

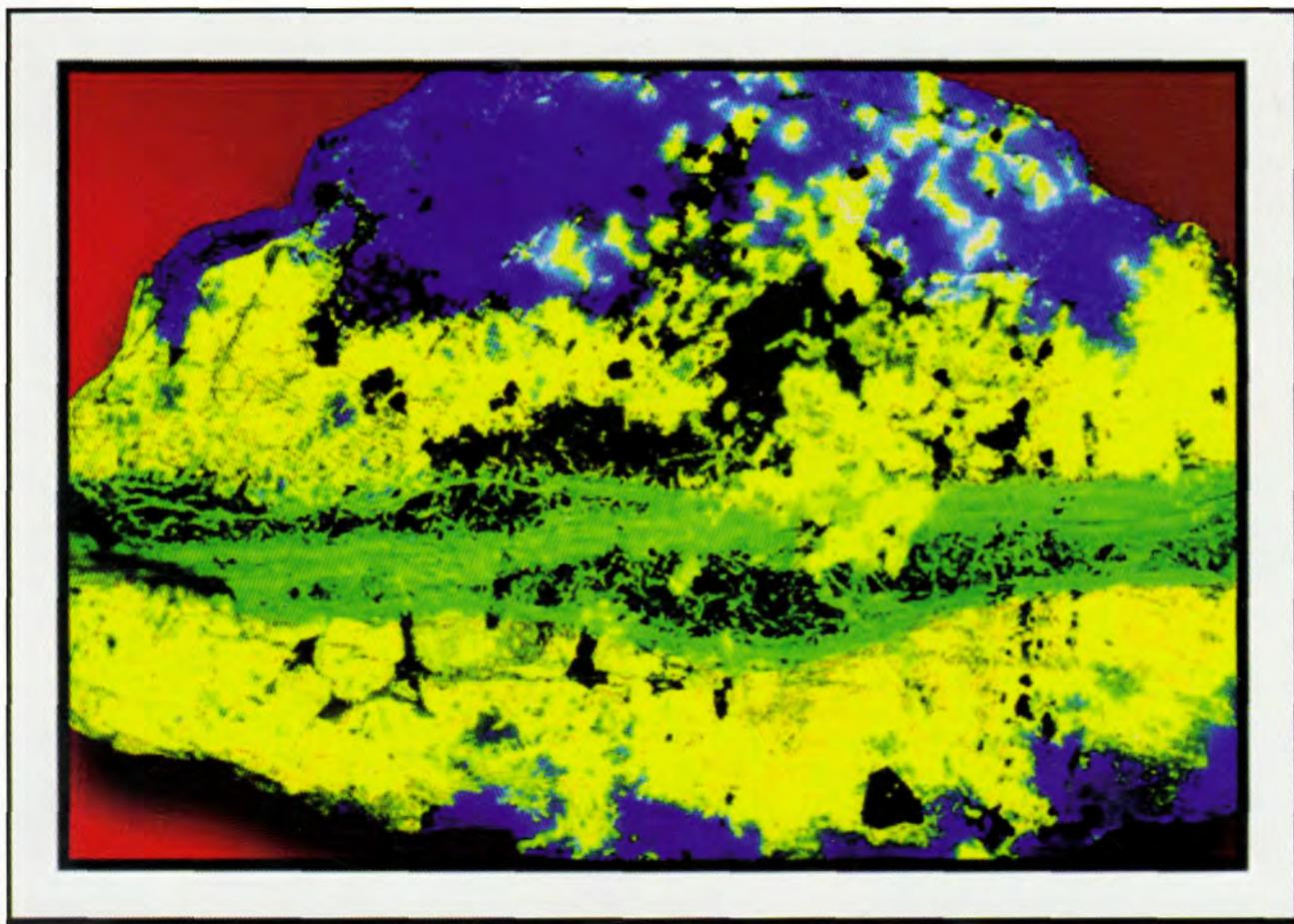
# THE PICKING TABLE



JOURNAL OF THE FRANKLIN-OGDENSBURG MINERALOGICAL SOCIETY

Volume 43, No. 1 - Spring 2002

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*by Gary Grenier*

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*by Tony Nikischer*

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# THE PICKING TABLE



JOURNAL OF THE FRANKLIN-OGDENSBURG MINERALOGICAL SOCIETY

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**About the Cover:** A braided vein of willemite (green) in esperite (yellow) with hardystonite (blue-violet) and a small amount of calcite (red). This is a half-inch-thick slab, 5-3/8" wide, and 3-3/4" high, which dates from those halcyon days when esperite was still coming out of the Franklin mine and was cheap enough to lapidarize.

Richard Bostwick specimen, Gary Grenier photo.

## The Picking Table

Vol. 43, No. 1 - Spring 2002

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*The Picking Table* is the official journal of the FOMS, and publishes articles of interest to the mineralogical community that pertain to the Franklin-Ogdensburg, New Jersey area.

Articles related to the minerals or mines of the district are welcome for publication in *The Picking Table*. Prospective authors should address correspondence to:

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# Message from the President

By Bill Kroth

As we start 2002, the Franklin-Ogdensburg Mineralogical Society looks forward to another eventful year for its members. Along with our meetings and field trips, and the mineral shows we help stage, come the many challenges required to stage these gatherings, to maintain and improve our organization, and to publish "The Picking Table." Additionally, our museums require constant attention. One simple word makes all of these things happen: "participation."

Whether it is authoring an article for this publication or one of our museums' newsletters, just give it a try and participate. Perhaps you have a unique mineral specimen or a unique story. Try taking some photos or putting that piece of history in print. Everyone will benefit.

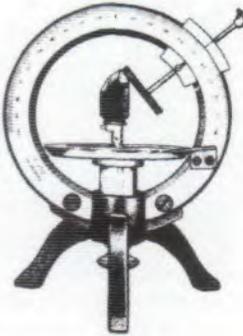
We are also closely aligned with two unique museums that are in a tremendous state of growth and improvement. These museums rely on both paid staff and a volunteer core to stay in operation and foster growth. Volunteer some time to either or both museums, help out with a display or maintenance. Have teenagers? Introduce them to the hobby. Perhaps they will like to help out. Everyone will benefit.

We all have talents, and whatever we can contribute to this unique hobby, regardless of magnitude, will have a positive effect and make 2002 a truly eventful year!



FOMS volunteers building a retaining wall on the new "Buckwheat Trail"

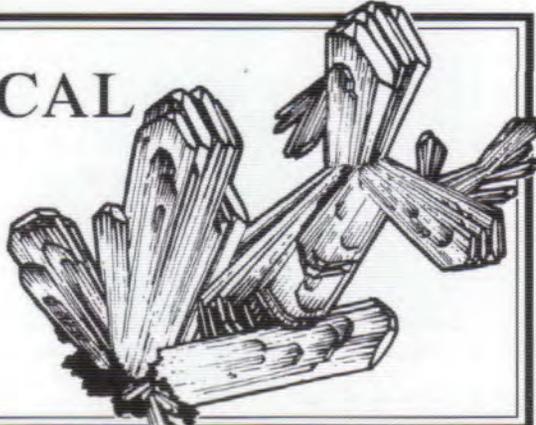
photos by Carol Durham



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# FRANKLIN MINERAL MUSEUM NEWS



John Cianciulli, Curator  
Franklin Mineral Museum  
P.O. Box 54  
Franklin, NJ 07416

We are happy to report that the museum now has a new deed to the Buckwheat dump. Improvements have been made to the property. A group of volunteers devoted Saturday, July 28th, to clear the way for a new trail to the dump and prepare for construction of a pavilion. The fence line was cleared of debris, as were the survey lines. A trail was also blazed to two large furnace relics found by Steve Phillips last fall, and the larger of the two relics (about 8' long) was hand-excavated by Paul Shizume. The ore car display was painted earlier in the year by Kurt Hennig and subsequently moved by Steve, Neil, Scott and Casey Phillips to make way for the proposed pavilion. While all this was going on, Joe Klitsch, Fred Young, Dan Durham, and Carol Durham, later joined by Lee Lowell and Claude Poli with Steve, Casey, and Neil Phillips, dismantled the two upper collecting dumps. The local collecting dump was relocated behind the museum next to the darkroom shed, and Lee Lowell and Claude Poli transported the worldwide dump minerals to Sterling Hill. The fence crews consisted of Dick Bieling, Kurt Hennig, Paul Shizume, Claude Poli, and Casey, Neil, and Scott Phillips, with the project foreman being Steve Phillips. All this cleared the way for the excavator to re-route the trail to the Buckwheat dump. Carol Durham arranged for food for the troops on that Saturday. On July 30th through August 2nd, work proceeded with the help of Steve, Casey, Neil, and Scott Phillips, Dick Bieling, and the entire museum staff. Starting with the museum's rear storage room the museum was de-junked and organized all the way to the mine replica attic. From there our attention turned to cleaning the garage and inner sanctum. Mineral sorting is still ongoing after dumping over five tons of good mine-run minerals from the garage on the relocated upper collecting dump. Claude Poli, Paul Shizume, Mark Boyer, Lee Lowell, Fred Young, Roman Gaufman, Carol Durham and Dan Durham (the latter with a broken wrist) performed the mineral sort.

Revolving exhibits for 2001 included Steve and Casey Phillips's exhibit in Kraissl Hall showing the steps of processing silver from mine to mint. In the passageway to the mine replica Dr. Steven Kuitems and his son Daniel installed an exhibit of vein minerals from Franklin. In Welsh Hall Chet and Mary Bridget Lemanski set up their worldwide fluorite display. In the same case the late Bill Polito's holistic healing stones and crystals are on show. The revolving displays will change themes for 2002. In the local room we have added a large piece of conglomerate made of glacial pebbles of Franklin Marble naturally cemented together with mud and aragonite. This material was found on Wheatsworth Road in Hardyston. We have also added a chunk of magnetite ore from the Andover iron mine. Both specimens were donated by Joe Mayers, a local excavator. To highlight our fluorescent exhibit I have removed the longwave section of our big fluorescent exhibit and replaced it with Steve Chuka's awesome collection of Franklin minerals. If you are lucky enough to take a weekend tour of the museum and your tour guide seems to be gloating a bit in the fluorescent room, you probably have the good fortune to be part of Steve's tour.

John Leach Baum, our Curator Emeritus, honored the Franklin Mineral Museum once again by donating probably the most significant first-find wollastonite ever to be preserved from the Franklin mine. This specimen can be seen in our fluorescent display along with a historic note. Continuing with donations, Dr. Paulus B. Moore donated a Carl Zeiss polarizing microscope with accessories. Thanks to Mr. Roman Gaufman, microscope technician, all our optical equipment has been professionally cleaned and aligned. Roman has donated his services as well as a Bausch and Lomb high-power binocular microscope with a 4" x 5" Polaroid camera attachment, and a Bausch and Lomb 40x-zoom stereo microscope with built-in fiber-optic lighting mounted on a retractable boom with locking casters. Roman has also loaned to the museum a Carl Zeiss microscope array with two binocular heads, and a camera tube with attached Contax auto SLR 35-mm camera and fiber-optic and 30-watt incandescent light sources. Dr. Steven Kuitems has donated an all-elusive specimen of anatase from Franklin found by him, and a second example was found by Mr. Joe Klitsch on the Buckwheat dump recently. Wow! What a year! Speaking of Joe Klitsch, he has donated monazite-(Ce), synchysite-(Ce), brookite and other micros he has collected on the Buckwheat dump.

The List is now up to 355 mineral species. On-site identification requests have increased on all levels. We are happy to see this kind of interest, especially from the young children. Volunteer Fred Young has enjoyed his time working with the school children and their teachers while they field-collect. I hope Fred is inspired to continue his good work.

The Franklin Mineral Museum has launched a fundraiser to publish an all-color book of Franklin minerals: few words with lots of beautiful color photographs. The book will be 9" x 12", hardcover, with 136 pages of outstanding Franklin-Sterling mineral specimens. We appreciate your support. Proceeds of the sale of this book will go into museum funds. Mr. Fred Young with 40 years of printing experience has volunteered as project technical advisor.

As of this writing the new trail to the Buckwheat dump has been completed and the upper property has been cleared for a 30' x 50' pavilion. Jack Baum is working on getting the appropriate permits to start building. Whoever said, "Rome was not built in a day," did not see our volunteers at work. That's all the time it took for a small army of volunteers to install a fence and build a retaining wall on the new trail. Special thanks to the following fence and wall makers: Dr. Nick Armenti, Dick Bieling, Mark Boyer, Carol Durham, Roman Gaufman, Kurt Hennig, Lee Lowell, Fred Lubers, Steve Phillips, Casey Phillips, Neil Phillips, Scott Phillips, Claude Poli, Paul Shizume, and Fred Young.

## NEWS FROM STERLING HILL



**Joseph Kaiser**  
40 Castlewood Trail  
Sparta, NJ 07871

A crowd of over 100 people gathered December 8, 2001 at the Sterling Hill Mining Museum for the dedication of a steel beam: a piece of the World Trade Center, a 20-foot tall piece of twisted and charred steel. The plaque reads, "Let this steel beam remind us symbolically of America's Iron Will as she moves into the future. It's her strength, courage, and commitment that are her cornerstone." The beam was acquired through the efforts of Mr. Stephen Phillips.

