

THE PICKING TABLE

JOURNAL OF THE FRANKLIN-OGDENSBURG MINERALOGICAL SOCIETY, INC.



JOE CILEN 1916-1997 MEMORIAL ISSUE

VOLUME 38

COMBINED ISSUE

1997

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Anyone interested in the minerals, mines, or mining history of the Franklin-Ogdensburg, New Jersey area is invited to join the Franklin-Ogdensburg Mineralogical Society, Inc. Membership includes scheduled meetings, lectures and field trips; as well as a subscription to *The Picking Table*. Dues are \$15 for individual and \$20 for family memberships. Please make check or money order payable to **FOMS**, and send to:

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THE PICKING TABLE

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The Picking Table is the official journal of the FOMS, and publishes articles of interest to the mineralogical community which 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 contact the Editors at the address listed above for further information.

Subscription to *The Picking Table* is included with membership in the FOMS. For membership, back-issues, and information on available publications, see the opposite page and the inside back cover.

The views and opinions expressed in *The Picking Table* do not necessarily reflect those of the FOMS, the Editors, or the Editorial Board.



The FOMS is a member club of the Eastern Federation of Mineralogical & Lapidary Societies, Inc. (EFMLS)

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ABOUT THE COVER

Joe Cilen's Hawaiian Idyll.

It's World War II, and P.F.C. Joe Cilen is stationed in Hawaii. His mother and his sister Alda make him a birthday cake, and the Red Cross gets it to him somehow. Here he is, *smiling*, with the cake, a lei, and two Red Cross girls. War isn't always hell. (See pp. 24-29.)

Photo courtesy of Alda C. Kaufman.

SPRING 1997 ACTIVITY SCHEDULE

Saturday, March 15, 1997

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
Minerals of the Buckwheat Dolomite, by Ed Wilk

Saturday, April 19, 1997

9:00 - Noon — F.O.M.S. Field Trip — Mine Run Dump, Sterling Hill Mining Museum
This field trip is open to all F.O.M.S. members, but a \$1.00/lb. fee will be charged.
10:00 - Noon — F.O.M.S. Micro Group — Sterling Hill Mining Museum
1:30 - 3:30 P.M. — F.O.M.S. Meeting and Lecture — Franklin Mineral Museum
Luminescence and Mineral Fluorescence: The Big Picture, by Richard Bostwick
**6:30 P.M. on — Night Collecting on the Mine Run Dump, Sterling Hill, for members of the Sterling Hill Mining Museum Foundation *only*. Fee: \$1.00/lb.

Saturday and Sunday, May 3 and 4, 1997

The Sixth Annual F.O.M.S. Swap-and-Sell, Sterling Hill Mining Museum grounds
Hours: Saturday, 7:30 A.M. to 6:00 P.M.; Sunday, 9:00 A.M. to 5:00 P.M.

For dealer information, contact Chet Lemanski after 8:00 P.M. at (609) 893-7366

PLUS OTHER SPECIAL EVENTS OPEN TO THE PUBLIC:

**Saturday, May 3, at 10:00 A.M.: Opening of the Landmesser Tunnel
at the Sterling Hill Mining Museum.

**Saturday, May 3, at 6:00 P.M.: Mineral Auction at Sterling Hill
for the benefit of The Sterling Hill Mining Museum Foundation.

A portion of Joe Cilen's Franklin-Sterling Hill holdings will be included.

**Sunday, May 4, at Noon: Old Miners Day and Open House at the
Franklin Mineral Museum, including a concert by the famous Franklin Band.

Saturday, May 17, 1997

9:00 A.M. - Noon — F.O.M.S. Field Trip — Buckwheat Dump, Franklin Mineral Museum
1:30 P.M. - 3:30 P.M. — F.O.M.S. Meeting and Lecture — Franklin Mineral Museum
A Photo Album of Franklin Classics, by Bill Kroth

Sunday, May 18, 1997

9:00 A.M. - 3:00 P.M. — F.O.M.S. Field Trip — Lime Crest Quarry, Limecrest Road,
Sparta, N.J. This is an invitational field trip hosted by the F.O.M.S., and is open to
members of mineral clubs which carry EFMLS membership and liability insurance.
Proof of EFMLS membership/insurance required. Proper safety gear a must.

Saturday, May 24, 1997

**8:00 A.M. on — Field trip to the Passaic and Noble Pits, Sterling Hill, for members
of the Sterling Hill Mining Museum Foundation *only*. Fee: \$1.00/lb.

Saturday, June 21, 1997

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
Lecturer and subject to be announced.

F.O.M.S. field trips are open only to F.O.M.S. members aged 13 or older.

Proper field trip gear required: hard hat, protective goggles or glasses, gloves, sturdy shoes.

**Activities so marked are not sponsored by the F.O.M.S. but may be of interest to its members.

Fees and memberships in other organizations may be required.

FALL 1997 ACTIVITY SCHEDULE

Sunday, September 7, 1997

****9:00 A.M. to 3:00 P.M.** — Collecting at the Passaic and Noble Pits, Sterling Hill, for members of the Sterling Hill Mining Museum Foundation *only*. Fee: \$1.00/lb.

Saturday, September 20, 1997

9:00 A.M. to Noon — F.O.M.S. Field Trip — Mine Run Dump, Sterling Hill Mining Museum. Fee: \$1.00/lb., \$10.00 minimum.

The Micro Group will meet concurrently at the Sterling Hill Mine Office.

1:30 to 3:30 P.M. — F.O.M.S. Meeting and Lecture, Franklin Mineral Museum:
Recent Happenings at Sterling Hill, by Steven Misiur.

Friday, Saturday, and Sunday, September 26-28, 1997

****41ST ANNUAL FRANKLIN-STERLING GEM & MINERAL SHOW**

Franklin Middle School, Washington St., Franklin, N.J.

Hours: Friday, 5:00 P.M. to 9:00 P.M.; Saturday, 9:00 A.M. to 6:00 P.M.;

Sunday, 10:00 A.M. to 5:00 P.M. Admission charged.

The Pond Swap-and Sell, sponsored by the F.O.M.S., takes place outside, on the school grounds, all day Saturday and Sunday. Show admission required.

The F.O.M.S. Annual Banquet starts at 6:30 P.M. on Saturday at the Ogdensburg Firehouse on Route 517 in Ogdensburg (next to the ball field). Tickets are \$12.50 and may be reserved by calling Steve Misiur at (973) 209-7212 or John Cianciulli at (973) 827-6671. The meal is an all-you-can-eat Italian Buffet and all drinks, including soda, beer, coffee, etc., are included (*no BYO alcohol, please*).

The speaker is Dr. Carl Francis, Curator of the Harvard Mineralogical Museum.

His topic: *Franklin Minerals: "Outside the Box."*

Following Dr. Francis' talk is an auction for the benefit of the F.O.M.S., with Vandall King as auctioneer. Please bring a good specimen, artifact, book, etc. for this auction.

On Sunday at 1:00 P.M. The Paul Christiansen Pavilion at the Sterling Hill Mining Museum will be dedicated.

Saturday, October 11, 1997

****10:00 A.M. - 4:00 P.M.** — Mining Artifact Collectors' Rendezvous at the Ogdensburg Firehouse, Route 517, Ogdensburg. Free admission.

Saturday, October 18, 1997

9:00 A.M. to Noon — F.O.M.S. Field Trip — Buckwheat Dump, Franklin Mineral Museum.

A Micro Group meeting will run concurrently in Kraissl Hall, Franklin Mineral Museum.

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

The Homestake Gold Mine: an American Tradition, by Dr. Robert E. Jenkins II.

****6:30 P.M. on** — Night Collecting on the Mine Run Dump, Sterling Hill, for members of the Sterling Hill Mining Museum Foundation *only*. Fee: \$1.00/lb.

Sunday, October 19, 1997

9:00 A.M. to 3:00 P.M. — F.O.M.S. Field Trip — Lime Crest quarry, Limecrest Road, Sparta, N.J. This is an invitational field trip hosted by the F.O.M.S., and is open to members of mineral clubs which carry EFMLS membership and liability insurance.

Proof of EFMLS membership/insurance required. Proper safety gear a must.

Saturday, October 25, 1997

****10:00 A.M. to 4:00 P.M. — ULTRAVIOLATION Show-Swap-Sell,
First United Methodist Church, 840 Trenton Road, Fairless Hills, Pa.
Fluorescent minerals only! Admission \$1.00, 8-foot table \$15.00.
For information contact Ralph Thomas, (215) 295-9730.**

Saturday, November 15, 1997

9:00 A.M. to 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:
Mineral "Giants" from Franklin and Sterling Hill, by Steven M. Kuitems.

****Activities marked with an asterisk are not sponsored by the F.O.M.S. but may be of interest to its members. Fees and/or membership may be required by the sponsoring organization.**

F.O.M.S. field trips are open only to F.O.M.S. members aged 13 or older.
Proper field trip gear required: hard hat, protective goggles or glasses, gloves, sturdy shoes.

FROM THE EDITORS' DESK

FIRST THINGS FIRST

Check your mailing label! If it includes the codes N97 or R97, this is your last issue. To renew, send \$15 for a regular membership or \$20 for a family membership to the F.O.M.S. Treasurer, John Cianciulli.

Because of its late publishing date (March 1998), the Spring/Summer 1997 and Fall/Winter 1997 *Picking Tables* are being combined in this issue. (The Spring/Summer issue should have appeared in March, 1997, and the Fall/Winter issue in September, 1997.) Complete F.O.M.S. and local activity schedules for both 1997 seasons were mailed on time to members, and are included here for completeness. Retrospective coverage is given to events from the fall of 1996 through the summer of 1997.

The Spring/Summer 1998 events schedule was mailed to members at the beginning of March, 1998, and we plan to have the Spring/Summer 1998 *Picking Table* at the printer by June, 1998. We will strive mightily to have the Fall/Winter 1998 issue ready on time, in early September.

We hasten to point out that the delays have been the fault of no one other than ourselves. F.O.M.S. President George Elling has been trying to nudge us back on schedule in every way he can, offering encouragement and help while pointing out how important *The Picking Table* is for F.O.M.S. members. We know, believe me, we know. The support and offers of help we have received from George and others have been important to us, and we will try not to disappoint our audience further. If you have a gripe, or suggestions, you can talk to us at (212) 749-5817.

JOE CILEN, 1916-1997

This is the Joe Cilen Memorial Issue of *The Picking Table*, as its cover suggests. Joe's sister, Alda C. Kaufman, has graciously provided some family photographs of Joe, and her

son Alan C. Kaufman (Joe's nephew) has contributed a biographical outline of Joe's life. With these are six reminiscences, or memorials if you will, written by Joe's friends and fellow collectors. One has appeared elsewhere and five are original. We thank those who contributed to this memorial garland; it's not the easiest sort of writing.

Joe's book and mineral collections were placed with the Hauck family for disposition. By agreement with the Kaufmans, a number of choice Franklin and Sterling Hill pieces (134 lots) were selected for sale at the 2nd Annual Mineral Auction at Sterling Hill on May 3, 1997. Some of what transpired at that auction is described elsewhere in this issue. Joe Kaiser's Sterling Hill News column also mentions that the museum there now has an inscribed Joe Cilen memorial rock (of substantial dimensions, we hasten to add) and will be dedicating Joe Cilen Street on Miners Day weekend in May, 1998. Steven Phillips of Sussex, N.J. has acquired the balance of Joe's collections.

ALSO IN THIS ISSUE.....

We have a potpourri of articles and photos for your consideration. Pay special attention to Dr. Steve Kuitems' *Field Trip Notes*; as they demonstrate, he is doing an excellent job of keeping track of minerals found on field trips, but he can always use more help. If you have additional information about new finds, please get it to him somehow. Warren Cummings' article about ferroaxinite from the Lime Crest Quarry shows what can be collected with diligence and careful observation. We also commend the efforts of Ed Wilk and Warren Cummings in keeping our field trips safe and our treasured quarries open. Without a fresh flow of specimens collecting quickly becomes stagnant, and there is much to be learned about the minerals of the Franklin Marble.

We also offer (among other things) pictorial coverage of the 1996 Franklin-Sterling Gem & Mineral Show, and the events on Miners Day weekend, 1997. For a different view of the Franklin show, see Joe Polityka's account in the March-

April 1997 *Mineralogical Record*, Vol. 28, No. 2, pages 131-132.

For the Spring 1998 *Picking Table* there will be more Cummings contributions on local mineral finds, a John Jaszczak article (reprinted from *Rocks & Minerals*) about graphite crystals from Lime Crest, directions on how to access Franklin-Sterling Hill information over the internet, and much more.

DUNN VERBS AND REVERBS

Picking Table readers who have been admiring Dr. Dunn's monograph from a distance should tear right down to their local mineral or mining museum, and buy several copies of *The Story of Franklin and Sterling Hill*. Also available directly from the F.O.M.S., it is advertised elsewhere in this issue. What's *The Story*? It is a one-volume condensation of the juicier parts of his monograph, and is a perfect introduction to the history, geology, and mineralogy of the area. The picture gallery alone (dominated by spectacular SEM images) is worth the \$15 tab. It is noteworthy that in the long history of the Franklin and Sterling Hill orebodies there has never been (up to now) a concise, comprehensive, and accurate book about them which has been accessible to the general reader. This is it!

Critical reviews of Dunn's monograph, *Franklin and Sterling Hill, New Jersey: the world's most magnificent mineral deposits*, have been appearing in mineralogical and mineral-collector-oriented journals, and a group of these reviews is presented in this issue. There will be more in future issues. Such reviews, written by Pete Dunn's peers, can give us valuable insights into the true value and dimensions of his monograph.

HONORABLE MENTIONS

On January 8, 1997, Professor Emeritus Clifford Frondel of Harvard reached his 90th birthday. The F.O.M.S. sent birthday greetings in the form of a message signed by its officers and many of its members:

*Happy 90th Birthday,
Professor Frondel
From all your friends in the
Franklin-Ogdensburg Mineralogical Society
and mineral enthusiasts everywhere.*

Thank you for all your contributions to Franklin Mineralogy, geochemistry, and history. We appreciate your discoveries of woodruffite, manganpyrosmalite, and hendricksite, all of which provided us with more minerals to learn, treasure, and collect. Thank you also for your contributions to our society and the great enthusiasm you bring to the science of mineralogy at Franklin and Sterling Hill.

Also in the news in May, 1997, was an Ogdensburg teacher who has made a very strong effort to educate her students about the area's mineral heritage. A Governor's Teacher Recognition Award was given to Susan Cooper, whose "Super Fifth Grade" class visits the local museums, takes geology field trips, and studies the local minerals in class. She has recruited Dr. Pete J. Dunn as a lecturer and field-trip guide for her pupils, and is collaborating with him on a book about Franklin and Sterling Hill for grade-school readers. A review of Dr. Dunn's monograph by one of Susan's students, Matthew England, appeared

in the Fall/Winter 1996 *Picking Table*. Judy Gutlerner, a music teacher in Franklin, also received a Governor's Teacher Recognition Award; Judy does volunteer work for the Franklin School during the show, and her educator's view of the importance of the show was printed in the Fall/Winter 1995 *Picking Table*.

FAME AT LAST!

1997 was the year of notoriety, both for Franklin and for fluorescent minerals in New Jersey, but neither the town nor the minerals got the sort of publicity we would have preferred. In April two bored teenagers called for a pizza to be delivered late at night to a deserted house on Scott Road in Franklin. When the pizza arrived, the owner of the pizzeria and his helper were shot to death, more or less for the thrill of it. Because the teens had made the call from Dunkin' Donuts on Route 23, where they were noticed, the Franklin police quickly arrested them. As this was a week without presidential peccadilloes, terrorist bombings, tidal waves, or earthquakes, the story was front page news in every major New York newspaper including the austere *New York Times*. Thus did the world's greatest mineral locality emerge from its obscurity under headlines like the *New York Post's* **KILLING FOR KICKS**.

Then in May there was the fluorescent mineral which nearly ate Colonia High School, or at least caused the school to be evacuated on a Tuesday afternoon and closed Wednesday for decontamination. A science teacher had been demonstrating a Geiger counter with a slightly radioactive control sample when students suggested she try some mineral specimens on hand. A chunk of autunite-bearing pegmatite was chosen, and instead of the occasional "click....click....click," the Geiger counter, in the words of one student, "started beeping real loud." School officials took no chances, cleared the school, and called in the Woodbridge Hazardous Materials Unit. As the HMU team had no radiation shields, they approached a local dentist and borrowed two of his lead aprons, one of which was for the use of children and bore the familiar, friendly symbol of a circle with two eyes and a smiling mouth. Hence students and reporters at the school were treated to the arrival of a Hazmat team member wearing all the proper gear to ward off technological evils: helmet, boots, gloves, a face mask and respirator, and a large yellow Happy Face.

Gerry DeMenna, an erstwhile F.O.M.S. member and collector of fluorescent minerals who happens to be an analytical chemist, was called in to remove the autunite specimen. It now safely reposes in his collection, where it fluoresces a shade of green very close to that of Franklin/Sterling Hill willemite, and poses less of a radioactive threat than a smoke detector. Was the fuss worth it? The consensus of school, local, and state officials was that no chances could have been taken with students' health. F.O.M.S. members, attention: 1) thank your stars that the fluorescence of this specimen wasn't emphasized in news reports; 2) redouble your efforts to educate your fellow citizens about minerals; and 3) think twice about donating that Buckwheat Dump uraninite to your local school. Let the next-to-last words belong to two students present at that fateful science class: "Pretty cool," said Paul Asseng, whose attitude we applaud. Shakka Elliott's comment was, "I don't think a rock can do anything to me, but if I happen to get something, I'm suing the school." To this we add, let's be careful out there. (Sources: *Home News & Tribune*, May 7 and 8, 1997; *The Star-Ledger*, May 8, 1997; *The New Jersey Herald*, May 8, 1997.)



