The Picking Table

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SPECIAL EDITION

50TH ANNIVERSARY

www.FOMSNJ.org

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The Picking Table

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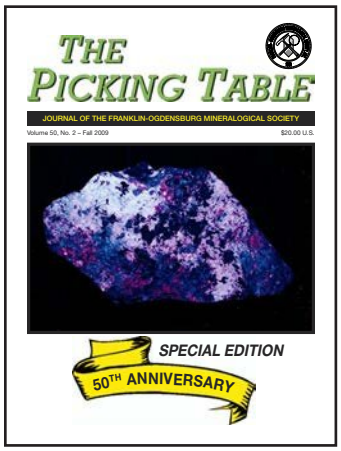
About the Front Cover

One of the most sought after fluorescent minerals from Franklin, NJ is margarosanite. One of the most desirable Parker Shaft species is roeblingite. This 31 pound specimen contains both in an epidote-(Pb), formerly known as hancockite, matrix. There is also some clinohedrite. This specimen was one of the key pieces in the former Robert White collection and we believe it to be the largest of this unusual association. Blue-fluorescing margarosanite may be seen on the left, with pink-fluorescing margarosanite on the right. The roeblingite is visible in the photo as 5-8 mm diameter "eyes" fluorescing red. The specimen measures 13 inches by 9 inches by 7 inches. Denise and Bill Kroth Collection. Bill Kroth photo taken with his Nikon FE film camera.



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The Picking Table is the official publication of the Franklin Ogdensburg Mineralogical Society, Inc. (FOMS), a non profit organization, and is sent to all members. *The Picking Table* is published twice each year and features articles of interest to the mineralogical community that pertain to the Franklin-Ogdensburg, New Jersey area.

Members are encouraged to submit articles for publication. Articles should have substance and be cohesively written and submitted as a double-spaced Microsoft Word document to ***thepickingtable@gmail.com***.

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

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President's Message

Bill Truran

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Hamburg, NJ 07419

FOMS 27th President, Bill Truran

Greetings from the president of the Franklin-Ogdensburg Mineralogical Society (FOMS) in this 50th year of the club's long, healthy life.

Having been pressed into service like a drunken Limey yanked from a bar and awaking the next day at sea in the Royal Navy, I have become enamored with my new duties and look forward to a mutually beneficial relationship.

FOMS is a great and unique organization. It offers traditional hobby benefits, such as getting new mineral specimens, taking field trips to new or treasured localities, and meeting new friends with common interest. Additionally, FOMS allows the deeper experience of learning about the unusual and often unique minerals of the Franklin and Sterling Hill orebodies, knowledge that is worthy of academic study in the great universities of the world, and can lead from a hobby to a lifelong career.

The speciality I bring to FOMS is my lifelong affiliation with the Boro of Franklin. It is my good fortune that I was born and raised here, deeply ensconced in a mining family. All my life I have been steeped in the lore of the mines and miners of the New Jersey Zinc Company, reflecting the great influence of the company on my relatives and neighbors and everyone who worked here. As youths, my friends and I would clamber around in the fenced-in Buckwheat open cut (Shh! Don't tell!), enjoying our adventures on the steep cliffs and in the shafts and tunnels to be found there, while we picked up rocks off the ground that looked just like those our parents had down in the basement.

Fifty years of "keeping the faith" is quite an accomplishment for FOMS. Maintaining collections of the local artifacts and ores, and describing the mineralogy of these extraordinary deposits, are all of extreme importance in preserving our mining heritage accurately and completely. In building what I call the organizational memory of these magnificent orebodies we call Franklin and Sterling Hill, I would like to see an expansion of FOMS's efforts to preserve local mining history. Shepherding others toward becoming future "rockhounds" is also crucial , and documenting and recording the history of our mining and miners, as well as recording this information and archiving it for ease of use by future generations, is critical to our continued success. We are planning permanent storage of our records at the Sterling Hill Mining Museum and Franklin Mineral Museum, so I'd like to see FOMS develop stronger relationships with these museums, as well as with the Franklin and Ogdensburg historical societies and our political leaders. Strength in numbers and diversity of abilities are of enormous benefits in preserving our heritage.

CONGRATULATIONS TO FOMS---50 YEARS!

This is an auspicious occasion for FOMS - 50 years! This Golden Anniversary is particularly significant because FOMS has helped the Franklin area, for half a century, to maintain its great traditions and play an active role in being "The Fluorescent Mineral Capital of the World," one of the most diverse mineral localities on our planet. While the ores are gone, the legacy remains, and FOMS is a prime conveyor of that legacy. FOMS links the storied past of the Franklin/Sterling Hill mining district to a continuous chain of active participation in the present.

I am honored to be president of FOMS during this Golden Jubilee year. In the span of recorded history, Golden Jubilees were always of great importance. They honored the life of a monarch who had ruled for five decades, keeping the land and its people healthy, and safe from Mongol hordes and bands of roving thieves. In a metaphorical but relevant way, FOMS has performed this role for the orebodies and mining traditions of Franklin and Sterling Hill.

These two mining communities have a rich historical record. There are many immigrant miner families here that can trace their local roots back for a century or more. In 1897, more than 110 years ago, the "Great Consolidation" assured that zinc mining would take place here in a methodical, world-class manner. Thirty years before that, one of the largest blast furnaces in the nation had been built in Franklin to support the vast iron-mining industry in this area. Sterling Hill had seen prospecting and mining by Dutch explorers in the 1650s. And the orebodies date back over 1.25 billion years!

With all this history we still have living links to our past, exemplified by 93-year-old Jack Baum, the Harvard-trained geologist who came to this great mining town after graduation to work for the New Jersey Zinc Company, and remains here among us.

I hope and trust that this 50th year of the Franklin-Ogdensburg Mineralogical Society will bring renewed strength and commitment to our members, and an increase of interest in, and knowledge of, the multifaceted wonders that are at Franklin and Sterling Hill.

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From the Editor's Desk

Fred Young
234 Warbasse Jct. Road
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For fifty years the journal of the Franklin-Ogdensburg Mineralogical Society, Inc., *The Picking Table*, has been the voice of a select community of Franklin/Sterling Hill mineral collectors.

These FOMS members range from the complete novice through the entire range of amateurs to professional geologists and mineralogists including a number who have earned international recognition.

The constitutional mandate of the society was to develop an accurate list of Franklin-Sterling Hill mineral species, and find as many additional F/SH species as possible. This list had to be scientifically validated and entirely beyond the realm of opinion.

The very early years of *PT* publication were devoted almost exclusively to documenting an ever increasing F/SH species list.

In subsequent years, the size and complexity of this list demanded an equal consideration be given to the mining operations of the two mines and to the geology that created this complex mineral deposit.

This documentation was published in the *PT* by a group of highly respected experts such as Clifford Frondel, Jack Baum, Robert Metsger, Philip Betancourt, Dr. Pete Dunn, Paul Moore, Warren Cummings, Dr. Earl R.Verbeek, Richard Volkert, John Jaszczak, Tony Nikischer, and many others.

The F/SH mineral species list in the *PT* grew from 172 as published in Volume 1, no.1, to 357 in this issue. Much knowledge about mining history and technology, and ever-expanding studies of the local geology and mineralogy were given to all FOMS members and to a worldwide audience that realized something important was happening in the Franklin-Ogdensburg, New Jersey, area.

Membership in the FOMS grew from 58 to 377 in the first year and has remained in the 300 to 600 range ever since.

93 issues, 2256 pages and 12 editors later the *PT* is still relevant.

In this issue we report on completed research on the age of the Franklin Marble by New Jersey geologist Richard Volkert, an article on fluorescent mineral assemblages on the Taylor Road property in Franklin, N.J. by Phil Persson, an undergraduate at the Colorado School of Mines and our newest future geologist who is also a long-time member of FOMS. Also in this issue is a heartwarming story by North Carolina geologist Kenny Gay about his grandfather's Franklin, N.J. collection acquired by gift from miners in the 1920s and stored in an attic for 40 years. Some of these specimens rival our best museum specimens. Earl Verbeek, resident geologist at the Sterling Hill Mining Museum, describes a heretofore unknown assemblage for Sterling Hill genthelvite, while FOMS past president Bernie Kozykowski reviews the history of the Franklin Mill Site mineral locality. Another of our past presidents, George Elling, presents a letter written to the first editor of the *PT*, signed by many early members.

There is also an article by Steven Sanford about the black ore from Franklin and Sterling Hill, and a recounting of Richard Bostwick's predictions about Franklin and Sterling Hill in 2009, written in 1984 as part of his FOMS President's Message. Chris Luzier noticed these predictions, some of which are eerly accurate, while browsing through back issues of the *PT*, and submitted them for all to read and enjoy.

2009 is a celebration of the past but it is also a promise for the future.

Research is continuously being done on existing and yet to be discovered F/SH mineral assemblages. Historical mining archives are continuously being recovered and studied that gives insight into the past. New technology is opening windows into this amazing mineral deposit that will help identify new species.

Over the years the format of the *PT* has changed following new and better printing technology. From typewritten mimeographs to offset color lithography to digital computer technology we have sought to give you the highest quality color photographic images of our minerals at reasonable costs. Each issue is painstakingly written, edited and printed to record the latest findings related to the geology and mineralogy of the Franklin-Ogdensburg New Jersey area.

One thing will never change: our dedication to publish accurate scientific information about the "world's most magnificent mineral deposits. "

HONOR ROLL OF *PICKING TABLE* EDITORS:

John Hendricks
Frank Edwards
Bernard Kozykowski
Omer Dean
Herb Yeates
Joseph Kaiser
Richard Bostwick
Tema Hecht
Peter Chin
Mark Boyer
Earl Verbeek
Fred Young

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Franklin-Ogdensburg Mineralogical Society, Inc.

Fall-Winter 2009 Activity Schedule, compiled by Tema J. Hecht

Saturday, Sept. 19, 2009

9:00 AM - Noon — FOMS Field Trip — Collecting at the Taylor Road site.
Meet at the Franklin Mineral Museum. Park, and walk from there. Fee charged.
10:00 AM - Noon — FOMS Micro Group, Franklin Mineral Museum.
1:30 PM - 3:30 PM — FOMS Meeting and Lecture, Franklin Mineral Museum:
The Mineralogy and Origins of the Iron Mines in the New Jersey Highlands,
by Dr. John H. Puffer, Department of Earth and Environmental Sciences, Rutgers University.

Saturday and Sunday, September 26-27, 2009

****53RD ANNUAL FRANKLIN-STERLING GEM & MINERAL SHOW**
Sponsored by the Franklin Mineral Museum.
Franklin Middle School, Washington St., Franklin, New Jersey.
9:00 AM to 6:00 PM Saturday (indoors), 10:00 AM to 5:00 PM Sunday (indoors).
The ticket price covers the show, *The Pond* outdoor swap, and admission to the
Franklin Mineral Museum: $7.00 per day for adults, $4.00 per day for children (6-16).
The Pond Swap-and-Sell, sponsored by the FOMS, takes place outdoors
on the school grounds from 7:30 AM to 6:00 PM on Saturday, and
from 9:00 AM to 5:00 PM on Sunday. Show admission required.

The FOMS Annual Banquet starts at 6:30 PM on Saturday at the **Franklin Firehouse, Franklin, New Jersey.**
Tickets may be obtained at the FOMS show table for $18.00. The meal is an all-you-can-eat buffet; soda, tea, and coffee are included.
B.Y.O.B. After the banquet there will be an auction for the benefit of the FOMS.

Please plan on donating a good specimen, artifact, book, etc.!

** Saturday and Sunday: Events at the Sterling Hill Mining Museum.
For more information, please call: **(973) 209-7212**, or visit the website at **www. sterlinghillminingmuseum.org**

Saturday, October 17, 2009
9:00 AM - Noon — FOMS Field Trip — Collecting at the Braen quarry (a.k.a. Franklin quarry),
Cork Hill Road, Franklin, New Jersey.
10:00 AM - Noon — FOMS Micro Group, Franklin Mineral Museum.
1:30 - 3:30 PM — FOMS Meeting and Lecture — Franklin Mineral Museum:
Abandoned Mines of New Jersey, by Dan Lopez, mine researcher (www.abandonedmines.net).

**9:00 AM – 3:00 PM and 6:00 PM – 10:00 PM—Sterling Hill Mining Museum.
Collecting permitted on the Mine Run dump and in the Fill quarry, Passaic pit, and "Saddle" area.
For museum members only. $5.00 admission fee plus $1.50 for each pound of material taken.

Saturday, October 31, 2009
** **20th Annual *ULTRAVIOLATION***, a Show-Swap-Sell-Session featuring fluorescent minerals *only*.
First United Methodist Church, 840 Trenton Road, Fairless Hills, Pennsylvania.
9:00 AM to 4:00 PM, $2 donation. "If your rocks don't glow, you're at the wrong show."
Table space available. For information, call 856-663-1383 or e-mail <ultraviolation@yahoo.com>.

Saturday, November 7, 2009
**6:30 PM – 9:30 PM — Night Dig on the Buckwheat dump, for the benefit of
the Franklin Mineral Museum. Doors open at 6:00 PM for check-in and mineral sales.
Admission $10.00 adult, $8.00 children 3-12 years of age.
Poundage fee: $3.00 per pound. **Call for details: 973-827-3481.**

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Saturday, November 21, 2009
9:00 AM - Noon — FOMS Field Trip — Collecting on the Buckwheat dump. Fee charged.
10:00 AM - Noon — FOMS Micro Group, Franklin Mineral Museum.
1:30 - 3:30 PM — FOMS Meeting and Lecture — Franklin Mineral Museum:
Mineral Oddities, Tucson 2009, by Richard Bostwick.

!!! Don't miss our surprise guest to help celebrate the 50th year of the FOMS !!!

****

Most FOMS field trips are open only to FOMS members aged 13 or older.
Proper field trip gear required: hard hat, protective eyewear, gloves, sturdy shoes.

****Activities so marked are not FOMS functions but may be of interest to its members.**
Fees, and memberships in other organizations, may be required.

Any information in this schedule, including fees, is subject to change without notice.

The FOMS Activity Schedule is compiled by Tema Hecht <thecht@att.net>
Thanks go to Fred Young, Earl Verbeek, Ralph Thomas, the Franklin Mineral Museum, and the Sterling Hill Mining Museum for this information.

****

New Jersey Earth Science Association Show, April 25-26, 2009.

FOMS Photo Editor, Tema Hecht, looking for the next rock, or rock collector to photograph.
Photo by Richard Bostwick.

Nobody is seeing clearly at this point. Mark Boyer (L) and Bernard Kozykowski, after hours at the NJESA Banquet, 2009.

This and all photos on pages 6 and 7 taken by Tema Hecht.

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Robert Hauck (L) and Laszlo Koorszag at the NJESA Banquet, 2009.

Chris Luzier, NJESA Banquet, 2009.

Fred Lubbers, crying over the big bucks he spent on a margarosanite at the auction. NJESA Banquet, 2009.

Dr. Steven Kuitems, holding the corundum that he won at the auction. NJESA Banquet 2009.

Richard Bostwick, chomping on the tourmaline that he gobbled up at the auction. NJESA Banquet, 2009.

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Steven Phillips, holding a cyprine that he acquired for the Franklin Mineral Museum. NJESA Banquet, 2009.

Mark Boyer, with the esperite band that he gently glommed at the auction. NJESA Banquet, 2009.

Paul Shizume, holding a fine sea green willemite won at the auction. NJESA Banquet, 2009.

Richard Bostwick, with his new prize, one of the biggest, ugliest willemite crystals, I've ever seen! (it's from the north ore body). Spring show swap and sell, 2009.

Richard Keller, holding his auction winnings, a Franklin roeblingite! NJESA Banquet, 2009.

Earl Verbeek, and his jeffersonite, hard-won. NJESA Banquet, 2009.

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A FOMS Memory
The First Half Century

Fred Young
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Lafayette, NJ 07848

INTRODUCTION

This is an abbreviated list of Franklin-Sterling Hill events and scientific research as published in *The Picking Table,* Volumes 1-50.

A complete DVD of all 93 volumes is available for purchase at $45.00 plus $5.00 postage and handling. To order contact FOMS vice president Richard Keller at franklinnj@hotmail.com.

1959

- Richard Hauck, 1st President, greets 53 members at the 1st general meeting of the Franklin-Ogdensburg Mineralogical Society on November 14th, 1959.

1960

- FOMS is officially incorporated as a nonprofit association in the State of New Jersey. Membership reaches 377 and dues are $2.00 per year.
- The official validated F/SH list of 170 species is provided by Dr. Clifford Frondel of Harvard University.
- A free museum of F/SH minerals is contemplated by the board.
- A reprint of Palache's Professional Paper 180 (without revision) is ordered.
- Vol. 1 no. 1 of the official FOMS publication *The Picking Table* is published by John Hendricks.
- The first symposium on the geology and mineralogy of the F/SH mineral deposit is planned.

1961

- The official validated F/SH species list is increased to 176
- The Lawson Bauer Award for outstanding contributions to the study of the F/SH mineralogy is established.
- Admission to the Buckwheat Dump is provided by the Boro of Franklin. Fee is $1.00 per day or $5.00 per year.
- Publishing of *The Picking Table* is taken over by Frank Edwards
- The first symposium is held at the Franklin Armory. Total profit to the club is $257.12
- The Lawson Bauer Award is presented to Dr. Clifford Frondel of Harvard University.

1962

- First swap session is held with the North Jersey Mineralogical Society.
- Regular bulldozing of the Buckwheat Dump is authorized by the Boro of Franklin.
- The Parker dump is sold to make way for the Franklin Fire Dept.
- Field trips and regular meetings start being held on the same day.
- All programs scheduled for the third Saturday of the month.
- A frantic silver rush to the old Andover iron mines and to a construction site in Ft. Lee, N.J. proves unsuccessful.

1963

- Joint outdoor swap with the North Jersey Mineralogical Society repeated by popular request.
- 7th annual Mineral Show of the Franklin Kiwanis Club at the Franklin Armory is managed by Ed Selems.
- Sussex Motel on route 23 in Sussex is built.
- Ewald Gerstmann purchases the 50 or 60 year old Lang collection. Specimens included crystals of rhodonite, jeffersonite, franklinite, large tourmalines, and a roeblingite half the size of a grapefruit. The Gerstmann collection now ranks among the best F/SH collections of all time and is made accessible to all serious students of the mineralogy of Franklin-Sterling Hill.
- The reputed Indian Silver Mine in the Limecrest Quarry is discredited.
- Specimens of margarosanite from the Bush collection are analyzed.

1964

- Dues stay at $2.00/year
- FOMS activity schedule published in Nov.-Dec. *Rocks and Minerals* prompts letters from California, Arizona, Illinois, Canada, and many eastern states.
- 3rd annual swap session with North Jersey Mineralogical Society at Munson Field in Franklin 9am to 9pm.
- Franklin Kiwanis club purchases the lot and building housing the mine replica exhibit on Evans Street in Franklin.
- April 1964 a nonprofit corporation, The Franklin Mineral Museum Inc. is organized under the auspices of the Franklin Kiwanis Club.
- The N.J. Geological Survey celebrates it's 100th anniversary.
- Ogdensburg celebrates its 50th anniversary.
- John Albanese publishes "The Origin of the Zinc Ore Bodies at Franklin-Sterling Hill" in *The Mineralogist*.
- Specimens of red oxide of zinc from several iron mines in Sussex County, N.J. as in Franklin, Sterling, and Rutgers mines near Sparta, are analyzed.