An 800-pound piece of copper from the Washington Mine locality in Bound Brook, New Jersey, was acquired. It is the largest piece of copper recorded from the State and one of the largest found in the USA outside of Michigan. The piece is approximately 4 feet square and 8 inches thick, and includes minor amounts of cuprite and chrysocolla, and vugs of calcite crystals. Bob Hauck was instrumental in getting the gift. The mine was a copper mine during Revolutionary times. It is not open to collecting and trespassers will be prosecuted.

The Sterling Hill Mining Museum Foundation has received a donation of \$550,000 from David L. Oreck. He has attempted to focus his charitable giving to schools and organizations that promote and excite learning in formats outside the classroom. This gift is made with the understanding that these proceeds are to be used primarily to acquire specimens for the museum's collection.

A steel-framed roof has been installed over the old mill foundation that houses the GeoTech Center and the Thomas S. Warren Museum of Fluorescence. This should help seal leaks and improve conditions for the display of minerals and the activities of the GEMS teacher education program.

Ms. Claude Larson and 12 sixth-grade students and seventh-grade science enrichment students from Ogdensburg elementary school sent an experiment to NASA in September. These students, who are working with curator Earl Verbeek of the Warren Museum, will be sending an experiment aboard the space shuttle in July 2002. Rock samples will be flown into space to determine if the hefty exposure to ultraviolet radiation outside the earth's atmosphere will alter their earthly glow. The students picked their best samples of calcite and willemite, sawed them in half, and will keep half of each specimen at home. Light emissions from each rock have been measured, and will be measured again after the flight to determine if the ones returning from space will glow more.

On April 20 from 6:30 to 9:00 P.M. there will be night collecting on the Mine Run Dump and in the Passaic and Noble Pits for SHMM Foundation members only. Members can return to these legendary collecting locations in daylight, from 8:00 A.M. to 3:00 P.M. on May 18. Check the Sterling Hill web site at [www.sterlinghill.org](http://www.sterlinghill.org) for our complete 2002 schedule.

The theme of this year's Pennsylvania Mineral Symposium is "The Mineralogy and Geology of the Franklin/Sterling Hill Ore Deposits." In an unprecedented move this symposium will be held on site, at the Sterling Hill Mining Museum. The three-day meeting extends over August 23-25 and will include a keynote speaker, lectures, tours, a collecting field trip, a mineral ID contest, a benefit auction and more. For information contact Dr. Andrew Sicree, Director of the Earth & Mineral Sciences Museum and Art Gallery at:

Pennsylvania State University  
122 Steidle Building  
University Park, PA 16802

Telephone (813) 865-6427  
e-mail: [SICREE@GEOSC.PSU.EDU](mailto:SICREE@GEOSC.PSU.EDU)



The Fluorescent Mineral Society is devoted to increasing the knowledge of its members in the luminescence of minerals, with an emphasis on fluorescence and phosphorescence. It promotes increased knowledge with emphasis on collecting, displaying, studying and understanding. It publishes a bi-monthly newsletter, the *UV Waves*, and an annual or biennial periodical, *The Journal of the Fluorescent Mineral Society*.

Membership information may be obtained by writing to:  
The Fluorescent Mineral Society  
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Tarzana, CA 91357-2694  
<http://www.uvminerals.org/>



**Buckwheat Dump, Franklin, NJ 9-15-01**

## FIELD TRIP REPORT

**Steven M. Kuitems, D.M.D.**  
14 Fox Hollow Trail  
Bernardsville, NJ 07924

**Fall FOMS Field Trip Notes  
2001**

In spite of the shocking events of 9/11 a decent-sized group of FOMS members set to work scouring the newly altered dump. Yes, it does look a little different if you have not visited here recently. The new ramp was completed, the stairs are history now, and a smooth walkway makes hauling out a full bucket of rocks along with your equipment a lot easier on the legs and back.

While some blocks of pegmatite were being checked, a 9 x 5-cm piece was found loaded with 1-mm black needles of thorutite. In other pieces of the pegmatite were found small segregations of red mm-size thorite crystals along with elongated cm-size black allanite and pale yellow crusts, which appeared to be greenockite altering from small grains of sphalerite. Several collectors found small sharp dark brown crystals of andradite in the 1-cm range. At least three pieces of hardystonite were seen: a rarity on this dump! Anhydrous hardystonite masses 1 - 2 cm across were surrounded by rims of willemite in calcite. Under the shortwave ultraviolet lamp these showed up as a classic Franklin assemblage: violet masses surrounded by green rims of willemite in red matrix.

Several people found gray-blue magnesioriebeckite in its classic vein form. One specimen even had a small patch of lennilenapeite. One collector went out of his way to show me a calcite cleavage rhomb measuring about 5 x 5 cm with unusual translucency and super-bright red fluorescence under the shortwave ultraviolet lamp. Tiny deposits of aurichalcite and malachite were found on altered masses of sphalerite, while other, fresher, silvery-colored veins of orange-fluorescing sphalerite 2 cm across were seen. Pale green 1 x 1 cm euhedral tremolite crystals were found in the white blocks of Franklin marble. Very soft massive crusts of a dark green clinocllore-like mineral were found on iron-stained dolomite. Those who searched the vuggy gray dolomite were rewarded with some fine micro-mineral samples, including sphalerite, quartz, rutile and one specimen with three crystals of synchysite-(Ce).

Other interesting dump finds included small, very sharp, dark green gahnite crystals (4 x 4 mm) in an unusual quartz-calcite contact zone. Hematite with radial structure, in masses as much as 4 cm long, was collected. These specimens resemble ones found last year that are on display in the FOMS field trip case in Kraissl Hall. One unusual specimen that really had me excited was a brick-size piece of calcite with vugs containing pale yellow microcrystals of clinocllore. These were associated with willemite and franklinite crystals 1 mm to 3 mm in size, the willemite in transparent colorless prisms and the franklinite in both cubes and octahedra. The identity of the clinocllore was confirmed by optics, insolubility in acids, and lack of fluorescence.

## Franklin Quarry, Franklin, NJ 10-20-01

Although this field trip was well-attended, less new material was seen. Diligent club members nevertheless searched the large piles of marble stockpiled inside the quarry.

A few bands of pale yellow norbergite grains were found. These fluoresced bright yellow under shortwave ultraviolet light. Several people found stout tremolite crystal sprays as large as 10 cm; these were gray to almost black, and some fluoresced pale-blue in shortwave ultraviolet light. Blocky tremolite crystals 2 x 5 cm had a much paler color in daylight and fluoresced poorly compared to the elongated forms. Many collectors brought home masses of bright green edenite mixed with phlogopite. These fluoresce weakly under a shortwave ultraviolet lamp, the edenite pale yellow and the phlogopite yellowish tan. Near these edenite-phlogopite masses were some thin bands of pale purple grains of corundum that fluoresced red under a longwave ultraviolet lamp. Unfortunately these grains were small, and only one piece was seen with larger grains (10 mm) partly replacing spinel crystals. A few small brown and green uvite crystals as much as 1-cm across came from the boulders that also contained bright green 1-cm diopside crystals. A few remnant pieces from the old margarite location were dug out of the quarry floor. Probably the two most attractive pieces seen this day were a 1 x 2-cm terminated arsenopyrite crystal and several bright 1-cm pyrite cubes.

## Lime Crest Quarry, Sparta, NJ 11-18-01

The general perception relayed to me was that this Sunday was one of the leanest collecting trips in recent years. Most of the recently blasted rock was either inaccessible or invisible under a thick layer of white dust (on white marble). Probably the best crystals seen were several very sharp black spinels in the octahedral form and the twinned form, as large as 2 x 2 cm. Several subhedral purple corundum specimens were found but they were rather small, in the 1-cm size range. A singular, large, dark brown uvite crystal 5 x 7 cm and partly exposed will make a nice winter project to excavate out of the marble. One interesting fluorescent find was made: milky colored quartz masses, some 5 x 9 cm, that fluoresce cream color in shortwave ultraviolet light. On the back side of the same rock were orange-fluorescing meionite and green mica.



Ed Wilk, field trip chairman, shows off a fine spinel crystal he just found to Tema Hecht.

*Richard Bostwick photo*

Dr. Steven M. Kuitems, author of this article, takes a break from collecting to pose for a snapshot. Is he gloating? Wonder what is in his bucket?



*Richard Bostwick photo*

# ROUAITE, $\text{Cu}_2(\text{NO}_3)(\text{OH})_3$ , A NEW MINERAL:

## ITS DESCRIPTION AND CRYSTAL STRUCTURE

(Alpes-Maritimes, France)

Halil SARP<sup>(1)</sup>, Radovan ČERNÝ<sup>(2)</sup>, Laure GUENEE<sup>(2)</sup>

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<sup>(2)</sup>Laboratoire de Cristallographie, Université de Genève, 24 quai Ernest-Ansermet, CH - 1211 Genève 4, Suisse.

### Abstract :

Rouaite,  $\text{Cu}_2(\text{NO}_3)(\text{OH})_3$ , occurs at the old copper mines of Roua (Alpes-Maritimes, France), associated with cuprite, native copper, native silver, algodonite, domeykite, malachite, connellite, olivenite, theoparacelsite and gerhardtite. It forms aggregates (0.5mm diameter) in geode of cuprite, formed by equidimensional crystals (0.1mm maximum dimension) or elongated crystals along *b*, flattened on (001). Also, in isolated small crystals flattened on (001). The megascopic color is dark green emerald. The mineral have a perfect cleavage on (001) and rarely macted by contact on (100). It is monoclinic,  $P2_1$ ,  $a = 5.596(2)$ ,  $b = 6.079(2)$ ,  $c = 6.925(3)$  Å,  $\beta = 94.67(2)^\circ$ ,  $V = 234.8(1)$  Å<sup>3</sup>,  $Z = 2$ ,  $D_{\text{meas}} = 3.38(2)$  and  $D_{\text{calc}} = 3.39(1)$  g/cm<sup>3</sup>. The strongest lines in the X-ray powder diffraction pattern ( $d_{\text{obs}}$  in Å, (hkl),  $I_{\text{rel}}$ ) are : 6.91, (001), 100 ; 3.457, (111)(002), 90 ; 2.669, (120), 80 ; 2.462, (121), 80 ; 2.250, (202), 50 ; 2.154, (013), 40 ; 2.078, (122)(103), 50 ; 1.717, (203)(123), 30. Mohs'hardness could not be measured because of the small grain size. Luster is vitreous transparent, streak is green clear ; crystals are biaxial (+) with  $\alpha = 1.700(2)$ ,  $\beta = 1.715(2)$ ,  $\gamma = 1.738(2)$  at 589 nm ;  $2V_{\text{obs}} = 81(2)^\circ$ ,  $2V_{\text{calc}} = 79(1)^\circ$ . It is pleochroic with  $\alpha =$  dark green blue,  $\beta =$  green blue and  $\gamma =$  light green to colorless. The optical orientation is  $a \wedge \alpha = 5^\circ$ ,  $b = \beta$  and  $c = \gamma$ . The structural model from Effenberger was used for the refinement. The structure was refined using 659 observed unique reflections to  $R = 0.041$ ,  $R_w = 0.029$ . Rouaite is a dimorph of gerhardtite and a natural equivalent of synthetic compound  $\text{Cu}_2(\text{NO}_3)(\text{OH})_3$ . The structure is formed by brucite-like sheets of edge-sharing  $\text{CuO}_6$  octahedra extending along the (001) plane. The nitrate groups  $\text{NO}_3$  are linked by one vertice to the sheet from both sides, and interconnect the sheets via the hydrogen bonds of OH groups of  $\text{CuO}_6$  octahedra.

**Key-words :** Rouaite, new mineral, powder pattern, crystal structure, nitrate, copper, hydrogen bonding.

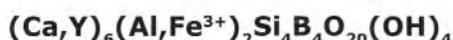
### Sterling Hill Occurrence:

Another occurrence of rouaite was discovered during the rigorous new-mineral certification process of the IMA and is described briefly in the paper from which the above abstract was published. In 1978 collector John E. MacDonald gave a 15 mm x 15 mm sample of an unknown copper alteration mineral to Dr. Pete J. Dunn, Mineral Sciences Department, Museum of Natural History, Smithsonian Institution for analysis. The sample was collected from the 600' level of the Sterling Mine in Ogdensburg, New Jersey. The data from Dr. Dunn's study of the Sterling material were insufficient to categorize this unknown at the time. The data and the Sterling Hill sample were preserved by Dr. Dunn. Until recently this unknown was forgotten, when the data for the Roua mine find were submitted to the Commission and recognized as something similar to the Sterling Hill material by Dr. Dunn, one of the IMA reviewers. Subsequently, a small sample was sent to the Geneva Natural History Museum, Mineral Sciences Department and examined by Dr. Halil Sarp, who determined the Sterling Hill material was indeed the new mineral rouaite. The Franklin Mineral Museum acquired an "unknown mineral" with a John E. MacDonald label about fifteen years ago and it has remained in our "unknown minerals" drawer until now. The analyzed Sterling Hill rouaite is a chip off the specimen that now reposes in the Franklin Mineral Museum collection.

