big sledge. Two big sledges, actually; the "little" one is a 30-pounder and the "Irish banjo" on his knee weighs a hefty 70 pounds! Ray brought out his big iron for the Fall 2005 FOMS dig at Lime Crest Quarry. *Mark Boyer photo.*

With just four blows of the 70-pound sledge, Ray split a 300-pound boulder in two. The boulder yielded a pink scapolite and fluorescent scheelite, and many collectors took home good specimens. *Mark Boyer photo.*

Much work was done at the Sterling Hill Mining Museum's East Limb ore exposure in 2006. The objective is to stabilize the wall of rock and to construct a building over it so that visitors can view its fluorescence. In the meantime, a lot of collectable material has been created, and at least one mineral new to the deposit has been found here. *Mark Boyer photo.*

People, Shows, and Events

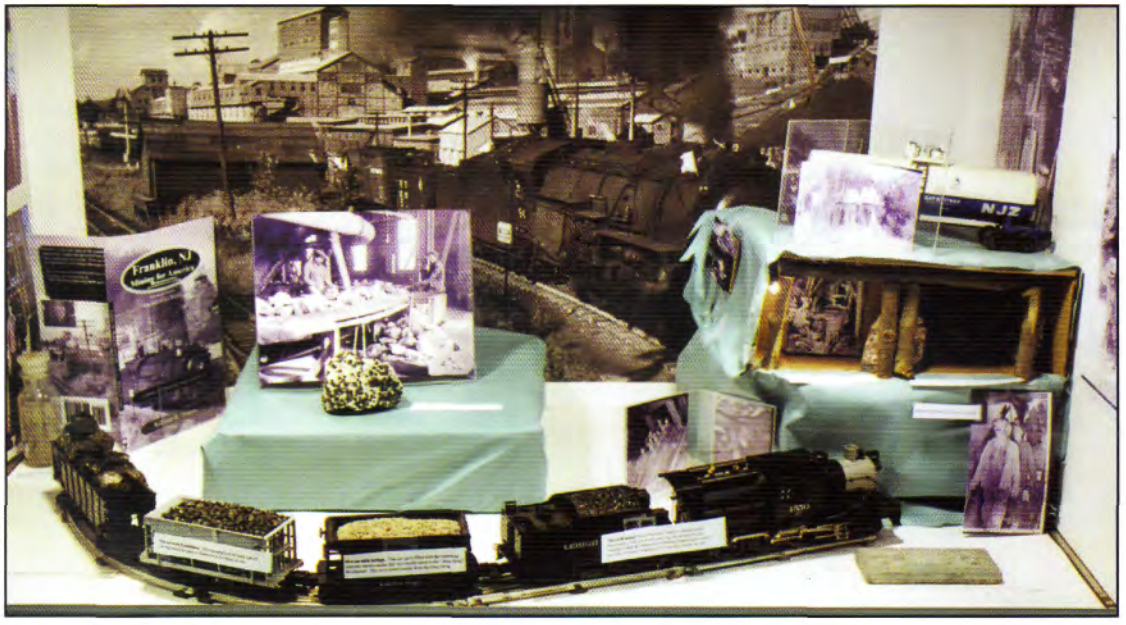


A superb daylight display entitled "Willemite: One Mineral, One Locality" by Dick and Elna Hauck at the September 2005 Franklin-Sterling Gem and Mineral Show. Stricter interpretation of New Jersey fire codes prohibited educational daylight displays at local shows in 2006. *Tema Hecht photo.*

"Vein Minerals" from the collection of Ray Latawiec. *Tema Hecht photo.*

Still more varieties of willemite, this time from the collection of Earl Verbeek. Incidentally, the small sign on the right reads: "Willemite specimens that do not belong to Dick Hauck." *Tema Hecht photo.*

A display of Hungarian miners' keepsakes reminded showgoers of the vast cultural heritage brought to Franklin by immigrant miners. This collection of artifacts was assembled by the Cherepy family. *Tema Hecht photo.*

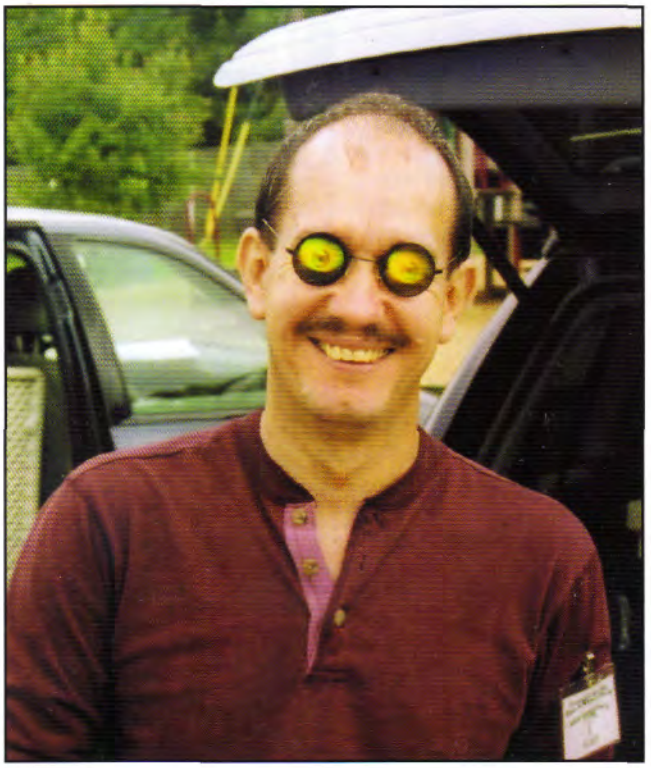


"Franklin Mine: Palmer Shaft and Mill" by local author and educator William Truran. *Tema Hecht photo.*

Bob Hauck's attractive display celebrates his passion for copper and zinc mining memorabilia. *Tema Hecht photo.*

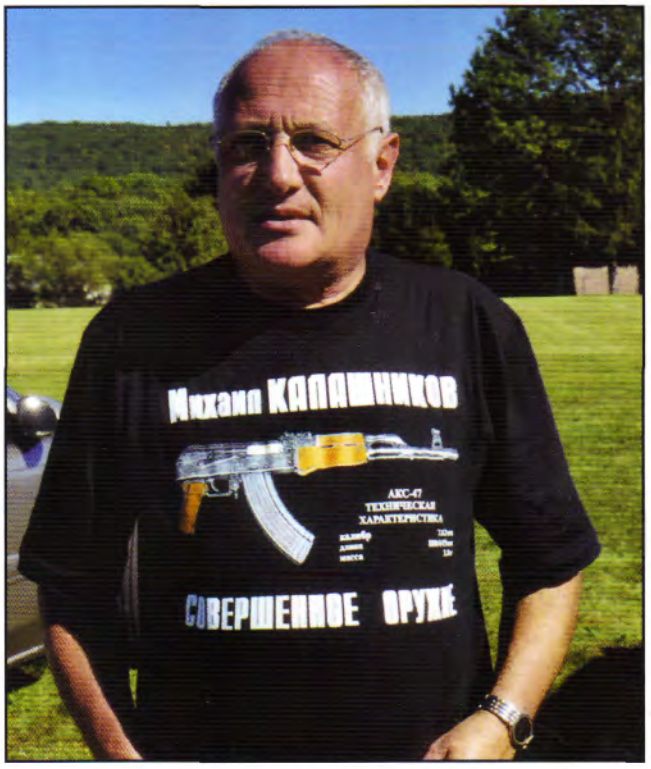
People, Shows, and Events

Franklin mineral collectors George Polman and Kerry Cooper, both East Coast transplants to the Phoenix, Arizona, area. *Richard Bostwick photo.*



Juan Gonzalez, mineral collecter and hunter of adventure, is deliriously bug-eyed about selling Franklin and Sterling treasures at the Pond Swap & Sell. *Mark Boyer photo.*

A dapper George Elling and his affable Russian bodyguard. *Richard Bostwick photo.*



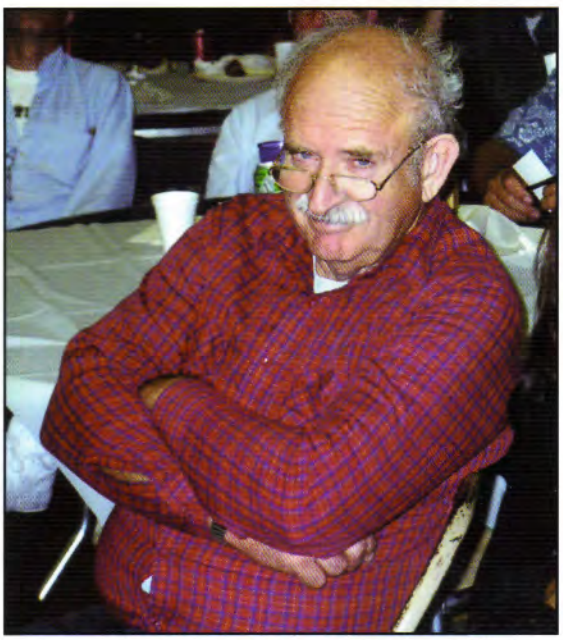
We presume the happy Russian sentiment on Roman Gaufman's shirt is something like "Give Peace a Chance." *Richard Bostwick photo.*

Fred Lubbers in a typically mellow and contemplative mood. *Tema Hecht photo.*

Elna Hauck and Denise Kroth will exchange your cash for rocks at the auction. *Tema Hecht photo.*

Dave Selem with mineralogical goodies for sale. *Richard Bostwick photo.*

The ravenous hordes await the dinner call at the "all-you-can-manage-to-pile-on-your-plate" banquet. *Tema Hecht photo.*



Dick Hauck, the godfather of Sterling Hill, in a classic pose. *Tema Hecht photo.*

Bob Jenkins and Kevin O'Shea. Who let these guys in the door? *Tema Hecht photo.*

People, Shows, and Events

On June 10, 2006, a ceremony celebrating the placement of Ogdensburg's "Backwards Tunnel" on the National Register of Historic Places brought out local politicians and an audience of more than 50 people. A brass plaque was unveiled, which reads in part: "When completed in December 1871, the 'Backwards' Tunnel was the most massive masonry on the Midland Railway line.... Using it, and an adjacent glacial embankment to cross the Wallkill Valley, reduced the route by ten miles. Markets were opened from Middletown, N.Y., to New York City. Ogdensburg businesses and resident services flourished. New buildings, stores, and hotels were built and greater tonnage of zinc ores shipped." *Mark Boyer photo.*