1965

- The Internal Revenue Service asks for an interview to discuss the Society's status as a nonprofit organization. The club's bank balance is $809.55. Membership is close to 600.
- Mr. Emanuel Honig recommends revisions to FOMS's constitution.
- Ewald Gerstmann announces that his private museum at 14 Walsh Road, Franklin, is now open to the public.
- Attendance at FOMS field trips averages 200 collectors.
- Franklin Mineral Museum opens October 9th, 1965.
- John Albanese publishes a paper on the Parker Shaft lead silicate minerals.
- N.J. Zinc Co. merges with Gulf and Western Industries .
- An abstract on esperite (formerly calcium larsenite) is published. The complete paper, written by Paul Moore and Paul B. Ribbe, was published in *American Mineralogist,* Vol. 50, No. 1, September 1965.

1966

- A single crystal of uraninite is found at the 700 ft. level in the Sterling Hill Mine.

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- A history of the N.J. Zinc Co. is published.
- Franklin Kiwanis sponsors the 10th annual exhibit at the Franklin Armory.
- Limecrest Quarry closed to all collectors after a visit by another club results in property damage.

1967

- A report on Langban minerals given at the University of Illinois by Paul Moore is noted.
- Many new minerals announced.
- A paper on Franklin micromounts is noted by Dr. W.B. Thomas.
- N.J. Zinc Co. sells their property on Mine Hill to R. & S. Phillips. This includes the Buckwheat Pit, and surface and underground workings of the Trotter shaft. The area is untouched since deposition and Mr. Gerstmann will be in charge of the new Trotter mineral dump.
- A new cover design is created by Kenneth Sproson. It is a line drawing of willemite and franklinite crystals from plate 13b Palaches Professional Paper 180.
- Dr. Clifford Frondel publishes about Franklin minerals past and present .

1968

- Frank Z. Edwards publishes about the exclusive minerals of Franklin-Ogdensburg.
- Franklin Boro is officially designated "The Fluorescent Mineral Capital of the World" through the efforts of Amos Phillips.
- John S. Albanese publishes about the history of the Parker shaft.
- Total validated list of mineral species stands at exactly 250. Frank Z. Edwards predicts it will reach 300 in 10 years.

1969

- Franklinite removed from the exclusive list after discovery in Kazakhstan, USSR.
- 2 new minerals added to the list: bronzite var.of enstatite and anatase.
- The mineral collection of Alice Kraissl is presented to the Franklin Mineral Museum.
- Native wire silver from Sterling Hill acquired by Ewald Gerstmann.
- Paper published concerning litigation concerning the franklinite deposit near Franklin Furnace.

1970

- First FOMS woman president, Alice Kraissl, takes office.
- FOMS constitution and by-laws amended.
- Buckwheat dump leased to the Franklin Mineral Museum for three years.
- 13th annual mineral exhibit in 1969 drew 6600 visitors.
- Franklinite discovered in India.
- Roebling correspondence published.
- More new minerals announced.
- First issue of *The Mineralogical Record* edited by John S. White Jr. of the Smithsonian Institution is announced
- Franklin/Ogdensburg bibliography is published in first installment.

1971

- Don Newsome of Van Nuys, California, announces the formation of the Fluorescent Mineral Society.
- Franklin Mineral Museum purchases a portion of the John Hendricks collection
- N.J. Zinc and Boro of Ogdensburg reach an agreement on tax assessment.
- Ervan F. Kushner publishes *"An Abbreviated Manual of Franklin Minerals"*.
- John L. Baum publishes on the origin of Franklin-Sterling Hill minerals.
- More Franklin Ogdensburg bibliography
- John L. Baum retires from the N.J. Zinc Co. and devotes full time as curator of the Franklin Mineral Museum.
- Dr. Clifford Frondel prepares a new manuscript on Franklin Minerals.
- New validated mineral list of Franklin-Sterling Hill is published.
- 3rd installment of Franklin bibliography.

1972

- Franklin Mineral Museum designated a National Historic Site.
- John L. Baum writes a paper on wollastonite at Franklin-Sterling Hill.
- More new minerals announced.
- 4th and final Franklin bibliography.
- A life size wooden statue of a typical Franklin Miner carved by Jarvis Boone is set in front of the Franklin Mineral Museum.
- Mr. Nickolas Zipco becomes new custodian of the Trotter mineral dump. Admission is $2.00.
- Frank Z. Edwards publishes on the fluorescent minerals of the Franklin-Ogdensburg area.

1973

- Dr. Clifford Frondel publishes a checklist on the minerals of Franklin and Sterling Hill.
- Mr. J. Kenneth Fisher, 1st VP of FOMS, publishes on collecting in Franklin from 1933 to 1952.
- Occurrences of zincite crystals in the early 1940s is noted. Billy Ball dies and his collection is sold.
- Comprehensive paper on the geology of the old Franklin Mine being prepared by Dr. Clifford Frondel and John L. Baum
- Frank Z. Edwards publishes an updated list of minerals found at Franklin and Sterling Hill.
- Limecrest open house greets 539 collectors representing 28 clubs, 3 colleges and 3 museums.
- Allen W. Pinger publishes a review of mineralogical, geological and mining activities in the Franklin area, Sussex county.

1974

- Palache's Professional paper 180 is reprinted by FOMS.
- Paul Moore receives an award from the Mineralogical Society of America for his paper on Langban and Franklin minerals, and publishes his acceptance speech.
- Don Newsome, President of the Fluorescent Mineral Society welcomes 120 members from 33 states, Australia, Sweden, and New Zealand.
- Fred Kraissl publishes about FOMS 15th birthday.

1975

- Robert W. Metsger, geologist of the N.J. Zinc Co. estimates sufficient ore at Sterling Hill to last 17 to 18 years at maximum production.
- Bernard Kozykowski publishes a comprehensive letter on fluorescent minerals.
- The Richard and Elna Hauck native copper specimen, acknowledged as the finest from Franklin, put on display at the Franklin Mineral Museum. The record of this unique specimen is documented by John L. Baum, resident geologist of the Franklin Mine.
- Former mine superintendent at Franklin, J. A. Van Mater publishes his account of his association with the Franklin area.
- FOMS joins New Jersey Earth Science Association, a coalition of

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10 N.J. societies, and participates in their show.

- Richard Hauck speaks at the Tucson Gem and Mineral show on the minerals of Franklin N.J.
- 19th annual F/SH mineral exhibit sponsored by the Franklin Kiwanis Club at the Franklin Armory.
- Field trip at Limecrest Quarry welcomes 576 collectors, the largest group recorded.
- Franklin Mineral Museum celebrates its 10th birthday.

1976

- Native silver uncovered in the 1010 stope at Sterling Hill.
- John L. Baum publishes a paper on the Franklin open cut.
- Kraissl Hall addition to the Franklin Mineral Museum dedicated.
- 300 visitors attend a memorial service at the Franklin Mineral Museum for deceased Franklin miners.
- Steven Sanford publishes a paper on recent minerals found at Sterling Hill.
- A review of F/SH minerals discovered and verified during 1934 to 1959 is published.
- Rowe collection donated to Rutgers University.
- John L. Baum publishes an historical article on the first years of the N.J. Zinc Co.

1977

- Richard C. Bostwick publishes a description of all currently known fluorescent mineral species from F/SH.
- A new mineral, gerstmannite from Sterling Hill announced by Paul B.Moore.
- Many minerals reviewed.

1978

- Many minerals reviewed.
- John L.Baum publishes an historical paper on the Bodnar Quarry.
- A new activity for FOMS. "the study of micro minerals", is announced.
- 7th anniversary of Miners Day. 60 retired miners attended.
- Many minerals reviewed.

1979

- John L. Baum publishes on mineral species found at Franklin-Ogdensburg.
- John A. Manley publishes a reprint from an article published in 1899 on a trip to Franklin Furnace.
- Pete J. Dunn publishes on contributions to the mineralogy of F/SH.
- Warren Cummings publishes on Franklin and Sterling Hill in the beginning.
- Elwood Delos Shuster publishes on the history of the Franklin and Sterling ore deposits.

1980

- Daily Franklin attractions noted: Buckwheat Mineral Dump, Franklin Mineral Museum, Gerstmann Franklin Mineral Museum, Trotter Mineral Dump.
- Pete J. Dunn, Dept. of Mineral Sciences, Smithsonian Institution, Washington, D.C. gives lecture on "New Information on the minerals of Franklin and Sterling Hill and the potential of tomorrow.
- Fred J. Parker, Exxon Research Corp. Linden N.J., publishes a lecture on paragenetic trends among the Sterling Hill arsenates.
- Robert A. Metsger, resident geologist at the Sterling Hill Mine, gives lectures on mining at Franklin compared to mining at Sterling Hill.
- Rudeville-Bodnar Quarry sold and closed to mineral collecting.
- A bronze statue replaces the original wood statue in front of the Franklin Mineral Museum and is dedicated in May 1980.
- Annual membership dues increase to $7.00 for individuals and 10.00 for family.
- Species list validated at 277. 24 found only at F/SH.
- Lawsonbauerite, a mineral new to the deposit found at SH described in *The American Mineralogist* by Pete J.Dunn.
- Last field trip to Shuster Park sanctioned by the Franklin Fire Dept. No weight limit.
- Alfred L. Standfast, M.D. publishes an article on the photography of miniature mineral crystals.
- A mineral new to science, hauckite, found at Sterling Hill, named in honor of Richard Hauck of Bloomfield, N.J.
- A mineral new to science, johnbaumite, found at Sterling Hill, named in honor of John L. Baum, curator of the Franklin Mineral Museum.

1981

- Gerstmann mineral collection sold to SPEX Industries and remains on display at 14 Walsh Road and is curated by Ewald Gerstmann.
- A mineral new to science, sterlinghillite, discovered at Sterling Hill.
- Samuel F. Squiller and Charles B. Sclar publish their article about the genesis of the Sterling Hill zinc deposit.
- John L. Baum publishes a biography of Moses Taylor.

1982

- 25th anniversary of the Franklin-Sterling Mineral Show
- Lawson Bauer award presented to John L. Baum by Pete J. Dunn at annual FOMS dinner.
- A mineral new to science, ogdensburgite, found at Sterling Hill.
- John L. Baum publishes a paper on mine captain George H. Rowe.
- *PT* editor Bernard Kozykowski modernizes the graphics of the *PT* and adds halftone photography and pen and ink illustrations, and new cover design.

1983

- *PT* publishes a new cover designed by Jeffrey Donnellen of Swan Lake NY.
- In memoriam for Frank Z. Edwards.
- Stephen Sanford publishes on recent mineral finds.
- John L. Baum publishes on the Parker mine.
- A mineral new to science, bostwickite, from the Franklin mine, named for Richard Bostwick.
- Three minerals from the Franklin Mine, nelenite, charlesite, jerrygibbsite, are described.
- Pete J. Dunn awarded Doctorate in Mineralogy.
- John L. Baum publishes on the Taylor Mine.
- Andrews, Koestler, Peters and Grube publish on the minerals of the Buckwheat Dolomite in Franklin N.J.

1984

- Gerald De Menna of Beckman Industries, Piscataway N.J., publishes on the fluorescent calcites.
- A mineral new to science, minehillite is discovered.
- Research report on bostwickite, charlesite, kittakinnyite, allactite, and lawsonbauerite is published.
- Philip P. Betancourt, Ph.D. publishes on historic minerals and their labels.

1985

- Steven Sanford publishes on a day in the Sterling Hill Mine.

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- Pete J. Dunn publishes on the unique list, and what it means.

1986

- Sterling Mine closes.
- Spex-Gerstmann mineral collection presented to the Franklin Mineral Museum by Arthur and Harriet Mittledorf.
- John L. Baum publishes on sphalerite at Franklin.
- Philip P. Betancourt, Ph.D. publishes on the minerals of the Franklin Quarry.
- John L. Baum publishes on the early products of the Zinc Co.
- Mineral notes section expanded.

1987

- The Franklin-Sterling Hill mineral species list appears in alphabetical order and by chemical classification
- John L Baum publishes on the history of the Franklin Mineral Museum property.
- F.W. Miller publishes on Harvard's Franklin collection.
- Richard Hauck publishes a glimpse of John Albanese.
- Pete J. Dunn publishes an abstract of an article about the lead silicates of the Parker shaft.
- In memoria: Alice Kraissl, and John Sebastian.
- Dr. Alfred L. Standfast donates a mineral photomicrograph slide collection to FOMS.
- Minerals new to science: wendwilsonite, petedunnite.

1988

- Minerals new to science: franklinfurnaceite, parabrandite
- FOMS meetings start at Franklin Mineral Museum
- Limecrest discontinues FOMS field trips.
- Pete J. Dunn and John L. Baum publish on changes to the list of species from Franklin/Sterling Hill.
- Warren Cummings publishes on the Buckwheat Dolomite fissure mineralization of Paleozoic age.
- John L. Baum publishes correspondence concerning disposal of the Stanton collection
- Pete J. Dunn describes uncommon sulfosalts from Sterling Hill.

1989

- 30th anniversary issue of the *PT*.
- Dr. Clifford Frondel publishes a history of the classic Charles Palache monograph on the minerals of Franklin and Sterling Hill, N.J.
- Philip P. Betancourt, Ph.D. publishes on the epidote-pyroxene-fluorapatite assemblage in the Franklin mine.
- Franklin-Sterling Hill mineral species list: 330 confirmed 34 unique.
- In memoria: Sunny Cook, Henry Morton Althoen.
- A mineral new to science: sclarite.
- Pete J. Dunn publishes on two Franklin fakes: willemite from the Canfield collection and a zircon from Balls Hill.
- Wulfenite from Sterling Hill described by Fred J. Parker.
- The borough of Ogdensburg receives a check for $1,415,000 from Barki Associates, Phillips Enterprises and Sterling Hill Mining Co. for the purchase of the land previously owned by N.J. Zinc Co. that contained the Sterling Hill mine.
- Jack L. Baum celebrates his 50th year on the Franklin scene.
- Steve Sanford, manager of the Franklin Mineral Museum, publishes about the 1010 stope and the miners.
- Herb Yeates publishes on the habits of franklinfurnaceite crystals.
- Edward H. Wilk writes on hydrozincite in vuggy dolomite in the Buckwheat dump.
- John L. Baum publishes on the J. A. Van Mater report on the Parker shaft.
- FOMS and Lehigh University announce a symposium on the character and origins of the Franklin-Sterling Hill orebodies.

1990

- An article about the Sterling Hill Mining Co. is published by Bob Jones in *Rock and Gem* magazine.
- Franklin-Sterling Hill mineral species list: 333 confirmed and 33 unique to the deposit.
- Earl R. Verbeek and Hoyt B. Sutphin of the U.S. Geological Survey in Denver, Colo., publish on breithauptite from a nickel-arsenide assemblage at the Franklin mine.
- Fred J. Parker publishes on calcsilicates from the 1680 level at the Sterling Hill Mine.
- F. W. Miller publishes on the franklinite drill hole specimen.
- Alfred L. Standfast publishes on improved photomicrography.
- Earl Verbeek joins the editorial staff of *The Picking Table*.
- FOMS visits the Sterling Hill Mining Museum prior to its opening.
- Omer S. Dean publishes on the Lehigh Symposium.
- Omer Dean publishes on the rare uraninites of Franklin and Sterling Hill.
- Carl A. Francis of the Harvard Mineralogical Museum publishes on clinochrysotile pesudomorphs from Sterling Hill.

1991

- Dr. Pete J. Dunn is presented the Lawson Bauer Award. Previous recipients of the award: Dr. Clifford Frondel, Stanley G. Schaub (posthumously) and John L. Baum.
- John L. Baum publishes on subsidence at the Franklin Mine.
- Dr. Pete J. Dunn and Dr.Clifford Frondel publish on an uncommon margarite/corundum assemblage from Sterling Hill.
- Chester S. Lemanski publishes on graphite in ore at the Sterling Hill mine.
- The mineral species list of F/SH stands at 337 confirmed and 33 unique.
- Water begins to rise in the Sterling Hill mine
- The David E. Jensen Annex housing the Wilfred R. Welsh natural science displays dedicated at the Franklin Mineral Museum
- Pete J. Dunn and John L. Baum publish on changes to the list of species from Franklin and Sterling Hill.
- Richard C. Bostwick publishes on a second locality of zuncalite in the Sterling Hill mine.
- John Cianciulli publishes on the start of a new era at the Franklin Mineral Museum.
- William D. Lord publishes on top slicing at the Franklin Mine.
- Alfred L. Standfast writes on remembrances of franklin from 50 years ago.

1992

- H. N. Coriell publishes on the fire at the Franklin Mine.
- The F/SH mineral species list stands at 340 confirmed, 34 unique.
- Cave pearls found at Sterling Hill.
- Herb Yeates publishes on the lead silicate minerals of Franklin and gives an SEM survey.
- Attendance at Sterling Hill Mining Museum reaches 15,000 in 1991.
- New columns added to the *PT*: "News From the Franklin Mineral Museum" and "News From Sterling Hill".

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- Richard C. Bostwick publishes a check list of F/SH fluorescent minerals.
- Stephen Sanford publishes a primer of F/SH mining terms.
- Dr. Pete J. Dunn and Bernard T. Kozykowski publish on the resurrection of Sterling Hill.
- A mineral new to science, cianciullite.

1993

- The Phillips family donates to the Franklin Mineral museum and delivers to the Buckwheat Dump a million lbs of minerals from their property on Buckwheat Road said to be from the sinking if the Taylor shaft.
- Richard and Robert Hauck, Bernard Kozykowski Rich Luzzi and Steve Misiur descend underground at the Sterling Hill Mine for the last time. Rising water levels forced the closing of the bulkhead door on the 180 ft level.
- A message for the future was left in a time capsule in the south bulkhead door.
- Vandall King publishes on the flinkite, cahnite, jaroswichite assemblage from Franklin, N.J.
- Warren Cummings publishes on a Mississippi-Valley-Type lead-zinc vein of probable Paleozoic age at Limecrest Quarry. Sparta, N.J.
- John Kolic and Steve Sanford publish on recent mineral finds from the Sterling Hill Mine.
- Richard V. Gaines and Richard C. Bostwick publish on the fluorescence of barylite from Franklin N.J.
- Samfowlerite added to the F/SH species list.

1994

- Paul B. Moore publishes on closest packing and oxidation reduction of late stage oxysalt minerals of Franklin and Ogdensburg.
- Robert E. Jenkins publishes on the geology and mineralogy of a veinlet assemblage associated with wollostonite-bearing rocks in the Sterling Hill Mine.
- FOMS membership level nears 400.
- John A. Jaszczak publishes on famous graphite crystals from Sterling Hill.

1995

- Paul B. Moore publishes on closest packing and hydrogen bonds in minerals of the Franklin Marble.
- John A. Jaszczak publishes on zincite.
- Dr. Pete J. Dunn completes publication of his monograph, "Franklin and Sterling Hill N.J., the world's most magnificent mineral deposits."

1996

- Gary Grenier publishes on mineral photography.
- Paul B. Moore publishes on closest packing mineral structures of Franklin and Ogdensburg. Part II.

1997

- Joe Cilen memorial.
- Dr. Clifford Frondel reaches 90th birthday.
- Warren Cummings describes ferroaxinite and heulandite from Limecrest Quarry.
- Lawrence C. Pitman publishes on monazite- (CE) from the Buckwheat Dump at Franklin N.J.
- Carl Francis, R. A. Howie, Paul B. Moore, and Craig Johnson review the Dunn monograph.