The rouaite sample at the museum is 8 cm x 6.5 cm x 2.5 cm and is in a breccia of fragmented washed-out pink rhodonite cemented by copper sulfide and liberally peppered with blue, green, and emerald green spherules up to 0.25 mm in diameter. The specimen is quite attractive. The Sterling Hill rouaite will be studied further to confirm the identity of its associated minerals.

**Reference:** Sarp, H., Cerny, R., Guenee, L. (2002) - Rouaite,  $\text{Cu}_2(\text{NO}_3)(\text{OH})_3$ , A New Mineral: Its Description and Crystal Structure. *Riviera Scientifique*, **85**, 3-12.

# Hellandite



Added to Franklin Species List

by Tony Nikischer  
Excalibur Mineral Company  
1000 North Division Street  
Peekskill, NY 10566

In September of 2001, Dan McHugh of Grand Terrace, California submitted a sample to Excalibur Mineral Company, for identification. The specimen measured approximately 6x4x2.5 cm and showed excellent, deep pink, saddle-shaped opaque rhodochrosite crystals up to 7 mm in size covering most of the specimen's largest surface. Small druses of black franklinite were also evident, and the reverse of the rhodochrosite surface showed numerous, tiny transparent willemite crystals as well. A nondescript, white fibrous Mg-silicate mineral was also present in small amounts. These phases were subsequently analytically confirmed. However, most interesting were unidentified minute, pale brown crystals averaging 0.5 mm across, richly concentrated in a 2 cm<sup>2</sup> area on the edge of the specimen and overlaying rhodochrosite. It was these monoclinic crystals that had piqued Dan's interest.

One partial crystal was removed from the sample for further study. Utilizing an EDAX "Super Ultrathin Window" energy dispersive spectroscopy detector in a Philips 525M scanning electron microscope operated at 20KV, the tiny fragment was analyzed. The average standardless analysis yielded SiO<sub>2</sub> 32.3%, Y<sub>2</sub>O<sub>3</sub> 32.2%, Nd<sub>2</sub>O<sub>3</sub> 5.3%, CaO 14.1%, Fe<sub>2</sub>O<sub>3</sub> 5.4%, plus minor Mn, Al, Mg and trace Zn. The major elements strongly suggested a calcium-yttrium silicate, but because EDS cannot reliably distinguish and quantify light elements such as boron and beryllium, an unequivocal identification was not possible since half of the dozen or so possibilities contained one or more of these light elements. Hellandite was among these possibilities, containing from 8.5% to 14.5% B<sub>2</sub>O<sub>3</sub> by weight.

A second tiny fragment of the brown monoclinic mineral was removed and subsequently X-rayed by Andy Roberts of the Geological Survey of Canada. Using a Debye Scherrer camera, the grain was confirmed as a hellandite-group mineral. The X-ray film is filed at the GSC under index # X-79518.

The hand specimen was examined by John Cianciulli of the Franklin Mineral Museum in order to confirm its Franklin origins. John agreed that the physical appearance of the sample, coupled with its associations, supported the Franklin provenance. Hence, the chemistry, physical appearance and associations, and the X-ray pattern of the sample all support the addition of hellandite to the Franklin species list. The specimen currently resides in the private collection of Dan McHugh.

**Acknowledgements:** The author wishes to thank Dan McHugh for his interest and loan of the sample for subsequent study, John Cianciulli for his careful review of the sample, Andy Roberts for his consistent and professional support, and Pete Dunn for his superb monograph that is now the standard Franklin-Sterling reference work.

**Author's Addendum:** As of this writing, the International Mineralogical Association has approved an as-yet unpublished redefinition of the hellandite group, and several nomenclature revisions will take place in the future that may affect the names of some hellandites from various localities worldwide. A brief note will be offered to *The Picking Table* editor when such nomenclature changes are published.

## MINERS DAY May 6, 2001

**Tema Hecht**  
**600 West 111th Street, Apt. 11B**  
**New York, NY 10025**

Sunday, May 6, dawned sunny and warm: a good day to honor the miners of Franklin and Ogdensburg, their families and friends, and the volunteers of the Franklin Mineral Museum. The custom has been for invited guests to come at noon for a buffet lunch, followed by Miners Day ceremonies. The luncheon that the Franklin Mineral Museum provided in Kraissl Hall had quite an array of selections, including juicy cold cuts, fresh bread, crunchy green salad, creamy potato salad, lively coleslaw, hot roast beef, cheezy ziti, and delicious chicken. Beer and soft drinks were included in this wonderful collage of offerings. And for dessert we were enticed by fragrant chocolate brownies along with moist scrumptious crumb cake! After all this, it was not that easy to stagger outside to the backyard of the museum where the famous Franklin Band was setting up under the trees.

Miners Day formally began with the Pledge of Allegiance and the playing of the national anthem. Master of Ceremonies Richard Bostwick then introduced the president of the Franklin Mineral Museum, Steven Phillips. Steve welcomed the guests and the band, and summarized the importance of the museum in local civic life. He also pointed out that efforts were underway to acquire the Buckwheat dump from the Borough of Franklin for the museum.

Then the "Future Scientist Awards" from the Franklin Mineral Museum were given out by Dr. Tom Turner, superintendent of the Franklin Schools, and Ms. Kerri Yezuita, Hamburg Science Fair Coordinator. There were five winners. The students' names, their project titles and their schools are as follows: Daniel Banki, Franklin School, "Fire Retardancy of Fabrics;" John Bianco III, Ogdensburg School, "The 4-Stroke Combustion Engine;" Ernie Costa, Hamburg School, "How Nuclear Bombs Work;" Robert Gagg, Hardyston School, "The Effects of Emphysema;" and Joseph Lavin, Immaculate Conception school, "Generators." Each student was given a certificate and a \$100 US Savings Bond.

John Cianciulli, Franklin Mineral Museum curator, thanked the museum volunteers and read a list of their names. He compared their efforts and dedication to the hard work and long careers of the miners, recalling one miner who stayed on at Sterling Hill during the shutdown period from 1958-1961, after he could have retired with 30 years of service. He was killed in a freak accident when the man-cage he was riding plummeted to the bottom of the main shaft.

Master of Ceremonies Dick Bostwick thanked Jack Baum, New Jersey Zinc geologist and the museum's curator emeritus, for his lifetime of involvement with Franklin's mine, minerals, institutions, history, and people. He said, "Franklin has

retained its mining community/personality" and has a "sense of itself as a mining community that did not want to give up its history. The Buckwheat dump and the quarries have remained. History is still here in the crumbling foundations and holes in the ground. You are living examples of the mining heritage in America and you should be proud of it." Speaking as a mineral collector, Dick remarked that "if you cut your teeth on the minerals of this area, nothing else has the same flavor." He went on to remind the listeners that "the Franklin Mineral Museum has the greatest collection of the minerals from this area. They are world-famous and about 40 minerals from the area have been named for local people." Finally, Dick told us to "Be proud, remember to tell people about it. You are the holders and perpetuators of this heritage!"

The band stayed to entertain us throughout this glorious afternoon.



*Photos by Tema Hecht*

# The 45th Annual Franklin-Sterling Hill Gem & Mineral Show Report

by Steven M. Kuitems, D.M.D.

14 Fox Hollow Trail  
Bernardsville NJ 07924

September 29 & 30, 2001... Would there even be a show in Franklin? Yes, and a very positive happening at that! Our president encouraged all Americans to go about doing the things we enjoyed prior to September 11th, and from hindsight it looks like that was successfully accomplished at our local show level. It appeared that this was a welcome change from the stress of the previous weeks; people wanted to be involved in the show experience, judging by the many new faces added to the familiar regulars. There was a bit of concern the night before, during setup, about the impending weather which consisted of gusty winds, clouds, an hour of fine misty rain on Saturday and cool temps on Sunday. But thankfully this scenario did not deter the show-goers, a good solid attendance of about 2,300 with 90 outdoor dealers and a full complement of dealers indoors. Having spoken to most of the indoor dealers and many outside ones I came away with largely positive reports and even some new sales records, in spite of the troubling current events that dealers thought might dampen the buyers' enthusiasm.

Several mineral highlights seen in the indoor area were the fantastic green pyromorphites from China, which abounded in many sizes from thumbnails to full cabinet sizes, and the Peruvian wire silvers of which the very high-end pieces approached the forms seen in Kongsberg, Norway specimens and had almost the same taxing prices for the very best clusters of wires. One of the most spectacular single pieces seen was a truly huge fine Mexican danburite crystal cluster with the main crystal about 20 cm long; this left the show in the company of an FOMS member to grace his cabinet! Several dealers had nice selections of Rogerley Mine, England, green fluorite crystals in cabinet sizes with far nicer luster than last year's finds. Also seen were California benitoites of unusually high caliber in white natrolite. Several fine specimens of lavender creedite were spotted as well as a small hoard of fine Elmwood, Tennessee calcites.

For me the true highlights of the indoor show were the exhibits of fluorescent minerals and the white-light mineral exhibits. At the onset I want to personally thank and encourage all those exhibitors who made the effort, and work, to put in an exhibit for our show! What a perfect opportunity to share with our visitors the very best in Franklin and Sterling Hill fluorescent minerals from both private and museum collections, especially those of the Franklin Mineral Museum and the Sterling Hill Mining Museum. The thematic exhibits included single-species cases, such as willemite, esperite, and margarosanite. Another theme was Franklin Mill Site specimens; imagine what might still be there! It was

a pleasure to see individual pieces of rare species like turneaureite, first-find wollastonite, johnbaumite, and minehillite; these specimens might serve as an inspiration for up-and-coming collectors of our local fluorescent species. Turning to the white-light cases was no less pleasurable for me and showed some of the wide variety of minerals the district is famous for. There was even a case of "foreign" smithsonites, from Steven Phillips, present in dazzling forms and colors from the great mining area of Tsumeb; our local representation of this species by comparison is very meager (micros mainly). There were cases of superior quality local specimens, and thematic cases. The newest category seen was Bob Hauck's case of Franklin Pond artifacts. These durable artifacts were dug out of the black muck that accumulated on the shores of the pond over more than a century. Chris Thorsten's case of recent personally collected specimens and lapidary items served to inspire any new collector, or doubter of current possibilities. George Elling showed how truly varied one species could be, willemite, and he chose to display only the colorful varieties; if you added all the plain-looking forms you could have several cases' worth. Peter Mackey put in a mix of mining artifacts and ore minerals while John Kolic put in many of his best local species pieces, which always inspire the local collectors. Mark Boyer put in a case of personally collected petedunnite specimens and lapidary items. Robert Boymistruk's case of fluorescent rocks in white light with accompanying color pictures showed the dramatic transformation these plain looking local rocks undergo under short wave ultraviolet light (in the dark of course). My case consisted of a red, white, and blue display of rhodonite, hemimorphite, and vesuvianite that I had wanted to exhibit for some time now, and this was the year to do it. Rutgers University put an educational exhibit in on the pyroxenes, including a killer local rhodonite. The Franklin Mineral Museum displayed the original Kiwanis collection that became the start of the Franklin Mineral Museum's collection. The FOMS cases were put together by Earl Verbeek, who did a super job at making our cases a worthwhile stop to study and read about the many types and textures of the ores of Franklin and Sterling Hill; thanks to all those who contributed their specimens. Normally I do not make a fuss about putting names in, but this year it seemed like there needed to be some personal recognition for those who exhibited; maybe this will inspire more individuals to display next year.

For those who were able to break away on Saturday evening, the FOMS banquet and auction was a fun-filled happy time with a fine lecture by Dr. Lance Kearns on the minerals and mineral collecting in various locations within the Franklin Marble formation. For many of us this weekend was just what the doctor ordered. Like Lance, we too were enjoying past adventures and old friends associated with our hobby. I look forward to seeing you all again at next year's show, doing those things that we have the freedom to enjoy here in our little corner of America.