MESSAGE FROM THE PRESIDENT

George Elling
758 Charnwood Drive
Wyckoff NJ 07481

As we enter our 38th year, we should all be proud of the accomplishments of the Society. We should also be committed to strengthening our role as an organization in a difficult time for hobbies in general. As the new president of the FOMS, I would like to pay special thanks to outgoing president Lee Lowell for the outstanding job he has done over the past two years. I also believe the society owes a debt of gratitude to Pete Dunn of the Smithsonian for his efforts. In addition to his five-part monograph with its two supplements, Pete has recently published a new, more concise, account of Franklin and Sterling Hill which should be well received by mineral collectors everywhere.

On a sadder note, Joe Cilen passed away in January and will be truly missed by all of us. Joe was a beloved member of our society who exemplified the true collector. He was a gentleman, always willing to lend a hand when needed and, of course, we will all fondly remember his jokes.

Our challenges as an organization are many. Although a core group of individuals continues to dedicate significant amounts

of time to furthering the interests of this society, we need to broaden participation of the membership and will need more help, especially at the Franklin show, if we are to assure continued success of the Society. Although our treasury is adequate at present, we should also strive to build a "nest egg" for the future through new money-raising efforts, including the possibility of a high-quality auction of minerals or memorabilia. It would also be nice finally to issue a color version of the Picking Table in the future.

The FOMS helps support two museums (the Franklin Mineral Museum and the Sterling Hill Mining Museum) and we are hopeful that all three entities will continue to work together so that all will thrive and grow in the future. Finally, the Picking Table has long been a cornerstone of our Society and we must all help, in whatever way we can, to ensure that this high-quality publication will remain important among mineralogists and collectors.



LOCAL NOTES

NEWS FROM THE FRANKLIN MINERAL MUSEUM

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

It has been a busy year for the Franklin Mineral Museum! Miners' Day was a colossal success at which time a ten-ton block of willemite/franklinite/calcite ore donated by Steven and Reginald Phillips was dedicated to their parents Amos and Julia for their early contributions to the preservation of the heritage of mining in Franklin.

In early May the Museum acquired about ten tons of Sterling Hill minerals from the Yuhasz family. Much of the material was from the North Ore Body with typical serpentinized assemblages of sphalerite, sussexite, pyrochroite with associated sulfate minerals, etc. There was also a fair amount of material from the black ore on 340 level, including decent specimens of sphalerite and loellingite.

A smaller, more significant collection was acquired shortly thereafter from Adam Szenai. Mr. Szenai, one of Franklin's esteemed octogenarians, preserved some very interesting specimens from the Franklin mine, notably a large, gemmy willemite crystal that might very well be the largest of its type. A very fine crystallized specimen of minchillite was found in this collection as well. Both the Yuhasz and Szenai collections yielded fine material for resale, from gem green willemite to fine pink rhodonite crystals!

NEWS FROM STERLING HILL

Joe Kaiser
40 Castlewood Trail
Sparta NJ 07871

SPRING 1997

The Geological Environmental Mineralogical Science (GEMS) Team has created a unique Teacher's Guide that enables a basic understanding of Sterling Hill and provides activities for the classroom and on-site visits. The GEMS OUTREACH Project Team has impressed many with the program so that many educators have requested additional information and are anxious to participate in the GEMS program. The GEMS Education Project has successfully acquired a second grant of \$50,000 from the Geraldine R. Dodge Foundation. The new initiative spans the partnership seeking the goal of science and technology literacy for all students.

The Canadian Gold Mill should be here by late March or early April. The equipment was installed in Dryden, Ontario between 1905-1910. It includes a ten-stamp mill complete with pulleys and feeders (1000 lb. stamps), a mine cage, a blacksmith rail and some early equipment (compressor, air hoist, and boiler). Financial help is necessary to ensure success in this project.

The Passaic and Noble Pits will be open this spring for Foundation Members only. There have been some excellent finds of jeffersonite (a local varietal name for augite) there, and wollastonite which is believed to be a surface extension of the horizon on the 340 foot level from which most of the good

material has come in the past few years. The good collecting is actually on the saddle adjacent to the Noble Pit.

The visitor pavilion located under the ore bins has been completed and is being utilized by young school visitors. The Landmesser Tunnel has had 20 ultraviolet lamps installed and adds a nice touch to the tour.

FALL 1997

The educational Rock Discovery Center was officially opened at Sterling Hill Mining Museum this spring. This gives students a chance to find and identify different minerals. Many students have found the trip to the mine to be a rich and informative experience.

The Landmesser Tunnel was dedicated. Twenty short-wave ultraviolet lamps were placed to illuminate the ceiling where the East Vein ore is. The ceiling in the stope is about 85 feet long, all of it fluorescent.

The Second Annual Mineral Auction held in the spring had much of the Franklin portion of the late Joe Cilen's mineral collection. His family wished that his name be kept alive in the Franklin and Sterling Hill area, so with their generous support, a portion of the auction proceeds will go to a permanent project at Sterling Hill. A large granite boulder was engraved with the inscription:

Joe Cilen
Collector
Friend
1997

During the Passaic and Noble Pit collecting days this spring, some excellent crystals of jeffersonite were found. Some of these were quite large, with one up to a foot long and 5 inches across.

The stamp mill complex from Canada has arrived and is being stored in the Sterling Hill hoist house. Several items, one being a boiler, have been integrated in displays around the museum grounds. The mill itself will be set up at a later date in one of the mill buildings.

FIELD TRIP REPORT

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

FALL 1996

STERLING HILL MINE RUN DUMP
Sept. 21, 1996

No information is available for this field trip.

BUCKWHEAT DUMP
Oct. 19, 1996

This field trip was cancelled due to the heaviest rain we have had in many years.

LIME CREST QUARRY

Oct. 20, 1996

This field trip was *almost* cancelled because of rain, but those who persevered and made it to the quarry had the pleasure of making four significant finds:

1) A seam of bright purple fluorite 5 to 10 cm wide and over 30 cm long opened to reveal a layer of colorless transparent quartz crystals 1 to 2 cm in size, growing over the fluorite. Interspersed with the quartz were several fluorite cubes less than 1 cm in size. The matrix for this seam consisted of fine-grained gray dolomite instead of the usual coarsely crystallized white marble.

2) On the upper benches of the quarry was a recently worked zone of weathered marble, much of it stained brown by goethite. Blocks of the marble contained large pockets as much as 2 meters across, most of them lined with lusterless, lightly etched calcite crystals. Two of the blocks, however, had pockets of transparent yellow barite crystals. Typically these had classic wedge-shaped terminations and were elongated and thin, typically 1 to 2 mm thick and 5 mm wide, in clusters as large as 6 cm.

3) Several boulders of snow-white calcite produced some exceptional deep-orange norbergite crystals as large as 2 x 5 cm; a face of one notable specimen had five intact crystals of this size. This norbergite fluoresces a bright yellow in shortwave ultraviolet radiation, contradicting the rule of thumb that the paler the color of the norbergite in daylight, the brighter the fluorescence will be.

4) Nearby, again in a matrix of snow-white compact marble, were dark gray, nearly black spinel crystals of exceptional sharpness and size, as much as 3 cm across. The color appears to be due to abundant included graphite, visible under low magnification on flat crystal surfaces or in broken crystals.

FRANKLIN QUARRY

Nov. 16, 1996

Not a lot was reported from this trip. The usual pale-yellow norbergite, fluorescing bright yellow in shortwave ultraviolet radiation, was found in abundance. Several pyrite crystals in the 1 to 2 cm size range were recovered, as were prismatic crystals of tremolite, and green diopside crystals measuring about 1 x 2 cm.

A disturbing incident of "site contamination" was reported: several fossil-bearing rocks were found in the quarry which are clearly not indigenous to the Franklin Marble. *Please* do not empty your collecting bucket or car trunk of unwanted "foreign" specimens in a site where active collecting is taking place. This not only confuses collectors, but also contaminates the data base for a given locality. Your thoughtfulness in this matter would be appreciated!

To report any interesting finds from FOMS field trips, please feel free to write or call, or show me the specimens during a field trips or meetings. Photos are also welcome. My new address is given above and my phone number is (908) 630-0033.

If while on FOMS field trips you have acquired unusual material later identified by optics, X-ray analysis, etc., please let me know so the information can be shared with fellow FOMS members through these Field Trip Notes.

FIELD TRIP REPORT

SPRING 1997

BUCKWHEAT DUMP
March 22, 1997

This all-day field trip was a Franklin Mineral Museum season-opener, a fund-raising function which also marked the first serious attempt in years at turning over the Buckwheat Dump. Steve Phillips had brought in some heavy equipment shortly beforehand, and fresh dirt and vehicle tracks were everywhere. Judging from the large amounts of interesting specimens found, the excavating brought to the surface a good deal of material long buried, and the many collectors present seemed glad to pay for the privilege of taking it home.

Dolomite - A few thumbnail-sized specimens of dolomite crystals were attractive enough to keep. Some are speckled with tiny blebs of quartz.

Fluorite - The sherry-colored fluorite characteristic of the Buckwheat Dump was found in abundance. It is noted for its moderate bluish green fluorescence and phosphorescence on exposure to shortwave and longwave ultraviolet radiation. Such specimens should be wrapped in a lightproof covering or stored in darkness, as the green fluorescence fades with exposure to light and is replaced by a weak violet fluorescence.

Galena - grains of galena and pyrite were found together with plates of a coppery dark-red mica in a calcite matrix.

Greenockite or hawleyite - Three very good cabinet specimens and a few thumbnails were found of a bright-yellow powdery coating on massive sphalerite and galena. This is as good as or better than the best Passaic Pit material

Hemimorphite - Sprays of yellow hemimorphite crystals with hydrozincite were discovered on pieces of massive sphalerite. The yellow color may be due to greenockite, but in any case these specimens will yield uniquely beautiful thumbnail-sized specimens and micromounts.

Lennilenaite - Perhaps the most interesting find of the day was a crack-mineral assemblage dominated by greenish-gold, fine-grained coatings of the rare mineral lennilenaite on a matrix of typical Buckwheat "pegmatite," pale-green microcline with quartz. Associated with the lennilenaite, whose identity was confirmed via X-ray microanalysis by Tony Nikischer of Excalibur Minerals, were blue fibrous magnesian riebeckite, plates of a pale-green micaceous mineral, and occasional small crystals of rutile.

Quartz - Sharp, clear crystals of quartz were found in dolomite vugs; the dolomite can be trimmed to yield excellent small specimens.

Sphalerite - veins as much as 2 cm thick of fine-grained gray sphalerite were found in a large boulder of white, red-fluorescing calcite. The sphalerite fluoresces and phosphoresces orange and blue under longwave and shortwave ultraviolet radiation, and the specimens can be very attractive.

Talc - Attractive white coatings of talc were found on dolomite crystals.

STERLING HILL
April 19, 1997

Little information is available for the FOMS field trip held here from 9:00 A.M. to Noon, except where noted under "More micros," below. However, starting at 6:30 P.M. there was a night field trip for members of the Sterling Hill Mining Museum Foundation, and the following minerals were found not only on the Mine Run Dump, but also in the areas of the Noble and Passaic Pits.

Willemite - A couple of outstanding phosphorescent specimens were collected on the Mine Run Dump. One of these measured 4 x 7 cm.

Norbergite - A 12-cm piece of fair quality was found in the Passaic Pit area, with bright yellow fluorescence under shortwave ultraviolet radiation and good coverage on one end of the specimen.

Wollastonite - Two 8-cm specimens of thickly aggregated, moderately fluorescent grains in calcite were found on the Mine Run Dump, while other larger masses (20 x 20 cm) with abundant small compact grains fluorescing yellow under shortwave ultraviolet radiation were collected from an outcrop on the south rim of the Noble Pit.

Hydrozincite - The pile of Lime Crest material on the dump yielded one specimen 11 cm across which fluoresces well enough to be included in a display. The fluorescence is typical bright blue under shortwave ultraviolet radiation. Sphalerite in the calcite matrix is the obvious source of the zinc.

Micros - A zincite-rich specimen with a phosphorescent willemite face was collected on the Mine Run Dump. The willemite face was found to contain a vug with small colorless equant crystals of willemite, and acicular crystals of chlorophoenicite. It's ironic that this was found collecting at night.

Microcline - A 3-cm piece was found which fluoresces blue under shortwave ultraviolet radiation. The microcline is green (var. amazonite) and is associated with small grains of gahnite; it was found in the Noble Pit and was visually identical to material collected underground in the upper levels of the Sterling Hill mine.

Aragonite - Coatings on various matrices were found which fluoresce and phosphoresce very pale blue under longwave and shortwave ultraviolet radiation

More Micros - during the morning field trip on this dump, some samples were collected from a sulfide-bearing boulder. They appear to contain pyrite, pyrrhotite, and arsenopyrite. Some vugs contain golden sprays of goethite, while others (in vuggy pyrite) have attractive yellow transparent crystals of an unidentified mineral.

BUCKWHEAT DUMP, FRANKLIN
May 17, 1997

Fluorite - a small sample was collected which had unusually persistent and strong blue-green fluorescence and phosphorescence under shortwave ultraviolet radiation. The color of this fluorite in daylight is brownish red, like the color of some andradite specimens.

Magnesioriebeckite - an 18-cm piece of calcite with patches of typical pale blue felted magnesioriebeckite was collected. A boulder 3 meters across which appeared rich in magnesioriebeckite was also broken up.

Thorite - two specimens of uranium-rich thorite were collected. The mineral is dark brown with resinous luster, and is quite radioactive. X-ray microanalysis by Tony Nikischer of Excalibur Mineral Co. on visually similar material has confirmed the presence of uranium-bearing thorite on the Buckwheat Dump.

LIME CREST QUARRY
May 18, 1997

Actinolite - Elongated dark green crystals with linear striations, in calcite, were tentatively identified as actinolite.

Allanite - small crystals of allanite, probably allanite-(Ce), were encountered in the first alcove along the road down into the quarry, where larger crystals were found in boulders scattered about the quarry floor. The crystals are radioactive, with conspicuous radiation haloes circumscribing their rectangular outlines, and are very difficult to recover intact. The matrix is a dull green microcline with quartz and accessory minerals.

Almandine - much of this pink to dark red, magnesium-rich almandine was still available. It is associated with quartz and biotite in a matrix of blue-fluorescing feldspar. The identity of the almandine has been verified by X-ray microanalysis carried out by Tony Nikischer of Excalibur Mineral Co.

Barite - crystals no bigger than 1 x 4 mm were seen in epitactic growth on small calcite and quartz crystals.

Calcite - small goethite-stained calcite crystals were found in vugs in marble.

Diopside - pale gray to pale green prismatic crystals 1 x 3 cm in size were found in several sites.

Fluorapatite - A medium-green single crystal of fluorapatite 2.5 x 6 cm in size was the largest seen this day. Lavender 1 x 4 cm crystals were also found, as were several blue crystals 1 cm or smaller. The matrix in every case was calcite.

Mica - Colorless, transparent, nonfluorescent mica was found in calcite, in association with a nonfluorescent tan humite-group mineral.

Norbergite - No giant crystals were found this time, but well-defined 1 x 1.5 cm crystals were recovered.

Pargasite - Dark-brown prismatic crystals as large as 3 x 6 cm in size, in a calcite matrix, were removed from a massive boulder

3 meters across. Species identity was tentatively confirmed optically by John Cianciulli of the Franklin Mineral Museum.

Pyrite - Quite a few isolated cubes of pyrite up to 1.5 cm in size were found, as well as several modified dodecahedral crystals in the 1-cm range. One unusual 1.5 x 3 cm bar-shaped crystal was seen. On the first bench reached on the southwest side of the quarry was an elongated vein or lens of solid pyrite 8 cm thick and 15 x 17 cm in extent, weathered out of its marble matrix. Sharp crystal faces 1 cm in size were seen on surfaces of this exceptional and unusual mass.

Pyroxene - Dark green to black masses of an unidentified pyroxene were found in a "pegmatite" matrix consisting of microcline, quartz, scapolite, calcite, and titanite.

Pyrrhotite - masses were found, some of which include subhedral 1-cm "crystals." Well-defined crystals are rarely encountered here.

Scapolite (species undetermined, but most likely meionite) - Collected near the floor of the quarry from marble/pegmatite contact material were several 1.5 x 2.5 cm crystals of typical form which were a rich yellow-green color. Some 2-cm-thick veins of purple scapolite with lapidary potential were also found.

Serpentine (species undetermined) - This is abundant in brown, green, and yellow hues throughout the quarry.

Spinel - Dark reddish-purple crystals of uneven growth were found, 1 x 1.5 cm in size, in a calcite matrix.

Titanite - Euhedral crystals 1 cm across were collected, associated with microcline, pyroxene, and quartz.

Uvite - several sprays of elongated dark-brown crystals were extracted from a tough amphibole-rich matrix; individual uvite crystals in these sprays reached sizes of 1 x 9 cm.

Uraninite - This was found along with pyroxene, quartz, and titanite in pegmatite. It was sight-identified through its coal-black color, conchoidal fracture, and strong radioactivity. Some specimens also have small amounts of what appear to be secondary uranium species: yellow coatings which fluoresce green under shortwave ultraviolet radiation.

PASSAIC AND NOBLE PITS, STERLING HILL
May 24, 1997

This was another of the field trips for members of the Sterling Hill Mining Museum Foundation. As you can see, it was remarkably productive.

Actinolite - Some dark-green striated 1 x 2 cm crystals were found with galena and andradite in the Noble Pit. These thumbnail-sized specimens are good examples of the species.

Aragonite - These secondary encrustations fluoresce and phosphoresce bluish white under shortwave and longwave ultraviolet radiation. Many specimens of good quality were collected in the Passaic Pit, including one piece 9 cm across with exceptionally

good fluorescence. In a few pieces the crusts were an attractive sky-blue in daylight

Augite var. jeffersonite - At least one huge specimen with large crystals was lugged out from the saddle at the north end of the Noble Pit. Other good specimens were collected with single crystals as large as 20 x 26 cm.