1998

- Plans announced for a FOMS 40th anniversary issue of the *PT*.
- John A. Jaszczak publishes on unusual graphite crystals from the Limecrest Quarry.
- Warren Cummings publishes an update on the MVT vein at the Limecrest Quarry.
- Warren Cummings publishes on an apatite-diopside-calcite-calc silicate assemblage in the Losee metamorphic suite.
- Wendell E. Wilson, Hans Durstling, Si and Ann Frazier review the Dunn monograph.
- Roeblingite featured in the first color issue of the *PT*.
- Robert W. Metsger publishes on the geology and mining of the Sterling Hill zinc deposit .
- George Elling begins his "Letters From the Past" column.

1999

- 27th annual NJESA Gem and Mineral Show begins a collaborative effort between FOMS, NJESA and Sterling Hill Mining Museum.
- The Thomas S. Warren Museum of Fluorescence is dedicated at the Sterling Hill Mining Museum.

2000

- Thomas S. Warren Museum of Fluorescence at Sterling Hill Mining Museum opens to the public.
- John Cianciulli publishes on minehillite.
- Robert E. Jenkins publishes about a scheelite-bearing assemblage from Franklin.
- 44th annual Franklin gem and mineral show.
- Stephen Sanford publishes about underground in the mines.
- Joe Kaiser becomes manager of the collecting dump at Sterling Hill.
- Richard C. Bostwick gives lecture at the Seaman Mineral Museum's Fluorescent Ball.
- Claude Poli and John Cianciulli publish observations on mid-range ultraviolet responses of Franklin-Sterling Hill minerals featuring photos by Gary Grenier.
- Gene Bearss and John Cianciulli publish on a mineral new to the deposit synchysite-Ce from the Buckwheat Dump.
- James Rumrill and John Cianciulli publish on a mineral new to the deposit, thorutite from the Franklin Mine.
- 25th annual NJESA gem and mineral show.

2001

- John A. Jaszczak publishes an abstract on the 900 foot level of the Sterling Hill mine.
- John Cianciulli publishes on yellow fluorescing fluorite and cuspidine from the Franklin Mine.
- Richard Hauck publishes on John Albanese, a mineral dealer from N.J.
- Tony Nikischer publishes on a mineral new to the deposit, glaucodot.
- John L. Baum publishes on a classic native copper from Franklin.

2002

- Dr. Pete J. Dunn self publishes his historical treatise on Mine Hill in Franklin N.J. and Sterling Hill in Ogdensburg N.J. from 1765 to 1900.
- Tony Nikischer publishes on a mineral new to the deposit, hellandite.
- 45th annual Franklin-Sterling Gem and Mineral Show.
- 30th annual NJESA Gem and Mineral Show.
- Gary Grenier publishes a photo essay on arsenates.
- Franklin-Sterling Hill mineral species list at 355
- Nick Armenti Ph.D. publishes on the properties of fluorescent rocks and their associated minerals.

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- Richard C. Bostwick publishes on Tom Warren.
- Richard C. Bostwick publishes on esperite.
- Richard Volkert and Fred Young publish on early life in the pre-cambrian rocks of the N.J. Highlands.
- Gary Grenier publishes part two of his arsenate photo essay.
- James Rumrill and Tony Nikischer publish on a mineral new to the deposit, paragonite.
- Donald S. Lapham publishes on a mineral new to the deposit, dundasite.
- Updated mineral species list of Franklin/Sterling Hill 2002 courtesy of the Franklin Mineral Museum: total species, 357 and total unique to the deposit, 34.
- John Cianciulli and Carol Durham marry.
- Wilfred R. Welsh dies.

2003

- Paul B. Moore publishes a memorial about Wilfred R. Welsh.
- Gary Grenier publishes part III of his arsenate photo essay.
- Stephen Sanford publishes on Jersey troglodyte trails.
- Steve Misiur publishes on vignettes of a collecting experience.
- Gary Grenier publishes on mining adventures at Sterling Hill.
- Gary Grenier publishes on the art of fluorescent mineral photography.
- John Cianciulli and Earl Verbeek publish on genthelvite from Ogdensburg N.J.
- Earl R. Verbeek and Herb Yeates publish on the fluorescent emission spectrum of genthlevite from Sterling Hill.
- Pararealgar added to the F/SH species list.

2004

- An updated F/SH mineral species list is provided by the Franklin Mineral Museum.
- New owners of the Limecrest and Franklin quarries grant permission to FOMS to continue field trips.
- The Mildred B. Harden Memorial Pavilion at the Franklin Mineral Museum is dedicated.
- Steven Kuitems publishes on the first field trip to the Eastern Concrete Materials Quarry at Hamburg N.J.
- Gary Grenier publishes on the art of fluorescent mineral photography.
- Richard C. Bostwick publishes about wollastonite from Franklin N.J.
- John Cianciulli publishes on clinochrysotile, a fluorescent serpentine from Franklin N.J.

2005

- John Cianciulli dies.
- Ewald Gerstmann dies.
- Nick Zipco dies.
- Richard Volkert, Robert Zartman and Paul Moore publish on the geology of the double rock pegmatite from the Buckwheat open-cut.
- Grunerite, a mineral new to the deposit, is confirmed.
- John L. Baum publishes a memorial on John Cianciulli.
- Dr. Pete J. Dunn publishes a on the Kemble family and William I.J. Kemble, a long-time collector at F/SH.

2006

- Limecrest Quarry celebrates 100th year of operation and FOMS, SHMM, and FMM host the celebration.
- Greg Jacobus and Philip Persson publish on a calcium-arsenic-apatite group mineral from the Taylor Road property in Franklin.
- Earl R. Verbeek publishes on hancockite, renamed epidote-(Pb).
- Earl R. Verbeek publishes on graeserite added to the F/SH species list.
- Joe Orosz publishes on pyroxferroite, a lunar species confirmed from the Taylor Road Dump.
- A new occurrence of genthelvite is confirmed in the petedunnite assemblage.
- "Wollastonite from Franklin, New Jersey" by Richard C. Bostwick receives a trophy award from EFMLS in the category of original educational articles-advanced.
- Stephen Sanford publishes on sphalerite.

2007-2008

- Updated F/SH mineral species is provided by the FOMS. The new total is 357 species with 28 unique to the deposit.
- Earl Verbeek publishes on the changing of mineral names.
- F/SH minerals displayed at 2008 Tucson "American Mineral Treasures," show.
- Franklin Mineral Museum buys a collection of F/SH and local minerals from the Phila. Academy of Natural Sciences.
- *The Picking Table* begins to be produced by digital technology.

2009

- Fred E. Davis publishes on uraninite from the Trotter Dump.
- Warren Cummings publishes on the calcite-apatite-pyroxene occurrence at the Hamburg Quarry.
- Alfredo Petrov publishes on metamorphosed manganese deposits in Japan and their relationship to the F/SH metamorphosed manganese deposit.
- Stuart Schneider publishes on photo editing using Photoshop® technology.
- Richard Volkert publishes on a rare mineral, kornerupine, discovered in the N.J. Highlands.

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Honoring Richard Hauck

Fred Young
234 Warbasse Jct. Road
Lafayette, NJ 07848

On June 20th, 2009, the FOMS officers and board of trustees voted unanimously in favor of electing FOMS founder and 1st President Richard Hauck to the honored position of FOMS President Emeritus.

Pictured here is 27th FOMS President Bill Truran presenting the lifetime achievement award and title of FOMS President Emeritus to 1st FOMS President Richard Hauck .

Photo by Earl Verbeek.

CERTIFICATE OF APPRECIATION

The Franklin-Ogdensburg Mineralogical Society, Inc. presents this lifetime achievement award and title of:

FOMS President Emeritus to

Richard Hauck

of Franklin, New Jersey.

*This award commemorates his **50** years of loyal and professional leadership provided willingly, with a steady hand and wise counsel.*

This leadership has resulted in the continued growth and success of the society.

We thank you and wish you well!

Pictured here is a photograph of the 1964 FOMS Board of Trustees.

These trustees authored the FOMS constitution that set the goals for the society as outlined in article II (see page 16-17 of this issue).

Richard Hauck and Jack Baum, shown standing on the right, are still with us and continue mentoring to all FOMS members whose aim is to proudly support the mission of the society.

Photo courtesy of the Lee Lowell photo archives.

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Letters From the Past

George Elling

758 Charnwood Drive
Wyckoff, NJ 07481

For this, the 50th anniversary of the Franklin-Ogdensburg Mineralogical Society, we are including a "plain vanilla" letter from 49 years ago. This letter was sent to John G. Hendricks from the FOMS membership in appreciation of all he had done to establish and nurture the club in its first year of existence. The letter was signed by many early FOMS members including Ewald Gerstmann and our still active and very robust Jack Baum. If readers know the whereabouts of other signers please let our editors know. Perhaps we can again include this letter in our 100th "anniversary issue".

John G. Hendricks

Franklin-Ogdensburg Mineralogical Society, Inc.
BOX 146 FRANKLIN, N. J.

November 19th, 1960

Mr. John G. Hendricks,
111 Radcliffe Road,
Weston, Massachusetts.

Dear John:

The members of the FOMS wish to extend their thanks to you for your services to the Club.

We all know that to organize and direct the Society in it's first year required considerable vision, effort and ability. While we are aware that you did most willingly donate such services, we do recognize that they far exceeded normal capacity, resulting in the phenomenal growth, progress and prestige of the Club.

We all have derived some personal pleasure and benefit because of the FOMS. Therefore, we can truly say that we are grateful for your efforts and leadership.

Sincerely yours,

Frank Edwards
President

fze; bh

Max Bareis - Sunny Cook Anthony D. Donato Ray Gill Perry Armagnac George & Ethel Stevens Josephine Hamilton Gustav C. Wendt Charles M. Tau Beatrice M. Gosling Carl L. Reder Ewald H. Gerstmann Laura C. Voiet Louis Sabo Arthur Hopkins Helen C. Spencer H. E. Engles John L. Baum Ralph J. Holmes Muriel & Dick Starke William Clinton Billy Spencer

SIGNATURES:
Frank Edwards
Anthony D. Donato
Perry Armagnac
Josephine Hamilton
Charles M. Tau
Laura C. Voiet
Arthur Hopkins
H. E. Engles
Ralph J. Holmes
William Clinton
Billy Spencer
Sunny Cook
Ray Gill
Ethel and George Stevens
Gustav C. Wendt
Beatrice M. Gosling
Ewald H. Gerstmann
Louis Sabo
Helen C. Spencer
John L. Baum
Muriel and Dick Starke
Max Bareise

This letter was written by Frank Edwards who become FOMS President in 1961, after Richard Hauck.

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Flashback..... Flash Forward

Chris Luzier
847 Springdale Drive
Millersville, Maryland 21108

Think back to a decade filled with wonderful things such as parachute pants, leg warmers and the newfangled microwave oven! Well, one of those fads has proved somewhat useful. The 1980s weren't just *Miami Vice, A-Team* and Michael Jackson, but also *Back to the Future,* which is what this article is all about. But before the future we must start in the fall of 1986, where an unknowing fortune-teller worked his magic.

I was reading some back issues of *The Picking Table* this winter and came across Vol.27, no.2 issue for fall 1986. In this, then President Dick Bostwick had as part of the President's Message a section entitled "A Vision of 2009." I read it and could not believe how accurate so much of his (and others), hope of the future at Franklin-Sterling Hill was. It shows how much has been accomplished in the preservation and promotion of the "Fluorescent Mineral Capital of the World," and inspires us for the future possibilities. I think this article is appropriate for 2009 for the FOMS 50th anniversary. Here it is in its entirety:

A VISION OF 2009

"If FOMS members had a dream of the future, it might resemble this: It is October, 2009, the fiftieth anniversary of the FOMS, and the time of the fifty-third annual Franklin-Sterling Mineral Exhibit. This show has outgrown its original bounds, and attracts visitors from all over the country, and the world. Exhibits and dealers flourish in several locations, but the show revolves around the axis of the Wallkill River, with the Franklin Mineral Museum at the north, and to the south, the Sterling Mine.

The Franklin Mineral Museum has expanded greatly, and is now in effect an earth science study center for northern New Jersey, with its collections, exhibits, library, and its many educational programs. The museum has now assembled the finest collection of Franklin-Sterling Hill minerals in existence; all together, in one place and on display, it has a stunning, cumulative impact, justifying Franklin's claim to be the foremost mineral locality in the world. For some, though, the real and unforgettable attraction will always be the trip underground in a working mine, at Sterling Hill. Now a part of a National Historical Site, the mine is kept operating by a combination of public and private funding, both as a tourist attraction and as a training center for mining engineers, mine safety inspectors, and the like. The mine tour begins in the old change house, where the history, equipment, and minerals of the Sterling Mine are all displayed. After visiting the hoist house and mill, tourists and students alike enter the adit, where they don hard hat and lamp, and ride the cage to one of the working levels, where one of the remaining portions of ore is being worked by a small, dedicated crew. There the visitors encounter the strange paraphernalia of mining: they hear of the skills and strength necessary underground, and watch while a hole is drilled, and loose rock scaled. They see the world's richest zinc ore in place: Its colors, heft, and structure. At the tour's climax they come to a chamber where all cap lamps are turned off, and the walls and overhead are transformed to a brilliant tapestry of red and green by ultraviolet lamps. (It is said that even the most hardened mining engineer is not indifferent to this spectacle, the only one like it on earth.) This is more than a circus sideshow. It is a unique encounter, in a special place, with something real and fundamental: the earth.

You will say that such a vision is impractical, lopsided, or simply impossible. And yet there will not be one of you who does not hope that it might happen. All of us believe Franklin-Sterling Hill to be extraordinary and important; all of us know that its mineral knowledge and heritage deserve preservation. Perhaps it is time for more of us to think hard about how such things might come to be."

A VISION OF 1986

"Do organizations exist to further such concerns? Of course. They include FOMS and the Franklin Mineral Museum. The FOMS is that very rare bird, a locality-oriented mineral society, one not limited geographically in its membership, but dedicated (among other things) to circulating through its publication, this Picking Table, current and accurate information about the minerals and mines of Franklin and Sterling Hill. We also have seven meetings a year, and organize field trips to the still-active collecting sites in the Franklin area. So much for appearances; what of our aims? They are clearly set forth in the FOMS constitution, and are as sensible and clear-sighted as they were when they were drafted in 1959. Here are the first seven purposes of the FOMS, from Article II:

1. **To participate in the operation of a sound permanent museum for Franklin minerals in Franklin, New Jersey.**
2. **To collect and preserve mineralogical, geological, and historical knowledge relating to the Franklin-Sterling Hill ore deposits.**
3. **To develop new information on Franklin minerals and mineralogy through cooperative scientific programs with universities and other organizations and individuals.**
4. **To obtain and make available, in proper perspective, accurate information on Franklin minerals and mineralogy.**

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Chris and Stephanie Luzier with their daughter Olivia, who has just purchased at auction the topographic map of the Franklin-Sterling Hill area from the 1908 U.S.G.S. *Franklin Furnace Folio*.

5. To facilitate collection of Franklin minerals while conserving material for future students and collections.

6. To facilitate identification of Franklin minerals.

7. To promote fellowship and the advancement of mineralogy and geology by providing meetings of those interested in the Franklin area.

We could do worse than continue the realization of our own stated aims.

The Franklin Mineral Museum is pursuing its own dream by planning a larger building, which is to include an auditorium and greatly increased exhibition space. As this is part of our vision also (see FOMS purpose number one), the museum deserves our complete and wholehearted support.

Thirty years ago there was no Franklin Mine, no Franklin-Ogdensburg Mineralogical Society, and no Franklin Mineral Museum. That the Franklin of old still lives in our minds and hearts in 1986 is due in no small measure to the volunteers of the FOMS and the Franklin Kiwanis Club. Volunteers are still needed. The year 2009 will be here shortly, whether we plan for it or not; if the vision I have sketched is to have any reality then, we must work for it now."

Uncanny is one word that comes to mind when I read about the "future." Obviously we all owe a great debt of gratitude to the Hauck family and crew, the Franklin Mineral Museum and FOMS. Without their time, talent and treasure along with so many others that have worked tirelessly to preserve Sterling Hill and Franklin's history, the areas might have slipped into obscurity like so many others. My family and I realize that we are lucky, along with everyone else, to have the collecting community and the Franklin-Ogdensburg area here. For us it has become a historical and natural science passion that we can't easily shake! To see the areas mining history, traditions, and minerals preserved for future generations takes foresight and articles like Dick Bostwick's to show us "how such things might come to be."

Unfortunately, some localities over the past years haven't been able to be preserved, including now the Mill Site. It is a shame and a loss to lose areas like this, but it does help to know that we still have places like the Sterling Hill Mining Museum and Franklin Mineral Museum, along with organizations like the FOMS to further the "Vision of 2009."

Editor's note: The Mill Site is gone but six million pounds of it's rocks are now permanently preserved on Franklin Mineral Museum property.

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The Mill Site - Part One

Bernard T. Kozykowski

Past President and Editor
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HISTORY

A written narrative, given to me by John, L. "Jack" Baum which quite accurately described the construction of the north railway trestle leading into the fine crusher at NJZ Mill No. 2, was subsequently given to Steve Misiur. Jack recently informed me that a copy should exist in the archives at the Franklin Mineral Museum. Specifics now lack detail in my mind. With some searching it can be found.

The construction of the trestle was undertaken under contract to The New Jersey Zinc Company by the builders of the Mine Hill Railroad used by the company until the Franklin Mine closed in 1954. The Mine Hill Railroad was one of numerous local railways operated within the many mining company properties that were merged to form The New Jersey Zinc Company (NJZ) in 1897. It was used initially by NJZ to convey ore from Mill No. 1 to company-owned smelters in Pennsylvania. In subsequent years it was also used as a haulage to convey waste rock and fine tailings from the mill to the mine's fill raises. Following collapse of the mine's hanging wall fill raises in the late 1940s, the waste rock and fine tailings were spoiled above ground upon company property north of Mill No. 2, in the vicinity of the Shuster Park and the Trotter Mine area.

The waste rock from the underground workings of the mine derived from a "picking conveyor" (Fig. 1) at the headworks of the Parker Shaft for a brief period of time and later from the famous circular "picking table" (see rear cover) at the headworks of the Palmer Shaft until the mine closed. Fine crusher tailings, exclusive to Mill No. 2, along with the waste rock, were disposed of as described above.

The agreement between NJZ and the builders of the Mine Hill Railroad defined a recognizable need to stabilize the trestle due to incompetent sub-grade and side slope conditions beneath and adjacent to the trestle. Without stabilization, effective use of the trestle could not be given. To facilitate this, the agreement permitted NJZ to utilize waste rock from its mine specifically for this purpose. On the premise that the Palmer Shaft was still under construction and not completed, the opencast workings of the Buckwheat and Taylor mine areas were quiet, the Trotter Mine workings were defunct, and all underground haulage ways conveying directly to the Parker Shaft, it a reasonable to presume that the waste rock used to stabilize the trestle came from the workings served by that shaft.

Figure 1. Conveyor at the headworks of the Parker Shaft. Photo from Franklin Mineral Museum archives.