A collaborative effort by the

# Million \$ Dollar how



Host show for the 2002 Annual  
Eastern Federation Mineralogical &  
Lapidary Societies Convention

30th ANNUAL  
NJ EARTH SCIENCE ASSOCIATION  
GEM & MINERAL SHOW & Outdoor Swap & Sell

**April 27, 2002, Sat. 9 AM - 5:30 PM**  
**April 28, 2002, Sun. 10 AM - 5 PM**

Two show locations, directly  
across the road from each other:

- ▶ **Robert E. Littell Community Center**  
(Formerly known as the Franklin Armory) and
- ▶ **Hardyston Township School**  
both near intersection of Routes 23 and 517  
**in Franklin, NJ**

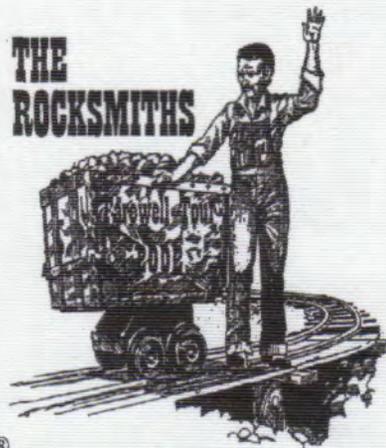
Free bus  
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This is an  
indoor & outdoor  
event

Donation: **\$5.00 per person** - Children under 14 FREE  
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Dealers in Gems,  
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**"FAREWELL TOUR 2002" SHOW**

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New Jersey Earth Science Association

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**30th Annual New Jersey Earth Science  
Association Gem & Mineral Show & Outdoor Swap  
presents  
Eastern Federation of Mineralogical and Lapidary Societies  
Fifty-Second Annual Convention & Show**

**SCHEDULE OF EVENTS**

**Thursday, April 25**

3:00pm Registration package given out at motel check-in

**Friday, April 26**

9:00am Registration continues at Sterling Hill Mine  
9:00am Dealer setup at the Littell Center  
10:00am Cracker Barrel, Sterling Hill, Geo-Tech Center  
12:00pm Lunch on your own  
2:00pm **E.F.M.L.S. Annual Business Meeting**, Geo-Tech Center  
5:00pm Exhibitor setup, at Littell Center & Hardyston School  
5:00pm Dealer setup at Hardyston School  
10:30pm Littell Center & Hardyston School **closed by security**

**Saturday, April 27**

8:00am **Judging begins for competitive exhibits**, Hardyston School  
9:00am **2002 Show opens to the public**  
9:00am Trotter dump opens (Advance reservations only)  
1:00pm Speaker, Derek Yoost: "Collecting Sites in New Jersey"  
2:00pm Speaker, Dr. Steve Okulewicz, "Mineral Magic"  
3:00pm **E.F.M.L.S. Annual Voice Auction**  
5:30pm Show ends for today, building closed by security  
6:00pm ANNUAL BANQUET American Legion Post, Route 23 North  
6:30pm Dinner served  
7:30pm Presidents' Remarks, N.J.E.S.A., E.F.M.L.S., & Sterling Hill  
8:00pm **E.F.M.L.S. Awards Ceremony** 8:40pm Voice Auction, N.J.E.S.A., F.O.M.S., & Sterling Hill  
6:15pm Silent Auction to run from 6:15 until alarm sounds

**Sunday, April 28**

8:00am **Editors' Breakfast, Hampton Inn, Rockaway, N.J.**  
10:00am Show opens to the public  
1:00pm Speaker, Nancy Koskie, "Collecting locations in New England and New Jersey, Free and Fee Sites"  
2:00pm Speaker, Dr. Steve Okulewicz, "Mineral Magic"  
5:00pm 2002 Show ends, Breakdown starts

**Speaker programs and E.F.M.L.S. Auction will be held in the program room in the Littell Center.**

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*Small white radial tufts on a brown rock. "That's very rare! You can't find that anywhere. That's magnesium-chlorophoenicite from the North Orebody - I gotta get 10 dollars for that piece!", Nick exclaimed, as he pointed to those small white tufts on the brown rock, which he cradled as if it were a newborn child. That event took place next to the open trunk of Nick's car parked on the floor of the Buckwheat dump when you could drive directly to the dump from the street. It must have been the early 1960's, probably the summer of 1963 or '64. It was my first introduction to the arsenates of Sterling Hill. Many of those so-called magnesium-chlorophoenicites from Sterling Hill later proved to be merely chlorophoenicite [Pete J. Dunn, Franklin and Sterling Hill, New Jersey: the world's most magnificent mineral deposits, (1995), privately published, pp. 671 and 672]. It is still a learning experience!*

Peter Chin

## **Arsenate Photo Essay**

**Gary Grenier, Jr.**

8383 Sweet Cherry Lane

Laurel, MD 20723

This is the start of a multipart photographic presentation showing over 60 species of arsenates and arsenic-bearing silicates from Franklin and Sterling Hill, New Jersey. Initially you will be touring the most popular and some rarely seen arsenates from Sterling Hill. As time and space permit, the Franklin arsenates will be presented in a later issue of *The Picking Table*.



**Fig. 1**

**Fig. 1** - Picroparmacolite is found as white radial masses of acicular crystals with blunt or broken contact terminations that have grown in cavities in calcite at Sterling Hill. Field of view measures 1.5 x 2.5 cm. Gary Grenier collection and photograph.



**Fig. 2**

**Fig. 2** - Allactite from Sterling Hill in long transparent reddish-brown flattened bladed crystals. These crystals measure 5 to 6 mm and are in an open cavity in massive granular allactite matrix. Formerly in the Grenier collection, Gary Grenier photograph.

**Fig. 3** - Allactite from Sterling Hill in lustrous red-dish-brown fan and bowtie aggregates of slender prismatic crystals on a bed of scalenohedral transparent white smithsonite crystals. Field of view measures 1.5 x 2.5 cm, from the Grenier collection, Gary Grenier photograph.



**Fig. 3**



**Fig. 4**

**Fig. 4** - Silky white jackstraw aggregates of acicular brandtite crystals with orange masses of sarkinite on red willemite ore from Sterling Hill. Field of view measures 3.5 x 6 cm. Formerly in the Grenier collection, Gary Grenier photograph.

**Fig. 5** - Chlorophoenicite, compact mass of lustrous white to colorless acicular crystals on reddish-brown sarkinite from Sterling Hill. Field of view measures 1.5 x 2.5 cm. Peter Chin specimen, Gary Grenier photograph.



**Fig. 5**

**Fig. 6** - Koettigite from Sterling Hill was once plentiful during the early to mid-1970's. The flattened radial blue-gray clusters of bladed crystals were found on several different types of matrixes such as this granular franklinite ore. Crystals often measure over 3 cm, giving a spread of 6 to 8 cm. Field of view measures 9 x 15 cm. Specimen formerly in the Sanford collection, Gary Grenier photograph.



**Fig. 6**



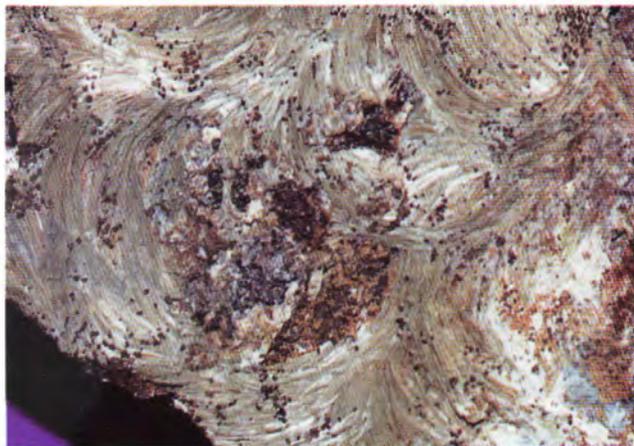
**Fig. 7**

**Fig. 7** - Blue-gray, nearly transparent Koettigite crystals with blunt terminations, in calcite from Sterling Hill. Field of view measures 1.5 x 2.5 cm. Peter Chin specimen, Gary Grenier photograph.

**Fig. 8** - Kolicite crystal group from Sterling Hill. The blocky habit of the crystal on the right is the one most commonly seen, while the habit of the gemmy, transparent, standing prismatic crystal on the left, is seldom seen. The broken shard to the left exhibits both holdenite (pink) and kolicite (orange) in the same crystal. Field of view measures 1.2 x 1.6 cm. John Kolic specimen, Gary Grenier photograph.



**Fig. 8**



**Fig. 9**

**Fig. 9** - Parasymplesite is shown as clashing swirls of crystals on an open seam of lean franklinite ore from Sterling Hill. It is often mixed with koettigite and sometimes is altered or altering to yukonite. Field of view measures 6 x 8 cm. Phil Betancourt specimen, Gary Grenier photograph.



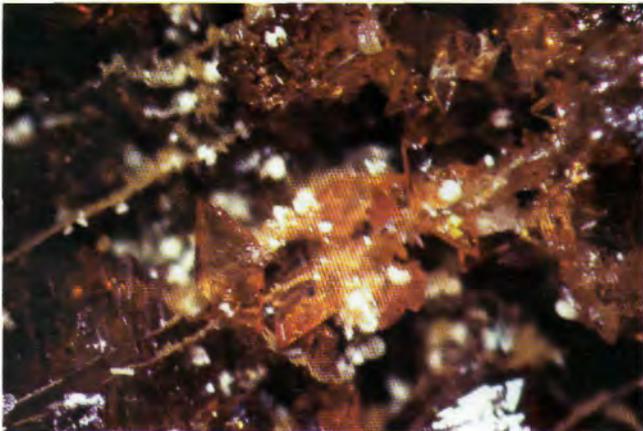
**Fig. 10**

**Fig. 10** - Retzian-(La) is very rare from Sterling Hill and can be difficult to distinguish from other arsenates. The pinkish-red long rectangular crystals are distinctive and seldom over 3 mm in size. Field of view is 1.2 x 1.7 cm. Phil Betancourt specimen, Gary Grenier photograph.

**Fig. 11** - Retzian-(Nd) is very rare from Sterling Hill and is even more difficult to distinguish from other arsenates than is Retzian-(La). The dark brown-red short prismatic crystals are distinctive but they are seldom found fully exposed as shown here; crystals are normally found more than 50% buried in a matrix of granular carbonates in red willemite and lean franklinite ore. Retzian-(Nd) is seldom seen in crystals over 1.5 mm in size. Field of view measures 0.6 x 1 cm. John Kolic specimen, Gary Grenier photograph.



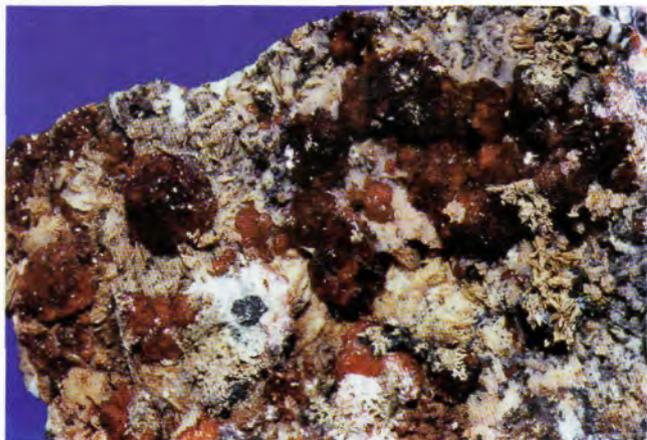
**Fig. 11**



**Fig. 12**

**Fig. 12** - Sarkinite was plentiful and found with many other arsenates at Sterling Hill. These transparent doubly terminated individual crystals rest on an unidentified etched carbonate and have an unknown white carbonate mineral forming last on them. This specimen is unusual, as most sarkinite crystals form compact clusters, aggregates, or indistinct agate-like frothy masses. Field of view measures 1.2 x 2.2 cm. Formerly in the Grenier collection, Gary Grenier photograph.

**Fig. 13** - Sarkinite from Sterling Hill is commonly found as rounded ball-like compact masses of glassy orange crystals in open carbonate cavities in lean willemite and franklinite ore. Field of view measures 8 x 10 cm. George Elling specimen, Gary Grenier photograph.



**Fig. 13**

# The Buckwheat Diary

By  
Fred Young

The *Buckwheat Dump* holds many special treasures. If the Lime Crest Quarry is the window into the Franklin Marble, the Buckwheat Dump is the back door, and when it's open the treasures are there waiting to be discovered.

What was worthless waste rock to the New Jersey Zinc Company is now an irreplaceable asset to the Franklin Mineral Museum. Such treasures as synchysite-(Ce), thorutite, monazite-(Ce), anatase, brookite, johnbaumite, scheelite, and powellite have been found on the Buckwheat as well as several waiting for confirmation by the curator. However there is no greater treasure than that of a smile on the face of a happy child. The Buckwheat Dump makes children happy!

## Special Treasures

When 18-month-old Jessie picked up a piece of bright white Franklin Marble and held it out for her mother's approval, the smile it brought to her face was a special treasure.

When 8-year-old Hannah, fresh from a basic rocks and minerals course in her 2nd-grade class, found a piece of igneous rock, and carefully placed it in her knapsack, destined for display in her classroom, that was a special treasure.

When 11-year-old Richard, an autistic child with a group of children with special needs stood alone, he seemed unable to enjoy any interaction with his classmates. Amazingly he had been standing directly over a piece of calcite covered with many crystals of pyrite in perfect cubic form. It became his and he clutched it tightly for the rest of the day. He immediately became the center of attention. That was a special treasure.

When 12-year-old Lauren picked up a rock and asked, "Is this an example of gneiss?" she was right. She then proceeded to collect an example of what turned out to be a classic willemite and calcite in full green and red fluorescence. This is another kind of special treasure: our next generation of mineral collectors.

## Tour Day

Large yellow buses full of children like this pull into assigned parking spaces on a daily basis during the school year for their annual visit to the Franklin Mineral Museum. After their professional guided tour of the museum, they descend on the Buckwheat Dump like a horde of locusts. It's the self-collecting part of their day and the dump is the mother lode about to be stripmined. They are undefeatable. Rain is just another adventure. Heat is not felt. Ticks and snakes are not allowed. Poison ivy is just another green plant. Bees and mosquitoes are ignored...50 steps down into the dump empty-handed is no different from the climb back up the same stairs carrying a lot of pounds of their special Franklin rocks. They seem like ants, able to carry many times their own weight.