Azurite - The Noble Pit yielded specimens of perfectly formed but small (0.2 mm) crystals of azurite. They are associated with malachite (some of it with radiating structure), cerussite, hemimorphite, goethite, and galena in a matrix of white to green translucent microcline, black augite, and dark reddish brown gemmy andradite. On a couple of specimens, the azurite crystals are perched on much larger cerussite. Considering the locality, these specimens are quite remarkable.

Cerussite - Excellent specimens were collected in the Passaic Pit; one of them must have at least 400 crystals. On some specimens the cerussite is accompanied by balls of hemimorphite crystals. The matrix is the usual combination of microcline, quartz, galena, sphalerite, goethite, etc.

Epidote - For the most part this is found in massive form, and together with augite comprises the matrix for many specimens of galena and cerussite found in the Noble and Passaic Pits. Crystals of epidote are rare here, and small. Specimens of epidote from the Passaic Pit were found coated with aragonite.

Galena - Some decent thumbnail-sized specimens were found in the Noble Pit, with cleavages up to 1 cm across.

Hemimorphite - Some tiny crystals were found in the Noble Pit in weathered augite, not a common matrix for hemimorphite.

Illite - This clay mineral is found in the Noble Pit as a fine-grained brown coating with a somewhat pearly luster. It is not attractive and is generally of interest only to the dedicated species collector. Tony Nikischer of Excalibur Mineral Co. identified the material last year by X-ray microanalysis.

Quartz var. chalcedony - At least 25 specimens were collected in the Passaic Pit, where chalcedony forms botryoidal crusts on a matrix of biotite, andradite, and franklinite; the largest example was 14 cm across. It's very striking stuff under the microscope.

Sphalerite - Specimens of massive dark-brown iridescent sphalerite with quartz were found in the Passaic Pit.

Unknown radioactive mineral - A primary, dark-colored radioactive mineral was found in the Noble Pit; its species identify is currently unknown.

FRANKLIN QUARRY
JUNE 21, 1997

No information is available for this field trip.



Buckwheat Dump, March 22, 1997
Richard Bostwick photo.

BUCKWHEAT DUMP FIELD TRIP, MARCH 22, 1997



**Jim Rumrill in full battle gear, pursuing thorite and lennilenapeite.
Richard Bostwick photo.**



**"No, but they tell me I look like him."
The illustrious John Kolic collects incognito.
Richard Bostwick photo.**

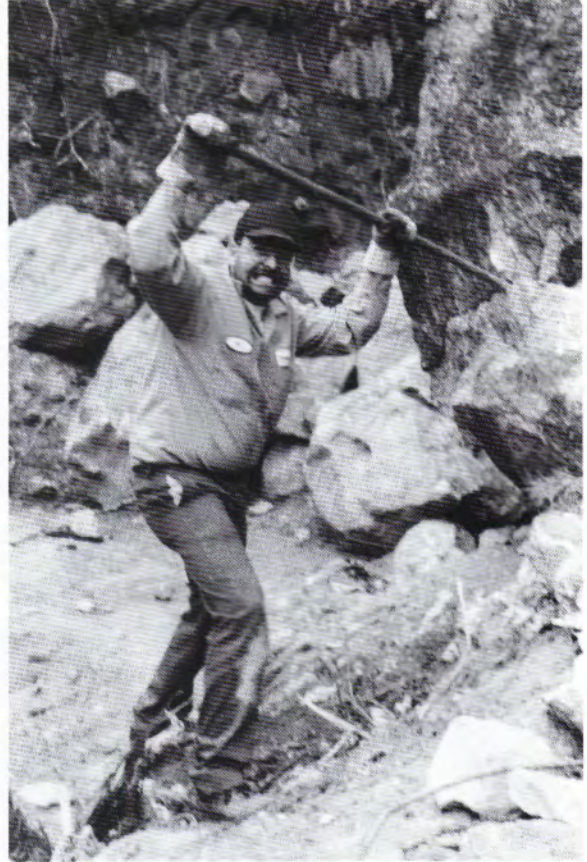


**The Three Rockateers from Bohemia (N. Y.).
From R., Marty Besso, Elaine Casani, and a
friend.
Richard Bostwick photo.**

MORE FIELD TRIPPING...



T-shirted anonymity at the Buckwheat Dump. Could this be the Masked Collector in disguise? Richard Bostwick photo.



Meanwhile, back at Sterling Hill, the Tectonic Tag Team brutalizes the wollastonite outcrop on the saddle north of the Noble Pit. Mark Leger, above, with bar, and Claude Poli, below, with sledgehammer.

Richard Bostwick photos.



**40TH ANNUAL
FRANKLIN-STERLING GEM & MINERAL SHOW
SEPT. 27-29, 1996**

Your editors were so deeply immersed in the gears of the machine that our journalistic coverage of this show is spotty, and in many cases the photos will have to suggest its complexity and richness. For those who have not been to the show since it left the Franklin Armory and entered the Franklin School, it is (simply and truly put) getting better and better. There are really about five components to the "Franklin show," with greater or lesser degrees of attachment to the Franklin Mineral Museum, which has sponsored the show since the Franklin Kiwanis Club became dormant. First, there is the main show, which is three days long and stays inside the Franklin school; it consists of twenty-plus dealers and a similar number of mineral cases which are split between fluorescent exhibits and conventional exhibits. In an adjacent building is the school cafeteria, open to show-goers through the efforts of volunteer workers. Second, on the school grounds outside, is the two-day, F.O.M.S.-sponsored Swap & Sell, which in the old days was held next to the Franklin Pond and is still sometimes referred to as "The Pond." The Swap & Sell starts very early on Saturday morning and has attracted slightly over 100 tailgaters; it has a reputation for frenetic activity which can be moderated on occasion by rain, sleet, or snow. The third show component is the Franklin Mineral Museum itself, which is a short walk down Buckwheat Road; a show ticket includes admission to the show, the Swap & Sell, and the museum. For the show, the museum usually has some special mineral offerings laid out; in any case one should remember that the museum has the largest collection of Franklin-Sterling Hill minerals, including an enormous fluorescent display with hundreds of specimens. Fourth is the F.O.M.S. banquet, which starts shortly after the main show closes at 6:00 P.M. on Saturday, and includes food, drink, a speaker, and a mineral/memorabilia auction. This banquet also has a reputation; ask anyone who's been there. Fifth and last, the Sterling

Hill Mining Museum often schedules a dedication or celebration to coincide with the show, and in any case is open throughout the weekend to accommodate visitors who have somehow managed to exhaust the main show, the swap, and the Franklin Mineral Museum, or vice versa.

Dealer and exhibitor set-up for the main show takes place on Thursday night, and Friday's show is reserved until 5:00 P.M. for tours by local schoolchildren. During this period there are stops along the tour where students can look through microscopes, learn about fossils, and have mineral fluorescence explained.

The following gallery of photos may help you to understand what the great "Franklin show" is all about.



The Immaculate Conception School contingent enjoys an indoor field trip. Tema Hecht photo.



Tony Nikischer of Excalibur Minerals gives the kids a window on the world of minerals. Tema Hecht photo.

40TH ANNUAL FRANKLIN-STERLING GEM & MINERAL SHOW SEPT. 27-29, 1996
F.O.M.S. SWAP & SELL



Fluorescent mineral collector and dealer Ray Vajdik from Parma, Ohio, with his father, Frank. Tema Hecht photo.



Howard Heitner relaxing with his Trumbull, Connecticut scheelite. Tema Hecht photo.



Darryl MacFarlane of Grenville Minerals, Kingston, Ontario, speculates how long Dick Bostwick's arm will support a 10-lb. sphalerite. Tema Hecht photo.



A Lake Winnepesaukee ice-fishing shed becomes a darkroom for the minerals of Don Yonika (2nd from L.) and Dale Hewin (R.). Dick Bostwick peers out; Claude Poli waits his chance. Tema Hecht photo.

40TH ANNUAL FRANKLIN-STERLING GEM & MINERAL SHOW SEPT. 27-29, 1996
F.O.M.S. BANQUET



In the chow line: L. to R., Mary Bridget Lemanski, Mark Leger, Greg Anderson, Phil Betancourt, Ron DeBlois, Bob Jenkins, and Wellington Chin. Tema Hecht photo.



The Rowdy Bunch applauds: L. to R., Phil Betancourt, Jim Chenard, Mark Dietz (in front), Wellington Chin (in back), Peter Chin, Claude Poli, Mark Leger. Tema Hecht photo.



Sweet Innocence: In the basement, the children of eminent collectors imitate their elders upstairs. Tema Hecht photo.

40TH ANNUAL FRANKLIN-STERLING GEM & MINERAL SHOW SEPT. 27-29, 1996
F.O.M.S. BANQUET, LECTURE, & AUCTION



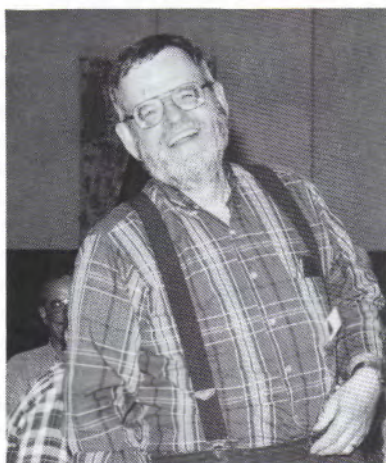
John Jaszczak's topic: *Graphite from New Jersey and Beyond.* Tema Hecht photo.



Auctioneer Vandall King spots a bidder for the memorabilia smash hit of the evening: Pete Dunn's stool. Tema Hecht photo.



The Lemanski limb rockets skyward to post another auction record. Tema Hecht photo.



Don Newsome, president of UV SYSTEMS and founder of the Fluorescent Mineral Society, all the way from Renton, Washington. Tema Hecht photo.



John Cianciulli blushes as the Rowdy Bunch presents him with a specimen of petedunnite. Tema Hecht photo.



The Franklin Mineral Museum



Evans Road/P.O. Box 54, Franklin, NJ 07416
(between Main Street and Buckwheat Road)
Phone: (201) 827-3481

Exhibiting by means of guided tours Franklin-Sterling Hill mineral specimens, educational exhibits in mining methods and history including a life-sized replica of underground workings, artifacts, gem stones, zinc uses, and a 32-foot-long fluorescent display. Included in the tours is the Jensen Memorial Hall built especially to contain the Wilfred Welsh collections of fossils, Native American relics, and world-wide minerals and rock specimens assembled for teaching purposes.

Mineral collecting on the Buckwheat Dump. Ample parking, and picnic grounds.

Offering for sale: minerals, fluorescent specimens, micromounts, mineral sets, amethyst crystal groups, agate slabs, onyx carvings, UV lamps, hammers, lenses, mineral books, 35mm slides of fluorescent minerals by Henry Van Lenten, T-shirts, patches, postcards, dinosaur models, crystal growing kits, and refreshments.

Operating Schedule:

Open to the public

March 1 to December 1

Monday through Saturday: 10AM - 4 PM

Sunday: 12:30 PM - 4:30 PM

Closed: Easter, July 4th, and Thanksgiving

Groups by reservation, please

Admission fees:

Adults: \$4.00

Grammar & High School Students: \$2.00

Separate admission fee to the Buckwheat Dump is the same as the Mineral Museum fee. Admission to museum includes guided tour.

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



The Sterling Hill Mining Museum, Inc.



30 Plant Street Ogdensburg, NJ 07439
Museum phone: (201) 209-7212

Don't Miss THE RAINBOW ROOM!

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

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

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

Learn about the importance of the mining industry in northwestern New Jersey. See historic mine workings!

Schedule of operation:

**April 1 through November 30,
7-days-a-week 10 A.M. to 5 P.M.**

Open March & 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.
year round; tours last 1½ - 2 hours.**

Admission prices:

Adults: \$8.00

Children: \$5.00

Senior Citizens: \$7.00

Call for group rates

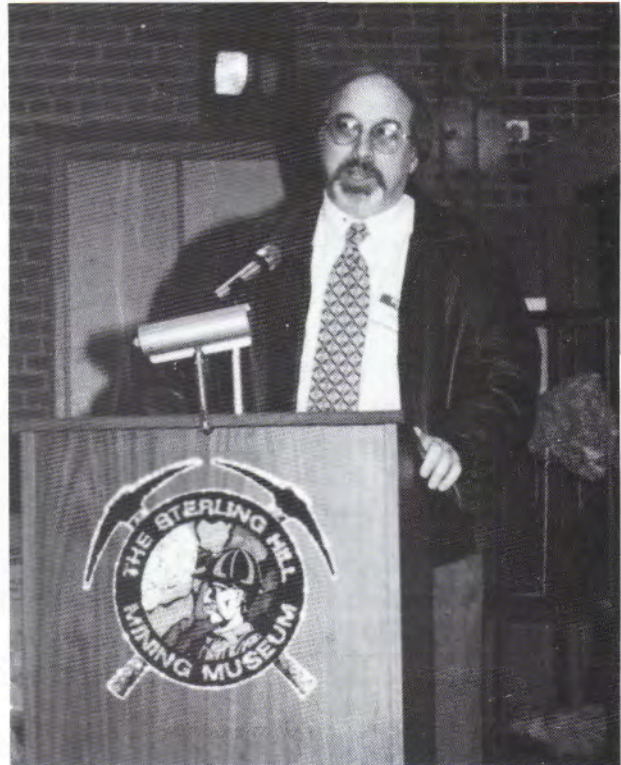
This is a complicated weekend which packs a wallop second only to the Franklin show, as it has a two-day F.O.M.S. Swap & Sell running concurrently with Sterling Hill Mining Museum functions on Sunday, and with Miners Day at the Franklin

Mineral Museum on Sunday. This year the weekend started with a squish, but by Sunday the weather had cleared up enough for some octogenarian miners and other celebrants to get a dose of sun, wind, oratory, and the Franklin Band.

F.O.M.S. SPRING SWAP & SELL
LANDMESSER TUNNEL OPENING
The morning of May 3

Dark and early on Saturday morning, the mineralfolk converged on Sterling Hill for the Swap & Sell, along with a weather front of unspeakable grimness. Normally this event is an open-air feeding frenzy with plenty of sharpshooters seeking sleepers, but with everyone wetly crammed under Christiansen Pavilion, business was sludgy. After some drying out and tidying up, the usual suspects began to buy from each other, but many of them were grateful to escape to the change house for the Landmesser Tunnel dedication ceremony at 10:00 A.M..

The Tunnel itself was less soggy than the dealer area, and had many more ultraviolet lamps to boot. For those who have not seen it, the Landmesser Tunnel is a startling addition to an already unique mine tour, with twenty shortwave ultraviolet lamps dispersed about the ribs and back of an ancient stope which is located in east vein ore just below the western edge of the mining museum parking lot. The stope, selectively sand-blasted to "freshen up" the ore exposures, was apparently hand-drilled in the nineteenth century, and reeks of age. As its south end is water-filled, with an underwater floodlight making the cloudy water luminous, the net effect of glowing water and fluorescing ore is really quite uncanny. The dedication and opening of the tunnel were attended by the the Landmesser family, N.J. State Geologist Haig Kasabach, and many (slightly soggy) local worthies.



Museum trustee and fund raiser Dr. Alan Rein warms up the crowd for the Landmesser Tunnel dedication.
Tema Hecht photo.



The Landmesser Tunnel and family: from left, Lindsay, Ryan, Susan, Robert, and Cecilia Landmesser.
Tema Hecht photo.



Haig Kasabach, N.J. State Geologist, at the Landmesser Tunnel dedication. Tema Hecht photo.



Pete Dunn inspires a rain-jacketed Tony Den Uyl at the Swap & Sell on Saturday. Tema Hecht photo.



Swap & Sell Blues: Lee Lowell (on L.) consoles a soggy Kevin O'Shea. Tema Hecht photo.


2ND ANNUAL STERLING HILL MINING MUSEUM
AUCTION
6:00 P.M., MAY 3

This year's event was moved from the first auction's site underground into the change house, where the ceiling is high enough to permit auctioneer Dick Hauck to wear his trademark top hat. The auction catalog listed 134 lots, all from the Joe Cilen Collection, and grouped in four sections: Lapidary (8 lots), Fluorescence (16 lots), Parker shaft mineral lots (4 lots and 18 specimens in all), and Mineral specimens (106 lots). Reflecting Joe's taste, the pieces varied enormously in provenance, species diversity, and quality. Joe scrupulously preserved old labels, so there were documented specimens from many notable collectors and dealers, including Albanese, Areson, Bauer, Casperson, Fitzpatrick, Gage, Gerstmann, Hauck, Hesse, Kaufman, Key, MacDonald, Schortmann, Terres, and Yedlin.

According to our handwritten notes, which may be incomplete, specimens went for as little as \$15 (lot 78, calcite from Sterling Hill) and as much as \$1500 (lot 115, a large Franklin rhodonite crystal Joe had purchased from Jim's Gems). The majority of the lots sold for under \$100, so it can truly be said that everyone who attended had the chance to take home a Joe Cilen specimen. My eye was caught by a piece in lot 64 which I remembered from the Areson Collection, a very fine arsenopyrite crystal with corundum from the Franklin Marble. It is not large compared to the crystals from Panasquiera but is superb for Franklin. This lot went for \$410. Other highlights included a repaired uvite crystal which sold for \$600 (lot 75A), a 3.5 x 7 cm roeblingite nodule (lot 113, \$1300), and a small but exquisite bladed margarosanite (2.5 x 6 cm, lot 110, \$900).

**2nd ANNUAL
MINERAL AUCTION**

AT



30 PLANT STREET
OGDENSBURG, NJ 07439-1126
201-209-7212

ON
MAY 3, 1997
6 PM

MINERAL SPECIMENS FROM THE
JOE CILEN COLLECTION

RULES OF AUCTION

1. All sales as is and final.
2. Sales subject to 6% sales tax.
3. Payment due on day of sale.
4. No mineral specimens released to buyer until full payment is made.
5. You must be a registered bidder in order to participate in auction.
6. Auctioneer reserves the right to offer items in random order and to break or combine lots.