Another Franklin landmark bites the dust. Sullivan's Gaslight Inn closed its doors in early 2006 to make way for Franklin's sixth bank. During the restaurant's demolition in July 2006, the outer sheathing was removed to reveal the building's heritage as Moxie's Tavern, which was a popular night spot when the Franklin mines were active. *Mark Boyer photo.*

On Oct. 14, 2006, the Prazen Award of the National Mining Hall of Fame and Museum was presented to The Sterling Hill Mining Museum. The Prazen Award is presented each year, along with a bronze casting by sculptor Gary Prazen, to an institution that has distinguished itself in educating the public about mining. Participating in the unveiling of the bronze statue of an old prospector were Dr. Earl Verbeek, Bill Kroth, Denise Kroth, Richard Hauck, Mikki Weiss, Steven Phillips, and Richard Bostwick. *Mark Boyer photo.*

Lime Crest Quarry Celebrates 100 Years of Operation

On July 22, 2006, Lime Crest Quarry celebrated 100 years of operation, with the participation of numerous historical and cultural organizations. Hundreds of people attended the open-house event hosted by Limecrest Quarry Developers, owned by Andy Mulvihill. A show of waterskiing stunts on the flooded section of the quarry was the center attraction. Also part of the Lime Crest 100-Year Anniversary were historical and mineral displays, video presentations, guest speakers, and lots of great food. *Mark Boyer photo.*

Waterskiing performed by the Lake Mohawk Ski Hawks on "Lake Limecrest," part of the festivities at the 100-Year Anniversary celebration of the Lime Crest Quarry, July 22, 2006. On this overcast day, the surface water temperature at this end of the lake was 78°F. The 60-acre lake is 159 feet deep and contains an estimated 2.5 billion gallons. Before the pumps were shut off, the quarry operators had spent $300,000 per year in electricity costs to pump the water at a rate of 9 million gallons per day. As recently as May 2002, collectors on a FOMS field trip found large masses and crystals of fluorescent meionite directly below the spot where the waterskiers are in this photo. *Mark Boyer photo.*

This May 2006 photo shows the abandoned limestone processing plant at Lime Crest Quarry in Sparta, N.J. The boulder field in the foreground is from the current quarry operations on the east side of the water-filled pit. Lime Crest Quarry was first operated comercially by Thomas Edison in 1906. Ownership changed hands several times over the years, but limestone products were extracted here continuously since then until 2003, when the quarry operators threw in the towel in concession to onerous environmental regulations and rabid nimbyism. The pumps were turned off and the 250-foot-deep quarry was allowed to fill with water. Although limestone quarrying has ceased, today the eastern side of the quarry above the lake produces 400,000 tons of stone products annually. *Mark Boyer photo.*

Inside one of the tents were displays of historic photos, documents, and artifacts, as well as mineral specimens. The Franklin-Ogdensburg Mineralogical Society, the Sterling Hill Mining Museum, the Franklin Mineral Museum, and several private collectors contributed to the display of specimens from this locality. One of the specimens was the 1.2-billion-year-old stromatolite fossil collected in the quarry by N.J. state geologist Richard Volkert. *Mark Boyer photo.*

Ed Wilk, longtime field trip coordinator for FOMS digs at Lime Crest Quarry, presents Quarry Manager Howard Goddard with a certificate of appreciation. The text of the certificate reads as follows: "July 22, 2006. The Franklin-Ogdensburg Mineralogical Society, Inc. Presents This Certificate of Appreciation to Limecrest Quarry Developers LLC., Howard Goddard, General Manager and to all the previous owners and managers, for allowing the Franklin-Ogdensburg Mineralogical Society, Inc. to conduct semi-annual field trips on Quarry property. These field trips have resulted in the recovery and preservation of thousands of mineral specimens, greatly enhancing scientific understanding and public appreciation of the minerals of the Franklin Marble. The Franklin-Ogdensburg Mineralogical Society, Inc., acknowledges the public-spiritedness, generosity, and wisdom of Lime Crest owners and managers in making their mineral treasures available to the public. We thank you for that gift." *Tema Hecht photo.*

Dick Bieling educates young rockhounds about the mineral treasures to be found in the Franklin Marble. *Tema Hecht photo.*

Franklin Mineral Museum Memberships

32 Evans Street
Franklin, NJ 07416
Phone: 973-827-3481 • Fax: 973-827-0149
Web: www.franklinmineralmuseum.com
E-mail: fmm1954@earthlink.net

Yearly memberships, renewed every March, include:

- Personalized membership card
- Museum newsletter, 2 issues per year
- 10% discount in the gift shop (excludes monographs and consignment items)
- Special week of members-only holiday discount shopping, last week of November
- Discounts on children's birthday parties

Individual: $15.00, includes 1 guest pass for museum exhibits
Family: $25.00, includes 2 guest passes for museum exhibits
Patron: $50.00, includes 4 guest passes for museum exhibits
Supporting: $100.00, includes 6 guest passes for museum exhibits

"FMM Society" one-time payment memberships include:

- Personalized membership card
- Museum newsletter, 2 issues per year
- 10% discount in the gift shop (excludes monographs and consignment items)
- Invitations to special or planned events
- Option to display your collection of minerals or mining items in the museum lobby for one season
- Special week of members-only holiday discount shopping, last week of November
- Discounts on children's birthday parties

Life
$500.00, includes:
- Unlimited personal museum exhibit visits
- 25 guest passes for museum exhibits
- 10 collecting passes that include entrance into the Buckwheat dump and a maximum of 3 pounds each. All passes will be issued once only with your membership.
- Name engraved on membership plaque

Benefactor
$1000.00, includes:
- Unlimited personal museum exhibit visits
- 50 guest passes for museum exhibits
- 20 collecting passes that include entrance into the Buckwheat dump and a maximum of 3 pounds each. All passes will be issued once only with your membership.
- Name engraved on membership plaque

Sustaining
$5000.00, paid in U.S. currency or materials, includes:
- All entitlements of Benefactor membership
- Copy of Dr. Pete Dunn's "The Story of Franklin and Sterling Hill"

Collecting passes are not valid for special collecting events. Membership cards or benefits will not be reissued if lost or misplaced. Benefits and events subject to change.

The Franklin Mineral Museum

Evans Road/P.O. Box 54, Franklin, N.J. 07416
(Between Main Street and Buckwheat Road)
Phone: (973) 827-3481
www.franklinmineralmuseum.com

Exhibited by means of guided tours, Franklin-Sterling Hill mineral specimens, educational exhibits in mining methods and history, including a life-size replica of underground workings, artifacts, gemstones, zinc uses, and a 32-foot-long fluorescent mineral display.

Included in the tours is the Jensen-Welsh Memorial Hall, built especially to contain the Wilfred Welsh collections of fossils, Native American relics, and worldwide minerals and rock specimens assembled for teaching purposes.

Mineral collecting on the Buckwheat Dump. Ample parking. Picnic grounds. Gift shop offering for sale: local and worldwide minerals, fluorescent specimens, agate slabs, onyx carvings, UV lamps, hammers, mineral books, T-shirts, postcards, and much more.

Separate admission fees to the Museum and the Buckwheat Dump. Admission to the Museum includes guided tour.

OPERATING SCHEDULE:

Open to the public
March – Weekends Only
April 1 – December 1
Monday through Friday: 10 a.m. – 4:00 p.m.
Saturday: 10 a.m. – 5:00 p.m.
Sunday: 11 a.m. – 5:00 p.m.
Closed Easter, July 4th, and Thanksgiving
Groups by reservation, please

Franklin, New Jersey
"The Fluorescent Mineral Capital of the World"

The Sterling Hill Mining Museum, Inc.

30 Plant Street Ogdensburg, N.J. 07439
Museum phone: (973) 209-7212
Fax: (973) 209-8505
www.sterlinghill.org
DON'T MISS THE RAINBOW ROOM!

Featuring acres of things to see indoors, outdoors, and underground, including:

Antique mining equipment displays
Mining memorabilia displays
Historic buildings
Underground guided tours
Gift Shop stocked with minerals, books, T-shirts, caps, etc.
Food concession and picnic area
And much more!

On the last Sunday of each month (or other times for groups by prior arrangement), a collecting site will be open for a nominal additional fee. Contact the mine office for details.

Schedule of operation:

April 1 through November 30, 7 days a week, 10:00 A.M. to 3:00 P.M.
Open March and December on weekends or by appointment, weather permitting.

In March and December, tours at 1:00 P.M.
In April, May, June, September, October, and November, tours at 1:00 P.M. or by appointment.
In July and August, tours at 11:00 A.M. and 1:00 P.M.

The temperature in the mine is 55°F.

MINERAL NOTES

A Calcium-Arsenic Apatite Group Mineral From the Taylor Road Site, Franklin, N.J.

Greg Jacobus
36 Post Blvd.
Carteret, NJ 07008

Philip Persson
P.O. Box 69
Golconda, NV 89414

In the fall of 2003, we were afforded an early opportunity to collect on the Franklin Mineral Museum's newly acquired Taylor Road property. Then-curator John Cianciulli asked us to scout out the area and see what interesting specimen material we could find. Philip located a small boulder (about 25 lbs) that contained some hexagonal, medium to dark green, prismatic crystals. Both of us were of the opinion that they were apatite; however, the color seemed somewhat unusual. Upon breaking off some samples, we returned to the museum to show John our find.

John's initial impression was that they were probably fluorapatite. He did agree that the color seemed odd, and microscopic examination showed that the crystals had numerous inclusions of tiny, needle-like amphibole crystals. He sent a sample to Joe Orosz for X-ray analysis. The initial results showed a pattern similar to chlorapatite. John decided to send a sample to Malcolm Back at the Royal Ontario Museum for chemical analysis. The result showed that it was way too low in chlorine to be chlorapatite but has the proper calcium and arsenic for johnbaumite or svabite. A sample is currently being analyzed to determine the hydroxyl/fluorine ratio.