## Discipline

How do you control 120 kids off leash on a big pile of rocks? A teacher from one school district had a unique attention getter. An emergency whistle! It is very loud and with the first blast all eyes are instantly turned on the teacher, awaiting orders. Stay inside the fence, don't run, if you have any questions ask Fred, don't take off your goggles, don't push, don't try to lift big rocks, and on and on. An inquisitive mind is a great tranquilizer.

## Collecting

Treasure hunters are usually quiet and secretive and these children are no exception. They establish their claim, they work it like any other prospector until they find something and then they ask questions:

Is there any gold here?

Where is the copper?

Is this an arrowhead?

Is this worth anything?

How deep is this pile?

Is this an igneous rock?

Will this glow in the dark?

Are there any diamonds here?

Where are all the crystals?

Are there any fossils here?

Why is it called the Buckwheat Dump?

Is this a keeper? What color will this be?

How many steps back up?

Can you find some pyrite?

Is this (slickenside) the polisher or the polishee?

Do rocks make you crazy?

Or they make statements:

Chris is hammer happy!

I'm taking a break from MTV!

Money is my middle name!

She picks up every rock she sees!

Does this sound familiar? At times it sounds like the last FOMS field trip.

## The Keeper

Many times there are gizzinta moments. A calcite boulder with rhodonite, small fluorapatite crystals and minor microcline with ubiquitous franklinite crystals were spotted by a sharp eyed 10-year-old. Four sections were worked out but in no time, a crowd of 12 eager collectors had formed around the boulder (FOMS again). Twelve doesn't go into four so all four specimens went to the teacher for later disposition.

## The Grant

A school from the home town of the editor came to the Franklin Mineral Museum with a very special project. They wanted to build a nature trail lined with large New Jersey boulders representative of New Jersey geology and they had grant money to fund the purchase. That day a large slickenside piece, a classic example of an igneous intrusive from the Franklin Marble, a large leftover boulder of franklinite ore, a bright clean piece of the Franklin Marble, a pyrite-filled boulder and a fine specimen of banded franklinite in calcite/willemite were carried up the stairs and to the scales. About 250 lbs. of Buckwheat treasures left for a new home in the foothills of Watchung Mountain.

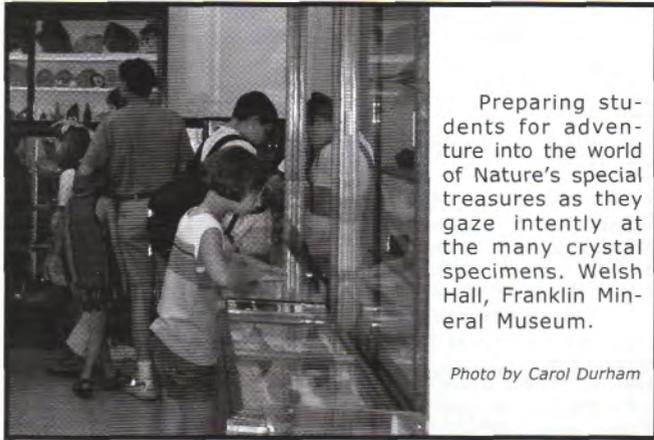
## Rainbows

One school tour was well prepped for finding fluorescent rocks. They practically ran on the dump. A sudden rain shower didn't dampen their spirits and when the sun came back one of the boys shouted, "Look up there!" For about 30 seconds a horizontal rainbow in full-color spectrum arced over the museum. Could there be a pot of gold at the end of this nature's rainbow in the rocks below? Those who found the best fluorescent calcite and willemites that day were rewarded with a rainbow for their pockets. The red, orange, and green of the spectrum were well represented in many small specimens, collected by even the most inexperienced child. Sadly, the other colors of the spectrum are revealed

only to the most advanced collector. It is rare for one to be found by a lucky school tripper. But it could happen, maybe on the next school visit.

**The Future**

The United States 2000 census predicts that high school populations will jump 20% in the next four years. The Buckwheat mother lode will be waiting.



Preparing students for adventure into the world of Nature's special treasures as they gaze intently at the many crystal specimens. Welsh Hall, Franklin Mineral Museum.

*Photo by Carol Durham*



**Upper right:** The trail to special treasures.

**Right center:** Volunteer and Franklin Mineral Museum Trustee Fred Young identifying rocks for teachers and students.

**Bottom left:** Finding special treasures at the end of the "Buckwheat Trail."

*Photos by Carol Durham*



"The Buckwheat Diary" is reprinted from the fall 2001 Franklin Mineral Museum Newsletter. It was conceived and authored by Mr. Fred Young, a true advocate of developing interest among the young in earth sciences. For every trip Fred takes into the Buckwheat Dump with the students, parents and teachers, he returns with new and exciting stories about the innocent and honest enthusiasm conveyed by "his" students. From all of us: Thanks Mr. Young!

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## Places To Go

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### The Franklin Mineral Museum

Evans Road/P.O. Box 54, Franklin, NJ 07416

(between Main Street and Buckwheat Road)

Phone: (973) 827-3481

[www.geocities.com/capecanaveral/lab/6347/index.html](http://www.geocities.com/capecanaveral/lab/6347/index.html)



Exhibiting 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 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, and picnic grounds. Two special collecting areas for small children and the handicapped.

Offering for sale: minerals, fluorescent specimens, mineral sets, agate slabs, onyx carvings, UV lamps, hammers, lenses, mineral books, T-shirts, patches, postcards, and refreshments.

#### Operating Schedule:

*Open to the Public*

*March - Weekends Only*

*April 1 to December 1*

*Monday through Saturday: 10 AM - 4 PM*

*Sunday: 11:30 PM - 4:30 PM*

*Closed: Easter, July 4th and Thanksgiving*

*Groups by reservation, please*

*Separate admission fees to the Buckwheat Dump and the Mineral Museum. Admission to museum includes guided tour. Special collecting areas by appointment: additional fee charged.*

Franklin, New Jersey

*"The Fluorescent Mineral Capital of the World"*

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### The Sterling Hill Mining Museum, Inc.

30 Plant Street Ogdensburg, NJ 07439

Museum phone: (973) 209-7212

Fax: (973) 209-8505

[www.sterlinghill.org](http://www.sterlinghill.org)

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Open March and December on weekends or by appointment, weather permitting.

In April, May, June, Sept., Oct., Nov., tours at 1:00 P.M. and 3:00 P.M.

In July and August, tours at 11:00 A.M., 1:00 P.M., and 3:00 P.M.

The temperature in the mine is 55 degrees F.

Learn about the importance of the mining industry in northwestern New Jersey.

See historic mine workings!

## The Interactive Properties of Fluorescent Rocks and Their Associated Minerals

Nick Armenti, Ph.D.  
178 State Park  
Blairstown, NJ 07825

It's very likely that many a rock and mineral collector, like me, has asked her/himself this question, "What is it about the lure of this hobby that so captivates my attention, and at times, to the point of obsession?" My personal curiosity about this has haunted me for decades. Yet, in no area of collecting has this curiosity been more intense than in the area of collecting rocks and their associated fluorescent minerals. I have been driven to understand what it is about these products of nature that so entices collectors, including me. Certainly the fluorescent minerals present to the collector properties which catch one's immediate attention; they are colorful (under ultraviolet radiation), they can be surprising, they are mysterious, as we do not understand their properties fully, they offer the opportunity for new discoveries, they often are very beautiful. But, these attributions are true for other rocks and minerals too. Is there then, if anything, some characteristic so uniquely enchanting about fluorescent rocks and minerals which sets them apart from other collectible rocks and minerals? I've wondered long about this and I would like to share some related reflections with my collector-colleagues before my thoughts about this topic turn to fossilized ruminations. Also, perhaps a few interested others will reflect as well and either consensually validate or repudiate the ideas which follow here. Whatever the outcome I do thank the publisher for allowing me to ventilate these not-so-gemmy cogitations and to get them out of the stope between my ears.

No, I'm not a mineralogist or geologist, but like other collectors of rocks and minerals I believe I entertain a similar set of interests. Also, professionally I do share some common interests with the mineralogist and geologist. The mineralogist and geologist are scientists dedicated to the understanding, prediction and management of their area of concentration, i.e., the structure, composition and properties of the array of rocks and minerals known to man. In a similar fashion the focus of attention and study of a psychologist (I am one of them) is the understanding, prediction and management of the structure, composition and properties (primarily the behavior) of living organisms, especially of humans. This area of study is referred to as the science of human behavior. Professionally I am particularly interested in attending to the relationships and interactions between people and how the behavior of one person affects another. Also, I am interested in the interactive relationship between people and their physical, environmental surroundings; how a person influences the functioning of the objects around her or him and how in turn the objects around a person, including those in nature, influence her or him. As is perhaps obvious, the focus of study in this area of psychology is on the interactive process within which each interacting party can affect the other. In like manner, it appears to me that the mineralogist, geologist and rock and mineral collector are focused on and fascinated by the properties of the objects of their attention, in this case the interaction between themselves and their rocks and minerals. Yes, I am suggesting for your consideration that the relationship between the person (mineralogist, geologist and /or collector) and the rocks and minerals in their possession is an interactive one. The reader may rightly ask, "Does this psychologist-collector have rocks in his head?" Perhaps so. After all, a true interactive relationship requires behavior on the part of both interacting parties, doesn't it? Rocks and minerals don't behave, do they? Well, let's examine briefly the reality of "behaving" and how it may apply to rocks and their associated fluorescent minerals.

In an effort to make my point, I beg the reader's indulgence with the very brief "Psychology 101" homily which follows. To wit, I share with you that behaving is a property attributed to living, animate organisms. Behaving is a term that connotes, in most human situations, actions **initiated** by a person in response to perceived internal and/or external stimulation. Consider for example stimulation to which man initiates action such as **internal** body sensations, i.e., abdominal discomfort, back pain, or emotions, i.e., joy, boredom, or thoughts and mental images and **external** stimuli such as those things we see, hear, smell, touch and taste. These human behaviors initiated in response to these stimuli usually, but not always, are referred to as voluntary and are considered to be intentional behaviors. However, the property of **initiated and intentional behavior** is not considered a property of inanimate rocks and minerals. Yet, there is another aspect of "behaving" that is known as "**responding**." This component of behavior is basically described in "Psychology 101" terms as "a reaction, which is **elicited or aroused** from an organism by an applied stimulus (internal or external)." This aspect of behavior, i.e., that which is elicited, is considered to be **automatic, involuntary and unintentional** in nature. This is the fundamental stimulus-response model of behavior. One example of this process of eliciting an automatic response in humans is when the heat of the sun is applied to a person and the person responds with sweating. The sweating response is elicited from the person by the heat stimulus. Another example of this stimulus-response relationship in humans is when a pinprick is applied to a person and the person responds with a withdraw reaction to the stimulus. One more illustration is where a person confronts and is stimulated by a beautiful object and involuntarily responds with a smile and feelings of joy and excitement. I trust that these scenarios exemplify the unintentional, involuntary and essentially **automatic** response component of the concept of behaving.

And now, I suggest to you that these examples do, in fact, illustrate the stimulus-response relationship model which, I believe, can be applied to and attributed to even inanimate rocks and minerals. I refer here to the mineral's property of responding automatically to a stimulus and the ability of the responses of the mineral specimen to stimulate in man a corresponding, reciprocal reaction. First, let's consider that rocks and their associated minerals (nonfluorescent and fluorescent) do in fact respond to stimuli that are applied to them. Take for example the application of a scratch with a nail to any rock to test its hardness. The substance of the rock responds "back" to the external stimulus of the scratch with a measurable reaction. What follows is that the person applying the stimulus (the collector or mineralogist) in turn responds to the specimen response (the person initiates measurement behavior). The specimen's response serves to stimulate a corresponding reaction from the person who applied the original scratch stimulus. This is a true and fascinating stimulus-response chain of events between a person and an inanimate mineral entity. As another example, take the application of an acid to a rock and its associated mineral. Again, under the right conditions, the rock and its mineral content respond to the applied stimulus (acid) with a "fizz" response and again the person applying the acid stimulus responds (measures, records etc.) to the reaction from the specimen. These examples, I submit, are the operational definitions of an interactive relationship between the person applying the stimulus and her/his mineral specimen. It would appear then that this relationship between the two parties is an interactive one; each party is influencing the other.