Cover page of the auction catalog.



The fine art of rockflogging, as practised by maestro Dick Hauck at the 2nd Annual Sterling Hill auction. Bob Hauck, in rear, practises restraint.

Tema Hecht photo.

Satisfaction of the acquisitive instinct aside, a major feature of these auctions is the charm of the auctioneer, a fragile commodity and one not usually preserved in collections. Dick Hauck's linguistic gifts include the coining of words such as "credulence" and "tintillating," and while some of the zingers which follow have the well-worn feel of old gold, others are indeed sparks of inspiration struck from the anvil of necessity. All quotations are guaranteed genuine, and are those of the auctioneer unless otherwise noted:

About bidders:

"We don't want these guys to be unhappy with each other. They should be unhappy with somebody else."

"You're going to go home with a smile on your face and a frown on your wallet."

"We're certainly not going to steal these for \$50, are we? (switching to falsetto) "We're gonna try!"

About prices:

"Not to scare everyone away - ten bucks!"

"Let's give somebody a freebie on this for a quick \$25."

"Would you help me at \$15? Would you insult me at \$10?"

"A steal at \$50. Maybe not. How about \$40?"

"Three good coppers at \$30 each. Let's go \$100. Okay, my math is terrible."

About specimens:

"An interesting showpiece.....boat anchor.....whatever."

"Here's your chance to get a respectable - *beyond* respectable - rhodonite crystal."

(Of a cyprine for which bidding was sluggish)
"If you're going to make a sand bottle, you can crush this sucker and get *blue* sand."

Dialogues:

(During the bidding for lot 25, a lot of 6 Parker Shaft specimens)

Dick Hauck: "I missed a roeblingite. No kidding."

Bob Hauck: "Put your glasses on."

(a pregnant pause)

Dick Hauck: "*That's* not Parker Shaft."

Dick Hauck: "You're bidding against yourself."

Bidder: "Am I winning?"



The lull before the storm. Bidders wait for the auction to begin.

Tema Hecht photo.

MINERS DAY WEEKEND, MAY 3-4, 1997

MINERS DAY
Noon, May 4

Counting miners and family members, over fifty signed in for Miner's Day at the Franklin Mineral Museum. The names reflect the diversity of Frankin's mining community: Kardos, Nemeth, Hocking, Toma, Trofimuk, Elekes, Wadovsky, Sowden, Bautista, Paulkovitch, Brundage, and many others. The museum had laid out cold cuts, potato salad, beer, and soda to fortify them against the clear but chilly weather outside, following the rain of the day before. In a special moment, Mary Welsh cut the commemorative Miners Day cake.

Outside, after benches were arranged and before the traditional concert of the Franklin Band, museum curator Jack Baum reminisced, bringing the Franklin Mine of the 1940s and 1950s back to life. His remarks are appended.

This was also the time to dedicate the large block of Franklin ore excavated from the surface north of the Trotter Dump, and brought to the Franklin Mineral Museum's front lawn, by the Phillips family. The bronze plaque reads,

Ore sample donated to the
Franklin Mineral Museum
in recognition of
Amos and Julia Phillips
whose inspiration resulted in having
Franklin, New Jersey, named the
Fluorescent Mineral Capital of the World
by loving sons,
Reginald & Steven Phillips.
- 1997 -

THOUGHTS ON MINERS DAY, 1997

A speech given on that occasion by John L. Baum

During the nineteen-forties I was assigned to work at Sterling when I was not otherwise occupied at Franklin. For a couple of winters I split drill cores, carrying the trays from the frigid core-shed into the relatively warm compressor-building where Andy Miskovich kept the machines throbbing, the sound pounding the ears and indeed the whole building. Later I was sent with the surveyors to map the sections across the working places underground. Paul Melchior was in charge of the crew of young engineers who were being trained to become superintendents some day; and some of them did. I followed along blindly never knowing where I was while the crew hollered measurements and I located contacts of ore and wall-rock as best I could. This was not my favorite job, and I counted the day a total loss if I failed to get a wooden powder-box to take home.

The worst part of the job however was the ride from the office at Franklin to Sterling. It seems to me now that it was always winter, pitch dark at seven A.M. when we left the Franklin office building, and cold. I rode to the office from home on my bicycle; after all, there was a war on. Transportation from office to Sterling was in a truck called an Aerocar. The driver was Charlie McGovern, a heavy-set cheerful fellow with a mustache and a big cigar. The truck had a closed cab which was occupied by Charlie, Paul Melchior, and a survey instrument, while the peons, we who were paid five dollars a day, rode on two benches in the back which had flapping canvas roll-down sides. The benches were hard and the springs were too, it was drab and noisy, and Cork Hill Road was rough.



Amos Phillips and his son Steven at the dedication of their family's "magnificent rock" in front of the Franklin Mineral Museum, Miners Day 1997. Tema Hecht photo.

MINERS DAY WEEKEND, MAY 3-4, 1997

But of Cork Hill Road on happier days, when we did field work, I have pleasant memories. Working out of the office where our day was 8 till 5 with an hour for lunch, we were transported by Charlie with his big cigar and the Aerocar, back from its duties at Sterling or wherever, out to the field-mapping location, to be picked up in time to plot our calculations in the office before quitting time. We drew our map as we surveyed, using a plane table, alidade, and rod. I can recall a nearby lightning strike once but for the life of me I can't recall rain. We did have our map catch fire once which set us back some, and could have used some rain then. There were bugs and ivy and blisters from cutting lines to survey down, but I was doing what I was made for — field work. The job, from south of Sterling to Hardystonville, took several seasons.

Cork Hill Road goes back in time beyond memory. David Jenkins, long-time mayor of Franklin and even longer head of the Company's chemistry laboratory, has written that a county engineer researching the rights of way near the former railroad crossing at the Franklin Quarry, a.k.a. Farber's and Bigelow's, found two rights of way, one dated 1750 which follows the present Cork Hill Road pretty well and another which heading northeasterly came out somewhere near the present junction of Franklin Avenue and State Route 23. What this proves is that there must have been settlers in the area.

The Victorian house, the former Judge Losey place known to me as the John West place, has a story to tell. The land was purchased in 1765 by Michael Rorick who had a part in construction of a dam across the Walkkill near where the stream enters the pond. The east wing of the dam was visible a few years ago. Rorick built his home at a point now across Cork Hill Road from the West-Losey place and some of the foundations were visible when we were mapping. The site was said to be an abandoned Indian clearing. In 1871 the railroad came through the property right close to the home, and not too long after, sparks from the locomotive caused a fire that destroyed the place. The railroad in restitution promised a home as fine as any in the county and there it stands.

John West had been the chief mechanic for the Union Waxed Paper Company at Hamburg and I imagine he retired when the plant burned down. When I knew him, he was thin and bent but still of firm opinions which he volunteered freely. He was devoted to detective magazines which he read in a little house at the end of his garden. I enjoyed the old man and his prejudices, and his comments on passing traffic.

Arrived at Sterling, we squeezed through the revolving gate, no easy job with the survey equipment, made our way through the change house, along an outdoors walk and into a tunnel leading to the basement of the mill. Near the shaft there was the lunchroom where the bosses ate and left their lunch buckets while underground. I remember Jackie Vivian, Dick Bolitho, Mackey, Hector Andrena. Nearby, Consie, the blind man, cut the fuses to length and attached the caps. The cage man, Peter, got us safely to our destination, plunging down the open shaft with girders flying past 6 inches away and loading-chutes ever ready to remove whatever protruded from that invisible safety zone. And one fateful day, they nailed Peter.

To me, Franklin was a pleasant place to work underground. There was access at almost any time, level working places, electric light, relatively dry passageways and generally understanding miners, for whom I could only be in the way when they were working to make bonus, their extra pay for exceeding 18 tons per shift. My job was to visit every working place while the

center was advancing. There were 33 of them in action in late spring and early summer of 1944, and 254 men underground at the time in two shifts. The amazing fact to me is that with two places working only one shift, making 128 runners and helpers, there remain 126 men in support occupations, such as motormen, chute pullers, development drillers, timber shaft people and skip loaders as well as pumpmen and others. There is more to mining than breaking ore.

When I read the list of Franklin miners on the job at that time, my mind takes me underground and I think of Clyde Rutan and Jim Strait getting the union started, Pete Ora who offered to shake hands with me while holding the overhead trolley line, Ken Stanaback who had access to ration coupons during the war, Nick Trofimuk and Harry "Bake" Hardy who shared mineral finds with me, Jake Balkenberg and Jake's switch, a weird segment of track he installed, and so many others, including present company. These are pleasant memories and I thank you mining men for giving them to me.

Thank you.



**John L. Baum, N.J. Zinc Co. geologist, and curator of the Franklin Mineral Museum, Miners Day 1995.
Tema Hecht photo.**

F.O.M.S. SWAP & SELL
Second day, May 4

The cool, blustery weather did not discourage about twenty swappers & sellers from setting up: fewer than usual, but a much better turnout than the day before. For once, your editors were able to spend an hour or so browsing among the offerings. This is what we noticed; we apologize for not being able to notice everything.

Ed Letscher, who usually comes over from Pennsylvania for these gatherings, always has a good variety of inexpensive regional specimens, many self-collected. This time we noted some rich norbergite from Franklin, and decent examples of fluorescent Lime Crest pargasite. Bob Boymistruk, from the opposite side of the Walkkill valley, had several flats of clean and colorful old Franklin material: green willemite, tephroite,

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zincite, manganaxinite, and so on. Ed Johnson, up from Staten Island, had Franklin Quarry norbergite and diopside, and Noble/Passaic Pit wollastonite, but had gone farther afield to procure diopside from Newcomb, N. Y. and fluorescent tourmaline from the "Gomer Jones Farm," in Rockville, N. Y., metauranocircite and francevillite from Packerton Junction, Carbon Co., Pa., and schroekingerite from Mt. Pisgah, N.C.

Dave Wellbrock showed up part-way through the day with six flats of clean, interesting material he was deaccessioning. These included self-collected apatite in orange calcite from Byram, N.J., and blue fluorapatite from the old Atlas Quarry near Hamburg. A surprise to us was a 6.5 x 15 cm slab of hendricksite with a thin, irregular 6-cm patch of clinohedrite, including a 3-cm rosette. We take this opportunity to apologize to Dave for grumbling about the price.


Near Dave was Douglas Wahl, who has been doing a lot of field-collecting in the north end of the Franklin Marble in New York State. He had some classic crystals of spinel from Amity, as well as massive and crystallized "edenite" from Warwick, crystals of titanite from Monroe, and some surprisingly attractive specimens of clintonite with chondrodite, ilmenite, and titaniferous diopside.

Bob Rosenblatt of Rocko Minerals (Margaretville, N.Y.) is making a specialty of the minerals from Balmat, N.Y., where there are rich sphalerite deposits in Grenville-age marble. The

Balmat-Edwards district is best-known to collectors of fluorescent minerals for the abundant tremolite-anthophyllite-tirodite-talc assemblages collected from mine dumps. However, the Zinc Corp. of America's mines have recently yielded a number of surprises, notably some brilliantly lustrous and sharp cubic magnetite crystals. For several years Franklin-Sterling Hill collectors have been aware of the turneaureite from ZCA Mine #4; it is found as small grains, typically 1 to 3 mm across, and fluoresces bright orange under shortwave ultraviolet radiation. In many specimens the matrix is calcite, but Balmat turneaureite can occur with rhodonite/pyroxmangite, donpeacorite, kanoite, and other oddities. In the best pieces from Balmat, the turneaureite grains are thickly clustered or even coalesced in thin layers, and if the matrix breaks along these layers the fluorescent coverage can be excellent. Balmat turneaureite lacks the red-fluorescing calcite matrix of Franklin turneaureite, but the best Balmat pieces are nevertheless impressive and some have sold in the low four figures. Bob is the source for most of these, and had a good-sized lot of them at this Swap & Sell. He has also been bringing out some nice triboluminescent sphalerite, surprisingly attractive norbergite/diopside, and some massive dark-colored sphalerite (from the area of the magnetite-crystal find) which exhibits a blue and orange fluorescence reminiscent of much Sterling Hill material.



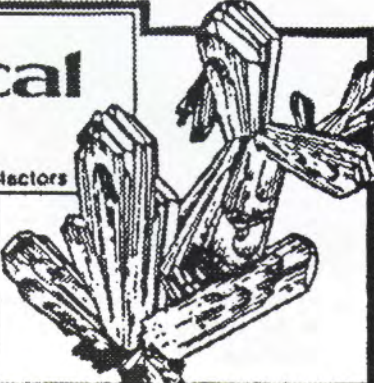
F.O.M.S. Swap & Sell, Sunday afternoon, May 4, 1997,
from the ore-conveyor tower. Tema Hecht photo.



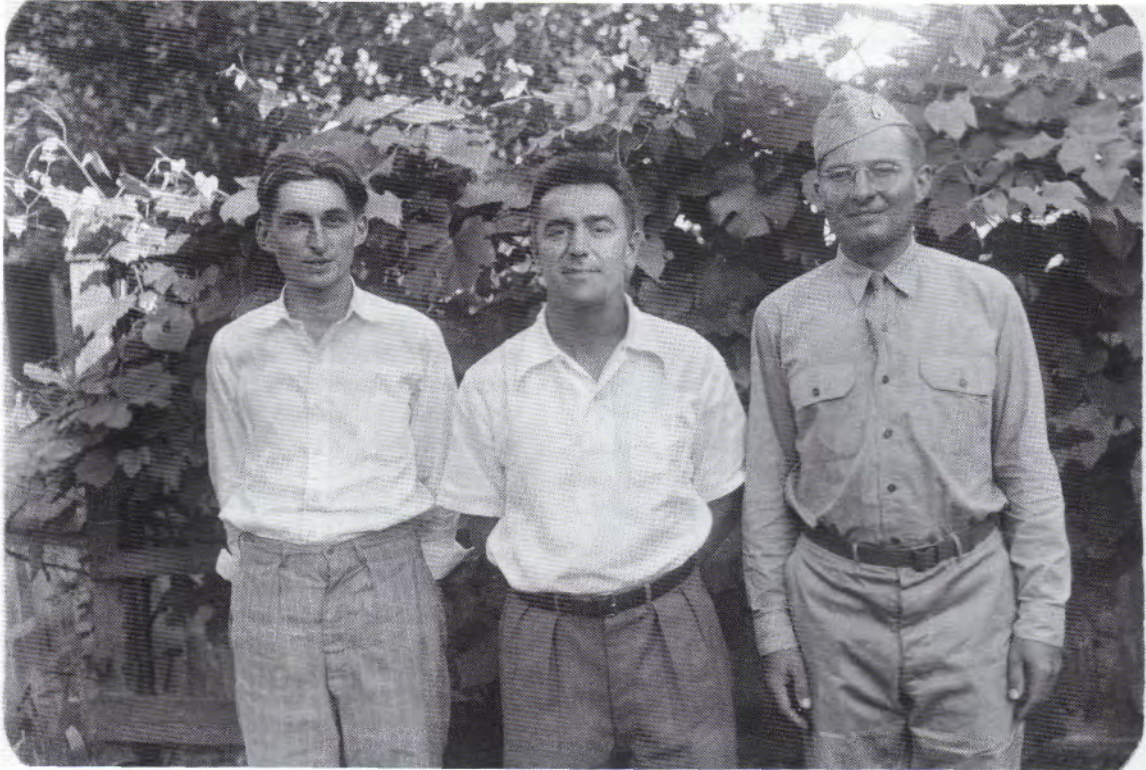
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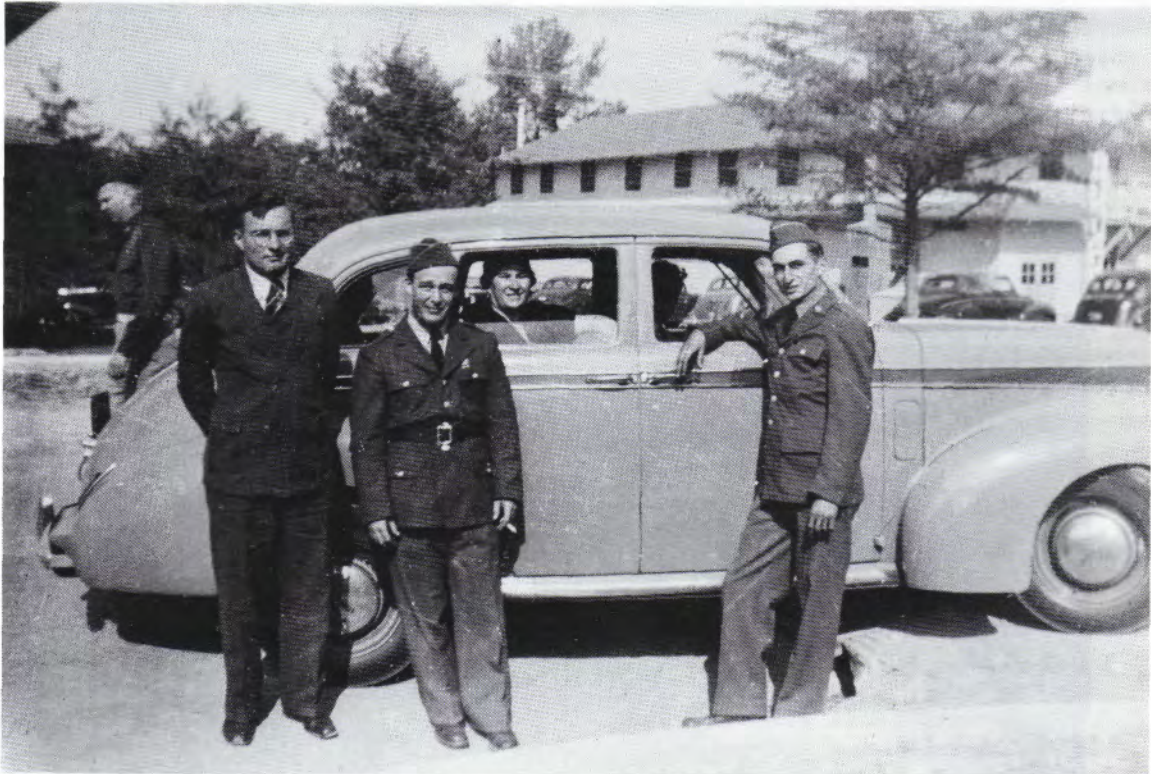
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JOE CILEN, 1916-1997



From left: Tony Cilen, Joe's brother; Harry Grahl, a mineral collector from Brooklyn; and Joe Cilen in army uniform. 1941 photo, courtesy of Alda C. Kaufman



From left: Joe Cilen in "civvies;" a friend; Antonina Cilen (visible in car); and Tony Cilen. Antonina is the mother of Joe Cilen, Tony Cilen, and Alda C. Kaufman. 1941 photo, courtesy of Alda C. Kaufman.