This presumption is reinforced by the character of the minerals found at the trestle. They mirror those once found upon the dumps of the Parker Shaft. It may be conjectured that the material came from the dumps of the Parker Shaft as opposed to having come directly from the conveyor. In addition to recognizable practical difficulties, I would resist such an argument, since the Baum narrative, as I recall it, suggested that the placement of the waste rock, although important, need not be immediate or at least no sooner than the completion of the construction of Mill No. 2, which took several years. I don't recall having encountered an exact date. Everything I am familiar with suggests the trestle work did occur in the very late 1890s or very early 1900s.

FORWARD

There was some local familiarity with waste rock in the railroad bed north of Mill No. 2, as well as at other places along the Mine Hill Railroad, but it was never pursued in earnest with the exception of waste rock dumps just north of the Parker Shaft prior to 1965 or in the old Shuster Park area in the 1970s and early 1980s.

Steve Sanford was the first person to make a serious effort to dig (Fig. 2) into the railroad bed in the vicinity of the trestle, not knowing what was concealed deep within the material in which he was digging. He first encountered evidence of desirable minerals in 1982. In 1983 he brought their presence to my attention, and it was he who inspired me to pursue access to the site for mineral collectors. Access was acquired through the good graces of the late Emanuel Honig, Esq. He was a former New Jersey Zinc Company attorney, a co-founder of the Franklin Mineral Museum, and instrumental in the establishment of the FOMS.

No longer owned by NJZ, the property had been acquired by a chemical manufacturing company represented by Mr. Honig.

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Figure 2. Stephen Sanford at the Mill Site in 1982. This and subsequent photos by the author.

Figure 4. Excavation begins - October 1984.

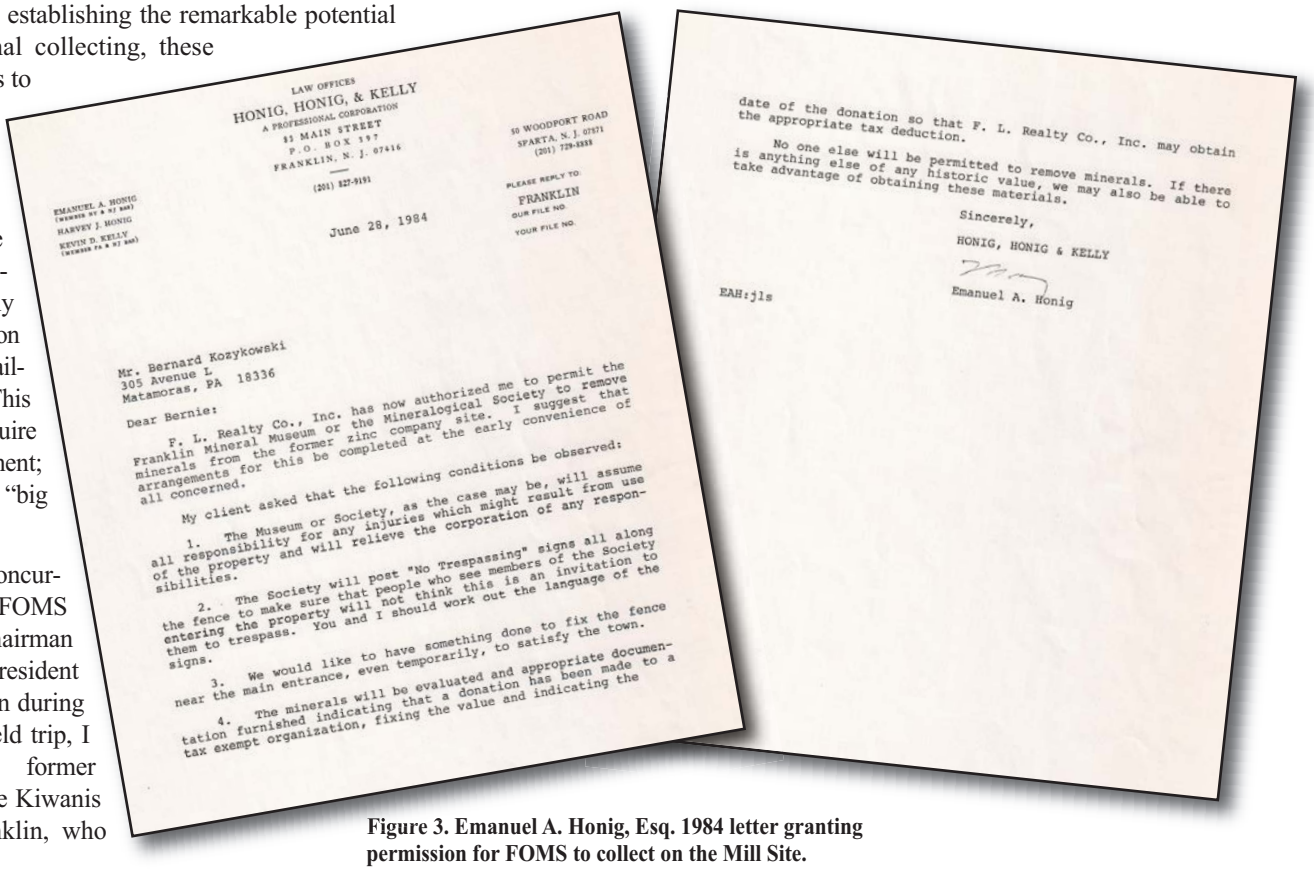
AT FIRST

Permission was first granted in the fall of 1983 to collect mineral specimens on the property, (Fig. 3) at which time the FOMS scheduled its first of several field trips to the site. It was during a FOMS field trip in the fall of 1984 that the potential for collecting truly phenomenal mineral specimens in significant quantity was fully recognized. This began a five-year journey into a mineral-collecting wonderland rivaling the famous Parker Dump that had inspired collectors and research scientists nearly a century before.

In addition to establishing the remarkable potential for exceptional collecting, these first field trips to what quickly became known as the "Mill Site" revealed the need for extensive and ideally deep exploration of the former railroad bed. This would require heavy equipment; this meant "big bucks."

With the concurrence of then FOMS Field Trip Chairman and past-president John Sebastian during the FOMS field trip, I contacted a former member of the Kiwanis Club of Franklin, who was in the excavating business, for assistance. He arrived at the site a short time later to discuss what equipment was available to us. We shook hands pending the approval of Mr. Honig and our ability to acquire the funds to do so. Excavation commenced the following weekend with my having personally paid for the first two days of work, the cost of which was subsequently reimbursed from collecting fees that also provided for future excavations.

The work began on a foggy Saturday morning in mid-October of 1984 with the arrival of a track-mounted excavator with the owner's son, Michael, at the controls (Fig. 4). The beast positioned itself where Steve Sanford had been digging two years previously and began gouging out the earth at our direction, lifting forth bucket after bucket of what we had hoped to find: first dirt, then rock.



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EMANUEL A. HONIG
HARVEY J. HONIG
KEVIN D. KELLY

PLEASE REPLY TO:
FRANKLIN
OUR FILE NO.
YOUR FILE NO.

June 28, 1984

Mr. Bernard Kozykowski
305 Avenue L
Matamoras, PA 18336

Dear Bernie:

F. L. Realty Co., Inc. has now authorized me to permit the Franklin Mineral Museum or the Mineralogical Society to remove minerals from the former zinc company site. I suggest that arrangements for this be completed at the early convenience of all concerned.

My client asked that the following conditions be observed:

1. The Museum or Society, as the case may be, will assume all responsibility for any injuries which might result from use of the property and will relieve the corporation of any responsibilities.

2. The Society will post "No Trespassing" signs all along the fence to make sure that people who see members of the Society entering the property will not think this is an invitation to them to trespass. You and I should work out the language of the signs.

3. We would like to have something done to fix the fence near the main entrance, even temporarily, to satisfy the town.

4. The minerals will be evaluated and appropriate documentation furnished indicating that a donation has been made to a tax exempt organization, fixing the value and indicating the date of the donation so that F. L. Realty Co., Inc. may obtain the appropriate tax deduction.

No one else will be permitted to remove minerals. If there is anything else of any historic value, we may also be able to take advantage of obtaining these materials.

Sincerely,

HONIG, HONIG & KELLY

EAH:jls

Emanuel A. Honig

Figure 3. Emanuel A. Honig, Esq. 1984 letter granting permission for FOMS to collect on the Mill Site.

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UNANTICIPATED DISCOVERY

Within a short time, a huge sawn timber was lifted free from the earth (Fig. 5). This was a complete surprise, totally unexpected, and unexplainable, until I saw two wrought iron bracket arms dangling from the timber. I had seen such brackets before; but where? On a hunch, I did a quick hundred-yard-dash toward the one-time location of the mill's fine crushers, recalling having seen a number of heavy timber trestle sets next to its foundation. Was I correct in what I recalled? Yes! I saw the same brackets. Looking back, I wondered. Could it be possible that over one hundred yards of trestle, or more, lay buried beneath our feet? If so, the potential for finding mineral specimens far beyond our wildest expectations might be realized. As we continued to probe the ground, more timbers appeared, releasing the odor of turpentine as they were broken by the excavator. By the end of the day, we learned that the length of the trestle was nearly twice that of a football field and at its greatest depth of burial, nearly sixteen feet.

Figure 5. The first trestle timber is encountered - note the bracket arms.

THE BIG DIG

The magnitude of our discovery dwarfed our wildest dreams and the ability of our excavator to do what was required next – strip off the overburden. To accomplish this, a Caterpillar 955 Traxcavator was brought to the site the following weekend to strip off the surface (Fig. 6). The following weekend, work continued as fine tailings dumped parallel to the trestle were pushed aside to reveal the waste rock used to stabilize the trestle at the turn of the previous century. October soon ended as did our work to expose the west side of the trestle and the encompassing waste rock from the workings of the Parker Shaft… and so it began.

Figure 6. Stripping away the overburden from the trestle.

MINERAL COLLECTING

The membership of the FOMS, growing ever more aware of "something happening at the Mill Site" had patiently awaited its opportunity to collect. Their chance, one of many to follow, appeared on a cloudy weekend in early November of 1984. Collectors swarmed across the site (Fig. 7) in pursuit of mineral specimens the likes of which had not been collected since the time of the Parker Shaft and its famous dump. The damp, drizzly day did little to discourage collectors totally inebriated with classic Franklin mineral assemblages. Species encountered, in addition to the primary ore minerals of willemite, zincite, and franklinite and their accessory species, included the much more exotic and desirable species such as axinite, clinohedrite, esperite, and epidote-(Pb), to name just a few. It was as if mineral collecting in Franklin had been reborn.

Figure 7. The collecting begins - November 1984.

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How Did a Group of Specimens From Franklin, New Jersey End Up in an Attic in Rocky Mount, North Carolina?

Kenny Gay
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Samuel K. Smith, 1888 – 1979. Photo taken in 1964.

My collection of specimens from the Franklin area began many years ago when my grandfather remembered that there might still be a box of rocks in the attic and I could have them if I could find them. Way back in the early 1960s, I was just a youngster trying to learn all I could about rocks, minerals, and fossils in a town with mediocre resources to offer. The few geology books in the local library had only one name on the check out cards, mine.

Rocky Mount, North Carolina was founded on the so-called Fall Line. The local textile mill had utilized the power of the falls of the Tar River since 1818. The eastern half of town, where I lived, is on the Coastal Plain: good for fossil collecting but bad for rock and mineral collecting. The west side of town, where my grandparents lived, sits on the crystalline rocks of the Rocky Mount Pluton, ideal for rock and mineral collecting. So the area was good for a budding geologist.

My grandfather's name was Samuel Kennedy Smith. He was born in Baltimore in 1888. During his long life he had many different careers, among which he taught English at a small college in eastern Tennessee and worked in the agri-chemical business. It was during his time in the agriculture supply business that this tale begins. Rocks were hard to come by for a 6-year-old living in the Coastal Plain. Throughout my youth I collected rocks whenever I had the chance. I started using my "... grass mowing..." money to buy minerals and fossils through the mail about 1962. These small purchases were always a welcome arrival in the mail.

One of my earliest memories were the weekly Sunday-afternoon visits my mother and I would have with my grandparents. Behind their old house on Howell Street is a dirt alley. This alley was my playground while the grown-ups would sit and talk. Occasionally the city would spread gravel on the alley surface to control the mud. They would use pebbles from local sand and gravel pits rather than crushed stone. In these pebbles were the occasional agate, volcanic rock fragment, and rarely some kind of bone fragment. The alley became a treasured source of collecting.

In 1963, I joined the Boy Scouts and as soon as I was eligible to start working on merit badges I began the work for my geology badge. One Sunday in 1965 as I was completing the requirements for the merit badge, my mother told my grandparents about my efforts to earn the geology badge. My grandfather remarked, almost to himself, "I wonder if those old rocks are still in the attic."

"What old rocks?" I asked. He then told me a story I had never heard before. He told me about his days in the agriculture supply business. He said with a laugh that he was a fertilizer salesman. He told me about purchasing phosphate from pits in South Carolina, processed minerals from mines in Virginia and Georgia, and zinc products in New Jersey. He commented that occasionally the mine personnel would give him samples of the unprocessed ore in appreciation for his purchases. To a twelve-year-old, stories about big shark teeth he saw in South Carolina and the heavy green, red and black rocks from New Jersey were fantastic tales.

He thought the rocks were in the attic and if I wanted them, I could just go up and get them. My mother didn't want any part of this. The thought of my crawling around in an old attic with no floor in it scared her to no end. But there was no stopping me at this point. The thought of hidden treasures in the attic was too much. There was no pull-down stairway into the attic, just a hole in the ceiling with a board over it. After several attempts at using piles of books on a chair (there were always lots of books in my grandparent's house), someone suggested we find a stepladder.

My great-uncle lived next door and owned a ladder. I quickly borrowed it, positioned it beneath the access hole and up the ladder I went. With my mother's warnings ringing in my ears, I pushed the board aside and peered in the dark attic. After finding a flashlight, I could see several wooden boxes sitting on the ceiling beams in the back of the dark space. I crawled over to the boxes; each one was filled with rocks of all sizes, each wrapped in old brown paper. Jackpot! Only one problem: the boxes were too heavy for me to move. Using several old shoeboxes I moved a few rocks at the time over to the access hole and handed each load down to my still-protesting mother. Finally, all the rocks were down and we brought the wooden boxes down also. It was getting late, so I loaded the old Chevy up and we said our goodbyes.

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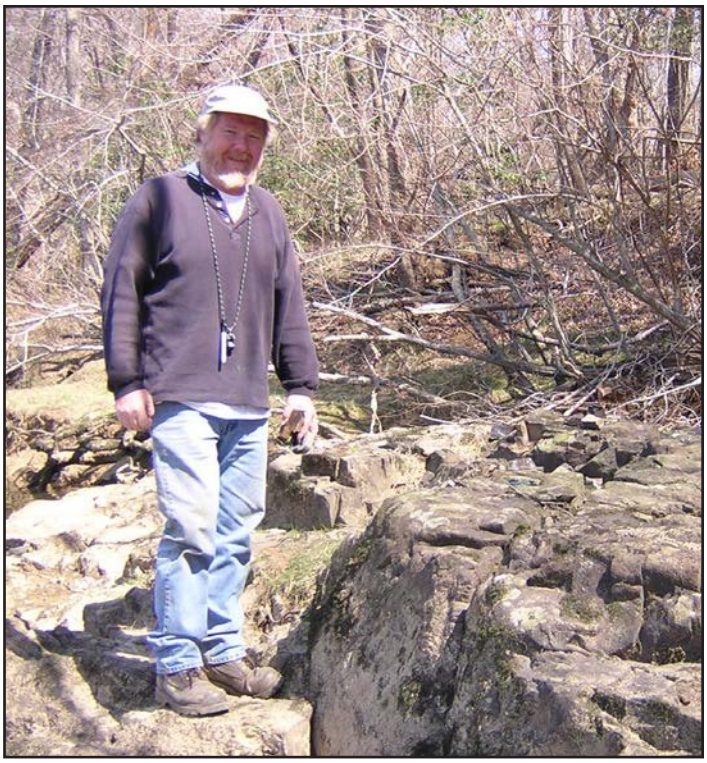
Back at home I started unwrapping; in my excitement, I had not noticed the writing on the old brown paper. One of the first pieces I unwrapped was a shark tooth that filled my twelve-year-old hand. Piece after piece of green, red, white and black rocks soon covered my bedroom floor. I wondered aloud, "What are all these ?" Finally my mother noticed the writing on the old brown and very brittle paper. The names willemite, calcite, franklinite, zincite all were there; names I had only read about in library books. These rocks were now sitting on my bedroom floor. Before I could get all the samples out of the trunk of the car, it was time for bed, always a strict rule in my mama and daddy's house. The rest would have to wait until after school on Monday. Needless to say, I didn't get much sleep that night, and heard nothing the teacher said that Monday in school. Monday was my dad's day off, so after school I peddled home as fast as my legs and that old bike could go. Dad had gotten all the samples out of the car and spread them out on the picnic table in the back yard. Before dark we had everything unwrapped and had recorded the label information from each one onto index cards. Some specimens simply had a mineral name on the label, while others had more details, like "Parker Shaft."

With literature resources limited, it wasn't until I was a freshman geology student in college that I was able to learn about the Franklin and Sterling Hill deposits, and the incredible mineralogy there, in some depth. The university geology department didn't have an ultraviolet lamp. I finally purchased a used dual longwave and shortwave lamp in 1976, and then the true surprise of the attic rocks came to light. After my grandmother's death in 1975, my grandfather began to alternate living with my mother and my three aunts. My grandfather would spend three or four months at the time with each daughter. While at home, on breaks from grad school, I would sit and talk with my grandfather. One day he asked me about those old rocks in his attic and I told him about how amazing they really were. On one visit home, I took my UV lamp and a selection of the attic rocks home and we sat for an hour or more looking at the fluorescent wonders. He had never seen "rocks that glowed" and was amazed that his attic rocks so ordinary in plain light were so beautiful under "that purple light". At nearly 90, his memory wasn't good, but he thought he had acquired the samples prior to 1925. The surprising thing to me, then and now, is that someone who wasn't a mineral collector would have moved those heavy wooden boxes from Charlotte, North Carolina, where my mother was born in 1922, to Cheraw, South Carolina and then to Rocky Mount.

Granddaddy died in October 1979, a few days after my birthday and a few months before I finished my graduate work. In all there were 105 Franklin specimens in that attic on Howell Street, all of which I still have. There are twenty-two willemite specimens, one exhibiting incredibly long phosphorescence, sphalerite, esperite, rhodonite, zincite including crystals, franklinite crystals, clinohedrite, and hardystonite. In all, thirty-two different species were in that old attic.

My grandparents and parents are gone now, and I don't get over to Rocky Mount much anymore, but on those occasions when I do, I always smile when I ride by that old house on Howell Street.



Geologist Kenny Gay at work.
North Carolina Geological Survey photo.

Well formed octahedral franklinite crystal with minor dodecahedral faces. The crystal is 1 inch on edge, collected about 1920. Buckwheat open cut, Franklin, New Jersey.
Kenny Gay specimen and photo.