So, what does all this have to do with collecting rocks and their associated **fluorescent** minerals? Well to start with, while the interactive examples between man and minerals presented above are both informative and fascinating they are, in most cases, rather uneventful and not very engaging to most collectors. The interactive component of the relationship is neither readily evident nor very attractive to the participating collector. On the other hand, the properties of fluorescence, phosphorescence, tenebrescence, etc, all attributable to fluorescent rocks and minerals, I believe, present a very unique and engaging interactive experience between the mineral collector and his or her fluorescent mineral specimen. While other interactions between man and minerals may in many ways be fascinating, none is as *fully captivating as that between man and fluorescent minerals. The reason for this, in my view, is that* within the realm of fluorescent mineral collecting we experience the fluorescent mineral responding to us as we apply the stimulus of ultraviolet radiation in a way that is unparalleled when compared with other man-mineral interactions. Fluorescent minerals react and respond back to us in a very special manner, one which transcends the ordinary scratch and acid tests. As we, the collectors, shape, clean, lamp and, yes, "groom" our fluorescent mineral specimen (maybe there really are pet rocks), the responsiveness of the specimen to the stimulation of ultraviolet radiation changes; it is, hopefully, enhanced as an outcome of our "care" of it. In turn, the radiation-elicited response of the fluorescent rock acts upon us as a stimulus and we respond to it with the fluorescence-elicited-response of feelings such as surprise, joy, discovery, satisfaction, achievement, pride and so on. (It is as if we are preparing our specimen to perform at its best for us and for other observers of these fluorescent events). Upon being stimulated with ultraviolet radiation the specimen responds with the anticipated display of color, brightness and perhaps those wonderful combinations of two, three, four and at times more colors in designs and configurations only nature can achieve. Then at times there is the surprise after-response of phosphorescence that acts upon us to arouse additional emotional responses within us. A relationship between the parties, man and mineral, is in fact established, a reciprocity has been achieved. Each entity is influencing the other in a series of stimulus-response-stimulus-response events. The events described here make up the process that may be referred to as "mutual behavior exchange" between at least two parties. This is the sometimes complex and at times "automatic" interactive interchange which takes place continually between persons and between people and their environmental surroundings. I include here those interactive exchanges between the collector and his/her fluorescent rocks and minerals.

These experiences are truly interactive and are reciprocal in character. They are a property of fluorescent rocks and their associated minerals. These experiences are, I believe, at the core of what drives us to search, discover and to want to possess these fascinating products of nature. This man-mineral interactive process reaches deep within us and arouses the compelling craving to associate ourselves with all that is beautiful, good, valuable, etc, as each individual defines those concepts for her or himself. Now, I don't mean to suggest or to imply that our hobby presents to us some assortment of mystical or spiritual happenings. Most of us know well that our hobby is firmly grounded in and on the earth (at least for now). As a matter of fact, some of us are even known to be making a few bucks at it. This reality is capitalism, not mysticism. So, in spite of this sobering awareness allow me to suggest that this hobby of ours has the potential to enrich our lives in important nonfinancial ways. This hobby of collecting fluorescent rocks and their associated minerals touches a psychology within us, which is in the best tradition of civilized man. It can be genuinely self-actualizing. And so, allow me to recommend that we continue to pass on this legacy to our children, grandchildren and others so they too may interact with nature in a very special manner. Let us share our man-mineral interactive experiences with others that they too may be enriched by them as we collectors of fluorescent rocks and minerals are so privileged to be.

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#### Books and Other Publications

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

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

**Dunn, Pete J. (1995) *Franklin and Sterling Hill, New Jersey: the world's most magnificent mineral deposits.*** Privately printed. Part One, bibliography and chapters 1-3; Part Two, chapter 4-12; Part Three, chapters 13-17; Part Four, chapters 18-23; Part Five, chapters 24-26, appendices, and indices; First Supplement, chapters S1-S5; and Second Supplement, chapters S6-S10.

\$30 each (+\$ 5.00 postage) for Parts One through Five, \$25.00 each (+ \$5.00 postage) for First and Second Supplements, or \$200.00 (+ \$15.00 postage) for the complete set of seven.

**Fronde, Clifford and Baum, John L. (1974) *Structure and Mineralogy of the Franklin Zinc-Iron-Manganese Deposit, Franklin, New Jersey.*** Economic Geology, 69, 2, pp. 157-180. Photocopies only are available. \$2.50 (+ \$1.25 postage)

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

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

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## REMEMBERING TOM WARREN

1903-2001

**Richard Bostwick  
600 West 111th Street. Apt. 11B  
New York NY 10025**

In January of 2001 when I saw him at Villa Gardens in Pasadena, Tom was in astonishingly good health for a very old man. He was alert and energetic and positive, interested in the news from Franklin, and full of suggestions about the business of life and the pursuit and promotion of fluorescent minerals. In short, he hadn't changed much from when I worked for him in 1974. I was 31 then and he was forty years older, and he ran rings around me. Now at age 97 he had slowed down; he walked with a cane, and macular degeneration had robbed him of all but peripheral vision. Still he exercised daily on his rowing machine, kept up his correspondence with the help of a secretary, and stayed involved with his neighbors. While I was there one of them, a forgetful ninety-ish coquette, knocked several times and kept asking if it was time for her to have her hair done. When that time came Tom escorted her down to the beauty parlor; it was one of his regular self-imposed duties, and she was apparently one of several "girl friends" at the Villa Gardens complex who counted on him. Tom and I sat outside in the afternoon sun and talked about the old days, and the new days, and what vitamins he thought I should take, and how the Thomas S. Warren Museum of Fluorescence was coming along at Sterling Hill. He didn't want me to leave, but I had a rental car to drive through L.A. traffic and a plane to catch in San Diego, and I had to go.



Shortly after his 98<sup>th</sup> birthday on July 26, 2001, he had a stroke which robbed him of his mobility. He had good days and bad days after that, but the trajectory was downward and on November 4 he died. A memorial service was held at Villa Gardens on December 1. Tributes were read, and officers and members of the Fluorescent Mineral Society put on a display of fluorescent minerals in his honor, so family and friends unfamiliar with Tom's darned glowing rocks could see what all the fuss was about.

For someone who was a native and lifelong resident of southern California, Tom had a profound influence on us "Franklinites" back here in the Northeast. Within a few years of founding Ultra-Violet Products, Inc. in 1932 he was making ultraviolet lamps for mineral prospectors and collectors, and since then there has scarcely been a collector of Franklin and Sterling Hill minerals who has not used a *Mineralight*<sup>™</sup>. After 39 years as CEO Tom turned the business (now UVP, Inc.) over to his son Paul. Their company has remained the industry leader in producing ultraviolet lamps and is still deeply committed to mineral collectors, even though Paul himself does not collect. He told me this disinclination dates from the time when after school he had to make up fluorescent mineral kits instead of hanging out with his friends. Under Paul, UVP, Inc. certainly has been a friend and supporter of the Warren Museum and its goals. Many of the museum's display lamps are from UVP, Inc., which donated the four powerful longwave units that illuminate the oversize "touchable" specimens on the mine flatcars in the museum's main room. The company continues to innovate; a recent UVP product is a powerful 8-watt handlamp which can be changed from shortwave to midwave to longwave by turning a knob.

During the Great Depression in mid-1932, married and out of a job, Tom started Ultra-Violet Products, Inc. in a 25' x 60' building on Santa Monica Boulevard in Los Angeles. His first product was the *Life Lite*<sup>™</sup>, an ultraviolet lamp intended for medical home use; it generated Vitamin D in the body, killed germs, and was believed to have other health-enhancing effects. To the best of my knowledge Tom used one on himself nearly every day for the rest of his life. (While this form of "light therapy" is not much used today in the United States it is widely practiced in northern Europe and Russia, particularly during the long, dark winters.) The *Life Lite* was a hand-held lamp that was line-operated on typical 115V 60Hz current, and used a mercury-vapor tube as a UV source. With the addition of a Corning filter the *Life Lite* became the prototype of a long line of *Mineralights*.

As an entrepreneur Tom was interested in any and all effects of ultraviolet light with commercial possibilities. Ultra-Violet Products, Inc. and UVP, Inc. have over the decades been involved with applications ranging from postage-stamp canceling and printing-ink curing to admissions control, forensics, and advertising. In 1974 when I managed the so-called "Lapidary Department" for Tom, lamp and mineral sales to collectors comprised a small percentage of the company's business. However, Tom's personal interest in fluorescent minerals, once acquired, was deep, enthusiastic, and abiding. For several decades Ultra-Violet Products had the largest stock of fluorescent minerals ever assembled, and after going into so-called retirement in 1973 Tom continued to deal in minerals for at least another fifteen years. When I took the job with Tom in 1974 I was shocked at the sheer tonnage of Franklin minerals he had in Pasadena: more than twenty tons, from Buckwheat Dump boulders to some extremely fine high-end Franklin pieces. Part of my job during that year was going through all the boxes and bins to find the nonfluorescent Franklin rarities that lurked there: I remember finding several manganberzeliite specimens among the tons of willemite and calcite.

In his first few years in business Tom focused on the *Life Lite* to keep Ultra-Violet Products, Inc. and his family afloat. Tom's wife Barbara bore two depression babies, Paul in 1933 and Bethany in 1935; Virginia Anne arrived in 1945, when things were more secure. Even with these distractions, in the mid-1930s Tom could hardly have avoided noticing fluorescent minerals. A glance at rockhound magazines of the period confirms that they were the latest thing, the new fad. Of sixteen articles in *The Mineralogist* for January 1935, ten have titles like "Fluorescent Minerals of California," "Night Prospecting with the Argon Bulb," "New Jersey Willemite Shows Spectacular Fluorescence," "The Unseen Light," and so on. Ads abound for fluorescent minerals as well as the competing ultraviolet sources available: iron arc units, argon bulbs, UV blackbulbs, Nico mercury-arc lamps, and the new fused-quartz mercury-vapor lamps. Ultra-Violet Products, Inc. is not represented in this issue, but Tom evidently became concerned about the mineral market around this time and by 1938 was introducing a new UV lamp for the fluorescence of "scheelite and other minerals." *The Mineralogist's* back-cover ad, by John M. Grieger of Pasadena, California, is headlined: "FRANKLIN, NEW JERSEY has long been the best known locality for superb FLUORESCENT minerals." 3 x 4-inch specimens of calcium larsenite from Grieger were \$1.75, the same size and price as "Calcite - red fluorescence mixed with green Willemite and white Willemite, making showiest of all fluorescent specimens" (sic). Ultra-Violet Products, Inc. moved to Pasadena in 1946, then to San Gabriel. It is now in Upland.

Tom was a superb judge of fluorescent minerals, and enjoyed their beauty as much as anyone I have known. His fascination with the minerals of Franklin was helped in 1938 by a 100-pound barrel of minerals from the picking table, sent to him at the instigation of a college friend who knew the president of the New Jersey Zinc Company. However, Tom's first period of prosperity in business was due to the more practical needs of prospectors and geologists looking for scheelite during World War II and for uranium immediately afterward. In the late 1930s Tom developed his most original and important designs, the first ultraviolet lamps that were truly practical for field use. They had fused quartz tube grids and Corning filters in a metal housing with black wrinkle-finish paint, and were remarkably rugged. These early *Mineralights* are now in museums, but most of them still work quite well. Though the battery pack and transformer were fairly heavy in the more powerful models, these components could be carried on the belt or in a backpack, with the lamp itself in the hand. The image of the crazed prospector, discovering a fortune in minerals with his *Mineralight*, is prominent in Ultra-Violet Products' ads from this time on.

The *Mineralight* with the most significance for Franklin was probably the M-12, a box about the size of a quart milk carton. It had a switch and leather handle on one side, a small quartz tube and filter on the other, and a 6-volt lantern battery within. It was lightweight and could be concealed in a miner's lunch pail or carried in his jacket pocket. As far as I know this was the first truly compact, self-contained, portable ultraviolet lamp, and it revolutionized underground collecting. Tom had a distributor in New Jersey, John Obert, who traded *Mineralights* to miners in exchange for minerals, starting around 1939. It is scarcely possible to overestimate the influence of Tom's lamps in Franklin between the war years and the closing of the mine in 1954. For a hundred years, Franklin miners had collected mostly crystals and colorful massive minerals. Now they concentrated on specimens that fluoresced. Miners here had long been aware of mineral fluorescence, as iron-arc units and their quartz-tube successors were used on the picking table and in the New Jersey Zinc Company's labs. However, the M-12 was the first ultraviolet lamp the miners could take underground to locate fluorescent minerals in place. Jack Baum and others have noted, with mixed feelings, this change in collecting focus. I think it likely that many more miners became collectors during this time. It is certainly the case that many of the specimens which earned Franklin its title of "Fluorescent Mineral Capital of the World" were mined during this relatively brief period. Until the Sterling Hill mine closed in 1986, successive generations of UVP portable lamps were used underground, by the staff to trace willemite-rich ore, and by miners to collect good fluorescent pieces. The latter trend continued after the Hauck brothers bought the property in 1989, with many tons of fine willemite/calcite, wollastonite, and barite being recovered before the mine filled with water. Organized "Night Digs" remain popular on the surface dumps at the Sterling Hill Mining Museum and the Franklin Mineral Museum.