The assemblage appears to be quite simple. The host rock is gray calcite that fluoresces bright orange-red. There are abundant dark-green to black amphibole crystals and very minor, fluorescent green willemite. The apatite crystals are quite abundant and are randomly scattered throughout the host calcite, along with the other included minerals.

A second trip to the site a week later turned up the rest of the initial find. No more has been located since; however, the chance is great that more may yet be found. There have been only a few collecting trips to the Taylor Road property and much remains to be uncovered. Happy hunting!

Hancockite Renamed Epidote-Pb

Earl R. Verbeek
Resident Geologist and Curator
Sterling Hill Mining Museum
30 Plant Street
Ogdensburg, NJ 07439

In early 2003 the Commission on New Minerals and Mineral Names (CNMMN) of the International Mineralogical Association convened the Subcommittee on Epidote-Group Mineral Nomenclature. As a result of the subcommittee's work, hancockite is now retired as a species name and henceforth will be listed as epidote-(Pb). The authors note that epidote *sensu stricto* contains Ca on both the A1 and A2 structural sites, but in epidote-Pb the A2 site is instead occupied by Pb—thus the new name, which reflects the close relation between the two species. Note that this is not a discreditation, but a renaming of a valid species.

Reference: Armbruster, T., Bonazzi, P., Akasaka, M., Bermanec, V., Chopin, C., Gieré, R., Heuss-Assbichler, S., Liebscher, A., Menchetti, S., Pan, Y., and Pasero, M., 2006. Recommended nomenclature of epidote-group minerals. *European Journal of Mineralogy*, vol. 18, pp. 551-567.

MINERAL NOTES

Graeserite Added to the Franklin-Sterling Species List

Earl R. Verbeek
Resident Geologist and Curator
Sterling Hill Mining Museum
30 Plant Street
Ogdensburg, NJ 07439

Graeserite, a rare ferric-iron titanium arsenate mineral with chemical formula $(Fe,Ti)_4Ti_3AsO_{13}(OH)$, has been confirmed from Sterling Hill by a combination of physical, X-ray diffraction, and chemical studies. The sole specimen recovered to date is a black, tabular crystal measuring 3.8 x 3.7 x 0.3 cm (1 1/2" x 1 1/2" x 1/8") embedded in massive gray feldspar. Associated species include calcite, apatite, diopside, biotite, quartz, talc, chlorite, magnetite, titanite, and tourmaline; of these, only calcite is volumetrically significant. The graeserite was found in early 2006 by John Kolic in calc-silicate gneiss high on the east wall of the Passaic Pit, just below the footwall contact with East Limb ore.

Graeserite is an exceedingly rare mineral. The Sterling Hill find marks the first known occurrence of the species outside the type locality of Larchelitini, in the Binntal area of Switzerland, where it occurs as sprays of tiny, acicular crystals in hydrothermal veins cutting gneiss. The Sterling Hill graeserite crystal is enormous in comparison, and of quite different habit. Announcement of the new find was published in the September 2006 issue of *Mineral News*.

Pyroxferroite: A Lunar Species Confirmed at Franklin, N.J.

Joe Orosz
Curator of Mineral Science
Franklin Mineral Museum
P.O. Box 54
Franklin, NJ 07416

Pyroxferroite, $(Ca,Fe)(Fe^{2+},Mn)_6(Si_7O_{21})$, has been added to the Franklin-Ogdensburg mineral species list. First described from the Sea of Tranquility on the Moon, pyroxferroite forms a series with pyroxmangite and is the iron-rich end member. Pyroxferroite has previously been found in other earthly localities, including Iva, South Carolina. Locally, pyroxferroite was found at the Franklin Mineral Museum's (FMM's) Taylor Road site, where it occurs as tan to yellow platy material along with gahnite and a host of other minerals.

Pyroxferroite was confirmed in a joint effort between the Hudson Institute of Mineralogy and the FMM during a study of local pyroxmangite specimens. Pyroxferroite is indistinguishable from pyroxmangite by eye, and both species have been found on the same hand specimen.

An article describing the discovery was published in the August edition of *Mineral News* ("Lunar Mineral Found at Franklin, N.J." by Tony Nikischer and Joe Orosz). A detailed article is planned for a future issue of *The Picking Table*.

A Letter From Dr. Clifford Frondel

of Harvard University

to Dr. Pete J. Dunn

of the Smithsonian Institution, upon the occasion of the May, 1995, publication of Part One of Dunn's monograph

---

Harvard University/Department of Earth and Planetary Sciences

Hoffman Laboratory
20 Oxford Street, Cambridge, Massachusetts 02138

June 1995

Dear Pete,

When the package arrived from the Smithsonian with your return address on it I knew it was a momentous occasion. I acted like a small boy who had just received a huge box of fancy chocolates. I opened the volume randomly, read a page or two, then repeated this randomly a half dozen or so times, fascinated when I came across the wonderful maps and photographs, and finally decided to start at page 1.

I soon came across the dedication, to which I responded with a few tears, a genuine feeling of being unworthy, and a few strong tugs at my memory. Bauer was the first person I met who had a definitive knowledge (or any knowledge) of Franklin mineralogy and history. He also was not exceeded in these regards by anyone until you have come along with the publication of Part 1 of your study.

When I entered High School I encountered a teacher (name forgotten) who offered an elective course in Physiography which then included a lot of geomorphology, structural and historical geology, and mineralogy (backed up by dozens of specimens including Ellenville quartz crystals arranged along the edge of the blackboard). I was hooked. He told me about Branchville and its pegmatite (near where he once lived), Paterson, Great Notch, and Franklin.

Earlier, as a boy of 9 or 10, I had been sent to a summer boys' camp near the top of Pochuck Mtn., about 4 miles north of McAfee, and the nearest train passed through Franklin on the way to Sussex. So, knowing the way, in 1922 [at age 15] I picked Franklin as the first mineral locality to visit. I traveled from Bayside, Long Island, by the L.I.R.R., to New York City, took the Hudson River Ferry to Newark, where I boarded a steam train to Franklin.

Arriving in the morning I first explored the large quarries on the west side of Franklin Pond, then looked into the Buckwheat pit - then still working, with a fine exposure of the west limb - and then walked along Evans St. to the mine laboratory. Here I asked to see Mr. Bauer, as I was told to do by someone at a meeting of the N. Y. Mineral Club. Bauer appeared, looked astonished when confronted by a small boy - I was

only 15 -, took me through the lab, introducing me to another chemist (name forgotten), and then took me to his house.

Here I saw a very fine collection with much type material together with a separate collection of 50 to 60 specimens, all unlabelled and dissimilar, that I was asked to identify. After much examination, I identified one specimen as willemite, and gave up. Bauer laughed and said with glee that all were willemite.

Next we walked to the Buckwheat pit, where he showed me Double Rock and the (remnants of ?) the Weights and Measures pit. Then we walked to a miner's house who had a fine collection including a gigantic well-formed hornblende crystal and some enormous franklinite crystals (name of the man forgotten), and then walked by the Superintendent's house (name forgotten).

That night I slept on the floor of a shed beside the Furnace Quarry. The next morning I started to walk to Sterling Hill, but soon gave up and took the train home, swollen with pride and with specimens that I picked up (including a bronze-colored mica that 44 years later I named hendricksite).

Years later I divided up the Bauer collection between the U. S. National Museum and Harvard. Bauer was a good guy, and so is John Baum.

The bibliography in Part 1 is excellent. There are some references whose titles give no indication of the relevance to Franklin, indicating that you read them. Good for you. The treatment of the dreadful litigation that beset the two localities is adequate. The Edison Mine is famous for wonderful doubly-terminated graphite crystals, that I never found. Where the hell did you find the word omament?

In Part 2, if you have not already done so, what about a brief general description of the Franklin formation, which extends from near Philadelphia up to near the Canadian border or beyond: mineralogy, texture, age, dolomite beds (as in the quarry near Pine Island), borate occurrences, etc. If this takes more than a week or so, forget it.

Also, what about specimens in various U. S. and foreign museums. The big one in Vienna has a franklinite crystal [labeled as coming] from Vernon and other specimens together with a record of the person from whom they obtained them.

Best regards, and hurry up on the rest.

(signed) Cliff

Comments by Dr. Pete J. Dunn

The foregoing letter is printed here to provide the keepers of the flames of the Franklin-Sterling Hill mineral culture with a record of a very seminal visit by a youngster of age fifteen. This was a visit with profound implications for the science of Franklin and Sterling Hill, as was later shown by the scope of Dr. Frondel's contributions. It serves as a reminder of the benefits of spending some time with young visitors or local youngsters, and reveals more of the Bauer legacy. The reader should be mindful that this description of his first visit was written at age 88, some 73 years after the fact! The fact that some names were forgotten should be considered in this light.

Dr. Frondel's letter to me is but one brief page in a long interaction between two friends and scientists with a very strong attachment for Franklin and Sterling Hill. As such, it stands on and builds on three decades of personal interactions, and contains subtle informalities not clear to others. For example, his statement in his penultimate paragraph: *"If this takes more than a week or so, forget it,"* stems unspokenly from our long-shared mutual view that one really has to shove aside distractions and other persons' agendas to get large efforts completed. He did not want his stated suggestion to me to hold back the publication of the other parts of my monograph. As it turned out, he was pleased with the geologic discussions in Part Two of my monograph, which was, in fact, all printed before he wrote this letter to me!

Dr. Frondel's comment about "omament" stemmed from a typeface collision between printed letters in the word ornament, which I had used in a map caption.

I have some real sadness that he is not here to exult and shout his opinions concerning my historical treatise. He would have loved it because his interest in history was very deep. In spite of impatiently admonishing me in early 1991 that *"You don't have to write a damn phonebook,"* he was really delighted with each of the seven volumes I sent him in 1995/1996, and he later thought the "phonebook" approach was just fine. ⚒

A New Occurrence of Genthelvite From the Franklin Mine

John Cianciulli,† Curator
Franklin Mineral Museum
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Franklin, NJ 07416

Earl R. Verbeek
Resident Geologist and Curator
Sterling Hill Mining Museum
30 Plant Street
Ogdensburg, NJ 07439

†Deceased

Editor's note: A draft manuscript of this paper was submitted by John Cianciulli for publication in *The Picking Table* in late 2004. Due to John's untimely death, several questions that arose during the technical review process remained unresolved until the specimen described by John was reexamined by the junior author, who supplied new data and a redescription of its fluorescence.