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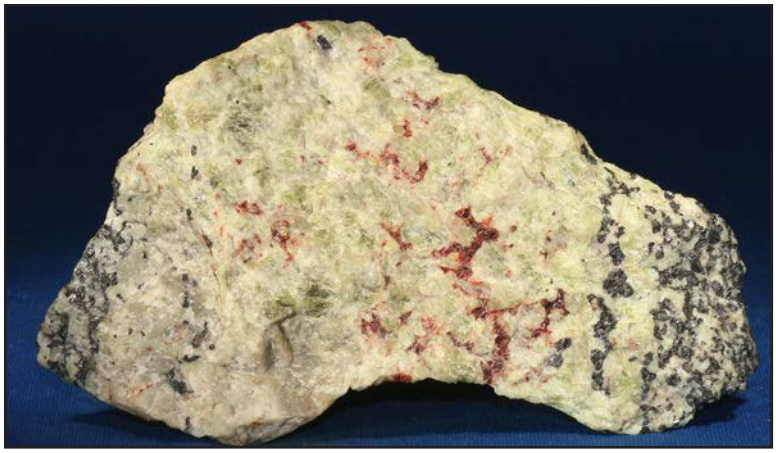
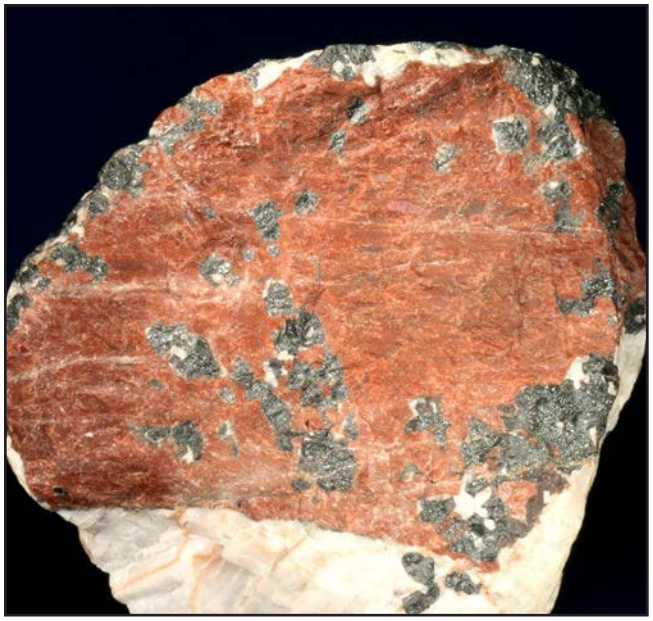


Rich apple-green, granular willemite with very bright fluorescence, collected about 1920. Specimen is 4 inches across. Franklin, New Jersey.
Kenny Gay specimen and photo.



Silky, dark-red willemite in calcite, collected about 1920. Specimen is 4 inches across. Franklin, New Jersey.
Kenny Gay specimen and photo.

Numerous zincite crystals, the largest about 4/10 inch high, embedded in franklinite, collected about 1920. Buckwheat open cut, Franklin, New Jersey.
Kenny Gay specimen and photo.

Sharp rhodonite crystals, large crystal is 1 inch across, embedded in calcite, collected about 1920. Specimen is 4 ½ inches across. Franklin, New Jersey.
Kenny Gay specimen and photo.

A thin seam of white, radiating prismatic willemite, with "all night" phosphorescence, collected about 1920. Specimen is 3 ½ inches across. Buckwheat open cut, Franklin, New Jersey.
Kenny Gay specimen and photo.

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Coaxing Long-Held Secrets From Precambrian Rocks of the New Jersey Highlands

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INTRODUCTION

How old are the rocks in the New Jersey Highlands? What is the age of the Franklin Marble? When were the zinc deposits at Franklin and Sterling Hill formed? For more than a century researchers have pondered these questions (e.g. Wolff and Brooks, 1898; Hague et al., 1956), and while they long suspected the rocks in the Highlands were the oldest in the state, until recently no one knew just how old. So why after all this time should anyone care how old the rocks are? The most obvious answer is that scientific inquiry is an important part of our lives and a priority we must instill in the next generation entrusted with the care of our planet. More to the point, rock and mineral dating (known as geochronology) is a very powerful tool, and it works. More than one hundred years of study failed to provide information on the age and tectonic environment of formation of the Franklin Marble, the geologic relationship of marble to other rocks in the Highlands, or the age of formation of the zinc deposits. Two years of geochronology accomplished this and much more.

Considerable progress has been made in deciphering the complex geology of the Precambrian rocks of the Highlands, particularly in the last twenty-five-years through detailed bedrock geologic mapping and geochemical studies by the New Jersey Geological Survey. While this research resulted in the development of a comprehensive geologic framework for the Highlands, limitations imposed by the lack of high-precision geochronology rendered much of the work speculative. Just when it appeared the end of the geologic road had been reached, The Franklin Mineral Museum, Franklin-Ogdensburg Mineralogical Society and, to a lesser extent, Sterling Hill Mining Museum, through the efforts of the second author, took steps to insure that research into the complex geology of the Highlands would not end. Their support is directly responsible for the significant gains that have been made in unraveling the geologic evolution of the Highlands and of the unique zinc deposits at Franklin and Sterling Hill. A comprehensive summary of results of the geochronologic research (Volkert et al., submitted) will be published in 2010 in a Geological Society of America Memoir on the geology of the Appalachian Mountains. The present article is intended to provide a more concise summary of what we have learned.

GEOCHRONOLOGY

Geochronology is the science of dating geologic events by determining the age of the rocks or minerals that characterize a particular event or series of events. The technology to date whole rocks or certain minerals using radiogenic isotope pairs such as uranium-lead (U-Pb), rubidium-strontium, samarium-neodymium, or potassium-argon has been around for decades. The idea behind the technique is that isotopes of different elements decay at known rates, enabling an age to be calculated from values of these ratios measured in a laboratory on a mass spectrometer. For dating rocks, the U-Pb method has proven to be vastly superior, especially when a mineral such as zircon or monazite is used, because these minerals lock in the age of their origin and are not typically reset by later geologic events. The U-Pb method of dating rocks is an effective means of determining the age of ancient rocks, particularly those that have been metamorphosed or have undergone a lengthy and complex geologic history. Such is the case with Precambrian rocks of the New Jersey Highlands. Zircon and monazite grains in these rocks contain cores, mantles and overgrowth rims all of which were formed at different times (Fig. 1). Single-crystal U-Pb geochronology using the sensitive high resolution ion microprobe (SHRIMP) yields very precise ages of rocks because spot analyses can be performed anywhere on a zircon or monazite grain. Consequently, the entire history of the grain, and by proxy of the entire rock, can be learned from the time of its formation (age of the core) through each event that has subsequently affected it (ages of mantles and rims) (Fig. 2). Because of the complexity of zircon and monazite grains in rocks of the Highlands, attempts to date them using anything except the high resolution SHRIMP method would yield erroneous information about their age. All SHRIMP analyses on the New Jersey rocks were performed by John Aleinikoff of the U.S. Geological Survey, Denver, Colorado (Fig. 3) using the SHRIMP at Australian National University, Canberra, Australia.

RESEARCH GOALS

The selection of rocks in the Highlands for geochronology was based not only on their ability to provide the most important information, but also the maximum amount of information from a single sample. Research goals were designed to address the following: 1) age of the

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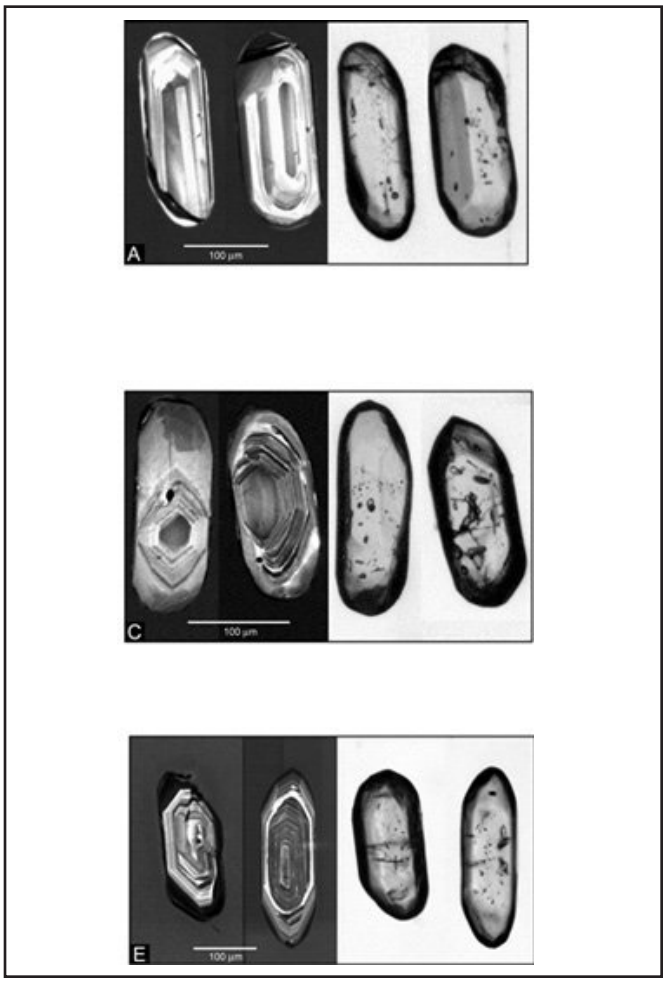

Figure 1. Examples of complexly zoned zircons from Precambrian rocks of the New Jersey Highlands analyzed for this study. Zircons on the right are shown in transmitted light and the same grains are shown on the left in backscattered light. Bar on left for scale.

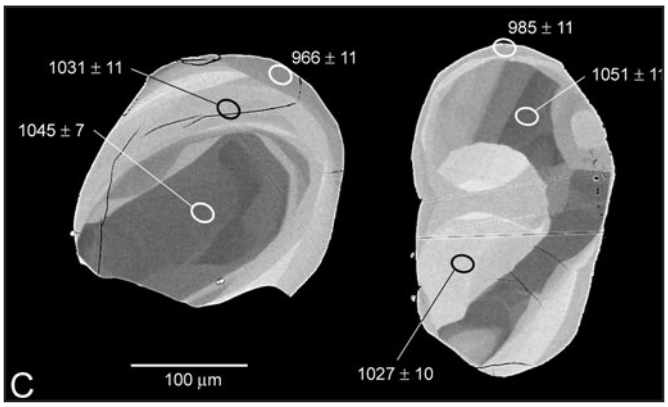

Figure 2. Examples of monazite grains analyzed for this study shown in backscattered light. Both grains display multiple age domains that record the complete history of growth of the monazite during high-grade metamorphism. Cores of the grains have ages of 1051 to 1045 million years, mantles are 1031 to 1027 million years, and rims are 985 to 966 million years.

Figure 3. Relaxing in front of the Franklin Mineral Museum after a day's collecting are, from the left, John Aleinikoff and Scott Southworth (U.S. Geological Survey), Fred Young and Rich Volkert. Photo by Carol Grazevich.

Franklin Marble, 2) geologic relationship of marble to gneisses it is spatially associated with, 3) geologic relationship of marble to rocks of the Losee Suite, 4) age of deposition of zinc, iron and manganese in the precursor of the marble, 5) age of granites in the Highlands and their possible influence on the origin of the zinc deposits, and 6) age of metamorphism of marble and metals in the zinc deposits into their present high-grade mineral assemblage. Determining the age of the Franklin Marble was considered the top priority. Although the marble could not be dated directly because it lacks the appropriate minerals, gneisses interpreted to be metamorphosed rhyolitic volcanic rocks that are in contact with the marble do provide an age because they contain abundant zircon. Detailed geologic mapping suggests that Franklin Marble and these gneisses were either formed at the same time or the gneisses were emplaced into the limestone precursor of the marble after sedimentation, and so the marble may actually be slightly older. Either way, determining the age of the gneisses provides critical information on the geologic environment in which the marble and gneisses were formed. Furthermore, because the zinc, iron and manganese metals were likely being deposited at the same time as the limestone precursor of the marble, knowing the age of the marble establishes the timing of input of these metals into the limestone precursor of the marble.

Determining the age of other rocks that are associated with the marble, such as the Losee Suite and granites of the Byram and Lake Hopatcong Suites, is critical in deciphering the geologic evolution of the Highlands at a time before, during, and after the formation of the marble. Last, but certainly not least, determining the age of metamorphism of the marble and Zn-Fe-Mn metals indicates precisely when the present high-grade mineral assemblage of the zinc deposits was formed. It became apparent that if geochronology was successful in providing just one of piece of the puzzle, then more pieces would begin to fit into place.

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Figure 4. John Aleinikoff and Rich Volkert box a sample at the Eastern Concrete Products Hamburg Quarry. Plant Manager Mike Benza is in the background.
This and subsequent photos by Fred Young.

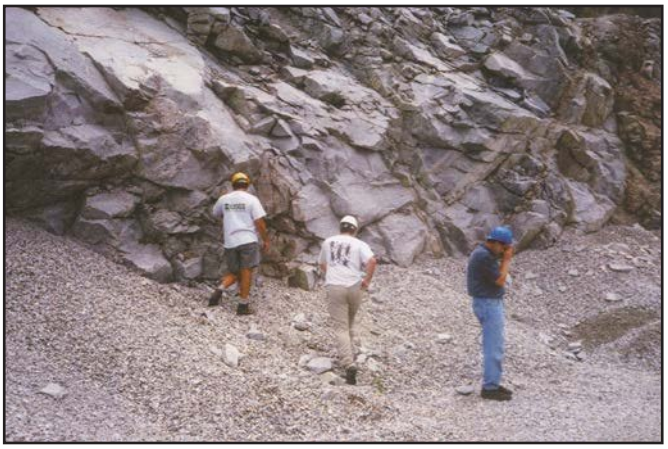

Figure 5a. Collecting a sample of the Losee Suite from a quarry face at the Hamburg Quarry.

Figure 5b. Admiring a block of folded calc-silicate rock and marble outside of the scale house at the Hamburg Quarry.

Figure 6. Rich Volkert and John Aleinikoff collect a sample of the Losee Suite from a fresh exposure in the Pimple Hills.

ROCKS DATED

Five samples of representative metavolcanic and metaplutonic rocks of the Losee Suite were collected for U-Pb geochronology (Fig. 4). These included white to light gray, medium-grained, foliated quartz-plagioclase ± biotite gneiss from the Hamburg quarry (Fig. 5) in the western Highlands, collected in 2004; medium-grained, greenish-gray, foliated quartz-plagioclase ± clinopyroxene, hornblende and hypersthene gneiss from the Ogdensburg area (Fig. 6) in the western Highlands, collected in 2004, medium-grained, greenish-gray, massive-textured, foliated hypersthene diorite from West Milford in the eastern Highlands, collected in 2005; and two samples of greenish-gray, medium-grained, foliated quartz-plagioclase ± biotite and hornblende gneiss from the Wanaque area in the eastern Highlands, collected in 2006 and 2007.

Three samples of metarhyolite in contact with marble layers in the western Highlands were collected for U-Pb geochronology to provide an age for the timing of carbonate sedimentation of the precursor of the Franklin Marble, and an age for the formation of the unique marble-hosted Zn deposits. These included; pinkish-gray, medium-grained gneiss composed of microcline microperthite, plagioclase, quartz, biotite, and garnet structurally above the Franklin Marble band at the Limecrest quarry (Fig. 7), collected in 2004; light-gray, medium-grained gneiss composed of microcline microperthite, plagioclase, quartz, and biotite structurally beneath the Wildcat Marble band near Andover, collected in 2005; and medium-grained, buff gneiss composed principally of microcline microperthite, plagioclase, quartz, and biotite structurally beneath the Franklin Marble band and the Buckwheat open cut at the Franklin Zn deposit, collected in 2007.

GRANITE SUITES

Granitic rocks analyzed included two samples of hornblende granite of the Byram Suite, one each from the western and eastern Highlands, collected in 2005 and 2006, respectively, and one sample of clinopyroxene granite of the Lake Hopatcong Suite from the western Highlands, collected in 2006. The age of these rocks is important in deciphering the magmatic and tectonic history of the Highlands because field relationships suggest the granites intrude rocks of the Losee Suite, Franklin Marble and metasedimentary and metavolcanic gneisses, implying that the granites are younger.

Rocks of the Byram Suite are pinkish gray or pinkish white, medium

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Figure 7a. Pinnacle of rock at the Limecrest Quarry exposing the contact between Franklin Marble on the right and metarhyolite on the left.

Figure 7b. Scott Southworth and John Aleinikoff collect a sample of metarhyolite from the Limecrest Quarry while Rich Volkert acquires Global Positioning System (GPS) data.

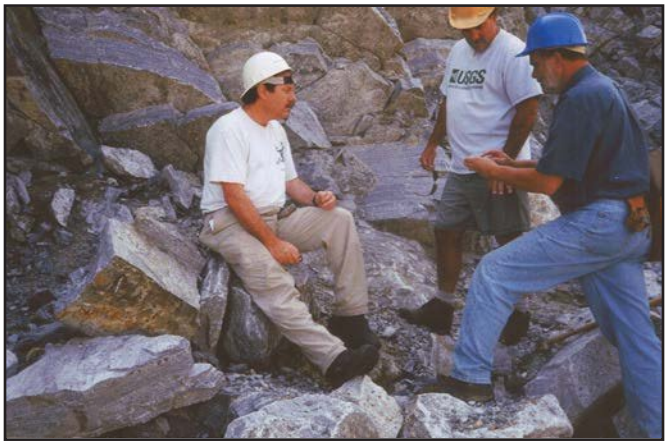

Figure 7c. John Aleinikoff, Scott Southworth and Rich Volkert confer after collecting the first sample on the first day at the Limecrest Quarry. A sample of the metarhyolite is on display at the Franklin Mineral Museum.

to coarse grained and well foliated. They contain hornblende (hastingsite) ± biotite, quartz in varying amounts, and the feldspars are mainly mesoperthite, microcline, and oligoclase. Iron-titanium oxide minerals include magnetite and ilmenite. Rocks of the Lake Hopatcong Suite are greenish gray or pinkish gray, and medium to coarse grained. They contain clinopyroxene (hedenbergite), variable amounts of quartz, and the feldspars are primarily mesoperthite and oligoclase, and less commonly microcline microperthite or microantiperthite. Iron-titanium oxide minerals include ilmenite and magnetite, and pyrite, zircon, titanite, and apatite are less abundant accessory minerals. Despite the difference in their mineralogy, Byram and Lake Hopatcong granites have very similar geochemical compositions.

RESULTS

1) Losee Suite

Quartz-plagioclase gneiss from the Wanaque area in the eastern Highlands was dated at 1366 million years, and these gneisses (named the Wanaque tonalite gneiss) are presently the oldest recognized rocks in New Jersey. They comprise the older part of the Losee Suite that formed in a continental-margin magmatic arc along the ancient eastern North American margin (Fig. 8). The younger part of the Losee Suite includes regionally widespread 1280 to 1250 million-year-old metamorphosed plutonic (diorite, quartz diorite, tonalite, trondhjemite) and volcanic (basalt, andesite, dacite, minor rhyolite) rocks. Both parts of the Losee magmatic arc are the southern continuation of magmatic arcs formed along eastern North America prior to 1200 million years. Magmatic arc rocks of similar age and composition to the Losee Suite are found in the Green Mountains in Vermont, Adirondack Mountains in New York and Grenville Province in southeastern Canada.