During the 1940s and 1950s in particular, Tom had a public-speaking career that was almost as busy as a revival preacher's, but on behalf of the gospel of glow. He addressed mineral clubs, school classes, Kiwanis and Rotary meetings, Boy Scouts and Girl Scouts, anyone who would listen. His presentations were lively, and calculated to appeal to all ages and educational levels. He would of course explain the electromagnetic spectrum, the relationship of ultraviolet light to visible light, and the nature of fluorescence and phosphorescence and related phenomena, all of this demonstrated with specimens and graphics. Prospecting for hidden treasures was a constant theme, as was the transformation of mundane objects into glowing marvels. In 1974 I ran into eddies from the wake Tom had left: a ritzy Santa Monica gallery that sold fluorescent art, a Catholic priest from Indiana who built devotional grottoes lined with wernerite and willemite, and a lay minister who brought converts to Jesus with a *Mineralight*. I was told the high point of her sermons went something like this: "Just as these invisible rays bring out the rainbows hidden in this rock, so can God's holy spirit transform your blackened soul into a glory of light. Hallelujah!"

Tom's influence on mineral exhibits was crucial at Franklin, as throughout the country. The world-famous display of fluorescent minerals at the Franklin Mineral Museum has been *Mineralight*-powered since its inception, as was the smaller display at Ewald Gerstmann's museum. Needless to say, many of the display lamps at the Warren Museum are from UVP, Inc. In the 1930s and prior to Tom's efforts there were certainly some permanent displays of fluorescent minerals, such as the famous one at the Cranbrook Institute and smaller ones at rock shops like Grieger's. However, Tom pushed to have exhibits at any institution that would listen to him, and probably stimulated more museums into exhibiting than anyone else. Tom's first permanent mineral display was installed at Knotts Berry Farm around 1940, and later he maintained one at Mineral Hall in Disneyland that was there until at least 1960; these were aimed at the general public and were seen by hundreds of thousands of people. For museum exhibits Tom generally furnished the lamps at an institutional discount, and sometimes he supplied the minerals as well. The enormous fluorescent geode at the Warren Museum was originally Tom's gift to the Natural History Museum of Los Angeles County, one of many museums Tom had influenced to mount a display. Incidentally, the

Warren Museum houses two of Tom's favorite pieces in Tom's cases: a Mexican scheelite crystal which is one of the world's largest, and a unique stream-rounded willemite-calcite boulder from Casa Grande, Arizona.

Tom appears to have pioneered the traveling display at mineral shows. He began with the San Bernardino show in 1939, and by the time of the first Franklin show in 1957 at the Neighborhood House, Tom had quite a road show of his own that he drove or shipped around the country. Let it be noted that until the construction of the Franklin Mineral Museum, the temporary displays of Ultra-Violet Products (and, later, Raytech) at the Franklin show were the *only* substantial public displays in Franklin of the local fluorescent minerals. As for Tom's road show, not only did he have the usual tables of fluorescent minerals for sale, but also a mix of other exhibits. These might include a prospector's monument (a pile of scheelite), panels of backlit photos of fluorescent minerals, or fine specimens which for convenience in exhibiting were kept in suitcases, anchored in styrofoam sheets with plaster painted black. (The well-known wollastonite "pyramid" from Franklin, the specimen on the Franklin Mineral Museum postcard, was part of one of those suitcase displays; it is sawn flat on the back, to fit the suitcase, and still bears traces of plaster.) Then there was the famous animated sphere display. This was a coffin-shaped box painted black, a Rube Goldberg contraption with bicycle chains and sprockets and an electric motor inside, and spheres of fluorescent minerals on top. The mechanism, prone to frequent breakdowns, rotated some spheres in place, rolled others back and forth, and had a line of them moving up and down while progressing along a semicircular track. In the dark it was an awesome sight, whirs, clicks, and staggers notwithstanding. The "coffin's" last appearance in Franklin was at the armory during the 1974 Franklin-Sterling Gem & Mineral Show. The spheres were sold and the "coffin" demolished during the liquidation of Tom's post-retirement mineral business, the Fluorescent Minerals Company.

Tom Warren's role as a publisher is less conspicuous but of significance to all collectors of fluorescent minerals. Their first "bible," Sterling Gleason's *Ultraviolet Guide to Minerals*, was commissioned by Tom Warren and published as a hardback in 1960 by D. Van Nostrand Co., which reprinted it four times. Tom then bought back the copyright and had Ultra-Violet Products publish it as a paperback in 1972. The *Guide* includes a 29-species fluorescent check-list for Franklin and Sterling Hill, compiled with the help of E. Packard "Sunny" Cook, a founder of the F.O.M.S. It also includes many iconic photos of Franklin specimens. Ultra-Violet Products then published the first, and still the only, book-length treatment of the fluorescent minerals of Franklin and Sterling Hill: Bob Jones' *Nature's Hidden Rainbows*. This was first printed in 1964 and revised in 1970. In Jones' book the species total is 30, with a list of 27 "Possible, Doubtful, and Incorrect Fluorescent Minerals." The Franklin mineral photos from Gleason's book reappear, along with new photos of some Franklin and Sterling Hill classics. Since Tom found himself with excess quantities of the color plates from the 1970 reprint of Jones's book, in 1993 he had them spiral-bound, with new picture captions by Jones, as *Rainbow Minerals*. Tom's final publishing venture was *Ultraviolet Light and Fluorescent Minerals* (1995), a collaborative effort with sections written by himself, Earl Verbeek, and me, plus key excerpts from Gleason's *Guide*. There is no specialized information here about the fluorescent minerals of Franklin and Sterling Hill, but there are fifteen color photos of them (plates 17-31), including seven by our local dean of fluorescent mineral photography, Henry Van Lenten.

My own connection with Tom Warren comes through my mentor as a collector, Mrs. E. Packard Cook, better known as "Sunny" Cook. Old-timers will remember her as one of the three founders of the F.O.M.S., along with Dick Hauck and John Hendricks. When I met Sunny in the fall of 1960 she worked at Blair Academy in Blairstown, New Jersey, where she had taken a job solely to be near her beloved Franklin. While she had a general collection of Franklin and Sterling Hill minerals, which is now one of the core holdings of the Franklin Mineral Museum, her special passion was reserved for the minerals that glowed. She introduced me to them and I too was hooked. That Christmas my parents gave me my first ultraviolet lamp, an Ultra-Violet Products SL-2537 *Mineralight* with its U-shaped tube and compact, rounded black Bakelite case (the notorious "black banana"). They had bought it from Sunny, who was a *Mineralight* dealer of long standing, and an old friend of Tom's. A native of Massachusetts, she had met him at a mineral show, and before she settled in Blairstown he had talked her into coming cross-country, twice, to manage his mineral department. Through Sunny I came to know Tom many years before I met him; she shared many of his fine qualities, including his optimism, integrity, enthusiasm, and deep love of fluorescent minerals. (Another measure of the man is that Nick Zipco considered Tom one of the few men he could trust.)

Tom's overall influence on mineral collecting at Franklin and Sterling Hill is embodied in the museum-within-a-museum named after him, the Thomas S. Warren Museum of Fluorescence. Housed in the surviving basement structure of the original Sterling Hill mill, the Warren Museum was dedicated on October 16, 1999. Unlike most people who are similarly commemorated, Tom at 96 was still alive and able to attend the dedication. While most of the existing displays there are of fluorescent minerals, the museum is pointedly titled a museum of fluorescence. Displays of mineral triboluminescence and tenebrescence are also planned, and the museum hopes to recover a cross-section of a vein of fluorescent ore from a mine in Arizona. Ultimately the museum will include not only the fluorescent "everyday objects" which now occupy one case, but also fluorescent posters, foodstuffs, fabrics, and many other fluorescent items natural and artificial. Ultra-Violet Products, Inc. for a while produced fluorescent paints, and artworks created during this period now belong to the museum and will be on exhibit. Tom in his heyday created fluorescent Christmas scenes for his home in South Pasadena, and some of these decorations have also been preserved for the Warren Museum.

Throughout his long life Tom Warren was obsessed with the beauty and fascination of fluorescence, in minerals and wherever else it could be seen. He was the greatest advocate fluorescent minerals have ever had, and we who collect them are all Tom's heirs. Franklin, though far from southern California, was his second home in many ways. Of all places on earth it was the one where the average person had seen fluorescence, enjoyed it, and understood its appeal. In us he was preaching to the converted, but there is no harm in that; I am proud we were able to show him how well we understood.

**"Where have all the old zinc miners gone?"  
 "Gone to Franklin Mineral Museum, every one."**



Old miners, their families, museum staff and volunteers are welcome on this very special day to share in the memories of the mining legacy of Franklin, New Jersey, and to pass on this legacy for many generations to come. (Sunday May 5, 2002 at 1:30 P.M.)



Photo taken 1994: Bill Wurst (standing); Zinc miner Joseph Nemshak, age 95 (sitting).  
 Photos from Franklin Mineral Museum Archive.

**FRANKLIN-OGDENSBURG MINERALOGICAL SOCIETY, INC.**

**SPRING 2002 ACTIVITY SCHEDULE**

**Saturday, March 16, 2002**

10:00 A.M. - Noon - F.O.M.S. Micro Group, Franklin Mineral Museum.

1:30-3:30 P.M.: F.O.M.S. Meeting and Lecture, Franklin Mineral Museum:

Speaker: Dr. Earl Verbeek, "Recent Investigations of fluorescent Minerals at the Thomas S. Warren Museum."

**Saturday, April 20, 2002**

9:00 A.M. - Noon - F.O.M.S. Field Trip-Mine Run Dump and Passaic and Noble Pits,  
Sterling Hill Mining Museum, Ogdensburg, NJ

1:30-3:30 P.M. F.O.M.S. Meeting and lecture Franklin Mineral Museum

Speaker: Dick Bostwick, "Thomas S. Warren and the History of the UltraViolet Lamp."

6:30 P.M. - 9:00 P.M.: \*\*Night Collecting on the Mine Run Dump and Passaic and Noble Pits,  
Sterling Hill, for members of the Sterling Hill Mining Museum Foundation., Fee:\$1.00/lb.

Eye protection, flashlight, and UV lamp advised.

**Saturday and Sunday, April 27 and 28, 2002**

**SPRING SHOW WEEKEND**

The Seventh Annual F.O.M.S. Spring Swap-and-Sell, held in conjunction with the \*\*30th Annual NJESA Gem and Mineral Show and the \*\*Eastern Federation of Mineralogical and Lapidary Societies (EFMLS) Convention and show. All three events run concurrently at the Robert E. Littell Community Center and the Hardyston School in Franklin, the F.O.M.S. Swap-and-Sell outside and the NJEAA/EFMLS Show inside. The Littell Center and the Hardyston School are located at the south end of Franklin on opposite sides of Route 23, near the intersection with Route 517.

Swap-and-Sell hours: Saturday, 7:30 A.M. to 6:00 P.M.; Sunday, 9:00 A.M. to 5:00 P.M.

For F.O.M.S. Swap-and-Sell information, contact Chet Lemanski after 8:00 P.M. at (609)893-7366.

NJESA/EFMLS Show hours: Saturday, 9:00 A.M. to 5:30 P.M.; Sunday, 10:00 A.M. to 5:00 P.M.

For NJESA/EFMLS show information, call the Sterling Hill Mining Museum at (973)209-7212.

(Please note that the EFMLS will have its Cracker Barrel and business meetings on Friday the 26th.)

\*\*The Franklin Mineral Museum and Sterling Hill Mining Museum will be open during the show.

**BANQUET AND AUCTION**

\*\*NJESA/EFMLS banquet and auction, Saturday 6:30 P.M. at the American Legion Hall, Franklin; and the hall is located behind Shop-Rite shopping center on the east side of Route 23 in Franklin. For ticket reservations and further information, call The Sterling Hill Mining Museum (973)209-7212.

**FIELD COLLECTING**

\*\*Trotter Dump Field Trip, organized by the Delaware Valley Earth Science Society (DVESS).

Schedule: Saturday, 9:00 A.M. to 7:00 P.M., then after dark from 7:30 P.M. to 11:00 P.M.

\$20 for all day, plus \$1 per pound for material collected before 7:00 P.M. and \$2 per pound for material collected after dark. For reservations, contact Jeff Winkler, 55 White Way, Pompton Lakes, NJ 07422, TEL (973) 835-2582.

E-mail information at: trotterdump@yahoo.com

\*\*Collecting Sunday from 9:00 A.M. to 3:00 P.M. at the Mine Run Dump, Sterling Hill Mining Museum.

Admission \$10 (good for 10 pounds), plus \$1/lb. for additional material collected.

\*\*Collecting throughout the show at the Buckwheat Dump, Franklin Mineral Museum; fee charged.

**STERLING HILL GARAGE SALE**

The second Annual Sterling Hill Garage Sale will take place at the Christiansen Pavilion, Sterling Hill Mining Museum, from 1:00 P.M. to 3:00 P.M. on Sunday.

**Sunday, May 5, 2002**

1:30 P.M. - \*\*Annual Volunteer Appreciation and Miners Tribute Day at the Franklin Mineral Museum, including special events and concert by the famous Franklin Band.

**Saturday, May 18, 2002**

8:00 A.M. - Noon - F.O.M.S. Field Trip - Buckwheat Dump, Franklin Mineral Museum

10:00 - Noon: Micro Group - Kraissl Hall, Franklin Mineral Museum.

1:30 P.M. - 3:30 P.M.: F.O.M.S. Meeting and Lecture - Franklin Mineral Museum

Speaker: Ron Mishkin, former miner and geologist, "Experience of a Miner."