Introduction

Genthelvite, $Zn_4Be_3(SiO_4)_3S$, the zinc end-member of the helvite group, was first verified from the Franklin Mine, Franklin, New Jersey, in 1987 (Essene and Peacor, 1987) in a paper describing petedunnite, a zinc clinopyroxene. The genthelvite was reported as microscopic grains in petedunnite, with gahnite, sphalerite, titanite, and numerous other minerals. In 2002, crystals and masses of genthelvite of substantial size were discovered at Sterling Hill (Cianciulli and Verbeek, 2003). Now another occurrence of genthelvite from the Franklin Mine has been confirmed.

Description

In the fall of 2004, genthelvite was found in old-time Franklin specimens of nelenite and manganocummingtonite. Nelenite was first found in 1925 and reportedly came from the 1597 pillar, approximately 50 feet south of the Trotter Shaft (Dunn, 1995, p. 481). The type specimen of nelenite is a breccia consisting of amphibole, calcite, nelenite, and willemite. Nelenite was originally termed "ferroschallerite" (Bauer and Berman, 1930) and is often mislabeled "bementite" or "friedelite" in old collections. At least four assemblages of this mineral are inferred from known specimens. The associated amphibole is actinolite in the type specimen (Dunn, 1995, p. 453) but is manganocummingtonite in others. Bauer and Berman (1930) originally referred to the manganocummingtonite as "zinc-manganese-cummingtonite," a species later shown to be tirodite, subsequently renamed manganocummingtonite (the current term) during a revision of the nomenclature of the amphibole group (Leake et al., 1997).

The specimen containing the newly recognized occurrence of Franklin genthelvite is no. 6349 in the collection of the Franklin Mineral Museum (FMM). It is a breccia, 7 x 5.5 x 3 cm (2.75 x 2.25 x 1.25 inches), containing orange-brown, granular nelenite, black franklinite, a dark green amphibole, white to greenish-blue microcline, medium-brown serpentine, sparse andradite and calcite, and several large grains of a mineral that resembles willemite under shortwave ultraviolet (UV) light but that later proved to be genthelvite. The specimen is well documented. It was found among a small flat of Franklin minerals that the FMM acquired from Modris Baum. John Albanese owned the specimen at one time and sold it to

E. Packard "Sunny" Cook as bementite for $2.00. Richard Bostwick acquired it some time later and eventually sold it as nelenite to Mr. Baum. The original $2.00 price tag is still affixed to the specimen.

Attention was first drawn to this specimen by its interesting fluorescence: The genthelvite fluoresces green under both shortwave and longwave UV light but yellow to orange under medium-wave UV light. The genthelvite occurs as greenish cream-colored, well-formed tetrahedral crystals, triangular in section, embedded in nelenite. The grains generally resemble willemite but for their duller glassy luster. The two largest crystals, both showing sharply formed, planar crystal faces, measure 9 and 10 mm on edge. Others are much smaller, generally 1.5 mm on edge or smaller, and are scattered throughout the specimen.

Optical information on the genthelvite was obtained by one of us (JC) using orthoscopic immersion and conoscopic techniques with a Leitz polarizing microscope. The crystals studied are isotropic with a refractive index n = 1.738, consistent with genthelvite. The X-ray powder diffraction data, using a Scintag XDS 2000 X-ray powder diffractometer at 45 kV, 45 mA, and search-match software, are a match for genthelvite. These results, plus the characteristic crystal form, are sufficient to establish the identity.

Associated species, described here in rough order of abundance, are as follows. Microcline forms large, white to pale greenish-blue, subhedral to anhedral grains showing glassy luster and weak, burgundy-red fluorescence under shortwave UV light. The largest grain fragment, to which the FMM label is attached, measures 21 × 20 × 10 mm and shows remnant crystal faces. The microcline was studied by both optical and X-ray powder diffraction techniques and is probably microperthitic, as shown by the presence of albite peaks in the diffraction data. Franklinite, confirmed by X-ray powder diffraction, occurs as anhedral, fractured grains and grain fragments, most of them irregularly rounded and ovoid in section and typically 7 mm to 14 mm in maximum dimension. Nelenite, confirmed both optically and by X-ray diffraction, forms dense, irregular, scaly masses of orange-brown, fine-grained material; it is both the cement for the breccia and the matrix for the genthelvite crystals. A dark green amphibole, tentatively identified as manganocummingtonite by comparison to analyzed samples in the FMM collection, forms remnants of prismatic crystals, locally altered to slightly translucent, medium-brown serpentine with waxy luster. Andradite forms tiny, glassy grains of typical golden-brown color, 0.5 mm to 1 mm across, embedded in white feldspar toward one end of the specimen adjacent to the FMM label, and calcite is present as a few tiny, scattered white grains, inconspicuous in daylight but showing bright red fluorescence under shortwave UV light. The calcite was confirmed as such by its vigorous effervescence in dilute HCl.

Luminescence of Genthelvite

The luminescence of the genthelvite was examined under shortwave, medium-wave, and longwave UV light using a 9-watt Way Too Cool combination UV lamp. Because the luminescence is complex and differs from that of Sterling Hill genthelvite, it is here described in some detail.

Under shortwave ultraviolet light (SW) the genthelvite fluoresces bright green, more of a pure green color than the yellowish-green fluorescence of typical Franklin willemite. The green response differs markedly in intensity and slightly in hue within different parts of the same grain, thereby lending a mottled aspect to its appearance. Several grains show within them small areas of pale yellow to orange fluorescence, a response so far not noted from specimens of Sterling Hill genthelvite. The phosphorescence is fairly bright, persistent, mottled pale yellow-green, locally inclining toward greenish yellow.

Under longwave ultraviolet light (LW) the fluorescence is similar to that under SW, but not as bright, and those areas that under SW fluoresced yellow now appear more orange. The color shift from yellow to orange is probably due to lesser "dilution" of the orange light by the green emission. The phosphorescence is persistent and appears similar in overall color to that following SW excitation but is dim, sufficiently dim that the hues of phosphorescence are difficult to discern.

Under medium-wave ultraviolet light (MW) the fluorescence of the genthelvite is markedly mottled, with hues ranging from green through yellowish green to yellowish orange to orange. The dominant response, and the overall hue that one sees without magnification to resolve the details, is pale yellowish orange. The phosphorescence is fairly bright, persistent, mottled pale greenish-yellow to yellow and orange.

The luminescence of this Franklin genthelvite differs in several respects from that of Sterling Hill genthelvite found earlier (Cianciulli and Verbeek, 2003). The bright SW, moderately bright LW green response of Franklin genthelvite is the opposite of that seen in Sterling Hill genthelvite, which fluoresces fairly brightly LW but only dimly SW. The bright SW response of the Franklin genthelvite is probably the reason this material passed unrecognized for so many years, for it is easy to confuse with willemite until two samples are placed side-by-side so the difference in hue can be appreciated. The orange to yellow fluorescence of Franklin genthelvite, seen to some extent under all three wavelengths of UV in the Franklin material, and especially under MW, is to date unknown from Sterling Hill material. However, genthelvite from Mont Sainte-Hilaire, Quebec, is similar to the Franklin material in showing orange fluorescence under

MW. Color photographs of three such specimens are shown in the collector books by Stuart Schneider (2004, pp. 144-145; and 2006, p. 108). The luminescence may be simplified and summarized as follows:

- SW: bright green fluorescence, pale yellow-green phosphorescence
- LW: moderately bright green fluorescence, pale yellow-green phosphorescence
- MW: pale yellowish orange fluorescence, pale yellow phosphorescence

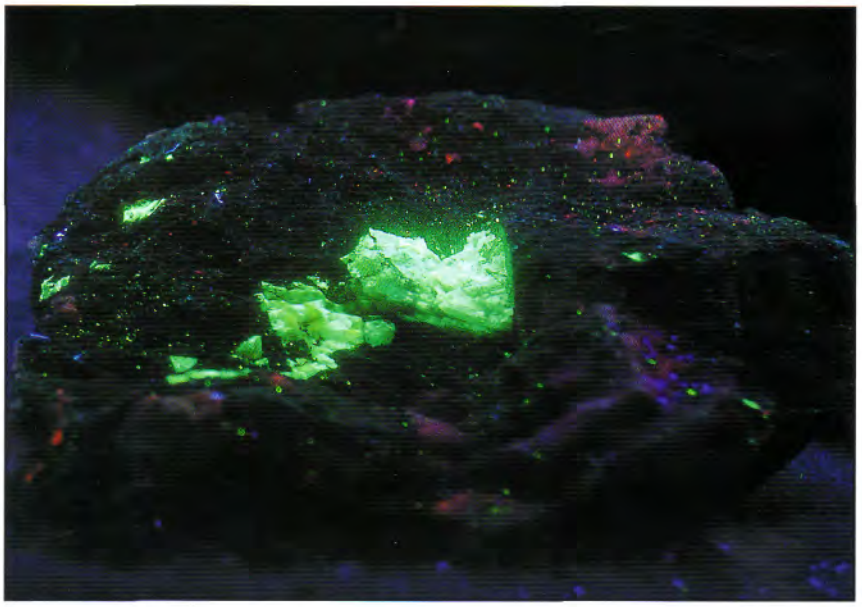

Figure 1. Genthelvite crystals showing green fluorescence under shortwave UV light. The largest crystal measures 1 cm on edge. *John Cianciulli photo.*