JOE CILEN

1916 - 1997

JOE CILEN: A BIOGRAPHICAL OUTLINE

Alan C. Kaufman

- ♣ Born: July 16, 1916 (in ambulance en route to hospital) in Paterson, New Jersey.
- ♣ Lived at same address for 74 years - moved there when he was 7 years old.
- ♣ Mother: Antonina, deceased 1974.
- ♣ Father: John, deceased 1976.
- ♣ Brother: Anthony, deceased 1996.
- ♣ Sister: Alda Cilen Kaufman, lives in Toms River, New Jersey.
- ♣ Nephew: Alan Kaufman, his wife, Dona, and their son, Carter, aged 6.
- ♣ Son of first-generation Lithuanian emigrants.
- ♣ Life-long member of Saint Casimir's church, Paterson, New Jersey.
- ♣ Bachelor all his life.
- ♣ Sergeant U.S. Army, Company "L," 105th Infantry, 1941 to 1945. Received Purple Heart.
- ♣ Graduate of Central High School, Paterson, New Jersey, 1934, and Stevens Institute of Technology, 1950 (Electrical Technology).
- ♣ Worked at Curtiss-Wright Aeronautical Corporation for 40 years as an inspector.
- ♣ Hobbies and interests besides minerals and mineral books: avid reader of technical books and magazines; gardener, particularly of roses and chrysanthemums which he routinely entered into competition and with which he won numerous awards; enjoyed cooking and wine tasting; enthusiastically watched sports, especially local teams and semi-pro teams; loved to tell jokes and stories.

JOE CILEN, AN APPRECIATION

Pete J. Dunn

In my experience, Joe Cilen was a warm and big-hearted man who had a strong sense of caring about people and doing things right. From time to time a touch of indignance on some subject was apparent; his verbal ventilation was cute and admirable. Joe was an early financial supporter of my Franklin-Sterling Hill research, and enjoyed new discoveries. Whenever I saw him walking toward me, I knew that he soon would be reaching into my ear with his wholly unvarnished charm and some of the very worst jokes I had ever heard.

Primarily, I recall Joe as a collector, diligent in the unfettered pursuit, acquisition, and carry-home joys his hobby gave him. He was vigorous about sharing his collection, too, with everyone and anyone. Joe was a thoughtful exhibitor at many mineral shows, taking great pains to construct and present truly

meaningful exhibits. Most of these could not have been put together by other collectors, who could not draw on such an extensive collection.

About 19 years ago, I wrote an editorial entitled "Tunnel-vision in mineral collecting" (*Mineralogical Record*, 9, 2, [1978]); it criticized copy-cat mineral collections. Joe's approach, however, was one that I consciously admired for its breadth, personal uniqueness, and attempt at comprehensiveness, and when I saw him next, and he commented on the editorial, I told him so.

Joe's collection, though I had seen only parts of it, was full of the sort of stuff I really enjoyed. It was his own private "treasure-chest," one which reflected his spirit in a nice way, and one knew this as he spoke. Joe was mighty fond of collecting minerals, was scientifically astute, and very good at sharing. Joe Cilen's mineral collection was a personal one in every respect, yet recognized by all as one of the greatest species collections ever assembled.

Joe Cilen loved his minerals, collecting *more* minerals, and his time with his great number of friends. He was a happy person and a mineral collector all day, and all the way, and he was very good at it. He was a collector's collector.

JOE CILEN (1916 - 1997)

Richard Hauck

We buried Joe Cilen the end of January; Joe is gone, or is he? We who remember Joe, we who call Joe a friend, have not lost him. His presence is very much with us. A man who actively enjoyed minerals and people for more than sixty years does not disappear. What has Joe given us? What has Joe left for us? Let's check the list.

He never let aging be a reason for not getting involved with activities, which included being the Franklin-Ogdensburg Mineralogical Society banquet chairman and a committee and board member of the North Jersey Mineral Society and the Newark Mineral Society.

He maintained a strong love of the hobby, which kept his outstanding collection from ever getting stagnant.

He enjoyed the association of many people without the all too common need to seek out only flaws.

He possessed a sense of humor that no amount of discouragement could stifle.

Joe was a gem of a special rarity that had many facets: a love of gardening and an ability to grow prize-winning chrysanthemums; a mineral book collector who amassed a collection of major magnitude; a collector of mineral collections, including a species collection of more than three thousand specimens, a Franklin-Ogdensburg collection, a collection of historical miner-

als, a Langban collection, a New Jersey traprock mineral collection, and a general collection totaling twenty thousand catalogued specimens.

Joe never married, but his special family at the time of his passing included a sister, a married nephew, and a grandnephew. Joe was very proud of this family and would show the latest pictures to share this pride.

Mineralogy lost a special friend in Joe; we all did.

[This memorial appeared originally in *Rock & Minerals*, Vol. 72, May/June 1997, p. 181. It is reprinted here with permission of the author.]

JOSEPH CILEN: COLLECTOR EXTRAORDINAIRE (1916-1997)

Tony Nikischer, Excalibur Mineral Co.

We drank beers at the "101 Club" in Hawthorne, long before the *Wall Street Journal* article in the early 1980s made the place famous for a fleeting moment. The owners kept a log, like a Fleischer's checklist, of all the beers each of their regular patrons consumed. When you drowned your one hundred and first different brew, you got a free tee-shirt and "joined the club." The food was decent, the atmosphere friendly, and we always talked about minerals. It was close to Joe's house on Westervelt Avenue, and although I never knew if he actually drank all those beers and joined the club, he seemed to like the place.

In those early days of our twenty-five year friendship, Joe's kitchen table was a place of endless wonder. He'd drag out his latest acquisitions, or some ancient piece retrieved from a dilapidated crate in the basement coal bin, and tell its story in his staccato, unpunctuated style. Like his jokes, there was no sense of timing, no pause for effect, no unnecessary embellishment, just the obvious delight he took in the simple presentation. And like his jokes, there seemed to be no end to the number of treasures he could offer in a single meeting.

Joe's early collecting days are better told by those who knew him longer and more intimately; he'd certainly been at it for an incredible number of years. I remember pointing out to him a 1940s mention of his name in Peter Zodiac's *Rocks & Minerals* magazine as one of the first New York Mineralogical Club members to go off to war. In his typically sarcastic style, Joe's terse response implied that Zodiac was usually so desperate for copy that he'd print just about anything more remarkable than someone buying a quartz crystal at a local mineral show. But I think he was secretly pleased that I had stumbled across the reference and brought it to his attention.

He was proud of his collection, its depth and its history. Like his books, old mineral specimens and their pedigree had a certain appeal for Joe. He delighted in the labels of AE Foote, Lizard Cahn, Hugh Ford, John Albanese, and a host of other famous dealers from whom he purchased material during his sixty-plus years as a collector. Anything that tied his collection to the past was eagerly acquired and carefully preserved. Unlike many mineral collectors he never discarded a label intentionally. Joe knew that you could always find out which minerals were present in a specimen, but its locality, its previous owners, and its history would be irretrievably lost without careful preservation of the labels that came with a piece. He clearly realized that a mineral specimen without a locality was just another curiosity, a point often missed or ignored by collectors who never graduate past the stage of beginner.

Although Joe was not particularly fond of Chinese food, for some inexplicable reason we often ate at Chinese restaurants. Never at a loss for a story, he would regale me with flinty anecdotes of feisty dealers and collectors he'd met over the years. Never too bashful to complain about mineral dealers, small specimens, or high prices, Joe would never miss an opportunity to take me to task for some recent order he'd placed. He did it for twenty-five years, placing his last order with me just a few weeks before his death. He had a sense of loyalty that never seemed to flag, a great rarity in today's commercial world.

Joe never made the mistake of thinking he'd be able to remember everything about his specimens. In fact, he was often surprised by finding a specimen he didn't remember he owned. In addition to preserving labels, he was careful to number and catalog every new acquisition, more than 20,000 of them over his lifetime! He knew that the loss of paper labels is difficult to avoid in any large collection, no matter how much care is exercised, so he used an extensive card file to record pertinent information about every specimen in the collection. Many modern collectors shun the tedium of this important task, even with computer databases that significantly reduce the labor involved. Joe took pleasure in record-keeping, using it as an opportunity to examine how the latest specimens fit in with others in the collection, which significant localities were missing, and which pieces might be candidates for upgrade or exchange.

His card files were clearly too large to carry around, and his memory too small to hold all of the data he needed at his fingertips when he attended a mineral show. Hence Joe would carefully annotate his Fleischer's *Glossary of Mineral Species* with the species he had, and what states or countries they were from. In this way he was able to avoid the unknowing purchase of duplicates, and could quickly arrive at a decision to obtain a piece that caught his eye. A new edition of the *Glossary* meant several weeks of painstaking curatorial work for Joe. He showed me his second edition in 1975, so annotated, and I still use my Fleischer's in a similar manner today.

From many perspectives, Joe Cilen's mineral collection was best known as a species collection. But this is an oversimplification. His collecting interests went far beyond the attempt to "get one of everything" as evidenced by the many specialized collections he built. Still, species were still his greatest love; nothing seemed to give him more pleasure than checking off another box in his Fleischer's. There have been modern species collections of greater size, higher value and total species, but few with greater depth. Collections built by Fred Kennedy, Art Eadie, D.L. Martalock (all deceased), and others immediately come to mind. But these were all men of some means; Joe often boasted that he worked two jobs most of his life, all to support his mineral collecting habit. It was his passion and his greatest love.

Unlike other great contemporary species-collectors, Joe Cilen built an astounding reference collection that not only targeted the number of species obtainable, but also the variety of localities that were available during his lengthy collecting career. Where a traditional species collector might be content with one cronstedtite, for example, Joe would have the mineral from eight different localities! Much to his delight, this species eventually yielded seven different polytypes in ensuing years, and Joe probably had them all, despite the fact that many were no longer available on the commercial market when they were eventually described.

More than a list-checker, Joe built a diversified collection whose potential research value likely exceeded its monetary

A LETTER TO THE ALAN KAUFMAN FAMILY

Rolf G. Schudel, Jr.

value, primarily because of its considerable locality depth. He rarely bought the biggest or the best, and some would even ridicule his collecting tastes. But I know of no other active collector in the United States who is currently pursuing a strategy of such breadth and historical value. With the dramatic decline in U.S. museum acquisition of species reference material, future generations of researchers will be poorer for the dearth of collectors like Joe Cilen. Among species collectors, he has to be considered one of the very great ones.

No reminiscences of Joe would be complete without mention of his jokes. His appearance at my booth at a local mineral show would often send my wife scurrying for cover, always in fear of being the unwilling recipient of one of those jokes. As a lawyer, and the wife of a mineral dealer to boot, she had every reason to fear Joe's arrival. He was relentless, and had no prejudices: he could make any ethnic group, any profession, or any individual an ideal target for his latest string of one-liners and anecdotes of questionable taste. It was not unusual to hear the same story told a half-dozen different ways, each personally tailored for the current listener. Delivery and timing were unnecessary details to Joe, and the more you groaned, the more he'd tell. He was a colorful character, a good friend, and a loyal customer. I'd never admit it to him, but I'll miss him, his critiques, and his jokes.



Tony Cilen and Joe Cilen on leave in October, 1941, in front of the family house at 92 Westervelt Avenue, Hawthorne, N.J., where both brothers lived from 1923 until their deaths. Photo courtesy of Alda C. Kaufman.

Please allow me to express my deepest sympathy to you at this time of the passing of your uncle, Joe Cilen. During the past 12 years Joe and I had many great get-togethers. On our car rides up to Franklin and/or Ogdensburg, N.J., I learned a lot about Joe, his life, and mineral collecting in the 1930s-40s-50s. Joe informed me about different mineral dealers: which ones were good, bad, overpriced, reasonable, or downright cheap. Several times he pointed out crystals he thought I should have in my collection, and a few times I did follow his suggestions.

During the past seven years I think each of us considered the other a kindred collector spirit. Joe's tremendous library of ancient through modern mineral texts, inspired me to collect books on the things I was interested in: paleohistory, mineralogy, crystallography, and 19th and 20th century antiques, specifically lead-crystal cut glass and art glass, crockery, brass candlesticks, pottery and ceramics, etc.

Joe, Neil Wintringham, and I traveled to the 20th Annual Rochester Mineralogical Symposium together. Spending 4 whole days discussing mostly minerals was the high point of my mineral-collecting career. Another time Joe and I and three others traveled out to Harrisburg, PA for the E.F.M.L.S. convention. Again I got to see and learn a lot with Joe. He kept us amused with his famous off-color jokes, and his W.W.II army stories, especially those about his time in Hawaii.

At times I have been sad for Joe, alone all those years without a wife or children. I'm married with a wonderful and hardworking wife, Anne, and two fun kids, Cecilia, 5, and Lowell, 2. But as I think about it, those rare and often valuable books in his exceptional library were Joe's children. He cared for them for years, and shared them with those who were interested in getting to know them. His mineral specimens, all 23,000 plus of them, were his kids as well. He showed them off, he talked about them, he bragged about them, and sometimes he cursed about how expensive they were to keep. With each specimen there was a personal label, then there were 2 index cards, each in a separate file, tracking that sample. A lot of love went into that collection over the 65 or so years that Joe built it up.

One story that Joe told me was that his father did not think much of his collecting rocks, so when Joe started actually buying crystals for money (this was during the great depression of the 1930s) he fibbed, and told his father much deflated dollar amounts lest dad fly off the handle and ban the whole sport of mineral collecting. And sport it was for Joe. Wherever he went to a gem and mineral show, his mind was always working, weighing the pros and cons of each piece he might like to take home. And he sure loved showing off those new acquisitions. I will miss Joe's phone calls, his voice, his, "Hey, Rolf, come over here!" which frequently greeted me when we showed up separately for the same mineral meeting or lecture or show. Had his health been fine, about now he and I probably would have been heading down the Garden State Parkway to pick up Bob Montgomery, then to continue down the N.J. Turnpike and Rt. 18 to the annual Rutgers Geology Museum and open house. My guess is that his spirit is already there, checking for sleepers and mislabeled treasures.

A JOE CILEN STORY

Richard Bostwick

Once upon a time there was a frog who liked pretty pebbles. Every time he found another one he fancied, he'd pick it up in his mouth and carry it back to his nest. After a few seasons he had the best-decorated frog's nest for miles around. It was ornamented with jasper, agate, carnelian, and other attractive stones, and he was a proud and contented frog indeed. Then one day, disaster struck. The frog heard a loud splashing from the direction of his nest, and swam back quickly to find a mineral collector picking up the pretty pebbles and putting them in a sack. "Please, mister," said the frog, "don't take my pebbles. I love them so much, if you take them, I'll die." The collector laughed, and just kept picking up pebbles until they were all gone, then went away without a thank-you. And the frog, though heartbroken, did not die. But every night he croaks a little.

This is, of course, a Joe Cilen classic, unusual in that it is printable, but characteristic in its bemused skepticism about the moral purity of his companions. Just as Joe tailored his ethnic jokes to the heritage of his listeners, he styled jokes about human frailty to apply to mineral collectors in particular. (Which reminds me, have you heard the one about the Hindu, the Moslem, and the mineral collector? Suffice it to say that the Hindu and the Moslem emerge without a stain upon their characters.)

Certainly Joe would invite anyone who was interested in minerals to view his collection without regard to race, creed, color, or national origin. I, too, have sat in his kitchen, eaten his Hungarian Stew and potato pancakes, and waited with apprehension at the kitchen table while he clunked around in the basement finding flats of willemite, Langban species, or anything else I wanted to see. Finally he would stagger up the stairs, burdened by flats, and one by one the specimens would come out of the boxes for examination. Then they would go back into the boxes, and into the flats, and into the basement, long into the night.

Like most New Jersey collectors of my generation, I knew Joe at first as a compulsive collector who seemed bent on stuffing his house and his life as full as possible with minerals and mineral books: a fantasy for the rest of us, but his distinct achievement. When I assumed the presidency of the F.O.M.S. I was startled to find Joe came with the office as my chief of protocol, mother-hen, and arbiter of decorum. He and Helen Warinsky between them kept me on the straight path for those two years, Helen by gently reminding me of the human aspects of the job (e.g. who should be nudged, and who thanked and acknowledged) and Joe by frankly telling me how to act, when to act, and whether I had screwed up. I learned to love Joe for his honesty, directness, lack of selfishness, and unswerving concern that things be done right, whether he was reminding me of my duties, deploring the rowdy tone of the F.O.M.S. banquet while continuing to manage it year after year, or cataloging his minerals *just so*.

When after Helen's death I went to the viewing and found Joe sitting in a corner, surrounded by mineral collectors and telling jokes, I realized it was quite appropriate. Helen would have understood perfectly. His tribute to her, and us, was being himself. Surrounded by his minerals and his friends, he was a lucky man. So are we to have known him.