2) Franklin Marble and zinc deposits

Synchronous sedimentation and volcanism characterized an ocean basin known as a back-arc basin (Fig. 8) that formed by extension of continental crust along the eastern North American margin. Metarhyolite samples from the Highlands yielded ages of 1299 to 1255 million years, providing lower and upper limits, respectively for the age of the metasedimentary and metavolcanic gneisses and marble. Equally important, metarhyolite associated with the Franklin Marble band was dated at 1299 to 1294 million years, constraining the timing of Zn-Fe-Mn metal deposition in the limestone precursor of the Franklin Marble. Given that rocks older than 1299 million years are not found in the Highlands outside of the Wanaque area, an age of 1299 to 1294 million years is interpreted for the Franklin Marble. Overlapping ages of the marble and gneisses and of rocks of the Losee Suite indicate that all were forming at about the same time, although in different tectonic settings (Fig. 8).

3) Granite suites

Granite of the Byram Suite was dated at 1184 million years and granite of the Lake Hopatcong Suite at 1188 million years. Both ages are nearly identical given the error margin of ± 8 million years. Intrusion of Byram and Lake Hopatcong granites at about 1185 million years followed the termination of magmatism associated with the Losee arc. Emplacement of these granite suites overlaps the timing of emplacement of the older parts of granite suites in the Adirondack Mountains and the Canadian Grenville Province.

Based on the similar field relationships and geochemical compositions of the Byram and Lake Hopatcong Suites, they were tentatively

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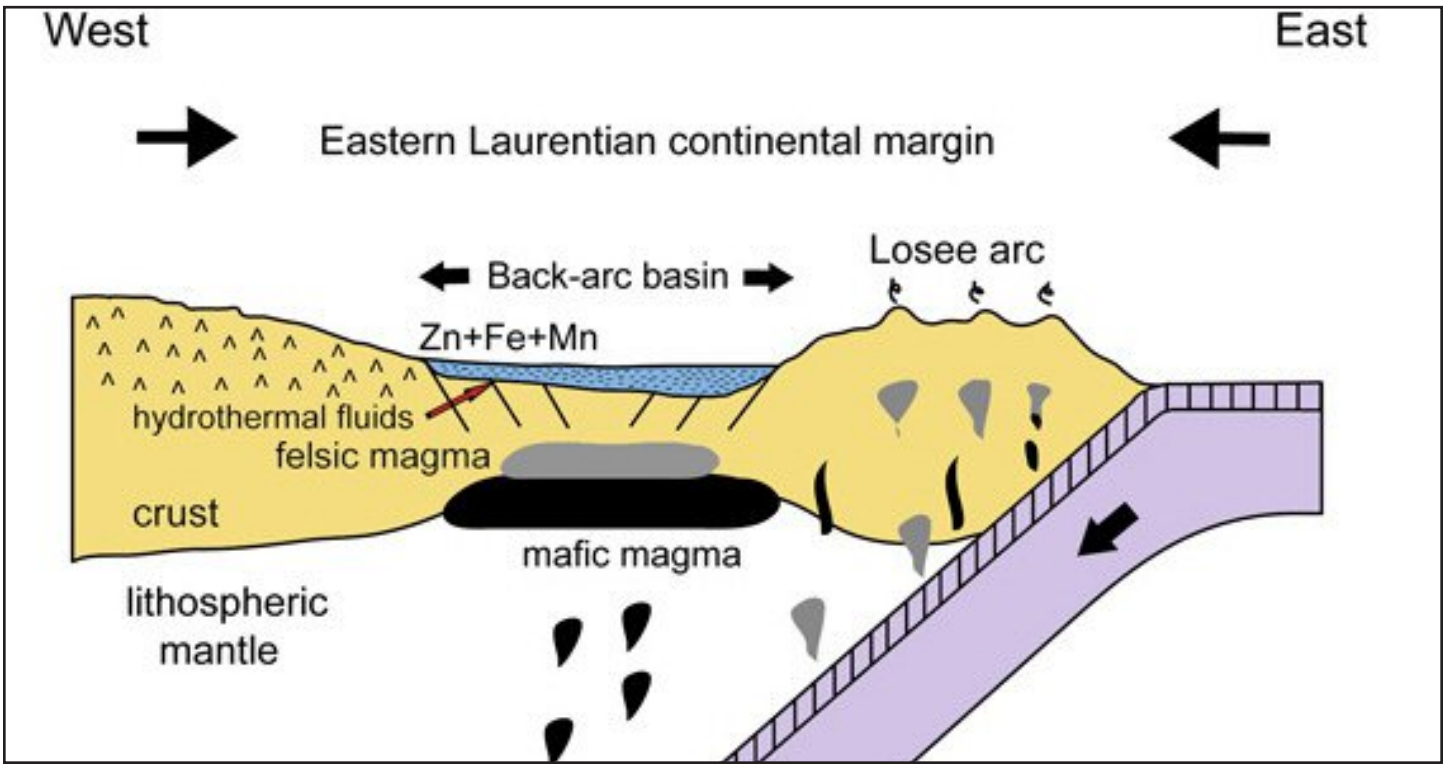

Figure 8. Figure showing the setting of the future New Jersey Highlands at 1300 to 1200 million years, prior to the collision of the ancestral North American (Laurentian) and South American continents. West and east are by present coordinates. The Losee magmatic arc (gold) formed at the edge of the continental margin above subducting ocean crust (lavender), similar to the present-day Andes Mountains in South America. At the same time, extension of the continental crust to the west (gold) opened a back-arc basin (blue) into which carbonate and other sedimentary and volcanic rocks and Zn-Fe-Mn metals were being deposited.

grouped together into the Vernon Supersuite (Volkert and Drake, 1998), named for the type location on Hamburg Mountain in Vernon where all variants of both suites are exceptionally well exposed and overlap spatially. Results of the present geochronologic research support the assignment of these granites into a supersuite, as well as the interpretation that both suites share a common geologic history. Furthermore, the age of the Byram and Lake Hopatcong Suites suggests they had little influence on the formation and mineralogy of the zinc deposits. However, pegmatites derived from these granites dated at 986 million years, such as Double Rock (Volkert et al., 2005), were important in forming a variety of minerals where they intruded the west limb of the Zn ore deposit at Franklin (Frondel and Baum, 1974).

4) Metamorphism

Rocks of the New Jersey Highlands were metamorphosed at 1050 to 1025 million years. Recent work by Peck et al. (2006) confirms the earlier work of Carvalho and Sclar (1988) in showing that the Franklin Marble and the metals in the ore deposits were metamorphosed at a temperature ≥769°C, well within the range of granulite facies conditions. During this metamorphic event, the limestone precursor of the Franklin Marble and the Zn-Fe-Mn metals in the limestone were converted into their present high-grade mineral assemblage, the rocks developed their characteristic mineral banding and they were complexly folded. Thus, 1050 to 1025 million years is the actual time of formation of the world-famous Zn deposits at Franklin and Sterling Hill.

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Some Notes on the Rediscovery of a Novel Fluorescent Mineral Assemblage From The Franklin Mine, Franklin, New Jersey

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INTRODUCTION

Part of what make the Franklin and Sterling Hill deposits so fascinating and significant is the abundance of unusual, unique, and beautiful mineral assemblages that reveal themselves best under ultraviolet light. Many of us were first drawn towards the mineralogy, geology, and history of this area through seeing the magic of mineral fluorescence. Often mineral assemblages and species which show spectacular reactions through being excited by electromagnetic radiation of the ultraviolet spectrum are anything but spectacular in daylight. They are often drab shades of gray or brown, usually poorly crystallized, and devoid of flashy color or interesting patterns that define the usual aesthetic value in minerals. Before the development of practical sources of ultraviolet light in the 1920s, many significant and unique specimens were all but wholly ignored by miners and even educated company personnel and visiting mineralogists because people simply were not aware of the incredible luminescent properties contained within these minerals. This article describes and serves to shed light on one such assemblage from the Franklin Mine that until recently was all but ignored by collectors and mineralogists. In addition to being aesthetically pleasing under ultraviolet light, this assemblage proved to be chemically complex as well as mineralogically diverse.

HISTORICAL CONTEXT

In the early summer of 2003, at the June board meeting of the Franklin Mineral Museum, Mr. and Mrs. Louis S. Cherepy announced the donation of roughly a third of an acre of their property on the south side of Taylor Road to the Franklin Mineral Museum. This site, situated on a hillside between Buckwheat Road and Rt. 23, was the site of the east terminal of the Taylor Mine aerial tramway, an overhead tram conveyor constructed in 1907 and used for the transportation of waste rock from the Taylor mine to this site. In later years, this wooden tower was destroyed by fire, leaving a pile of rock that, an aerial survey from 1938 indicates, was about eighty feet high. Today a twenty foot-high pile of rock remains at the site, as well as traces of the tower's foundation. The Taylor mine was the northeastern underground extension of the Buckwheat Open-Cut part of the Franklin Mine, and was active from around the early 1860s up until about 1922. The Taylor Mine consisted mainly of a horizontal drift driven back into the footwall of the east limb of the orebody and accessed by an adit on the floor of the far northern part of the Buckwheat open-cut. This drift extended back about 200 feet northeast and then opened up into one of the largest unsupported underground spaces in all the workings of the Franklin Mine: a spectacular stope measuring over 200′ x 150′ in area x 60′ high which mined one of the widest and richest parts of the east limb of the Franklin Orebody. Other workings consisted of several small, shallow inclined shafts that were driven early in the mine's history to assess the dimensions and location of the orebody and provide some initial incentive for further work. Today most of the workings of the original Taylor Mine are thoroughly obscured by the effects of time in the form of water, subsidence, and vegetation. The rising water table has sadly long reclaimed the Buckwheat Open-Cut and all connected underground workings; the only real remnant of the Taylor Mine besides the tramway foundations is a small, approximately 80′ by 50′ waste-rock dump immediately west of the intersection of Buckwheat and Taylor Roads. This site, owned by the Franklin Mineral Museum, has been the sight of frequent "poaching" over the years by collectors; but is private property and should be respected as such. The Taylor Mine has always remained a bit of an enigma in the Franklin-Sterling Hill Mining District; even among seasoned locals, little is known on its history and mineralogy/geology, and it certainly is heavily overshadowed by its more famous neighboring Franklin Mine workings, such as the Parker and Trotter Mines. This lack of collecting and historical attention from Franklin-Sterling Hill aficionados likely contributed to such beautiful and unusual assemblages as this was virtually ignored for many years while collectors focused on more well-known occurrences.

Since the acquisition of the Taylor Road property from the Cherepy family by the Franklin Mineral Museum (FMM), a number of people as well as the Franklin-Ogdensburg Mineralogical Society, Inc. (FOMS) have obtained permission through the museum to collect specimens from the site. (see Fig. 1)The author first became aware of the collecting potential of this site and its acquisition by the Museum in early fall of 2003, and obtained permission through the late Mr. John Cianciulli, FMM Curator, to collect at the site. During the course of this initial collecting trip at the site, a large boulder of what appeared to be high-grade, mostly franklinite/willemite ore, measuring about 2′ x 4′ and weighing in excess of several hundred pounds, was located on the hillside of the Taylor Road site, adjacent to the property boundary with the neighboring house and road. This boulder was partially dismantled, and a number of specimens from it brought to the FMM for identification. Curator John Cianciulli identified the specimens as containing sphalerite var. cleiphane, fluorite var. chlorophane, willemite, franklinite, apatite-

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(CaF), calcite, and several unidentified minerals. Later study of this material and submission of samples for quantitative analysis showed the existence of gahnite, pyroxmangite, and an unclassified pyroxene phase as well. A mineral that may be scheelite has also been noted in the assemblage, and is pending identification and analysis as of this writing. The following is a list of the species thus far identified as having been found in this occurrence, with notes on both the fluorescent responses as well as daylight description. This is by no means a formal study, but is meant to serve as a collecton of informal observations on this unusual and quite possibly unique assemblage. A number of FOMS members have collected/purchased/traded similar material in the past, and this find has aroused interest among fluorescent mineral collectors from outside of our area as well. Aficionados of both fluorescent minerals and the geology/mineralogy that makes our area so unique have shown interest in this rediscovered assemblage.

GENERAL OBSERVATIONS

To aid in the understanding of the broader mineralogical relations, textural features, and overall composition of this assemblage, it is appropriate to make broader remarks on this find. One of the first observations one makes when studying this assemblage is the fairly uniform, consistent textural form and overall color of the species present. When seen weathered and exposed at the site, all of the specimens observed by the author showed a dark gray to black appearance overall, and had a compact, uniformly fine-grained texture for the most part. The exterior surface of these weathered ore boulders would occasionally be punctuated by veins and blebs of waxy-yellow to white sphalerite, along with translucent white fluorite, having lost its distinctive "chlorophane" red color due to sunlight exposure. When examined more closely, what was first taken to be largely franklinite lacked a metallic luster and was extremely fine-grained; much of this has been proven to be a gahnite-series phase often associated with pyroxmangite. There is some franklinite and magnetite present, but this is not as large a constituent of the assemblage as the gahnite/pyroxmangite/pyroxene phases appear to be. Willemite is fairly ubiquitous, occurring as nondescript small grains and blebs of a generally dark-green to gray color. The only daylight colors that really contrast against the overall gray to black appearance is the occurrence of fluorite or sphalerite in appreciable concentrations. Otherwise, the assemblage in daylight, as seen by the casual observer, is wholly nondescript and hints little at its deeper mineralogical and chemical complexity.

SPECIES THUS FAR IDENTIFIED

Sphalerite, ZnS: sphalerite from the Taylor Road Site occurs as veins, masses, and blebs up to 5 cm across, and aggregates of individual grains up to 10 cm across. It is usually light yellow to colorless in daylight, and has a distinctive luster and cleavage where freshly broken. Occasionally, it will occur as thick, massive veins in matrix up to 4.5 cm wide, but more commonly occurs as small, colorless to white, waxy-looking grains less than 5 mm across, disseminated in the ore. All sphalerite from here is the iron-free variety described by Palache as clieophane, with the colorless material being most pure. Sphalerite from the Taylor Road Site exhibits remarkable properties under ultraviolet light. Under shortwave, midrange, and longwave UV light sources, sphalerite fluoresces burnt-orange, pink, blue, yellow, and cream-white color with numerous shades in between. The fluorescence appears brightest under midwave and longwave UV light in most specimens, but some exhibit a strong response under shortwave UV as well. There appears to be a general but not definitive correlation between the sphalerite form and associations and the fluorescent response. Almost all of the coarsely crystallized, daylight silver-yellow sphalerite forming thick veins and large masses in matrix fluoresces only in shades of orange-red, and brightest under mid-wave UV, which is unusual for Franklin sphalerite. Much of the sphalerite from the Taylor Road site occurs as widely disseminated, sub-mm grains in willemite and apatite-(CaF)-rich ore, and this sphalerite is usually most apt to exhibit the striking blue and pink fluorescent responses; best under shortwave UV. Rarely, some of the grains in rich aggregates of this type of sphalerite will fluoresce a brilliant cream-white, akin to the fluorescent response of very pure scheelite. Some of this may actually be scheelite; analysis is pending. One 2 x 2 cm sphalerite grain may exhibit several fluorescent hues. A correlation between the intensity of the fluorescence and the color of the sphalerite in daylight seems to exist, with colorless sphalerite fluorescing brightest. The Taylor Road site has yielded some of the finest fluorescent sphalerite thus far found at Franklin, and it can be considered a common species in the assemblage. It has been observed in association with all species described in this assemblage.

Fluorite CaF_2: all observed fluorite from the Taylor Road site is of the unusual "chlorophane" variety, which exhibits a distinctive strong, deep red color in daylight when freshly exposed which fades to colorless after several days of direct sunlight exposure. It occurs as translucent, subhedral grains up to 1 cm across, and in aggregates up to 10 cm across in the ore, associated with all species described in this article. Fluorite from the Taylor Road site exhibits remarkably diverse luminescent, heat-and-stress-induced, and solar properties; arguably the most unusual and spectacular of any species in this assemblage. This fluorite fluoresces a moderate blue-green color under shortwave ultraviolet light, and freshly exposed specimens will exhibit a sustained phosphorescence of up to several minutes after removal of the light source. Fluorite from here is also very triboluminescent, and on night-collecting trips the fluorite reveals itself through showers of green sparks from hammering it. It exhibits irreversible thermoluminescence as well, when heated to several hundred degrees centigrade will glow green, but will loose its green-luminescing properties after heat exposure. Fluorite from this site that has been exposed on the surface of the dump appears white to clear in daylight, and fluoresces a dull cream color, best under longwave UV light. Numerous fine, large specimens rich in this curious fluorite variety have been collected on the Taylor Road site, and it is moderately common, perhaps more so than in any other known assemblage from the Franklin Mine.

Apatite-CaF $Ca_5F(PO_4)_3$: an interesting and noteworthy apatite-(CaF) occurrence has been identified in this assemblage. Apatite-(CaF) occurs as small grains usually less than 3 mm in the ore, in aggregates of grains to several cm and apparent "veins" up to 3 cm thick and 30 cm long as well. It is of uniformly dull luster and medium gray in color in daylight, and often is difficult to distinguish in daylight as it usually is intimately associated with sphalerite, willemite, gahnite/pyroxmagnite, franklinite, and fluorite. Apatite-(CaF) from here fluoresces orange, showing the brightest response under midwave UV light, with some of the most intense fluorescence for the species observed by the author in specimens from the Franklin mine, akin to the "Svabite" apatite-(CaF) of old.

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Moderate orange fluorescence was also observed under shortwave UV light. Apatite-(CaF) often forms thin, parallel veins through either fluorite-rich or willemite-dominant ore, and can be difficult to distinguish without a midwave UV lamp from the sphalerite with which it is often found. Apatite-(CaF) can be considered moderately common in this assemblage.

Willemite, Zn_2SiO_4: willemite is fairly ubiquitous in this assemblage, but some specimens from what appears to be the same assemblage contain little to no willemite. Willemite occurs in small, vitreous, gray-to-white subhedral grains usually less than 2 mm in maximum dimension, intimately associated with most of the species herein described, especially the nonfluorescent gahnite/pyroxmangite/franklinite that constitutes the volumetric bulk of this assemblage. It fluoresces a fairly dark green color, best under shortwave UV light, but of a shade and intensity that is fairly subdued for Franklin Mine willemite. The fluorescence is akin to that of Sterling Mine "black willemite", and hematite/gahnite inclusions may be responsible for the daylight color and weak fluorescence of this willemite. It occasionally forms what appear to be rough exsolution lamellae patterns along cleavage planes of gahnite/pyroxmangite, in the sphalerite-poor, apatite-(CaF) and fluorite-rich ore from this assemblage. It can be considered very common in this assemblage.

Franklinite, $(Zn, Mn, Fe)^{2+}(Fe, Mn)_2^{3+}O_4$: franklinite, first thought to be a major constituent of this assemblage, appears now to be much rarer than first surmised. This would help explain a perplexing situation; the vast majority of specimens of this assemblage found on the Taylor Road site came from large (2′ x 2′) boulders of what appeared to be very rich ore, and what's more, these boulders were fairly numerous. How these rich ore boulders could have escaped the crusher is an interesting question! It now appears that the majority of what was first taken to be franklinite is actually gahnite, a closely related mineral, and several silicates. Franklinite occurs sparsely disseminated in the ore, in small, subhedral grains that show little octahedral form, and are usually less than 5 mm across. It can be very difficult to distinguish from the gahnite and silicate phases, being so intimately associated, and is best differentiated using refractive indices under a polarizing microscope, or relying on franklinite's weakly magnetic properties. It is nonfluorescent and of a uniform, metallic black color. Franklinite has been found to be relatively uncommon in this assemblage.