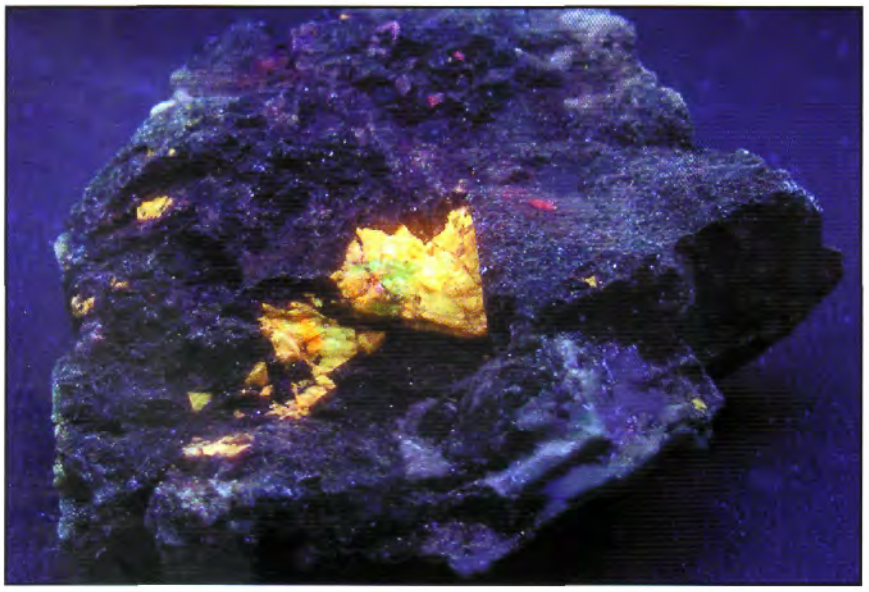

Figure 2. Genthelvite crystals showing yellow-orange fluorescence under medium-wave UV light. Note the color mottling of the fluorescence. *John Cianciulli photo.*

The Search for More

Numerous specimens containing nelenite and manganocummingtonite were examined in search of more genthelvite. Mr. Paul Shizume found one such specimen in the FMM gift shop. This specimen, 8.3 × 6.5 × 3.5 cm (3.25 × 2.5 × 1.5 inches), is a breccia and closely resembles the one described above, but contains some rhodonite, quartz, and willemite in addition to manganocummingtonite, nelenite, franklinite, andradite, and genthelvite. The genthelvite occurs as disseminated microcrystals and crystal clusters in proximity to willemite, which fluoresces a brighter green than that of the genthelvite. The genthelvite crystals are about 1 mm in maximum dimension. Their fluorescence is similar to that reported above for FMM sample no. 6349: bright green SW, less bright green LW, and orange-yellow MW. The specimen history begins with Andy Dilatush (no. AD 0151) to Lee Lowell (no. 416) to George Elling (uncataloged) to the FMM (sales catalog no. 2367). Paul Shizume is the present owner.

Two more genthelvite specimens were found in the museum collections. Specimen no. 5636, from the Kraissl/Lemanski collection, is a very large mass of manganocummingtonite with a single, broken, 1 × 1 cm genthelvite crystal in the matrix. Specimen no. 1857 (14 × 13 × 5.5 cm, or 5.5 × 5.1 × 2.2 inches) is massive andradite with large "starbursts" of manganocummingtonite and a 0.5 × 0.5 cm grain of genthelvite in contact with a willemite grain embedded in the andradite. The fluorescence responses of the genthelvite in these two samples are similar to those reported above.

Collectors might be interested to know that the specimen described here, the one that led to the discovery of a second Franklin occurrence for genthelvite, almost slipped into oblivion. The flat of minerals that Modris Baum brought to the FMM was intended as sales material to generate funds for the museum. The genthelvite specimen that is now no. 6349 in the FMM collection was originally offered for sale, as nelenite, through the Internet on eBay. It wasn't until the specimen was lamped under MW that realization dawned that it merited closer examination, whereupon it was removed from sale and discovered, upon optical examination, to contain genthelvite.

Discussion

Four genthelvite specimens from this second occurrence at Franklin, N.J., have been found as of this writing. All respond similarly under UV light. The orange-yellow response under MW of the genthelvite from this find is consistent in all samples studied and may be diagnostic to some degree. Also, a dark green amphibole is present in all four samples. The genthelvite can readily be distinguished from other minerals of similar appearance by its luminescence and especially by its optical properties.

It is likely that more specimens exist in private collections. Collectors should carefully examine specimens containing dark green amphibole (variously labeled actinolite, zinc cummingtonite, tirodite, or manganocummingtonite in old collections) and nelenite, which in old collections was commonly labeled as bementite, ferroschallerite, or friedelite. It may also be possible to collect genthelvite on the mineral dumps of the Franklin mine in specimens containing calcsilicate, zinc, sulfide, and amphibole associations.

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Acknowledgements

The authors thank Joe Orosz for X-ray powder diffraction analyses, Mark Boyer for assistance in observing the fluorescence, Carol Cianciulli for typing of the original manuscript, and George Elling, Steven Phillips, Paul Shizume, and Modris Baum for providing specimens for study.

Picking Table Article Wins EFMLS Trophy Award

An article by *Picking Table* editor and author Richard C. Bostwick took top honors in the Bulletin Editors' Contest held during the 56th annual convention and meeting of the Eastern Federation of Mineralogical and Lapidary Societies, Inc., (EFMLS) in West Palm Beach, Florida. Dick Bostwick's article "Wollastonite From Franklin, N.J." received the Trophy Award in the category "Original Educational Articles—Advanced" at the November 19, 2006, EFMLS Bulletin Editors' Breakfast. The winning article was published in the Fall 2004 issue (Vol. 45, No. 2) of *The Picking Table*. Congratulations, Dick; this award is well-deserved recognition of your invaluable contributions to FOMS!

Observable Genthelvite in the Petedunnite Assemblage From Franklin, N.J.

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Introduction

Genthelvite, $Zn_4Be_3(SiO_4)_3S$, from Franklin, N.J., was first reported in 1987 by Eric Essene and Donald Peacor in their paper describing petedunnite as a new mineral species. Their description of genthelvite is sparse in detail other than that it occurred as microscopic grains encountered upon microprobe analyses of the holotype specimen for petedunnite. As for the genesis of the genthelvite and other zincian phases in this assemblage, they suggest that these species may have been precipitated from the same zinc-rich fluids that had replaced an original diopside-hedenbergite-johannsenite solid solution to form petedunnite. Genthelvite was added to the official list of Franklin species, but for nearly twenty years no one could produce an observable identified specimen of genthelvite from Franklin.

In their article "A New Occurrence of Genthelvite From the Franklin Mine" (*The Picking Table*, this issue, pages 25-28), John Cianciulli (deceased) and Earl Verbeek report that specimens of genthelvite observable to the naked eye are now verified from Franklin, albeit from an entirely different mineral assemblage (i.e., nelenite and the amphibole manganocummingtonite). Alluding to the original association of Franklin genthelvite with petedunnite, Cianciulli concluded the article with the following enticement: "It may ... be possible to collect genthelvite on the mineral dumps of the Franklin mine in specimens containing calcsilicate, zinc, sulfide, and amphibole associations." Sadly, John Cianciulli died not long before such a find was indeed made from material originally taken from the Buckwheat Dump.

Specimen Provenance

The tortuous tale of these recently discovered genthelvite specimens goes back nearly 50 years. During the time that the Franklin mines were active, and for a while afterwards, coarse dump rock from the mines was used extensively to build and repair local roads. The Buckwheat Dump supplied much road metal for Franklin-area roads, including a long stretch of Cork Hill Road in Ogdensburg from the embankment at the intersection with Yurchak Road to the north side of the so-called "Backwards Tunnel." According to John Cianciulli [personal communication, c. 2003], this section of the road was repaired and widened with Buckwheat Dump fill in 1955 to repair storm damage from Hurricane Diane. The base of the road embankments was supported by utility poles laid end-to-end and held in place by long iron drill rods driven into the ground. The rough, craggy waste rock permitted a steeper angle of repose than dirt, thus saving material volume and land area used. Most of this roadfill material is rich in microcline and calcite, with lesser amounts of petedunnite, willemite, quartz, amphibole, meionite, and andradite. While occasionally picked at by collectors, this dump material was largely undisturbed for forty years, until Mark Boyer (MB) purchased a home and property where much of the Buckwheat Dump roadfill ended up. (For the record, the entire embankment that is immediately north of the tunnel, and even much of the paved road surface, extends beyond the borough's 30-foot right-of-way as an encroachment on MB's private property.)

Prior to 2000, petedunnite was considered a very rare

Franklin species, and only a few specimens were known. Reportedly, in the early 1990s one well-known collector paid $1,000.00 for a fist-sized specimen of petedunnite. In early 2000, a small amount of petedunnite was collected on the Buckwheat Dump by Dr. Steven Kuitems. Thumbnail chips from this find were presented by Franklin Mineral Museum (FMM) curator John Cianciulli to museum volunteers as tokens of appreciation. MB immediately recognized his chip as the same material found in abundance along the road embankment in his own backyard. From that Spring of 2000 through the next few years, MB collected an estimated 1,200 pounds of petedunnite specimens from the Cork Hill Road fill, including an 80-pound chunk donated to the FMM and a 132-pound boulder that was displayed at the Fall 2001 Franklin show. In October 2000, MB took a crateful of large specimens of petedunnite to the Ultraviolation fluorescent mineral show in Pennsylvania to sell for $5.00 to $10.00 each. The ones that didn't sell were tucked away in an out-of-the-way nook in MB's basement and forgotten.

Meanwhile, in 2002, genthelvite was discovered by collectors at Sterling Hill and reported by John Cianciulli and Earl Verbeek in the Fall 2003 *Picking Table* (Vol. 44, No. 2). Determined to find observable genthelvite in the petedunnite assemblage, John Cianciulli implored those who had collected petedunnite from either the Buckwheat Dump or Cork Hill Road to reexamine their specimens under longwave UV. John optically analyzed numerous specimens in hopes of finding the elusive Franklin genthelvite in its originally reported assemblage, but all fluorescent green dots and grains he examined proved to be willemite. In October 2004, genthelvite from Franklin did turn up, but in a completely unexpected assemblage, as reported in John's final research (Cianciulli and Verbeek, 2006), which John submitted for publication in *The Picking Table* shortly before he died. On April 2, 2005, not quite three months after John had passed away, MB found the forgotten box of petedunnite specimens. MB lamped all of these specimens under longwave UV and found one large rock that had a small grain which fluoresced more aqua than green. Upon breaking that rock into smaller pieces, four specimens (cataloged Boyer collection nos. 1276-1279) had small areas of blue-green fluorescence, brightest under longwave UV, that were suspected of being genthelvite.