Joe Cilen and his nephew Alan Kaufman at Alan's wedding in May, 1980. Photo courtesy of Alda C. Kaufman.

JOE CILEN (1916-1997)

Tema Hecht

I met Joe Cilen, or "Uncle Joe," as some of us called him, late in 1989 at a Franklin-Ogdensburg Mineralogical Society meeting. He seemed a quiet, sweet older man whom many gently teased and kidded. It was during the Franklin-Sterling Gem & Mineral Show of 1990 that I began to get a little bit of an insight into part of Joe's personality, at least the one most of us knew the best.

During club meetings and shows, I observed people either running frantically away from Joe or moving towards him at a slow expectant pace. Those whom I observed talking with Joe, or I should say Joe talking to them, had varying expressions on their faces ranging from bored to confused to happy. I decided to see what those different expressions were all about.

I ambled up to Joe during one of our club meetings while he was talking to someone, and caught Joe saying, "Hey, did you hear the one about..." but he stopped when he saw me and said that what he was about to say was not suitable for female ears. So I told Joe I'd change the sex of my ears immediately, and that he could now continue talking. That produced one of Joe's rare big smiles and was the beginning of an interesting and caring relationship.

Joe knew the people he could go to with his jokes, old and new, and I was one of them. At the mineral shows, whenever Joe would see me, I could tell by his determined fast shuffle in my direction and the gleam in his eyes, that there were jokes that he wanted to share. He would start off by saying, "Hey, Tema, did you hear the one about..." and we would sit in a corner somewhere and Joe would happily and gleefully tell me his jokes. There were funny jokes and not such funny jokes, there were

interesting jokes and not such interesting jokes, and there were dirty jokes and very dirty jokes. And Joe loved to tell them all, over and over again. At the end of our "sessions" I would tell Joe that the next time I saw him, I expected him to have new jokes for me to hear, and he hardly ever disappointed me.

If Joe were telling me a dirty joke and my stepson happened to come by, Joe would tell him to put his hands over his ears so he wouldn't hear the joke, and then continue. I could tell by the twinkle in my stepson's eyes that he was cheerfully taking it all in. Every time my stepson saw Joe talking to me, he would automatically put his hands over his ears and come and listen.

It's true that Joe repeated a lot of jokes, but that he knew so many of them, and remembered them, boggled the mind. Whenever Joe told me a round of his jokes, I promptly forgot most of them, no matter how good they were. So I guess I was an easy mark, but as I said, Joe also dug up new jokes for which I was an appreciative listener.

Those who knew Joe also knew his tremendous love of minerals. Without fail, every year, no matter what the weather was like and no matter how he was feeling, Joe would painstakingly put in an exhibit case of some of his minerals at the Franklin-Sterling Gem & Mineral Show. I would always try to be there to lend him a hand or an encouraging pat.

Though Joe didn't have much money, I would often see him prowling around the dealers' tables at our shows with the greatest concentration. Later, during the day, Joe would find me and say, "Would you like to see what I bought?" Joe would take such delight in showing me his little treasures, and he would insist that I try and guess what each mineral was.

Joe hardly ever spoke to me about personal matters, except his failing health, and that, only sometimes. His communication to us was through his jokes and his minerals. I never minded it and always welcomed him.

It is a loud empty space that Uncle Joe leaves behind.



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FERROAXINITE AND HEULANDITE FROM THE LIME CREST QUARRY: NEW MINERALS FOR THE LOCALITY

Warren Cummings
1191 Parkside Ave.
Ewing NJ 08618

The occurrences:

During the May 16, 1993, FOMS field trip to the Lime Crest quarry in Sparta Twp., N.J., a specimen of ferroaxinite was found by Field Trip Chairman Ed Wilk. While patrolling the collecting activity in the S-SW end of the lowest working level of the quarry, Ed saw a flat 7 x 4 in. piece of rock with a small (1.5 x 1.0 x 0.3 in.) vug in the middle of a slickensided surface. The vug contained tiny splendid reddish-purple crystals which produced a flash of reflected light that caught his eye.

Ed recognized the mineral might be axinite and showed the specimen to the author, who had collected ferroaxinite at the Oxford Stone Co.'s quarry in Bridgeville, N.J. Visual inspection under a hand lens confirmed that Ed's find was almost certainly ferroaxinite as well; the crystal shape, color, and mode of occurrence taken together are definitive.

Ed Wilk described the location of the ferroaxinite to the author, who with Chet Lemanski proceeded to the site. There Ed and Steve Kuitems soon caught up. After a short search the source material was found: boulders of greenish-gray microcline-quartz pegmatite with slickensided surfaces, and gouge which locally exhibited a faint but distinctly pink hue. Closer examination of the thin gouge zones revealed a few small patches of a massive crystalline reddish-purple mineral identical in color to the euhedral crystals Ed had found. Unfortunately for the other collectors, Ed's specimen bore the only free-standing crystals of ferroaxinite found that day.

Next month Ed visited the Lime Crest Quarry again to make arrangements for the FOMS field trip to Limestone Products' quarry on Cork Hill Rd. in Franklin. He was told the muck pile containing the axinite had been cleaned up but the larger boulders had been set aside. Ed was permitted into the quarry and was able to find several more ferroaxinite specimens, including some with small vugs. The best piece was a 1-1/2 x 2 in. miniature whose ferroaxinite crystals were exposed by etching the calcite filling the center of the vein.

Ferroaxinite was not the only mineral new to the Lime Crest quarry found in this set of faults. As it turned out, Steve Kuitems had collected a slickensided surface sprinkled with microcrystals of heulandite. Zeolites, especially heulandite and stilbite, are not (as a rule) rare as fracture minerals in calcic gneisses.

Discussion:

The occurrence of ferroaxinite at the Lime Crest quarry is not surprising. This mineral has been found at several localities scattered along the northwest margin of the Reading Prong highlands between Bethlehem, Pa., and Fishkill, N.Y. The zone of ferroaxinite localities includes both the Lime Crest quarry and the Franklin-Sterling Hill area. The Precambrian rocks of the Reading Prong and the overlying Paleozoic sedimentary rocks have been extensively faulted and are now arranged in imbricated thrust sheets. Small- to moderate-scale fracturing is pervasive. Connate brines or meteoric waters were able to circulate through both the Paleozoic sediments and the juxta-

posed Precambrian rocks. Where the circulating fluid was not in chemical equilibrium with the wallrock, fluid/rock reactions occurred which led to secondary mineral deposition.

One fairly common type of mineral assemblage which results from this process is the Mississippi Valley-type (MVT) lead/zinc assemblage, as discussed in *The Picking Table*, Vol. 34, No. 1, pp. 14-16 (Spring/Summer 1993). The formation of MVT deposits is favored by vigorous circulation which moves a large volume of hydrothermal brine through a restricted space. Mineral deposition in such an environment is termed "fluid dominated" and is controlled less by fluid/rock reaction at the deposition site than by temperature/pressure gradients. The mineral assemblage in an MVT lead/zinc deposit is made up largely of components derived from a large volume of rocks remote from the deposition site and transported there by the fluid.

Another common sort of mineral occurrence which results from saline fluids circulating through permeable rock is the alpine cleft type. Here fluid circulation is much more restricted than in MVT environments and the chemistry of the deposition site is termed "rock dominated." Minerals abundant in alpine clefts, such as quartz, feldspars, and epidote, contain for the most part components which are abundant in the rock adjacent to the clefts. Boron is rarely abundant in the immediate vicinity of mineralized clefts, so in most cases the boron is derived from a much larger volume of rock and transported in solution to the cleft just like the components of an MVT assemblage. However, the chemical properties of boron make it possible for boron-bearing minerals to crystallize from solutions with very low concentrations of boron. Consequently members of the tourmaline and axinite groups are fairly common in alpine clefts despite sluggish fluid circulation.

Along the northwest margin of the Reading Prong highlands, ferroaxinite has usually been found in fissure veins in calcic gneisses, which are more reactive than granitic rocks. Although the matrix of the ferroaxinite discovered at the Lime Crest quarry is granitic, reactivity may have been enhanced by the finely divided nature of the fault gouge, the mechanical mixing of granitic and calcic material in the gouge, and the general calcic environment of the locality. The Lime Crest quarry ferroaxinite occurrence is typical for the region, the local exception for axinite-group species being that of the manganaxinite found in the Franklin orebody.

Ferroaxinite occurrences are usually small, isolated, and sporadically distributed. Finding ferroaxinite requires either blind luck or the examination of large amounts of the right kind of rocks. Along the northwest margin of the Reading Prong, ferroaxinite should be sought in any outcrop of fractured calcic gneiss (amphibolite, silicated marble, etc.) in which fractures show evidence of epidote, albite, or other secondary minerals. Ed Wilk's find of ferroaxinite was the first in the Lime Crest quarry but not the region. There are more out there. We have only to search the favorable environments diligently, and be lucky.



MONAZITE-(Ce) FROM THE BUCKWHEAT DOLOMITE AT FRANKLIN, NEW JERSEY

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INTRODUCTION

A variety of minerals that are found in the vuggy "Buckwheat dolomite" at Franklin, Sussex County, New Jersey, have been described in detail by Peters *et al.* (1983). The dolomite is found on the dump which holds material excavated from the Buckwheat open pit located at the southern end of the Franklin ore deposit. Over the years 41 species have been reported from this occurrence. Peters *et al.* (1983) report 22 validated species from the dump, most of which occur as microcrystals in the 10's to 100's of μm . A few, such as fluorite and sphalerite, range up to 5 mm in crystal size.

Commencing in 1988, one of us (GTB) gradually purchased the bulk of the mineral collection of Steven Kiss of Garfield, New Jersey. Among the micromounts acquired early was a specimen labeled "humite (?)" from the Buckwheat dump at Franklin. This specimen consists of a vug in massive dolomite which is lined with dolomite and quartz crystals and which also contains two transparent, deep yellow crystals with vitreous luster and some rutile needles. Although the associations placed the tentative identification of humite in question, no further work was done due to paucity of material. However, by 1993, when most of the Kiss collection had been acquired, more specimens of similar appearance and association were found, this time labeled "humite or chondrodite (?)." Qualitative testing indicated that the yellow mineral is not a humite-group mineral, because it possesses a high specific gravity, is insoluble in 1:1 HCl, and shows at least one good cleavage. At this point quantitative examination was undertaken by one of us (LCP) and the yellow mineral was determined to be *monazite-(Ce)*, believed to be a first occurrence of the monazite group reported from Franklin. The investigation and results are reported below.

Investigation determined that the monazite-containing material had been collected in August of 1963. The Buckwheat dump has been reworked many times in the intervening 31 years, and dolomite masses are now rare at the dump surface. Significant effort would be required to find dolomite by digging, and additional work would be needed to search for the rare vug that might contain monazite.

GEOLOGY

The Franklin ore deposit was probably formed from stratiform sedimentary deposits through deformation and recrystallization by regional sillimanite-facies metamorphism associated with the Grenville Orogeny, at about 950 million years ago (Fron del and Baum, 1974). This initial event is estimated to have occurred at temperatures of 557 to 827°C and pressures of 700 to 1,300 atm. Small granitic and pegmatitic intrusions of late Precambrian age are present in the Franklin marble and associated gneisses. These probably relate to post-metamorphic granitic intrusions of the same age. There was intrusion of basic igneous dikes probably in Lower Silurian time. Veins in the deposit are probably associated with hydrothermal activity of a later time and at a lower grade than the Precambrian initial event, and are possibly related to the Appalachian Orogeny.

The location and setting of the Buckwheat pit area in the Franklin ore deposit are described by Fron del and Baum (1974). They place the area at the southernmost extremity of the ore deposit, bounded by two mica diabase (camptonite) dikes with chilled margins to the north and south, by the Franklin orebody and the Cork Hill gneiss to the west, and by the recurving orebody and the Median gneiss to the east. Palache (1935) described a vein-like mass of cavity-containing gray dolomite in the west wall of the Buckwheat open pit; this places the dolomite close to the Cork Hill gneiss. There was also a pegmatite several hundred feet in length within about 300 feet of the northern end of the Buckwheat pit area; this pegmatite was described by Fron del and Baum (1974) as containing thorite and abundant allanite.

MINERALOGY

Palache (1935) described the cavities in the Buckwheat dolomite as being lined with drusy rhombohedral crystals of dolomite, on top of which may be crystals of calcite, quartz, albite, sphalerite, pyrite, millerite, hematite and goethite, mostly well crystallized. A more recent description of the minerals of the Buckwheat dolomite by Peters *et al.* (1983) includes a list of 22 known species. No rare-earth element (REE)-bearing species are included in this list. Hydrozincite found in association with albite, brookite, calcite,



Figure 1. Scanning electron microscope photograph of a 200-micron monazite-(Ce) crystal on dolomite and quartz from Franklin, New Jersey.

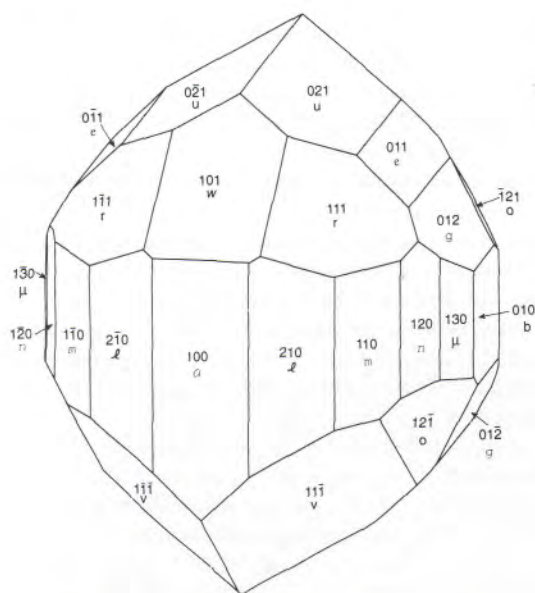


Figure 2. Idealized crystal drawing of monazite-(Ce) from Franklin, New Jersey.

celestine, dolomite, fluorapatite, goethite, microcline, pyrite, quartz, rutile, smithsonite and sphalerite was added to the list by Wilk (1989).

Cummings (1988) proposed a new paragenetic sequence based on field observation and examination of specimens from adjacent locations. His model postulates that the Buckwheat dolomite cavity occurrences are essentially a hybrid of Alpine cleft type and Mississippi Valley-type hydrothermal mineralization. This model suggests deposition of cleft-type minerals at 200 to 500°C from fluids whose chemistry is dominated by local rocks, and of deposition of Mississippi Valley-type minerals at 80 to 200°C from fluids whose chemistry is dominated by distant source rocks. It is suggested that the mineralizing agent for the Buckwheat region

was fluid migrating out of the Paleozoic meta-sediments, with fluid domination early but changing to rock domination as deposition reduced fluid flow. A second fluid-dominated episode may have occurred subsequently after refracturing of the formation. This sequence would lead to the deposition of dolomite early, silicates and oxides second, and finally sphalerite and calcite.

The studied specimens have been deposited in the Harvard Mineralogical Museum under catalog number 133486.

FRANKLIN MONAZITE

Five small specimens (typically 5 x 5 x 10 mm) each containing monazite were examined in the course of this study. All contain dolomite rhombs and minute (<50 µm) grains of pyrite. Three contain small euhedral quartz crystals. One specimen has quartz, dolomite, pyrite and rutile needles. The monazite, always as transparent, deep yellow, euhedral crystals, occurs in some cases on quartz, more commonly on dolomite, and in some specimens on both. The largest monazite crystal found is 0.7 mm. One specimen, H133486, was selected for study. This possesses two monazite crystals, dolomite, quartz, pyrite and rutile needles. A portion of one monazite crystal was removed initially for the qualitative tests mentioned above. The remainder, called hereafter crystal 1, was used for X-ray and electron microprobe analysis. The other crystal, located about 1 mm from the first and called crystal 2, was used for optical and morphological studies. A scanning electron microscope photograph of a monazite crystal with associated dolomite and quartz is shown in Figure 1.

CHEMISTRY

Crystal 1 was embedded in epoxy and polished for electron microprobe analysis. A Cameca MBX instrument was used with an operating voltage of 15 kV and a current of 30 nA. The analyses are given in Table 1. The standards used were: for Na, albite; Si and Mg, enstatite; Al, kyanite; Ca, wollastonite; Mn, tephroite; Fe, fayalite; Th, ThO₂; and U, UO₂. USNM standards used for P and REE (Jarosewich and Boatner, 1991) were: P and Ce, CePO₄ (168484); La, LaPO₄ (168490); Pr, PrPO₄, Nd, NdPO₄ (168492); and Y, YPO₄ (168499). The formula, based on four oxygens, is:

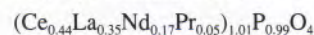


Table 1. Chemical composition of some monazites.

Oxide	1	2	3	4
CaO	0.05	0.04	0.34	0.40
MgO	—	—	0.22	n.d.
MnO	0.02	0.01	—	0.045
FeO	0.01	0.01	—	n.d.
SiO ₂	0.05	0.11	0.27	0.18
ThO ₂	0.02	0.51	nil	n.d.
Y ₂ O ₃	0.01	n.d.	5.08	1.14
La ₂ O ₃	22.99	25.40	33.19	13.29
Ce ₂ O ₃	30.29	30.23	31.41	34.34
Pr ₂ O ₃	3.45	3.13	(a)	3.73
Nd ₂ O ₃	13.20	10.99	(a)	14.85
P ₂ O ₅	29.61	29.83	29.29	29.87
Total	99.71	100.26	99.80	97.90

1. Spot 1 on sample 93.127 (H133486), Franklin, New Jersey
 2. Spot 2 on sample 93.127 (H133486)
 3. Analysis 11 for monazite from Llallagua, Bolivia (Palache *et al.*, 1957).
 4. Average of 5 spots from H133626, Llallagua, Bolivia
- (a) Quoted as (La,Nd)₂O₃

The clear dominance of cerium over the other REE establishes this species as monazite-(Ce). The values are close to those given by Palache *et al.* (1951) for a thorium-free sample from Llallagua, Bolivia, also included in Table 1. A sample of Llallagua monazite studied earlier by S. Gordon is still resident in the Harvard collection (H110663). To acquire data on another essentially actinide-free monazite a sample of this material was also analyzed by electron microprobe and the results, presented in Table 1, are in reasonable agreement with the earlier analysis. There appear to be few data in the literature on non-metamict monazites.