Gahnite $ZnAl_2O_4$: a specimen donated to the Franklin Mineral Museum by the author, as well as other specimens donated by local collectors, were examined by FMM curator John Cianciulli and found to contain a then-unidentified phase, in small (less than 2 mm), subhedral grains of an opaque to translucent dark green color. Enough of these grains were isolated from a specimen to permit EDS X-ray microanalysis, which showed the grains to closely match an already known phase, gahnite. This gahnite occurs as ubiquitous masses up to many tens of cm across, composed of aggregates of roughly 1-2 mm grains, in association with all species described in the assemblage. It is nonfluorescent, and while having a blackish-gray appearance in hand specimens, is actually a translucent olive-green color in small, isolated grains. It may be the most abundant phase present in this assemblage, representing a novel and previously unknown assemblage for gahnite from the Franklin Mine. Most of the gahnite in this assemblage was originally misidentified as franklinite, a closely related oxide phase, but this new discovery explains the perplexing abundance of what was thought to be high-grade ore on what was a waste-rock dump! To the naked eye, gahnite appears as very fine-grained, waxy-looking masses of a dark gray to almost black color. Gahnite can be considered extremely common from this assemblage.

Pyroxmangite, $MnSiO_3$: pyroxmangite, an unusual manganese silicate species closely related to rhodonite, was identified as occurring in this assemblage through optical work by Franklin Mineral Museum Curator John Cianciulli, and EDS micro-analytic work by Excalibur Mineral Company. It occurs as small, often sub-mm grains of a generally dark, but microscopically transparent nature, intimately associated with gahnite, and occurring in the same mode and associations within the assemblage as those described above for gahnite. Dunn (1995, p. 442) describes Franklin Mine pyroxmangite as occurring "with andradite as massive gray material, which serves as a host for abundant (exsolved?) microcrystals of gahnite (as observed in unclassified specimen #161161). It also occurs, associated with scheelite and apatite-(CaF), on specimens found on the Trotter Dump in Franklin." With the exception of the andradite garnet, which has not been observed from this assemblage to the author's knowledge, the specimen #161161 is very likely from the same assemblage herein described. The mention of flourapatite (described in this assemblage) and scheelite (pending analysis, possible) from the Trotter Dump, as described by Dunn, is interesting as well in relating to this assemblage. Pyroxmangite can be considered relatively common in this assemblage at the time of this writing.

SPECIES PENDING IDENTIFICATION FROM THIS ASSEMBLAGE

As of this writing, a number of species having been potentially identified from this assemblage await positive confirmation on their composition. Perhaps the most interesting of these is what may be a new assemblage for Franklin scheelite $CaWO_4$. While examining a specimen containing mainly sphalerite and willemite as the primary fluorescent species of interest, from the Taylor Road site, the author, among others noted a mineral that fluoresced an intense, bright blue-white color, but only under shortwave UV. This mineral occurs in intimate association with multi-color-fluorescing sphalerite, and some willemite. In daylight this species seemed to occur as subhedral vitreous white grains no more than a few mm across. As of this writing, plans are being made to submit a sample for analysis, and results are pending! An unclassified pyroxene phase, having the appearance of the gahnite/pyroxmangite and no visible fluorescence, has been identified. Very minor amounts of a red-fluorescing (shortwave UV light) carbonate, most likely calcite or dolomite, has been identified as well. Further study and close examination of this assemblage is sure to bring new knowledge to light!

SOME NOTES ON FLUORESCENCE IN THIS ASSEMBLAGE AND SOME GENERAL OBSERVATIONS

Thus far, over a half-dozen fluorescent species have been identified as occurring in this assemblage, with others pending identification. Some of these will fluoresce in multiple hues and shades within the same species, occur in large quantities, and are closely associated, leading to a large percentage of specimens recovered from this assemblage being spectacular under ultraviolet light. Also, most fluorescent species respond with different intensities and sometimes different hues under different wavelengths, and some show the best response under a different wavelength than most other specimens

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known of that species. This being said, the relatively recent advent and commercial availability of high-power, portable ultraviolet light sources which emit shortwave, midwave, and longwave ultraviolet light from one unit has greatly helped in the recovery and appreciation of specimens from this assemblage. Under shortwave UV light, almost all the species from this assemblage that fluoresce will do so, but with the additional excitation provided by the other two "commercial" wavelengths, truly spectacular specimens result. Specimens exhibiting up to six or even seven distinctly different fluorescent colors can be relatively easily found by the diligent, knowledgeable collector. The author has personally seen specimens from this assemblage with fluorite fluorescing blue-green and creamy-white, sphalerite fluorescing burnt-orange, bright pink, blue, and yellow, apatite-(CaF) fluorescing bright rich orange, willemite fluorescing green, and possible scheelite fluorescing white, all within the same specimen! Such localized concentrations of fluorescence are truly spectacular, and a constant reminder why the Franklin-Sterling Hill district is truly the "Fluorescent Mineral Capital of the World", as the state legislature formally declared in 1968. The author and others like to think the Franklin-Sterling Hill District is the "mineral capital of the world", fluorescent or otherwise. As a friend of the author and fellow collector recently commented, "You'll never find a combination like this outside of Franklin." The spectacular fluorescent responses of many of the species found in this assemblage are not its only significant aspect, however. It also represents a novel and interesting assemblage for several non-fluorescent species as well, and has been found in concentrations in one area that exceeded any single find of this material in the past. As past *Picking Table* field trip reports and local collectors will testify, this assemblage is far from newly discovered at Franklin. But, with the opening of new collecting territory, new ultraviolet lamp technology, and the increased education of collectors, the largest and most spectacular find of this assemblage known yet was made. Sporadic finds of very similar material, quite possibly from a related, if not the same assemblage, have been made by fluorescent mineral collectors on the Buckwheat and Trotter dumps for many years. Another interesting note on this find is that, besides material broken up by collectors, there are very few "naturally small" specimens of this assemblage known from the Taylor Road site. Almost all specimens found by the author and others came from very large, rich boulders, usually greater than two feet across by two feet high and usually weighing in excess of 100 pounds. A boulder of this assemblage still remaining at the site, and noted by the author and others, is the size of a small car, and most likely weighs several tons (!!).

CONCLUSIONS AND SOME FINAL OBSERVATIONS

It appears that in the short lifespan of the Taylor Mine aerial tramway, a fairly extensive mineralogically significant assemblage, rich in fluorescent minerals, was encountered and mined. Because it was not considered to be ore-grade at the time, most of it was discarded on waste dumps such as the Taylor Road site. The assemblage does contain significant amounts of the primary ore minerals, volumetrically, but perhaps the strange nature of the willemite and franklinite occurrence in the assemblage, when compared to the more "common" modes at Franklin, threw off the New Jersey Zinc Company geologists, who, with plenty of zincite-rich "normal" ore to be mined, would rather not bother with this strange material. When the development of the Taylor Mine aerial tramway was taking place in and around 1907, the underground levels and stopes of the so-called "Taylor Mine" (partly an underground extension of the Buckwheat open-cut mine) were largely mined out and abandoned. Though this is a purely surmised observation, it seems to be likely that this assemblage was found in or adjacent to the East Vein of the Franklin orebody, north of the "Southwest Opening" or the "Black Hole", which was being mined at the time and was immediately adjacent to the Buckwheat Pit terminus of the tramway. As an inclined haulage tram that ran from the base of the southernmost end of the pit to the Taylor Mill at the present location of the Franklin Mineral Museum was used to remove most of the ore mined from the west limb, this further supports this possible origin of this assemblage geographically within the orebody. Still, though, relatively little mention of this assemblage or its location in relation to the Franklin orebody exists in the literature and with the evolution of both the subterranean and surface landscape of the southern end of Mine Hill over that last century, much is lost forever. With the recent rediscovery of this significant assemblage from the Franklin Mine, both fluorescent mineral collectors and mineralogists alike should take pride in the incredible complexity and intrigue of our Franklin Mine, and the great untapped potential that still sits out on mine dumps and waste piles, waiting for the notice of a learned eye.

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Editor's note: This article was written before the discovery of pyroxferroite on the Taylor Road site. A documentation of the discovery of this mineral will be published in a future edition of the *Picking Table*.

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Figure 1a. Collectors exploring at Taylor Road
This and subsequent photos by Stuart Schneider.

Figure 1 b. Traveling dark rooms turn day into night to make the rocks glow under a portable UV light.

Figure 1c. Collector gets ready to swing his 8 pound sledge hammer.

Figure 1d. Chris Luzier and friends looking for a keeper.

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Black Ore at the Franklin and Sterling Hill Orebodies

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It's common knowledge that despite many variations, ore from the Franklin Mines is mostly green, while the bulk of Sterling Hill's is red or black (2/3 red, 1/3 black). Sterling Hill's black willemite ore is primarily found in the eastern side of the cross-member. (see Fig. 1) It may be recalled that the mill at the latter mine needed to have one circuit for the red ore and another smaller section to treat the black. Now, the whole purpose of these mills was to separate the diverse ore minerals so as to treat them by different processes to liberate their contained zinc, iron and manganese. The problem at Sterling Hill was that not only is the franklinite especially magnetic, but the black willemite, to a lesser extent, is also magnetic. So, the franklinite concentrate was heavily contaminated by willemite during the magnetic separation phase of the beneficiating process. In the early days, before the deep development of the Sterling Hill orebody, the presence of the black ore was unknown. As a matter of fact the existence of the entire cross-member was not apparent to the old- timers. For instance, look at the diagrams of Sterling Hill in the *Franklin Furnace Folio* (1908). There is no trace of intervening ore between the east and west limbs of Sterling's orebody.

Figure 1. Pillar in the black (willemite) ore zone of the cross-member. Sterling Hill mine. A large specimen of this black willemite ore is on permanent display in the local room at the Franklin Mineral Museum, Franklin, NJ.

Again, that there is a black willemite zone at Sterling Hill is well known. What is not as widely understood is that the black ore marks an extremely different chemical regime from the rest of the ore body. This is indicated by a characteristic suite of minerals found throughout the black ore: löllingite, (iron arsenide), black fayalite, graphite and sphalerite. These species commonly coexist with the ore minerals throughout the black ore— all 4 million tons of it (Metsger, 1958). This association could not form under the conditions found in any other part of the orebody. It is a matter of the oxygen present during its deposition and metamorphism. These species represent a vastly reduced O^2 presence relative to the bulk of the ores. Dr. Peter Leavens judged oxygen activity in the black ores at fO^2 (this is geologists' shorthand for oxygen activity), whereas it is at fO^2 of -12 in the red ores. This represents a difference of thousands of parts oxygen activity between the red and the black ore. This is major.

As is common knowledge among advanced collectors, graphite is found in coarse forms (plates, spheres and rosettes) along with iron arsenide and sphalerite all throughout the black 1/3 of the ores. This is important, in particular, because graphite can't form under appreciable oxygen activity. In the Franklin Marble, graphite and sulfides, such as pyrite and pyrrhotite, are ubiquitous throughout its extent— except next to the ores. The chemical presence of the orebodies has caused the original graphite to be oxidized to carbon dioxide and lost. Within 2 meters of both orebodies is a graphite-free zone. This holds for the length and breadth of both lodes—except in the eastern half of the Sterling cross-member and, to a lesser extent, the recently discovered black ore at the southern end of the Franklin Mine. It is very similar in many respects to the large mass found at Sterling Hill. It has now been found on the Buckwheat Dump and some few on the Trotter Dump.

In the mid-late 1990s, there began to appear, from the Buckwheat Dump, dark ore specimens rich in blue-fluorescent sphalerite (a characteristic black ore variety), for which it was saved by the collector-folk. Soon afterward the source was targeted as the basement of the ancient Taylor Mine crusher building, a structure built around 1880.

As specimens emerged, a picture of the source gradually developed. In a large number of pieces the willemite was black— just like Sterling's. The darkest were often disseminated in a pinkish calcite, while those from compact gneissic ore with little calcite often assumed a vitreous oil-green color, being unaltered willemite (missing the black franklinite inclusions of the truly black willemite) (see Fig 2). The disseminated ore clumps were seen in what Metsger et al. (1958) referred to as cumulus cloud (see Fig 3) or pull-apart texture,(see Fig 4) which they hypothesized formed as formerly compact gneissic ore was broken into aggregates separated by infiltrating calcite introduced as the heavy ore settled gravitationally through the hot, light, plastic Franklin Marble. The species accompanying the willemite are much the same at both mines, but there are differences in frequency of distribution. For instance, löllingite and graphite are often found in specimens from Sterling Hill's black ore, but are very uncommon at Franklin. Black fayalite is also quite scarce at Franklin, but one piece was recovered containing a number of 3.0 to 3.5 cm crystals. On the other hand, sphalerite and minute gahnite euhedra are commonly found in Franklin black ore. In the Geologic Series "GS" collection,

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housed at the Sterling Hill Mining Museum, of the 16 pieces in the S.H. black ore section, 11 have sphalerite present while of the 14 in Franklin's, 13 contain sphalerite. (see Fig. 5) Likewise, 4 Franklin pieces have swarms of small gahnites, but none of those from Sterling Hill have that mineral associated in macroscopic amounts. Sphalerite and gahnite are very common in the Franklin black ore. (see Fig. 6)

It has been stated that zincite is not found in black ore, but we have several examples of this from both orebodies, with associated sphalerite in small, evenly distributed grains. Of the pieces containing both zincite and ZnS at Sterling Hill, these minerals see-saw back and forth in stability; sometimes the zincite alters near sphalerite and then zincite reaction rims can take shape around sphalerite. In Franklin black ore there is no sign of either ZnO or ZnS altering, although both are uniformly present in the pieces in the GS collection.

Unfortunately, no precise record is now available, but there are hints as to where Franklin's black willemite ore might have come from. Richard C. Bostwick suggested that it originated in Franklin's Black Hole workings. Now, the Black Hole is currently considered to have been a magnetite deposit situated inside the keel of the ore body. In support of Mr Bostwick's hypothesis we might note the following:

- Black willemite ore was unknown at the time the Franklin material was entombed as fill for the Taylor crusher.
- At both localities the franklinite is particularly magnetic and the black willemite is as well. In those days they could not separate the two and to treat them successfully, they must be. This magnetism might have given the impression that it was not zinc ore, but magnetite iron ore.
- As mentioned in Dr. Dunn's monograph, the Black Hole is stated as having extended from near the keel to the Wallkill Tunnel. There was a mineral locality associated with this tunnel. In 1871, Brush reported the find of cubic gahnite crystals with löllingite and roepperite (fayalite). This is a typical black ore assemblage.

At first the black specimens from the Buckwheat Dump were thought to be contamination brought from Sterling Hill but the several tons present at Franklin seem unlikely for experimentation. Their emplacement in the Trotter Mine crusher basement would have occurred before black ore was mined at Sterling Hill, and the species frequency distribution is quite distinctive.

As a final note, the texture so familiar at Sterling Hill known as cumulus cloud or pull-apart texture is uncommon at Franklin. This ore had so little pull-apart because it didn't sink as far as that at Sterling Hill: Franklin was a large simple slab only a few feet from the Cork Hill Gneiss, but Sterling is tied into a structural knot and is hundreds of feet from the Cork Hill formation. However, the folding of Franklin's keel may have been an ideal situation for pull-apart texture to have developed.

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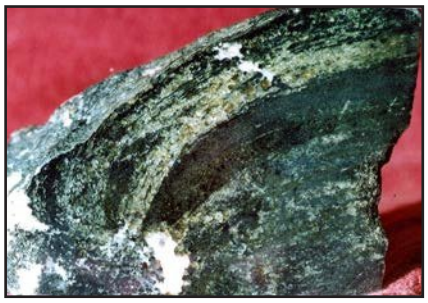

Figure 2.
GS304. Unaltered willemite in the gneissic textured mass has an oil-green color.

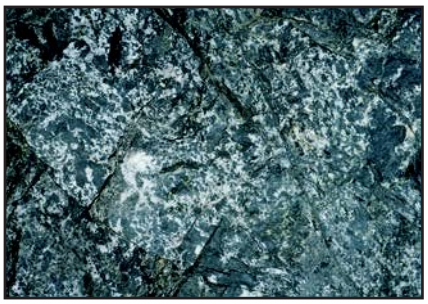

Figure 3.
Ore "in-situ" showing cumulus cloud form texture. Bernard Kozykowski photo.

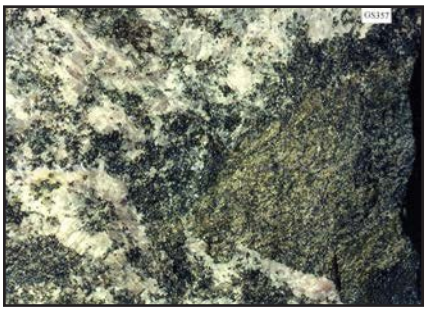

Figure 4.
GS357. Pull-apart texture in black ore. Note unaltered greenish gneissic willemite.

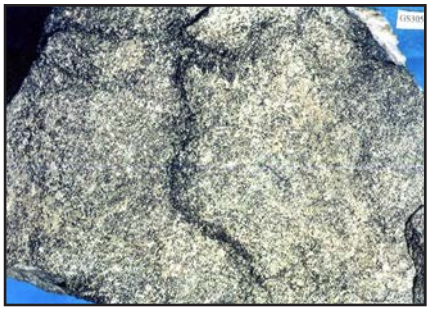

Figure 5.
GS305. Virtually all the gray grains are sphalerite (fluorescent).

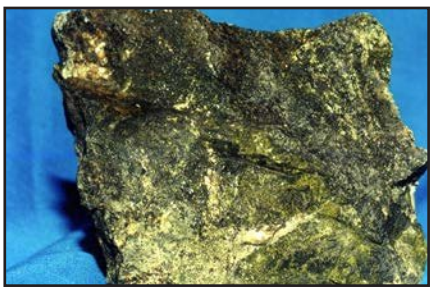

Figure 6.
GS303.The green cast is due to a multitude of gahnite crystals in Franklin black willemite. Fluorescent sphalerite is associated.

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Franklin Mineral Museum's New Fluorescent Exhibit

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Without a doubt the most fascinating display at the museum for most visitors is the 32 foot long by 5-1/2 foot high fluorescent display. We believe this is the largest display of the Franklin-Sterling Hill fluorescent minerals in existance. However, this display lacks many of the fluorescent minerals from the local mines because they do not adequately "glow" since they are located too far from the display lamps and the viewers.

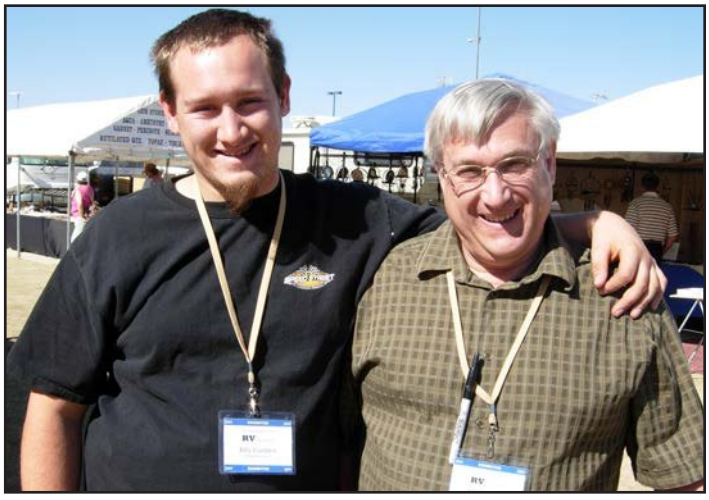
Several years ago a suggestion was made by one of the local fluorescent mineral collectors to add displays of smaller sized local fluorescent minerals in cases on the wall opposite the large display. Such displays would help viewers observe the fluorescent response of some of the less common Franklin-Sterling Hill minerals up close and personal. The suggestion for such a display was received well by the museum board and during the winter of '08-09 the display cases were installed.