General Observations and Analyses

Specimen no. 1279 was sacrificed to harvest samples for optical and X-ray analyses. The hand-separated study samples were small grains that fluoresced blue-green in long-, mid-, and shortwave UV light. The grains were crushed and an X-ray powder diffraction (PD) study was performed by Joe Orosz (JO). Excellent matches to ICDD PDFs 38-046 (genthelvite) and 20-554 (albite) were obtained. Since more than one mineral phase appeared to be present in the X-ray study, JO then performed a limited optical study to verify that there were two phases present and to determine some of the optical properties. The grains from the X-ray PD study were mounted in immersion oil with a refractive index (RI) of 1.532 (near the range of feldspar group minerals) and observed under polarized light. At least two phases were present: Many low-relief (i.e., difficult to see because they have an RI similar to the oil) mineral grains and a lesser number of high-relief grains were observed. Observation of the Becke line of the high-relief grains indicated that the grains had an RI much greater than 1.532 (that of the oil). Genthelvite has a reported RI of 1.7. Observation under crossed polars indicates that the low-relief mineral is anisotropic and that the high-relief mineral is isotropic. Genthelvite is isotropic. The optical study supports the X-ray PD identification.

The three remaining hand specimens (nos. 1276-1278) each have grains of genthelvite clearly visible under long-, mid-, and shortwave UV. The grains are mostly in contact with microcline. One specimen (1276) has a 5- x 2-mm grain of genthelvite surrounded by massive willemite, and the distinctive fluorescent response of each mineral is clearly delineated. Specimen 1278 was donated to the FMM (cataloged FMM 6403) for study purposes since it best represents the mineral assemblage. Spots of fluorescent blue-green material are quite visible to the naked eye in context with many minerals of the petedunnite assemblage. The matrix material for this genthelvite was identified as a close match to ICDD PDF 19-932 microcline. Since most Franklin microcline is perthitic (Dunn 1995), the presence of albite in the analyzed genthelvite is not surprising. Other minerals observed in this specimen include calcite, willemite, petedunnite, sphalerite, quartz, titanite (sphene), allanite, andradite, and galena. All of these mineral species correspond to those found in the holotype petedunnite specimen described by Essene and Peacor (1987).

Conclusion

Genthelvite from Franklin was originally identified upon microprobe analyses of incidental mineral inclusions 1 to 10 micrometers in size within petedunnite, and its luminescence was described as "brilliant blue" in the beam of a luminoscope (Essene and Peacor 1987). The present find is the first reported macroscopic observation of the UV fluorescence response in genthelvite from the petedunnite assemblage.

Specimens of Franklin genthelvite are quite rare. Genthelvite in the nelenite-manganocummingtonite assemblage is limited to whatever specimens may reside in old collections; nonetheless, it has now been established that Franklin genthelvite that is observable without magnification can still be field-collected today in petedunnite-bearing dump rock.

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Acknowledgements

The authors are indebted to the late John Cianciulli for his insistence that genthelvite visible to the naked eye would turn up in the petedunnite assemblage at Franklin. John's dogged pursuits in this respect did not bear fruit in his lifetime, but evidently his muse saw fit to inspire others to complete his quest. The authors therefore dedicate this article to the memory of John and his passion for Franklin minerals. We also thank Dr. Earl R. Verbeek for his review of this article. ⚒

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An Odd Little Sphalerite Tale

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One weekend many years ago a large mineral show was taking place somewhere in Northern New Jersey, but due to my duties as manager of the Franklin Mineral Museum, I was not able to leave my post. However, several show attendees came back to Franklin to display their spoils. John Cianciulli returned and handed me a boxed specimen bearing a Fred Parker label. "I found a reaction rim for you," John stated, and I gave him a ten-spot to cover his expense. Then he disappeared into his "wizard's den" in the back of the museum.

I was delighted with the specimen; it was a piece of sparse black ore containing a 3.0-cm grain of yellow sphalerite semicircled by a reaction rim of zincite — a good find for my geology collection.

Since museum attendance was sparse, I retreated to the fluorescence alcove and illuminated the piece under shortwave UV light. I was dumbfounded to see a deep, rich blue shortwave fluorescence in the sphalerite. Just then Nick Zipco walked into the lobby to quench his thirst. "Hey, Nick," I said. "Want to see something odd?" I showed him the piece first in white light and then under shortwave UV. Nick just looked and looked, then suddenly bolted for the back room. Soon I heard Nick berating John for selling a new species to Sanford for $10!

Years later, a gentleman who had cut many thin sections for me asked whether he could cut the zincite-sphalerite grain. I was hesitant since the grain was small, but he did a masterful job and markedly improved the specimen. When I brought the specimen home, naturally I lit it up with my shortwave UV lamp. Once again I was astonished: This time it fluoresced a pastel peach hue. The royal blue had vanished!

I mentioned this to Ralph Kovach, a local lapidary, and he told me he has often seen longwave blue-fluorescing sphalerite in black ore undergo the same change after cutting and polishing. I brought the matter up to Dr. Earl Verbeek, curator of the Thomas S. Warren Museum of Fluorescence at Sterling Hill. Earl explained that the blue fluorescence is a response caused by electrons trapped in the lattice defects scattered through the grains. When heated, as during polishing, the thermal energy drives the electrons from their traps.

Over the years chemists have carefully analyzed orange and blue fluorescent responses of sphalerite searching for trace element differences but have always found identical chemical makeups. This is yet another of nature's mysteries seen in the minerals of Franklin and Sterling Hill. ⚒

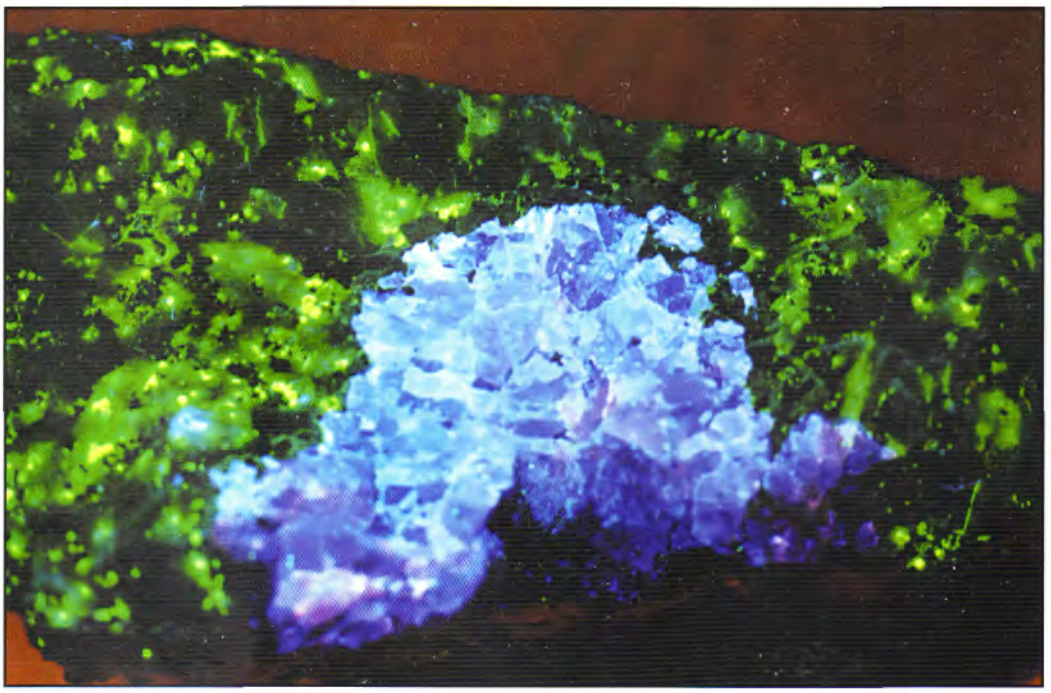


Figure 1. The author's sphalerite specimen originally fluoresced a "royal blue" under shortwave UV light before it was cut and polished. *Steve Sanford photo.*

Figure 2. The same sphalerite specimen, seen here in white light, was cut and polished to enhance the zincite reaction rim. *Steve Sanford photo.*