X-RAY DIFFRACTION

Crystal 1, measuring 0.3 x 0.5 x 0.6 mm, was studied using a 114.6-mm Gandolfi camera with Ni-filtered Cu K α radiation. The results are in excellent agreement with those of Carron *et al.* (1958) for pure monazite-(Ce) prepared hydrothermally at 300°C and 90 atm.

MORPHOLOGY

Crystal 2, measuring 0.1 x 0.2 x 0.3 mm, was examined with a Goldschmidt two-circle goniometer and showed the presence of 16 faces representing 13 forms. One rare form, {130}, is present; the rest are typical (Palache *et al.*, 1951). An indexed idealized crystal drawing is shown in Figure 2.

OPTICAL PROPERTIES

Crystal 2, euhedral and optically homogeneous, was studied on the spindle stage, using a wavelength of 589 nm from a Leitz monochromator. The results are: biaxial positive, 2V meas. = 24(4)°, $\alpha = 1.790$, $\beta = 1.795$, and $\gamma = 1.847$, all ± 0.005 . A sample of monazite from Llallagua, Bolivia (H110663) was also examined on the spindle stage and yielded a 2V of 25(2)° with indices of refraction equal to those reported in Palache *et al.* (1951) for material from the same location which was originally published by S. Gordon.

There appears to be an effect of nuclear radiation on the optical properties of monazite. The Franklin and Llallagua non-metamict material both have 2V values near 25°. Thorium-containing monazites reported in the literature show 2V values ranging from 5° to 15° (Fleischer, 1984; Palache *et al.*, 1951). Index of refraction does not seem to vary in any systematic manner with the actinide content.

DISCUSSION

The occurrence of monazite-(Ce) in the Buckwheat dolomite at Franklin provides the first example of a species from there that contains essential REE. The sources of the REE and phosphorus required can be traced to the local environment with some confidence. The pegmatite south of the Trotter shaft was described by Frondel and Baum (1974) as containing green microcline containing zircon, thorite, titanite and abundant allanite. This pegmatite is within about 300 feet of the northern limit of the Buckwheat pit. Frondel (1964) analyzed allanite associated with green feldspar (microcline) from Franklin as part of an X-ray fluorescence (XRF) study of allanites. Synthetic allanite XRF standards prepared for that study were for the analysis of Y, La, Ce and Nd only. During the course of this study, an electron microprobe analysis was made of the borax glass material used for Frondel's (1964) original XRF analysis. Y, La, Ce, Pr and Nd impurities were found. The quantities are in reasonable agreement with the original analysis if Ce and Pr are combined. Th was not reported by Frondel (1964), but 0.6 weight % ThO₂ was determined by microprobe on the borax glass. Given the association with green feldspar, it is quite probable that the material analyzed by Frondel (1964) is in fact from the

pegmatite described by Frondel and Baum (1974). This places an REE source within a few hundred feet of the Buckwheat dolomite.

Phosphorus was reported by Frondel and Baum (1974) to occur almost exclusively in the form of the apatite-svabite series, and was present both in the orebody and the calcisilicate units found in the Franklin marble. Palache (1935) and Peters *et al.* (1983) both report fluorapatite in the Buckwheat dolomite. Thus the phosphorus source was also very near at hand. Following the model of Cummings (1988), one may postulate the reaction of REE-containing fluid with indigenous phosphate to form monazite. The REE, Th and Y seen in the allanite are also found in the monazite, with no other REE present in the latter. Chondrite-normalized distributions for both minerals, prepared to facilitate comparison with the literature and given as Figure 3, show relative enrichment in La and

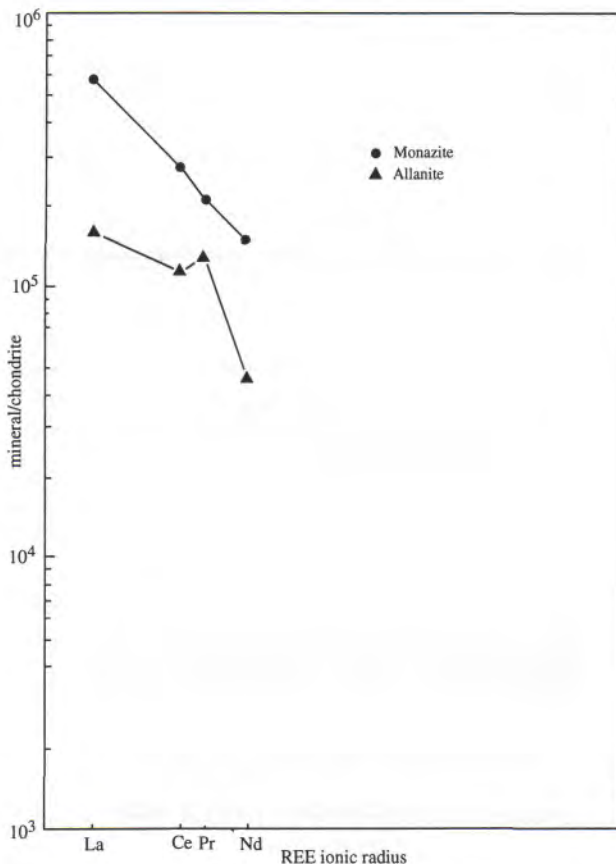


Figure 3. Chondrite-normalized ratio for monazite-(Ce) and allanite from Franklin, New Jersey.

Nd and depletion in Pr for monazite-(Ce) relative to allanite. Both distributions fall within their respective fields for REE in allanite and in monazite in metamorphic rocks as displayed by Grauch (1989). Carron *et al.* (1954) showed that synthesis of monazite was not possible below 300°C at 90 atm, with rhabdophane forming at lower temperatures. One may add the constraint of a minimum temperature of deposition of about 300°C, dependent on the effect of pressure on the rhabdophane-monazite transition observed by Carron *et al.* (1958). This would place the formation of the monazite-(Ce) in the latter part of the first fluid-dominated phase of the Cummings model and as an Alpine cleft-type of deposit. The foregoing constitutes a likely paragenesis for the monazite-(Ce), but other sources of REE could be invoked, from either the transecting mica-dyabase dikes or from the Cork Hill gneiss.

However, the chemical similarities suggest the pegmatite as the likely REE source.

ACKNOWLEDGMENTS

The electron microprobe work was done by D. E. Lange, Department of Earth and Planetary Sciences, Harvard University. The scanning electron microscope photograph was made by Yuan Z. Lu of the Gordon McKay Laboratory for Applied Science, Harvard University. Helpful reviews were provided by C. A. Francis and Abraham Rosenzweig.

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Picking Table readers take note: monazite-(Ce) is the only addition to the Franklin-Sterling Hill mineral species list since that list was published in Part Three of Pete J. Dunn's monograph, *Franklin and Sterling Hill, New Jersey: the world's most magnificent mineral deposits*. (1995)

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PETE J. DUNN'S MONOGRAPH: REVIEWS OF *FRANKLIN AND STERLING HILL: THE WORLD'S MOST MAGNIFICENT MINERAL DEPOSITS.*

The monograph consists of Parts One through Five, a First Supplement, and a Second Supplement totaling 978 pages in all. Parts One through Five are \$30 each and the First and Second Supplements are \$25 each, or \$200 for all seven volumes. The monograph is available through the Franklin-Ogdensburg Mineralogical Society, Inc. If ordered by mail, each volume carries an additional postage and handling charge of \$5.00 each. If the monograph is ordered as a seven-volume unit, the postage and handling charge is \$15.00 altogether. Checks should be made payable to F.O.M.S. and mailed to: John Cianciulli, F.O.M.S., 60 Alpine Road, Sussex NJ 07461 or Steven Misiur, F.O.M.S., 309 Fernwood Terrace, Linden NJ 07036.

A detailed prospectus of the monograph is on pages 39-40 of this *Picking Table*.

Review by Carl A. Francis, from *Rocks & Minerals*, Vol. 72, No. 1, p. 67. (Jan./Feb. 1997). Reprinted with permission of the author.

Magnum opus, a Latin term meaning "great work," is used to describe an artist's, author's, or composer's greatest creation. It is not merely one's best-quality work; it is a work grander in scale and of greater importance than all the others, the contribution of a lifetime. This is such a work, and it has few parallels in mineralogy.

Topographic mineralogies are a distinct class of the mineralogical literature that is especially important to those who collect and/or manage collections. They supplement the standard references by providing the specific context for understanding and appreciating collection specimens. Topographic mineralogies typically cover geologically diverse political regions such as states or countries. Few focus solely on an individual mining district or mineral locality. Those that do are classics to the mineralogist. Perhaps the best known is Charles Palache's *Minerals of Franklin and Sterling Hill, Sussex County, New Jersey* (1935), a predecessor and obvious inspiration for the present work. Because Franklin-Sterling Hill is the best studied of all the world's great mineral localities, we must agree that the title, though grandiose, is not mistaken.

Understanding that mineral specimens have social as well as scientific contexts, the author provides a rare cultural orientation to this special place in northwestern New Jersey by devoting the first seven chapters to a description of the region and its mines and quarries and their history, including the zinc companies and beneficiation of the ores. A synthesis of its geology follows. At the heart of the work are the approximately 340 mineral descriptions that take up 360 pages, almost exactly half the total number of pages. Appropriately, important species (e.g., willemite) are described at length under four headings: Description, Composition, Occurrence and Paragenesis, and Name. Most species are illustrated with photographs, crystal drawings, or both. SEM photographs are used extensively and very effectively. Trivial species (e.g., gypsum) are given abbreviated treatment. Backmatter consists of three useful appendices: List of Obscure or General Mineral Names, Glossary of Local Terms, and Sterling Mine Operations, 1966. There are also subject and mineral indexes.

Two supplementary volumes (pp. 757-854 and 855-978) are also available. They comprise ten sections: Chemical Data for the East and West Limbs of the Sterling Hill Orebody; The Passaic Zinc Company; 19th-Century Observations on Geology and Mining; Mineral Images; A Trip to Franklin Furnace; 19th-Century Metallurgical Processing of the Ores from Franklin and Sterling Hill; Excerpts from the Franklin Furnace Folio; 19th-Century Privately-Printed Observations on Exploration and Geology; Rosy Scenarios and Great Expectations; and Zinc Mining at Franklin (1890-1900) and at Sterling Hill (1923). Most sections are reprints of obscure literature that will further enhance the reader's historical appreciation for these extraordinary deposits. Special note should be made of section S1, Chemical data..., which is an original study by the author based on extensive microprobe analyses of carefully selected samples that compares the mineralogy and chemistry of the ores on the east and west limbs of the Sterling Hill orebody. S4 is a portfolio of SEM images that are unabashed eye candy!

This is an important work of high quality. It is thoughtfully organized and thoroughly researched. The extensive literature, to which the author is a principal contributor, is fully documented in the sixty-four-page bibliography. The volumes are well illustrated with maps, photographs, and pen-and-ink drawings of historical views, photographs of hand specimens, and SEM images of microscopic crystals. All 960 images are in black and white. Although color would have significantly increased production costs, its absence is nonetheless disappointing considering the beauty of Franklin/Sterling Hill minerals at their best and especially their unique beauty in ultraviolet radiation. Composition diagrams would have been a valuable addition to illustrate the ranges of chemical variation reported in the tables. With its narrow focus and high cost, this publication is not for everyone. It is a must for geological libraries, serious students of Franklin and Sterling Hill minerals, and serious collectors of the mineralogical literature (five hundred copies printed). Mineral clubs would do their members a genuine service by adding it to their libraries.

In the preface we learn that this study began in 1973. The author's first contribution appeared in 1977, and this *magnum opus* is about his seventieth! Hopefully, it won't be his last, for he is uniquely qualified to extend our understanding as well as our knowledge by offering interpretative and perhaps even speculative contributions on the origins of the Franklin and Sterling Hill orebodies and their minerals.

Review by R. A. Howie, from *Mineralogical Magazine*, Vol. 60, pages 537-38 (1996). Reprinted with permission.

This five-part *tour de force* attempts to outline the history, geology, mining development and above all the mineralogy of these famous deposits, now worked out, but which were particularly rich in zinc, manganese, and iron. They have been known for some 300 years and yielded over 33 million tons of ore. Approximately 10% of all known mineral species were to be found here; more valid new species (69) have been described from here than from any other locality and some 10% of the minerals are unique to Franklin and Sterling Hill.

The work opens with an extensive bibliography of some 1600 items, and Part I continues with chapters presenting historical perspectives of the local iron mining and processing, which was under way in the 1740's (including the attempts at working the enigmatic franklinite which resembled magnetite but did not react in smelting as magnetite did), and local zinc mining which was first developed in the late nineteenth century. It is interesting to learn that Sterling Hill was purchased at a Sheriff's sale for 40. Part 2 deals with the quarries in the Franklin Marble, which is the host to all the ores, the beneficiation of the zinc ores, the regional and local geology of the area and, in particular, the geology and structure of the zinc deposits. The ores are Precambrian in age and it is considered that the metal content of the protosols was in place in sediments before the complex later history of igneous intrusions (granites and pegmatites) and several episodes of regional metamorphism to the sillimanite grade (upper amphibolite to granulite facies). Various genetic theories for these orebodies are reviewed but no comprehensive solution to the various problems posed is yet available. This part of the work continues with details of the geochemistry of the orebodies and the distribution of the elements between the numerous host minerals; as noted earlier by Frondel and Baum (1974) there is a close correspondence between the suite of trace elements found in these deposits and those typical of marine and hot-spring deposits of manganese oxides. The discovery early in the twentieth century that electric arcs for switchgear caused fluorescence in nearby minerals led to the recognition of more than 80 fluorescent mineral species in this area. The paragenetic and textural aspects of the various mineral assemblages in the zinc ore units are considered; silicates are much more common in these ores than might be surmised from the literature.

The remaining three parts are concerned with the descriptive mineralogy of the deposits, starting with the silicates which include over 40 Mn silicates and some 20 Zn silicates, in addition to numerous silicates of Ca, Mg, and Fe. In many cases, earlier data on morphology and physical properties are supplemented by new microprobe analyses, and by hand specimen photographs and numerous photomicrographs, together with details on the occurrence and paragenesis for all the major species represented. This style is followed also in giving the descriptive details of native elements, sulphides, arsenides, antimonides, sulphosalts, oxides, halides, carbonates, sulfates, borates, tungstates, molybdates, arsenates, arsenides, phosphates and vanadates, together with brief descriptions of eight unnamed species. The work concludes with appendices on obscure mineral names, a glossary of local terms (e.g. 'Cousin-Jack', a term for Cornish miners, many of whom were brought over to do underground mining), and a description by the mine management of the operations of the Sterling mine in 1966, followed by fairly full subject and mineral indices.

This is the most important work on these deposits and their minerals since the classic U.S. Geological Survey Professional Paper 180, by Palache in 1935 (*The Minerals of Franklin and Sterling Hill, Sussex County, New Jersey*) and represents over 20 years of research by the author and cooperation with other geologists, miners and mineralogists interested in Franklin and Sterling Hill. The photographs incorporated in the text are in black-and-white, and the reproduction of these is good, though some of the older but informative views of Franklin and of the underground mining operations are somewhat lacking in contrast but are nevertheless of considerable interest; the numerous maps and cross-sections are clear and helpful. These famous deposits have yielded some magnificent specimens to be seen in mineral museums all over the world and it is exciting to have an up to date record of all the mineralogical data pertaining to the many rare species represented in this unique assemblage. Libraries and other fortunate enough to possess a copy of Professional Paper 180, will certainly need to obtain this latest production to supplement and expand the record of this classic locality. The Franklin mine closed in 1954 and the Sterling mine in 1986, but the Franklin Mineral Museum prospers and has been designated as a New Jersey Historical Site.

Review by Paul B. Moore, from *American Mineralogist*, Vol. 82, pages 655-656 (1997). Reprinted with permission.

Decreed by State legislature in 1968, Franklin, Sussex County, New Jersey is "The Fluorescent Mineral Capital of the World." In the 1970s and 1980s, a large sign by Route 23 greeted incoming motorists with this fact. Over 83 discrete mineral species are stimulated by UV radiation, long having made Franklin a magnet for "glow-in-the-dark" people. For nearly 100 years, the New Jersey Zinc Company recovered the rich ores from the Franklin Marble of Grenville age (1000 Ma) in the sister deposits at Franklin and Sterling Hill (Ogdensburg), separated by 5 km. These enormous steeply plunging deposits, reaching depths to 1000 m from the surface, yielded cumulatively about 6.5 million tons of zinc. The principle ores were franklinite, $(\text{Fe,Mn})_2^{3+}(\text{Zn,Mn})_2^{2+}\text{O}_4$, a spinel; willemite, $(\text{Zn,Mn})_2^{2+}\text{SiO}_4$, phenakite (by extension, Si_3N_4) structure type; zincite, $(\text{Zn,Mn})\text{O}$, wurtzite structure type. These major ore minerals are but rarities elsewhere in the world.

The number of verified mineral species associated with deposits is a staggering 330+, those known only from the deposits about 35, including rhombohedral mcgovernite, which possesses the largest cell translation for a mineral, $c = 203 \text{ \AA}$! Drop the adjective and call Franklin/Sterling Hill "The Mineral Capital of the World" and you will not be far off, arguably contested by Langban in Sweden, Crestmore in California, Mont Saint-Hilaire in Quebec, Kola Peninsula in Russia, and Tsumeb in Namibia. Literature on the Franklin/Sterling Hill deposits is vast: over 1200 references are tabulated in this monograph. Questions (including genesis of the deposits) outweigh answers. Unknown numbers of new species wait to be documented, especially with modern cutting-edge techniques. True, traditional mineralogical problems here are no longer lying in the street, but the sidewalks need much sweeping.