**Sunday, May 19th, 2002**

9:00 A.M. - 3:00 P.M. - F.O.M.S. Field Trip - Lime Crest Quarry, Limecrest Road,

Sparta, NJ. This is an invitational field trip hosted by the F.O.M.S., and is open to members of mineral clubs which carry E.F.M.L.S. membership and liability insurance. Proof of E.F.M.L.S. membership/insurance required. Proper safety gear a must.

**Saturday, June 1, 2002**

7:30-10:30 P.M.: \*\*Spring Night Dig and Mineral Sale at the Buckwheat Dump, Franklin.

Sponsored by the Franklin Mineral Museum. Open to the public - poundage fee charged.

Doors open at 7:00 P.M. for registration and mineral sale.

Eye protection, flashlight, and UV lamp advised.

**Saturday, June 15, 2002**

9:00 A.M. - Noon: \*\*F.O.M.S. Field Trip - Franklin Quarry, Cork Hill Rd., Franklin.

1:30 P.M. - 3:00 P.M. - F.O.M.S. Meeting and Lecture, Franklin Mineral Museum.

Speaker: Peter Kearn, former V.P. of New Jersey Zinc, "Recovery & Production of High Purity Indium Metal."

**Friday, Saturday, and Sunday, August 23, 24, and 25, 2002**

\*\*Fall 2002 Pennsylvania Mineral Symposium

The Mineralogy and Geology of the Franklin/Sterling Hill Ore Deposits

Sterling Hill Mining Museum, Ogdensburg

Features include: keynote speaker, lecture, tours, field trip, mineral ID contest, benefit auction and more.

Contact Dr. Andrew Sicree: (814) 865-6427 E-mail sicree@geosc.psu.edu

Scheduled activities of F.O.M.S. include meetings, field trips and other events.

Regular meetings are held on the third Saturday of March, April, May, June, September, October, and November, and generally comprise a business session followed by a lecture.

F.O.M.S. meetings are open to the public, and are held at 1:30 P.M., usually in Kraissl Hall at the Franklin Mineral Museum, 32 Evans St., Franklin, NJ (check listings for exceptions).

F.O.M.S. field trips are generally held on the mornings before regular F.O.M.S. meetings.

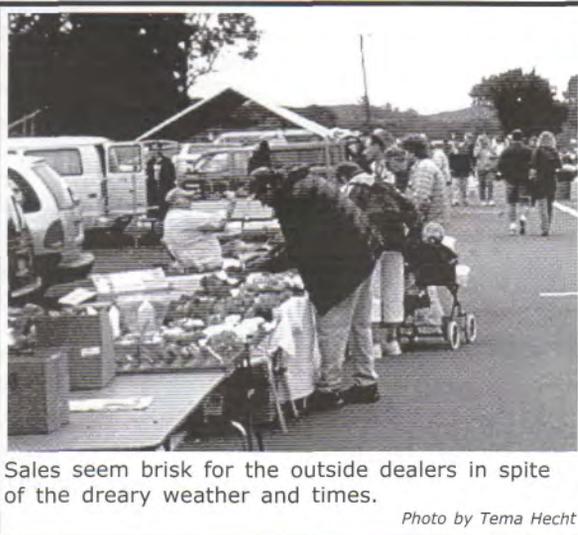
These field trips are open to F.O.M.S. members aged 13 or older. An exception to the membership requirement is the Lime Crest Quarry field trip, sponsored twice a year by the F.O.M.S.; this is open to members of clubs which have E.F.M.L.S. liability insurance or equivalent coverage.

Proof of membership is required for all field trips, as well as proper field trip gear: hard hat, protective goggles or glasses, gloves and sturdy footwear.

\*\*Activities so marked are not sponsored by the F.O.M.S. but may be of interest to its members; such functions may incur fees and/or require membership in other organizations.



**Scenes from the Franklin/Sterling Hill Fall 2001 Gem and Mineral Show.**



## IN PRAISE OF ESPERITE

Richard C. Bostwick

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New York NY 10025

Esperite has been famous since its discovery in 1928 for its bright greenish-yellow fluorescence. Its discoverers called this fluorescence "strong lemon-yellow" and it is one of the brightest and most conspicuous in the mineral kingdom. Esperite's fluorescent hue is not only distinctive but also unduplicated by that of any other mineral. Originally named calcium-larsenite, it is highly prized by collectors and considered a Franklin rarity although there must be several thousand specimens in existence. It was valued and sought after from the time it was first noticed, and that fascination continues today.

At first glance in daylight esperite is nondescript at best, a massive mineral with greasy luster, and color which runs the rather narrow gamut from dingy white to off-white to pale gray to pale brown. Esperite was so lackluster at first sight that it went unnoticed for over thirty years after specimens first came out of the Parker Shaft, associated with hardystonite. Admittedly the similarity between the two species is great in daylight. Given that esperite is a calcium lead zinc silicate and hardystonite is a calcium zinc silicate with significant amounts of lead, perhaps it is not surprising that mineralogists initially did not differentiate the two. Just the same, hardystonite from the Parker Shaft was described in 1899, well before the use of ultraviolet lamps at Franklin.

While the exact circumstances of esperite's discovery were not disclosed it is probable that esperite was first noticed by New Jersey Zinc Co. chemist Lawson Bauer while investigating specimens of larsenite recovered from the Franklin mill's picking table. Larsenite crystals occur on a vein surface with clinohedrite, hodgkinsonite, and other rarities, including blue-fluorescing willemite. Larsenite's matrix consists of esperite, hardystonite, willemite, calcite, and franklinite, and in some specimens larsenite alters directly from esperite. With his iron arc Bauer could hardly have missed esperite's fluorescence, and he was apparently fascinated by the similarity in daylight between hardystonite and esperite. Several specimens exist with the boundary between these minerals delineated in India ink, and according to local tradition these lines were drawn by Bauer while viewing the specimens under the iron arc.

In any case a mystique hovers around the mineral. Even its original name inspires devotion. Viewed as verse, the words "calcium larsenite" when spoken have the metric form of a double dactyl. A single dactyl consists of a strong accent followed by two weak accents: fab'-u-lous, for example. Two dactyls in sequence are a double dactyl, as in the mineral names cal'-ci-um lar'-se-nite and fer'-ri-stilp-no'-mel-ane. Spoken in a singsong, "calcium larsenite" has a much more poetic sound than, say, "thortveitite," and there are those who in fact wept when in 1965 the name calcium-larsenite was abandoned in favor of esperite. The unpoetic reason for the name-change is that esperite is not closely related to larsenite as originally supposed, but has separate and distinct status as a zincosilicate. Luckily all three mineral names, valid and invalid, continue to honor Professor Esper S. Larsen of Harvard.

Esperite is notorious for other reasons. Until 1990 it was thought to be unique to Franklin, as hardystonite still is. Imagine the consternation of all loyal "Franklinites" when esperite was discovered, in small crystals, in a selenium prospect in Bolivia! The small and chemically peculiar El Dragon mine in Quijarro, Potosi, has 49 minerals on its species list, of which 24 are selenium and its compounds: not the environment most of us would have picked to find esperite replicated. Curiously, though the ratio of esperite at Franklin to that at El Dragon is figured in tons to grams, true crystals of esperite have not been documented at Franklin. The rare but well-known rectangular outlines of esperite in calcite are pseudomorphs of esperite after hardystonite crystals.

Differences of opinion make mineral collecting, as well as horse races, and collectors are driven not so much by history and mystique as by esthetic appeal. Some collectors prefer large, clean masses of esperite; there is something overwhelming about an expanse of that intense bright yellow. Others are fascinated by the replacement textures called "wispy" and "spiderweb," with tendrils of esperite invading hardystonite. Still others search out the classic five-color pieces, esperite with hardystonite, clinohedrite, willemite, and calcite, preferably in specimens with all five clearly visible under UV. Specialists seek esperite in slips or in veins, in historic specimens sold by Gage or labeled by Bauer, and in examples that still turn up on the Mill Site or what is left of the Parker Dump. Now and then one sees esperite with its rarest fluorescent associations: barite, fluorapatite, zincite, hydrozincite. Esperite is indeed the philosopher's stone of Franklin minerals, its pure visual gold capable of transforming any specimen into an object of fascination and desire. Even if each of us cannot have the esperite of our dreams (mine is about a foot across, and solid) luckily there is enough so we can all have our golden touchstone, our glowing fragment of that twenty-two-million-ton cosmic fantasy which was the Franklin orebody.

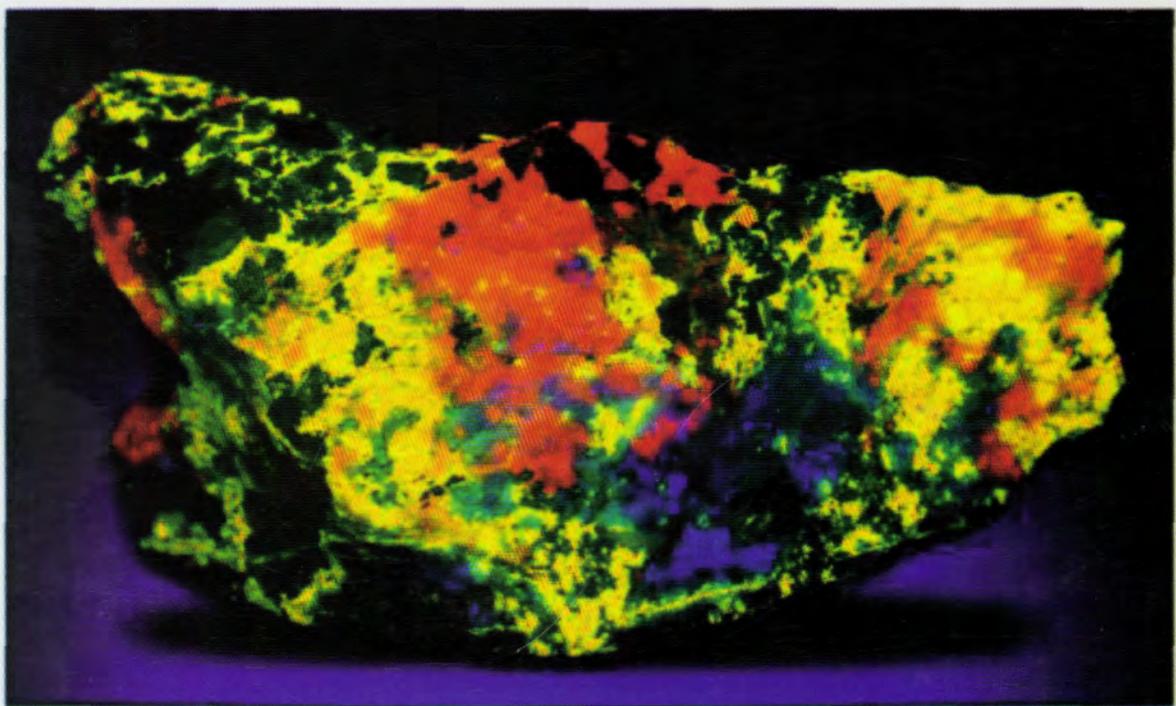
P.S. to the editor of *The Picking Table*

By the way, that esperite of mine, the one with the willemite down the middle, is a sawn slab obtained from Jim's Gems as part of a batch he needed to dump on someone vaguely sympathetic. I happen to loathe the practice of slabbing but I know a good specimen when I see one, mutilated or not. This batch included two slabs of early-find wollastonite as well as this unusual esperite and a half-dozen old-time Franklin and Sterling Hill willemite-calcites. The unknown perpetrator chose carefully and gave the slabs a matte finish clearly intended to allow the slabs to be displayed under ultraviolet light. I kept most of them as relics of the time when choice Franklin fluorescent specimens were cheap enough that sophisticated collectors thought nothing of slicing them up like so much salami. As an example Al Standfast, M.D., who had collected as early as the 'thirties and 'forties, faced a fireplace in his summer cottage near Binghamton, NY with tiles cut from esperite, margarosanite, and other Franklin specialties. When I asked him if it was possible to photograph this phenomenon he told me that the fireplace had suffered from exposure as his daughter used it as shelter for sheep. Sic transit gloria mundi! I kept one wollastonite slab from the Jim's Gems batch and sold the other to Jim Chenard, who I am sure passed it on long ago.

The Picking Table, Spring 2002, Vol. 43, No.1 **Inside Cover**



Esperite (yellow) and hardystonite (blue-violet) from Franklin, New Jersey, neatly divided on the display face of a specimen known as the "Half-and-Half" or "50/50." Willemite (green) is present along with small amounts of clinohedrite (orange) and calcite (red). The specimen is 3-1/2" x 4-1/2" in size and is from the collection of David Wellbrock, who purchased it out of the Alice Kraissl collection when it was dispersed after her death by Richard Hauck. Photograph by Gary Grenier.



One of the most highly sought after 4-color fluorescent assemblages from Franklin, New Jersey, showing an unusually rich amount of esperite (yellow) with willemite (green), calcite (orange), and hardystonite (violet-blue). 3" x 5.5" in size. Claude Poli collection, photograph by Gary Grenier.