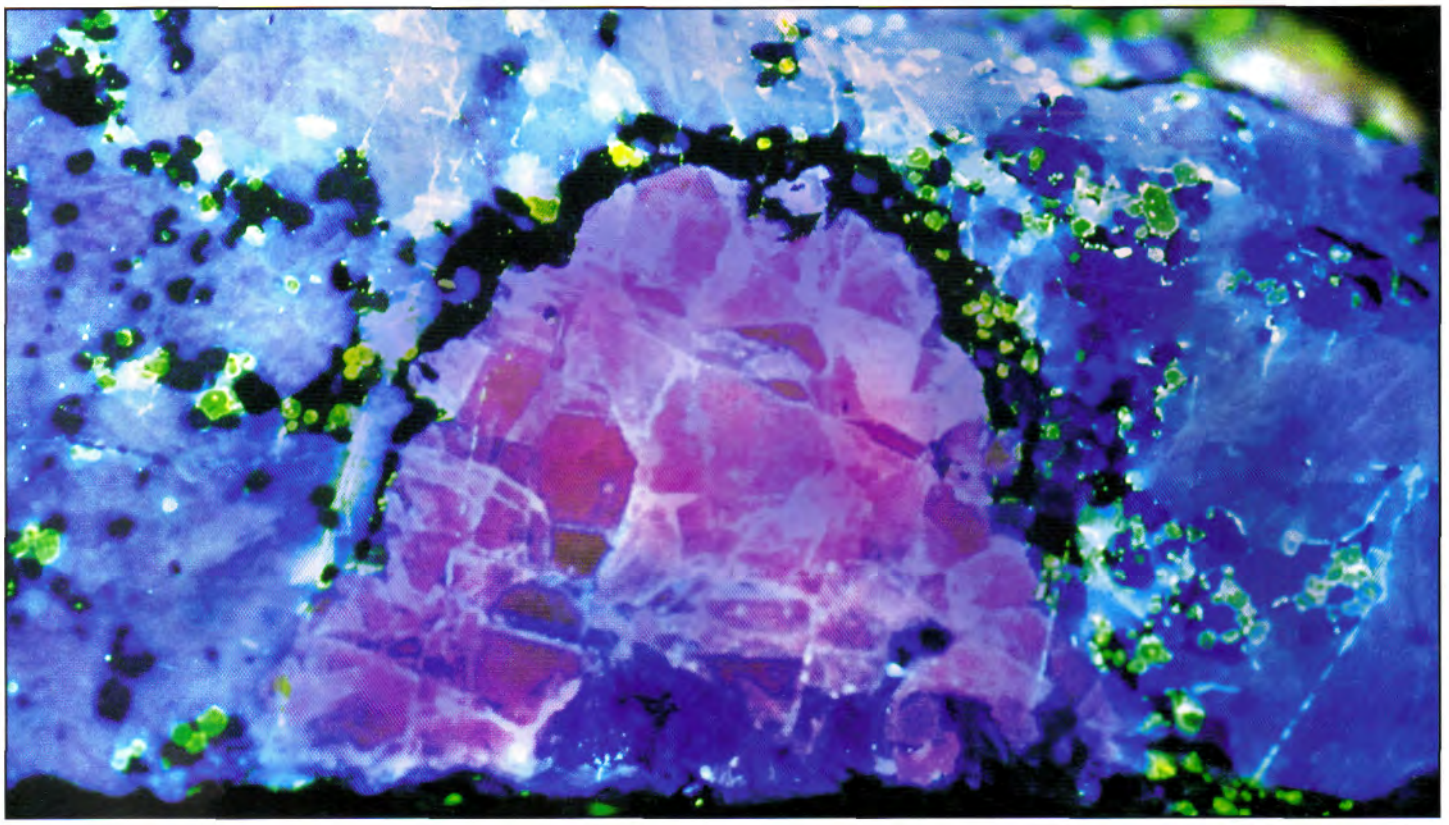
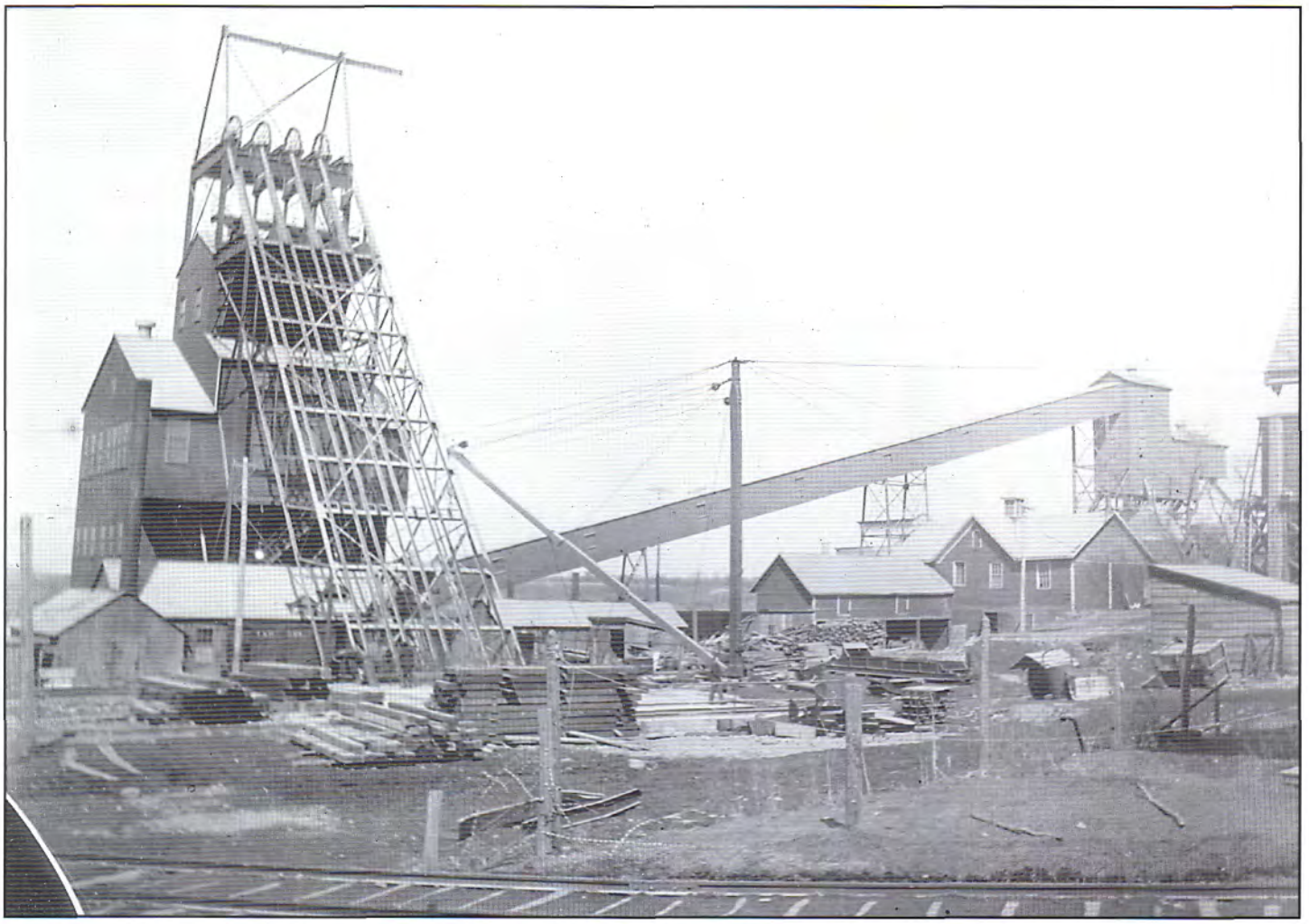


Figure 3. Unexpectedly, the cutting and polishing had altered the sphalerite's shortwave fluorescent response from vibrant blue to pastel peach. *Steve Sanford photo.*

Recently Discovered Historic Images of Franklin Furnace, N.J.

Mark Boyer
25 Cork Hill Road
Ogdensburg, NJ 07439



The brand-spanking-new Palmer Shaft and mill complex as photographed by Frank Gregory on March 14, 1910. Work on the Palmer Shaft was nearing completion, and it would be another month yet before the first load of ore would be hoisted through this shaft. The area in the center of the photo is the site where the change house was built.

In the summer of 2006, Art Jordan, owner of the Antique Photo Store in Lafayette, N.J., received a curious phone call from an elderly woman in South Carolina. She described herself as someone who was helping her friends at the retirement home where she lived to dispose of their unwanted possessions. One of her neighbors had recently passed away and left behind a collection of old photos, mostly glass negatives, that had been shot by an early 20th-century professional photographer. From the photographer's notes, the little old lady from South Carolina ascertained that the images were from north-

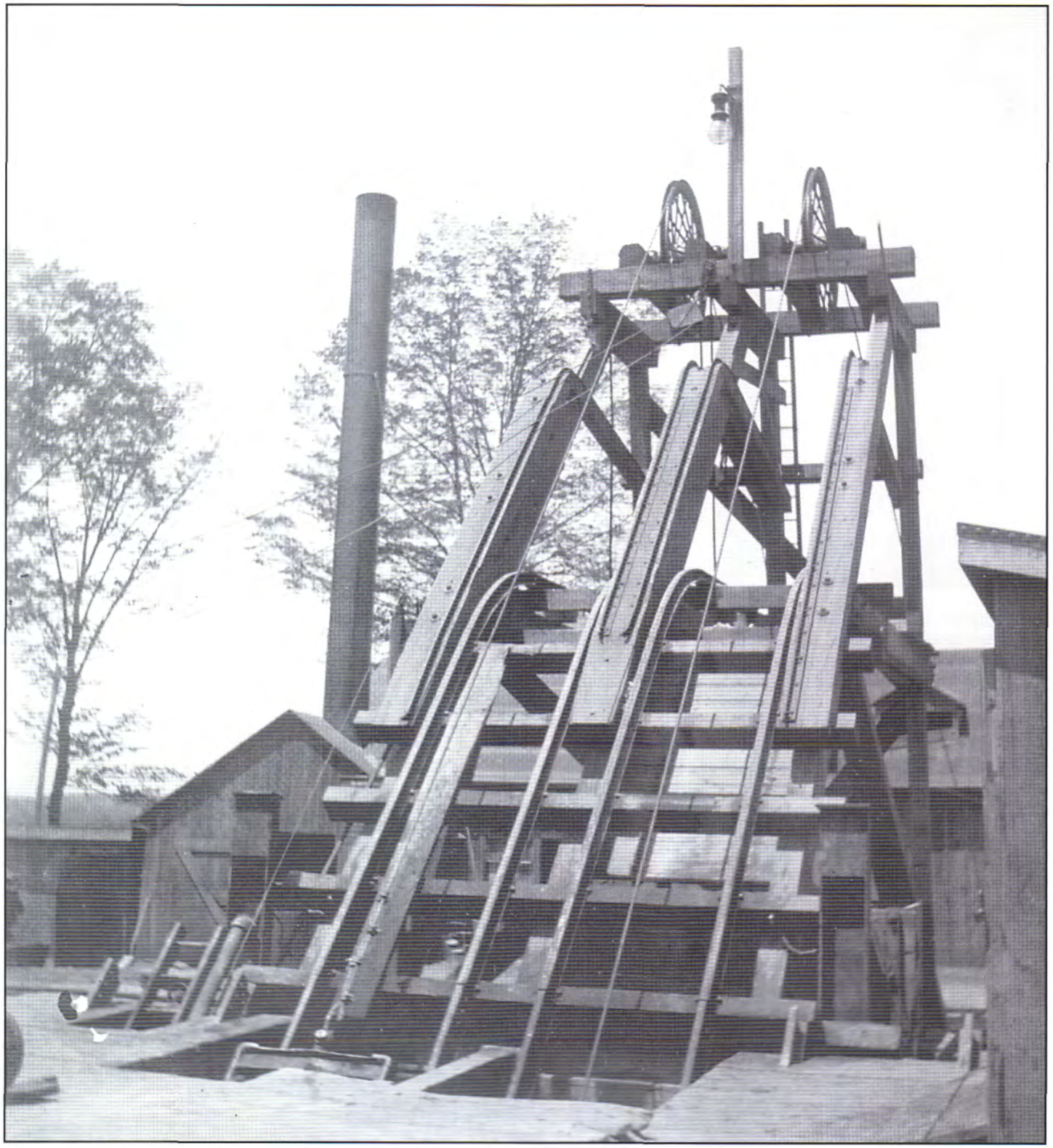
ern New Jersey. Hoping to find an interested purchaser, she found the number of a northern New Jersey photo shop owner and gave him a call. Of course Art Jordan was interested, and he gladly paid her asking price for the historic photos.