Three eminencies stand out as lifelong devotees of Franklin mineralogy: Charles Palache, deceased for 40 years, of Harvard, and his classic U.S. Geological Survey Professional Paper, *The Minerals of Franklin and Sterling Hill, Sussex County, New Jersey* (1935); Clifford Frondel, also of Harvard; and Pete J. Dunn of the U.S. National Museum of Natural History

(Smithsonian). In volume 2, Dunn describes the people that he considers most representative of Franklin's history. Two (Clifford Frondel and John L. Baum) are still with us and are members of MSA. I found Robert M. Catlin especially fascinating. To rectify the disorder at Franklin (Mine Hill looked as if it were attacked by manic moles), the New Jersey Zinc Company (then already becoming powerful) brought in Catlin as mine superintendent. He earlier served with distinction in South Africa, and he served Franklin for 24 years in the first quarter of this century. He not only "puttied up the cracks," but through methodical top-slicing he made zinc mining really profitable for the company, which could then take on the entire orebody. For the town, he established a water system, paved streets, and got in a quality police force among many other things. He is presented to us in a picture that shows a lively bowler-hatted gentleman with rimless glasses and a professorial beard.

Although Franklin was exhausted in 1954 and Sterling Hill in 1986, enormous quantities of specimens have been preserved. In addition, the Franklin-Ogdensburg Mineralogical Society (FOMS) and its organ *The Picking Table* (a biannual journal with a fine layout, and articles ranging from casual to quite technical), and two excellent museums make any trip to this mineralogical Mecca worthwhile. True, hardystonite, hendricksite, and hodgkinsonite—once common species and found nowhere else in the world—no longer are lying around, but Nick Zipco, a Ukrainian-American of long association with the mines and one of the sights of Franklin, still hawks specimens near the Franklin Mineral Museum, which is still across the street from the fabled enormous hole, the Buckwheat Open Cut.

For over 20 year, Dunn has been perspicacious in his zeal toward Franklin and Sterling Hill mineralogy, and he has described and named over 25 new species from these localities. Arguably (unless Sid Williams beats him to it) he holds a world record for new mineral species descriptions in general, although I am sure some beetle people hold even bigger records for taxa in general.

This monograph, in five parts, is attractively laid out. The print is sharp and the contrast on white background is excellent. It is not right-justified, which I much prefer. I like the soft cover, good binding, and excellent reproductions of crystal drawings (mostly from Palache's classic monograph of which much of the 420 black and white figures are derived.) Dunn's monograph reveals his artistic bent in some of the most exquisite SEM photographs I have ever seen in mineralogical literature. The solution (?) structures on page 681 parallel to the (010) plane for sarkinite jump out at you like gaping maws. The mooreite (Gideon Moore of the nineteenth century) on page 638 looks like a coffin ready for use. The largest known replica of a Franklin mineral crystal is shown on page 663. It is a facsimile of the unique boroarsenate cahnite and serves as the tombstone for Lazard Cahn, an outstanding micromounter and a Palache collaborator in the early part of this century. The SEM photographs alone are valuable for scientific intelligence; not only can they be used as determinative tools, but they aid in deciphering paragenesis. Perhaps it is asking too much, but if goniometric angles were provided in the legend with respect to the base, prism, pinacoid, cleavage, etc., it would then be possible to reconstruct the entire crystal on Eric Dowty's SHAPE package!

In some photographs, you could work out the forms with little trouble, for example, sarkinite and chlorophoenicite. If there is any drawback in the monograph, it is found in the black and white photographs of the minerals themselves. They are all but useless and therefore are a waste of space. Franklin and

Sterling Hill minerals, particularly the more exotic Mn²⁺-bearing species, are known for their colors. The bright pink to pale rose of hodgkinsonite and the commanding bronze folia of mcgovernite just do not make it without color. I am sure Dunn has color photos of these exquisite minerals and their associations; he should have included an optional collection of such prints to accompany the monograph—at an additional fee, of course.

The text is truly exhaustive, a grandiloquent (in the positive sense of the term) display. Dunn's enthusiasm clearly shows here. The tenor in general is that of a classic communication of scientific intelligence, but it is never bone dry for the reader. A sort of manic frenzy occasionally appears, but it never goes over the edge; rather, it leaves the reader with with a kind of infectious enthusiasm. There are five volumes altogether. Volume one (bibliography; introduction; historical perspectives of local iron and zinc mining and processing, p. 1-160) concerns mining and gives the enormous bibliography for the entire treatise right at the beginning. Volume two (the quarries in the Franklin Marble; major zinc mining companies; beneficiation of zinc ores; cultural aspects of Franklin and Sterling Hill; regional and local geology; geology and structure of zinc deposits; geochemistry; fluorescence of minerals in UV; mineral assemblages, p. 161-320) describes the cultural aspects, including colorful and dynamic personalities, mining in the Franklin Marble, regional and local geology, the zinc deposits, geochemistry, and mineral assemblages. Volumes three through five (p. 321-755) constitute the backbone of this tome and are surely Dunn's passion: descriptive mineralogy. This section is very well organized and is reminiscent of Palache's U.S. Geological Survey Professional Paper 180. Much valuable new information is given, especially the fine SEM photographs along with reproductions of Palache's crystal drawings. Dunn has also been busy with the electron microprobe; a wealth of new analytical information is provided in tabular form, most of it previously unpublished. Even some dubious chemical formulas have been purged. Each volume can be purchased separately.

Winding down, I find Dunn's monograph for all intents and purposes unique. The work is sincere, accessible, and knowledgeable. Then again, he does not speculate and create theories. It is, in fact, a mineralogical treatise in the classical sense of the term. You do not need any mathematics, and not much chemistry, but you had better be up on your minerals for Dunn does not cater to the uninitiated in these matters.

People who know Dunn understand that he is a truly independent soul. This remarkable monograph was privately printed and published by him. There is no ISBN number. It does provide an example of the force of an individual in getting something done. However, I strongly urge that Dunn find a publishing house that will take on printing and marketing this book. Parts could be rearranged, the occasional redundancy could be eliminated, and a bit more terseness could be invoked, especially at the beginning. I have little doubt that it will sell—the amateur mineral community is huge, even though most are penny-wise (regarding buying books and learning) but pound-foolish (in buying mineral specimens). This is a valuable scientific document and should be presented accordingly in book form. But most important, it sets an example toward the other great mineral cornucopias that really need updating and compilation in monograph form.

Review by Craig Johnson, from *Economic Geology*, Vol 90, page 226 (1996). Reprinted with permission.

Franklin and Sterling Hill are closely similar Zn-Fe-Mn deposits, both located in northern New Jersey, that have a documented history of mining beginning in the early eighteenth century and ending in 1986 when operations ceased at the Sterling Hill mine. The deposits, what little remains of them, are unusual in that they are sulfur poor. The ore minerals are zinc oxides and silicates rather than sphalerite, the ore mineral at virtually all other known zinc deposits. Also unusual is the large number of minerals that have been found in the deposits and surrounding rocks, and the occurrence of many minerals as large, well-formed crystals. By Dunn's count, 349 different mineral species have been identified in the area. Sixty-nine were first described in Franklin or Sterling Hill specimens, and 35 are unique to these deposits. As ore deposits, Franklin and Sterling Hill were important, but as mineral localities they have few rivals anywhere in the world.

Dunn's five-part tome is an impressive work that combines a thoroughly researched history of the local mining activity with a comprehensive summary of the mineralogic and geologic work that has been carried out in the area. Part 1 contains an introduction, histories of iron and zinc mining, and a 1,400-citation bibliography. Part 2 contains descriptions of nearby marble quarries, histories of the zinc-mining companies and beneficiation methods, notes on cultural aspects of the area, and sections on regional geology, local geology, geochemistry, mineral fluorescence, and common mineral assemblages. Parts 3, 4, and 5 contain systematic descriptions of all 349 of the minerals found in the area. The descriptions cover 434 pages and are organized by chemical composition (e.g., silicates, elements, oxides, etc.) and structure (e.g., nesosilicates, sorosilicates, cyclosilicates, etc.). There is information on crystal structures, physical and optical properties, chemical compositions, occurrences, and the derivation of the mineral names where Franklin or Sterling Hill is the type locality. Dunn has included numerous observations of his own and a wealth of previously unpublished microprobe analyses, photographs, and scanning electron micrographs. Parts 3-5, along with the bibliography in Part 1 and the description of the geology in Part 2, provide an update of Charles Palache's *The Minerals of Franklin and Sterling Hill, Sussex County, New Jersey* (U.S. Geological Survey Professional Paper 180, 1935).

The mineralogy of the deposits is clearly Dunn's first love, and there is no author better qualified to provide systematic descriptions of Franklin and Sterling Hill minerals. Since 1978 there have been 28 publications describing previously unknown mineral species that were discovered in Franklin or Sterling Hill specimens. Dunn was the senior author on 24 of the publications and a junior author on three more. The twenty-eighth new mineral, a clinopyroxene with formula $\text{CaZnSi}_2\text{O}_6$, was named petedunnite in his honor. Of broader interest to economic geologists will be the descriptions of the regional and local geology and the geochemistry of the deposits. Here Dunn has few observations of his own, and he gives a comprehensive but uncritical summary of the work of others. The regional geology and local geology sections are simplified as if they are intended for a lay audience. Age dates and pressure-temperature estimates are given with little information on the methods that were used and with no discussion of the validity or meaning of the results. There is a strong emphasis on the historical record of observations and interpretations, and there are numerous quota-

tions from other works. Overall, there is little new insight into the conditions of formation of the rocks or into the processes which formed or affected them.

This work will be cherished by a large group of devoted mineral collectors, and it will be recognized as a treasure trove by many mineralogists, particularly those interested in zinc or manganese mineralogy. For geologists interested in the genesis of the ores or in local geologic problems, Parts 1 and 2 will provide a very helpful guide to the published literature and to records, maps, and samples that have been distributed to various museums and universities over the years.

This is a desktop publication on letter-size paper. Each part is a separate book with a glued binding and paper cover. The author suggests that buyers combine and rebind their copies, and he has included a continuous table of contents, complete indexes, and lists of tables and figures in Part 5 for that purpose. The quality of reproduction is uneven for the numerous photographs, but is surprisingly good for the scanning electron micrographs and line drawings. This work deserves to be widely distributed in libraries. Given the mode of publication, interested scientists will need to request that their libraries buy it.

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Celebrity Newswatch

In November 1997 the New York Mineralogical Club appointed Richard Hauck an honorary member, by unanimous vote of the membership. This privilege went to Dick for "his role in rescuing the Sterling Hill Mine." The N.Y.M.C. does not award such honors lightly. Among the 14 others so appointed in the 110 years of the club's history are Sir William Henry Bragg, Madam Marie Curie, Edward S. Dana, Clifford Frondel, Victor Goldschmidt, Charles Palache, Frederick Pough, and Waldemar Schaller. Source: *Bulletin of the New York Mineralogical Club*, Mitch Portnoy, Editor, January 1997.

ANNOUNCING DR. PETE J. DUNN'S MONOGRAPH

A new monograph, entitled *Franklin and Sterling Hill, New Jersey: the world's most magnificent mineral deposits*, by Pete J. Dunn, began publication on May 20, 1995. It consists of Parts One through Five, a First Supplement, and a Second Supplement. Each is an 8½ x11 inch softcover book; numerous illustrations include black-and-white photographs, line drawings, tables and graphs of chemical data, maps, etc.

Part One contains xiii pages of front matter and 160 pages of text, and includes 23 black-and-white illustrations and 23 line drawings. It consists of a 66-page bibliography; Chapter 1, *Introduction*; Chapter 2, *Historical perspective of local iron mining and processing*; and Chapter 3, *Historical perspective of local zinc mining*.

Part Two contains xvi pages of front matter and 160 pages of text, and includes 133 illustrations. It consists of Chapter 4, *Quarries in the Franklin Marble*; Chapter 5, *Major zinc-mining companies in the Franklin-Sterling Hill area*; Chapter 6, *Beneficiation of the zinc ores*; Chapter 7, *Cultural aspects of Franklin and Sterling Hill*; Chapter 8, *Regional and local geology of the Franklin-Sterling Hill area*; Chapter 9, *Geology and structure of the zinc deposits*; Chapter 10, *Geochemistry*; Chapter 11, *Fluorescence of minerals in ultraviolet*; and Chapter 12, *Mineral assemblages*.

Part Three contains xii pages of front matter and 142 pages of text, and includes 126 black-and-white illustrations, 49 line drawings, and 12 tables of chemical data. It consists of Chapter 13, *Lists of minerals*; Chapter 14, *Descriptive mineralogy*; Chapter 15, *Nesosilicates*; Chapter 16, *Sorosilicates and cyclosilicates*; and Chapter 17, *Inosilicates - chain silicates*.

Part Four contains xii pages of front matter and 164 pages of text, and includes 149 black-and-white illustrations, 48 line drawings, and 22 tables of chemical data. It consists of Chapter 18, *Phyllosilicates - layer silicates*; Chapter 19, *Tectosilicates and silicates with unknown structures*; Chapter 20, *Elements*; Chapter 21, *Sulfides, arsenides, antimonides, and sulfosalts*; Chapter 22, *Oxides and hydroxides*; and Chapter 23, *Halides and carbonates*.

Part Five contains xii pages of front matter and 168 pages of text, and includes 50 black-and-white illustrations, 19 line drawings, and 3 tables of chemical data. Following the text is a duplicate set of front matter for the entire monograph. Part Five consists of Chapter 24, *Sulfates, borates, tungstates, and molybdates*; Chapter 25, *Arsenates, arsenites, phosphates, and vanadates*; Chapter 26, *Unnamed minerals*; Appendix I, *List of obscure or general mineral names*; Appendix II, *Glossary of local terms*; Appendix III, *Sterling mine operations, 1966*; Subject index; and Mineral index.

The First Supplement contains xii pages of front matter and 98 pages of text, and includes 88 black-and-white illustrations, 16 line drawings, plus 6 tables and 2 graphs of chemical data. It consists of Chapter S1, *Chemical data for the east and west limbs of the Sterling Hill orebody*; Chapter S2, *The Passaic Zinc Company*; Chapter S3, *19th-century observations on geology and mining*; Chapter S4, *Mineral images*; and Chapter S5, *"A Trip to Franklin Furnace" by John A. Manley*.

The Second Supplement contains xiv pages of front matter and 123 pages of text, and includes 74 black-and-white illustrations: photos, drawings, diagrams, and maps. It consists of Chapter S6, *19th-century metallurgical processing of the ores from Franklin and Sterling Hill*; Chapter S7, *Excerpts from the Franklin Furnace Folio*; Chapter S8, *19th-century privately-reported observations on exploration and geology*; Chapter S9, *Rosy scenarios and great expectations*; and Chapter S10, *Zinc mining at Franklin (1890-1900) and at Sterling Hill (1923)*.

The Franklin-Ogdensburg Mineralogical Society, Inc., is the sole distributor for the first printing of this monograph. The officers of the F.O.M.S. have set the price without consulting with Dr. Dunn, who receives no income from this publication. Proceeds from sales are divided. For each copy of Parts One through Five sold, \$10 is donated to the Research and Education Fund of the Franklin Mineral Museum, which supports Dr. Dunn's research; the F.O.M.S. receives the greater portion of the proceeds with no conditions. For each copy of the First or Second Supplement sold, \$5 is donated to this fund.

Parts One through Five are available by mail for \$30 each plus \$5 postage and handling. The First and Second Supplements are available by mail for \$25 each plus \$5 postage and handling. The set of seven volumes is \$200 plus \$15 postage and handling. Checks should be payable to F.O.M.S. and mailed to:

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by

Pete J. Dunn

Department of Mineral Sciences

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Two supplemental volumes were published in 1996.

This publication contains the following:

Frontal Matter: pages i - vi

1) Introduction: pages 1 - 4

2) Iron mining and processing: pages 5 - 14

3) The zinc mines: pages 15 - 38

4) Processing the zinc ores: pages 39 - 54

5) The zinc mining companies: pages 55 - 60

6) Cultural aspects of Franklin and Sterling Hill: pages 61 - 76

7) Geological setting: a brief Discussion: pages 77 - 84

8) Minerals: pages 85 - 98

9) Mineral crystals: a portfolio: pages 99 - 124

10) Selected references: pages 125 - 128

The Story of Franklin and Sterling Hill is affordably priced and easy to read.

You may purchase this book for \$15.00 from the FOMS or either the Franklin Mineral Museum or the Sterling Hill Mining Museum. When ordering by mail please add \$4.00 for shipping and handling.

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Note: All issues of *The Picking Table* prior to volume 23 are available only as *photocopies*.

Books and other publications

Dunn, Pete J. (1997) *The Story of Franklin and Sterling Hill*. Privately printed. Detailed description on facing page.
\$15.00 each (+ \$4.00 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, chapters 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. A detailed description of the contents is elsewhere in this issue.
\$30.00 each (+ \$5.00 postage) for Parts One through Five, **\$25.00 each (+ \$5.00 postage)** for the First and Second Supplements, or **\$200.00 (+ \$15.00 postage)** for the complete set of seven.

Fron del, Clifford and Baum, John L. (1974) *Structure and Mineralogy of the Franklin Zinc-Iron Manganese Deposit, 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.
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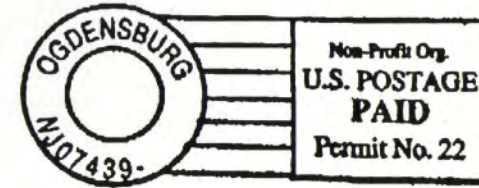
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Please renew your membership.**