The images on the 93 glass plates were all taken between the years 1902 and 1912 by a professional photographer named Frank Gregory, who had a studio in Hamburg, N.J. Gregory later moved to Ogdensburg, but how his photographs got to South Carolina is uncertain.

The Gregory photo collection depicts people and places throughout Sussex County, including many scenes of the Sterling Hill Mine in Ogdensburg and several views of Franklin Furnace, as the Borough of Franklin was known before 1913. The five vintage images reproduced here are remarkable for their subject matter. As far as can be determined, these images have never been published in any form until now and are published here with the kind permission of Art Jordan.

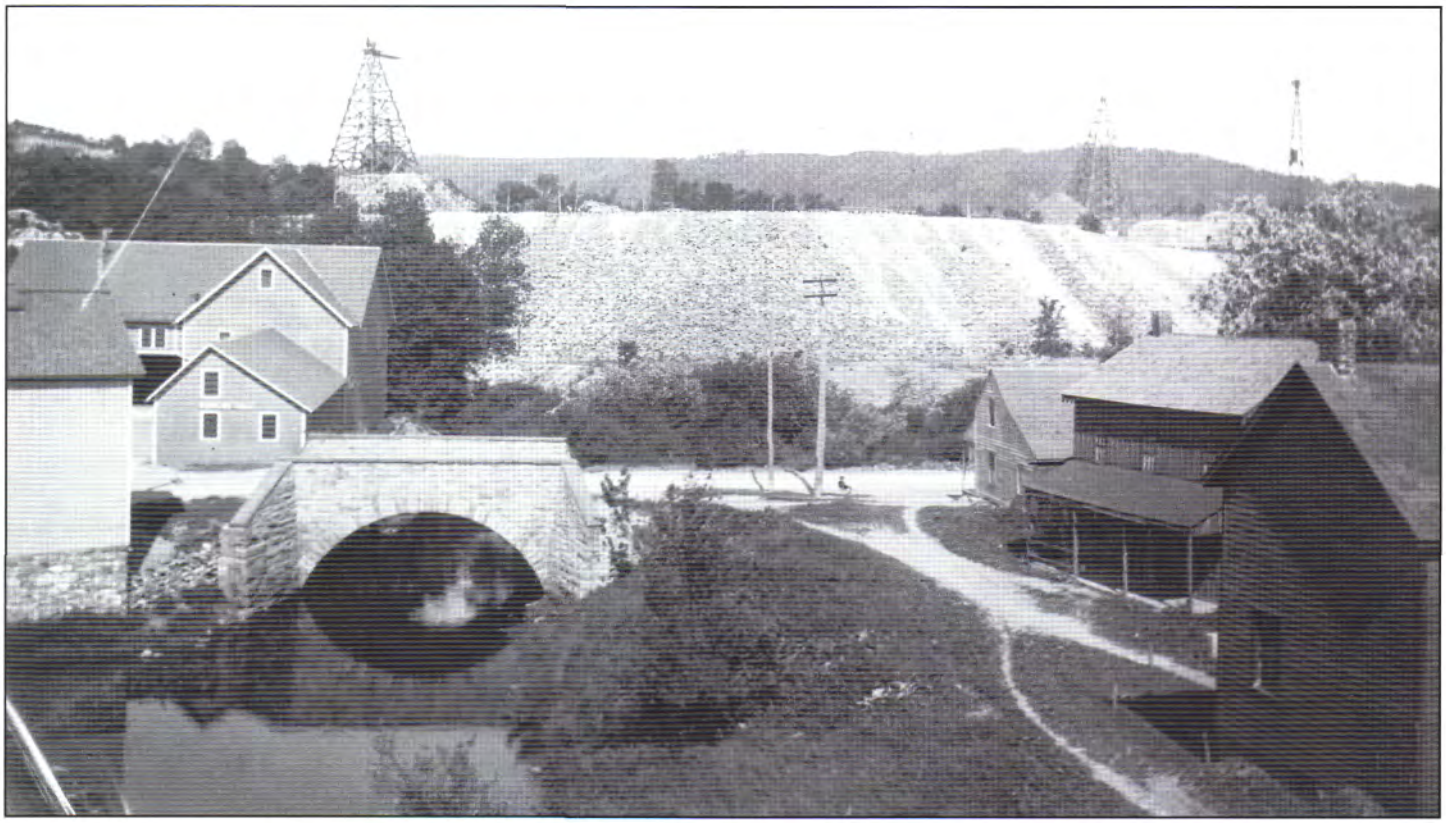
Prints of these and other period photos may be viewed and purchased at the Antique Photo Store in Olde Lafayette Village in Lafayette, N.J. Supplemental color photos herein are by the author. Thanks are extended to Lee Lowell and Jack Baum for their time and assistance with research for the captions.

Franklin Mill No. 2, which went went into service in 1900 to treat the ores coming out of the Parker and Trotter shafts. This scene was photographed on July 11, 1908. Notably absent in this early view of the mill is the Palmer Shaft hoist and ore conveyor, which would distinctively mark the Franklin skyline within two years. In the foreground is the machine shop; to the right was the shed where the plant's lubricating oil and grease were stored. The building next to the four smokestacks is the boilerhouse for the power plant that provided electricity to the consolidated Franklin mining operations. When the Palmer Shaft began production, this mill complex was substantially expanded and became known as the Palmer Mill.



A rare photo of the Trotter Mine dated July 11, 1908. Although photographer Frank Gregory did not identify the name of this shaft in his notes, there exists another, similar-vintage photo of this double-tracked shaft from a different angle that shows Franklin Mill No. 2 in the background. By comparing these two photos with a 1930s-era N.J. Zinc Company site map of shafts, structures, and surface features, it was ascertained that this is Trotter Shaft No. 4 as viewed facing west. This shaft was started in 1885 by Charles Trotter of the Lehigh Zinc and Iron Company and was eventually sunk to the 500 level. It was worked until the 1890s and lay idle during the period following the Great Consolidation of Franklin mining interests in 1897. Apparently this shaft was reactivated for some time until the Palmer Shaft became the sole ore hoist for the Franklin Mine. Note the general tidiness of the area, the skip on the lefthand track, and in particular the electric lamp post mounted atop the headframe, all indications that this shaft was operable at the time of this photo. Also note the small man-shaft with a ladder and water pipe emerging at the same incline as the rails on the headframe.

In its day, the Watson Littell Hotel was an imposing structure in Franklin. Originally known as the Franklin House, it was located where the present-day Precision Propane facility is on Church Street. The hotel later was destroyed by fire. In the foreground to the right is Littell's bottling plant, now the site of Edison Antiques. On the hill to the left are the original Franklin School, now long gone, and the former Baptist Church, now Temple Shalom. The water tower to the right, perched on an outcrop known as Cannon Rock, was built to supply water for Littell's Hotel and brewery. This photo was taken from the high railroad grade of the New York, Susquehanna and Western Railroad. Although no date is given in Frank Gregory's notes, it is probable that this view was recorded on June 6, 1912, the same date as the view that Gregory shot about 100 feet to the south. As can be seen in the early 2007 photo below, this scene has changed dramatically in nine decades.



An amazing view of Franklin Furnace's "Twin Towers," seldom photographed together as in this view. These towers stood 180 feet tall and supported an aerial tramway that conveyed material out of the Buckwheat Open Pit. The Buckwheat Dump in its former glory fills the background. Above the distant cluster of trees to the right is a crane derrick, which was mounted to a footing that presently supports the famous zinc miner statue in front of the Franklin Mineral Museum. This photo, dated June 6, 1912, was also taken from the high railroad grade at a point directly over its stone arch over the Wallkill River. The stone bridge of Church Street still exists, albeit hidden beneath a concrete extension. Across the street are Watson Littell's barns, which are still standing. Below is the same view as of February 2007.

Answers to Word Search Puzzle in Last Issue

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G . . M A N G A N O S I T E . E . P . . . . P E .
O . . A . E . . . . P . . . . T . Y . . . Y . S .
E Z I N C I T E E T I N E M L I . R . . R . . A .
T T B G . . O I . . N . . . . N . O . O . E . T .
H . I A . . D . L . E . . . . A . P C C . T M A .
I . R N . . O . . O L . . . . H . H I . . I U N .
T . N I I . R . . . R . . . . P R A . G . R D A B
E . E T I L O R E A T E H . . O N N . A . P N R .
E E S E T I K O O R B . A . I C . I . H . U U . .
. T S . E T I N I N A R U T I L E T I N Y C R E H
. I I . . . T . A . . . E U E A . E . I I . O . A
. T T R . . E . . R . . L . . H . . . T . . C . U
. U E . O . . . . . F L . . . C O . E E . . . . S
. O . . . R . . . . I . . . . . . R . . . . . . M
. R . . . . U . . I . . . . . . O . D . . . . . A
. G . . . . . A T . E N A L E M O T P Y R C . . N
. E T I T A M E H . . . . . E . . . . . H . . . N
E T I S B O C A J . . E T I T E N G A M . . . . I
. . . W O O D R U F F I T E . . . . . T
. . . . . F E I T K N E C H T I T E . E
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A True Franklin Classic

In 2006, the Franklin Mineral Museum acquired two significant Franklin rhodonite crystal specimens from the collection of Earl Verbeek, curator of the Sterling Hill Mining Museum. One was acquired by sale, and the other was donated. The donated specimen, pictured here, is of a large cluster of rhodonite crystals that have been carefully hand-excavated from their calcite matrix. This rhodonite specimen is an exceptionally good example of a Franklin crystal classic, of superb color and in excellent overall condition; in fact, it is considered by many to be one of the finest examples of its type known.

Especially notable about this specimen is that each crystal has a corrugated appearance. This is a rare habit for rhodonite, described by Charles Palache as "twinned polysynthetically parallel to the base." Also worth mentioning is that there is apatite embedded in the calcite on the back of the specimen.

Dr. Verbeek purchased this specimen from collector Ed David in 1994. It is now Franklin Mineral Museum specimen FMM 6393, 6 x 4.75 x 3 inches (15 x 12 x 8 cm). Photograph is by the world-renowned mineral photographer Jeff Scovil and is used here with his permission.