The displays are arranged alphabetically by mineral name. There is one case for longwave minerals and three cases for shortwave minerals. There are a total of 110 specimens on display: 23 longwave and 87 shortwave. Some examples of the less commonly observed fluorescent minerals or unusual fluorescent responses are: willemite (blue fl.), hedyphane, charlesite, johnbaumite, hemimorphite (green fl.), nasonite, hexahydrite, chabazite, monohydrocalcite, and fluorite (pale yellow fl.). In addition, all "classic" Franklin-Sterling Hill minerals are represented. Many other minerals were originally considered but their fluorescent responses were not adequate for the displays. This exhibit is an excellent educational experience and is receiving positive comments from both the public and collectors.

This exhibit was made possible through the efforts of several people. The cases were designed by Steven Phillips and were built and installed by his uncle with Ray Latawiec's assistance. The special order "Way Too Cool" lamps were ordered by Steven and installed by Ray Latawiec. Ray also initiated the first display layout. Fluorescent mineral collectors, Mark Boyer, Paul Shizume, Earl Verbeek, and Richard Bostwick spent many hours adding specimens from the museum's collection as well as from their own personal collections to make the exhibit the most comprehensive set of local fluorescent minerals on display. Steve Misiur assisted with installing the new replacement longwave lamps. Mark Boyer was instrumental in creating the mineral labels. Lastly, Lee Lowell oversaw the efforts, provided numerous requests for access to change specimens and handled various miscellaneous tasks including the installation of the security locks for the cases.

The photos of fluorescent minerals that accompany this article were taken by Paul Shizume.

Franklin Mineral Museum curator emeritus, Jack Baum (on left) and collections manager Lee Lowell in Jack's home office, giving final approval to a press proof of the print rendition of the fluorescent mineral photos appearing in this feature.
Fred Young photo.



"Way To Cool" up close and personal.
CEO and designer William F. Gardner III (on right) with his son Billy, at Electric Park in Tucson, Az, February 2009.
Tema Hecht photo.

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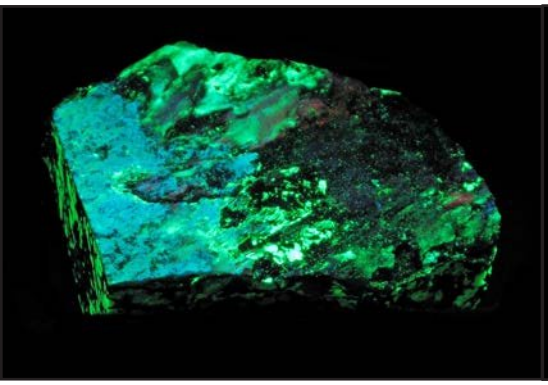
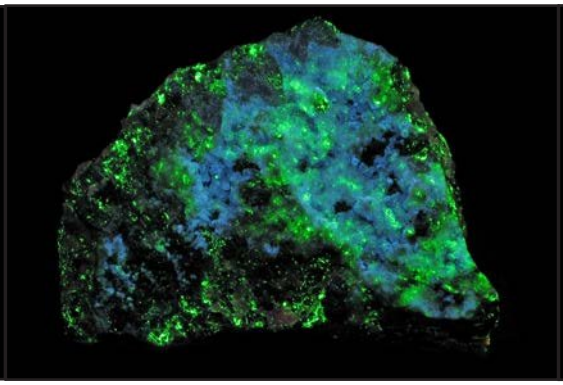
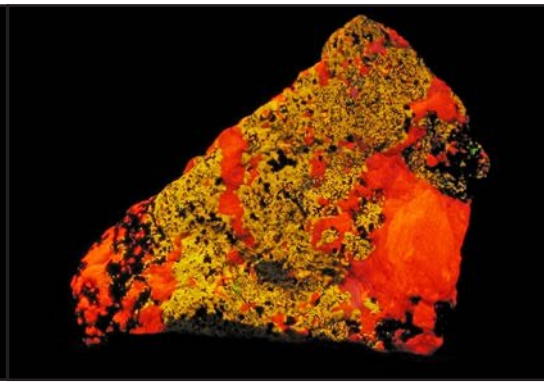


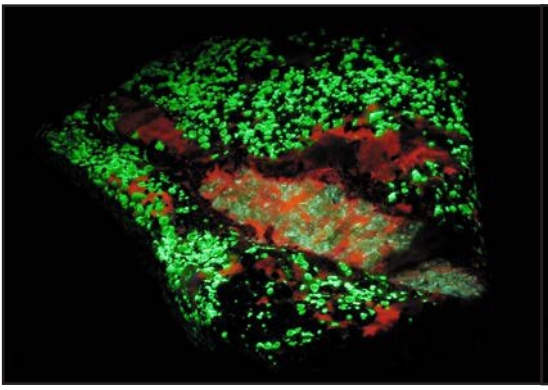
Willemite (pale blue), Franklin.
Richard Bostwick specimen.



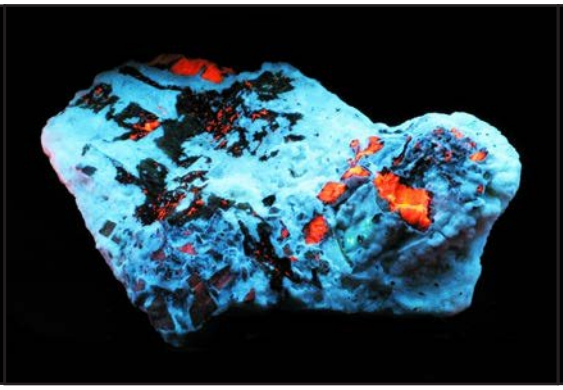
Aragonite (blue-white), Sterling Hill.
Franklin Mineral Museum specimen.



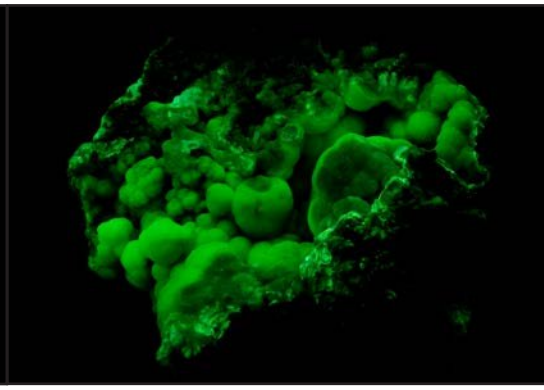
Cuspidine (orange-yellow), Franklin.
Mark Boyer specimen.



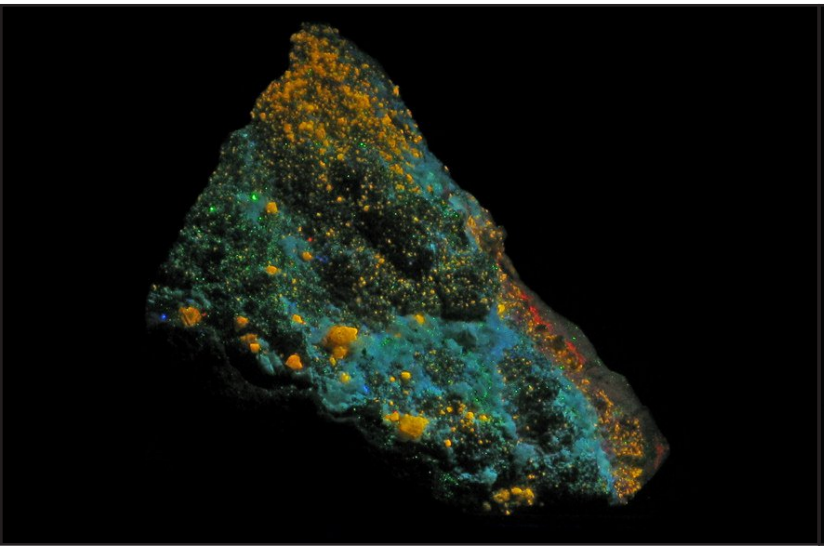
Zincite (yellow), Sterling Hill.
Mark Boyer specimen.



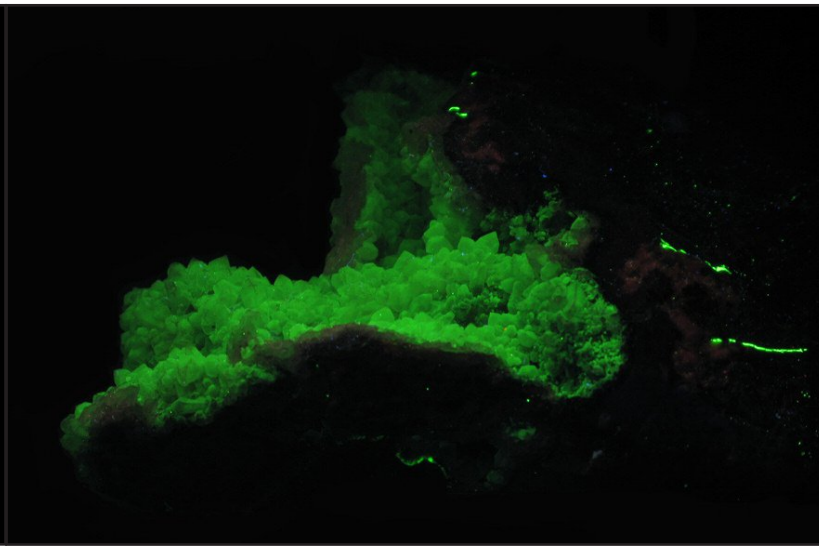
Calcite (blue-white-red), Sterling Hill.
Mark Boyer specimen.



Hemimorphite (green), Sterling Hill.
Richard Bostwick specimen.



Charlesite (pale blue) with clinohedrite (orange), Franklin.
Richard Bostwick specimen.



Quartz (green), Franklin Mineral Museum specimen.

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A Second Occurrence of Genthelvite From Sterling Hill, Ogdensburg, New Jersey

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On January 17, 2009, Mark Boyer purchased at an estate auction in Branchville, N.J., a small lot of minerals, among which was a specimen of Sterling Hill sphalerite. Subsequent examination showed this specimen to contain genthelvite. The Boyer specimen is significant in that it was not collected from the Passaic pit occurrence described in a recent issue of *The Picking Table* (Cianciulli and Verbeek, 2003), but represents an older and previously unrecognized find.

The specimen, no. 2393 in the Boyer collection, measures 6 x 5 x 4.5 cm and consists in large part of a single grain of white calcite in which are embedded several small grains of franklinite and scattered, equally small grains of reddish-brown willemite. Along one side of the specimen is a large, irregular mass of lustrous, straw yellow to pale honey brown sphalerite, 6 x 3 cm in area, encircled by a thin (1 mm) reaction rim of willemite and franklinite, both in highly elongated grains parallel to the sphalerite contact. The reaction rim is the reason for the specimen's retention in the Boyer collection; under combined shortwave and longwave ultraviolet light it lends an attractive accent to the specimen's fluorescence.

The genthelvite occurs as nine small, translucent to opaque, pale green grains embedded in calcite. Most of the grains are only 1.5 to 4.0 mm in maximum dimension, but one grain, clearly larger than the rest, measures 14 x 4 mm in area. In contrast to some of the genthelvite specimens recovered from previous finds, genthelvite in the Boyer specimen does not occur as euhedral crystals. The grains instead are anhedral, with rounded exteriors, and range in cross-sectional shape from equant to moderately elongate.

The fluorescence of the genthelvite is nearly identical to that from the previous Sterling Hill find in the Passaic pit. Under longwave UV it shows a moderately bright green fluorescence, quite different in hue from the yellow-green of the associated willemite. Under shortwave UV the fluorescence is weak dark green, and under midrange UV it is weak greenish gray. No hint of an orange response as seen in some Franklin genthelvite (Cianciulli and Verbeek, 2006) was noted in the new Sterling Hill material.

In the absence of well-formed crystals, confirmation of the identity of the green-fluorescing mineral as genthelvite was desirable. Mr. Boyer permitted the removal from his specimen of a small fragment for optical examination. This fragment was broken into several dozen smaller fragments and observed under oil immersion at approximately 80x magnification. The fragments revealed no sign of cleavage and proved to be optically isotropic. Direct determination of the refractive index (expected value for genthelvite: 1.742 to 1.745) was not possible because the available index oils extended only to RI = 1.70. However, when immersed in the 1.70 index oil, the optical data showed the grains to have the higher refractive index by a comfortable margin. All of these characteristics are consistent with genthelvite. These properties, together with the macroscopic appearance of the mineral and its fluorescence, seem sufficient to establish the identity.

In daylight the Boyer specimen resembles "typical" Sterling Hill sphalerite, and the associated genthelvite is difficult to see even if one knows it is there. Additional genthelvite specimens might thus be present, but unrecognized as such, in old collections.

ACKNOWLEDGEMENTS

Thanks are due to Mark Boyer for allowing examination of his specimen, to Lee Lowell of the Franklin Mineral Museum for opportunity to make the optical determinations, and to Jeff Glover for adjustments to the original digital images.

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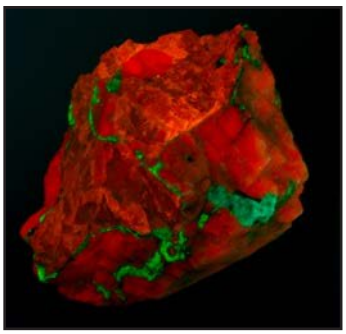

Daylight photo: **Mark Boyer specimen no. 2393, consisting dominantly of lustrous, honey-brown sphalerite in calcite. The genthelvite in this daylight view is visually inconspicuous but is in lower right, immediately below (and touching) the elongate grain of black franklinite. Earl Verbeek photo.**

Fluorescent photo: **Genthelvite (green-fluorescent grain in lower right) with sphalerite (orange), calcite (red), and willemite (yellowish green), under combined longwave and shortwave ultraviolet light. Earl Verbeek photo.**

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MINERAL SPECIES FOUND AT FRANKLIN and STERLING HILL, NEW JERSEY

This list is current as of September 2009 and is revised annually by the Mineral List Committee of the Franklin-Ogdensburg Mineralogical Society. Species unique to the Franklin-Sterling Hill area are in **bold type**

Acanthite
Actinolite
Adamite
Adelite
Aegirine
Akrochordite
Albite
Allactite
Allanite-(Ce)
Alleghanyite
Almandine
Analcime
Anandite
Anatase
Andradite
Anglesite
Anhydrite
Annabergite
Anorthite
Anorthoclase
Antlerite
Apatite-(CaF)
Apophyllite-(KF)
Apophyllite-(KOH)
Aragonite
Arsenic
Arseniosiderite
Arsenopyrite
Atacamite
Augite
Aurichalcite
Aurorite
Austinite
Axinite-(Fe)
Axinite-(Mn)
Azurite

Bakerite
Bannisterite
Bariopharmacosiderite
Barite (baryte)
Barylite
Barysilite
Bassanite
Baumhauerite
Bementite
Berthierite
Bianchite
Biotite*
Birnessite
Bornite
Bostwickite
Brandtite
Breithauptite
Brochantite
Brookite
Brucite
Bultfonteinite
Bustamite

Cahnite
Calcite
Canavesite
Carrollite
Caryopilite
Celestine
Celsian
Cerussite
Chabazite-Ca
Chalcocite
Chalcophanite
Chalcopyrite
Chamosite
Charlesite
Chloritoid
Chlorophoenicite
Chondrodite
Chrysocolla
Chrysotile
Cianciulliite
Clinochlore
Clinoclase
Clinohedrite
Clinohumite
Clinozoisite
Clintonite
Conichalcite
Connellite
Copper
Corundum
Covellite
Cryptomelane
Cummingtonite
Cuprite
Cuprostibite
Cuspidine
Cyanotrichite

Datolite
Descloizite
Devilline
Digenite
Diopside
Djurleite
Dolomite
Domeykite
Dravite
Duftite
Dundasite
Dypingite

Edenite
Epidote
Epidote-(Pb)
Epsomite
Erythrite
Esperite
Euchroite
Eveite

Fayalite
Feitknechtite
Ferrimolybdite
Ferro-actinolite
Flinkite
Fluckite
Fluoborite
Fluorite
Fluoro-edenite
Forsterite
Fraipontite
Franklinfurnaceite
Franklinite
Franklinphilite
Friedelite

Gageite
Gahnite
Galena
Ganomalite
Ganophyllite
Genthelvite
Gersdorffite-P2$_1$3
Gerstmannite
Glaucochroite
Glaucodot
Goethite
Gold
Goldmanite
Graeserite
Graphite
Greenockite
Grossular
Groutite
Grunerite
Guérinite
Gypsum

Haidingerite
Halotrichite
Hardystonite
Hastingsite
Hauckite
Hausmannite
Hawleyite
Hedenbergite
Hedyphane
Hellandite-(Y)
Hematite
Hemimorphite
Hendricksite
Hercynite
Hetaerolite
Heulandite-Na
Hexahydrite
Hodgkinsonite
Holdenite
Hübnerite
Humite
Hydrohetaerolite
Hydrotalcite
Hydrozincite

Illite**
Ilmenite

Jacobsite
Jarosewichite
Jerrygibbsite
Johannsenite
Johnbaumite
Junitoite

Kaolinite
Kentrolite
Kittatinnyite
Kolicite
Köttigite
Kraisslite
Kutnohorite

Larsenite
Laumontite
Lawsonbauerite
Lead
Legrandite
Lennilenapeite
Leucophoenicite
Linarite
Liroconite
Lizardite
Löllingite
Loseyite

Magnesiohornblende
Magnesioriebeckite
Magnesiochlorophoenicite
Magnetite
Magnussonite
Malachite
Manganberzeliite
Manganhumite
Manganite
Manganocummingtonite
Manganohörnesite
Manganosite
Marcasite
Margarite
Margarosanite
Marialite
Marsturite
Mcallisterite
Mcgovernite
Meionite
Meta-ankoleite
Metalodèvite
Metazeunerite
Microcline
Mimetite
Minehillite
Molybdenite
Monazite-(Ce)
Monohydrocalcite
Mooreite
Muscovite

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Nasonite
Natrolite
Nelenite
Neotocite
Newberyite
Niahite
Nickeline
Nontronite
Norbergite

Ogdensburgite
Ojuelaite
Opal
Orthoclase
Orthoserpierite
Otavite

Parabrandtite
Paragonite
Pararammelsbergite
Pararealgar
Parasymplesite
Pargasite
Pectolite
Pennantite
Petedunnite
Pharmacolite
Pharmacosiderite
Phlogopite
Picropharmacolite
Piemontite
Powellite
Prehnite
Pumpellyite-(Mg)
Pyrite

Pyroaurite
Pyrobelonite
Pyrochroite
Pyrophanite
Pyrosmalite-(Mn)
Pyroxmangite
Pyroxferroite
Pyrrhotite

Quartz

Rammelsbergite
Realgar
Retzian-(La)
Retzian-(Nd)
Rhodochrosite
Rhodonite
Richterite
Roeblingite
Roméite
Rosasite
Rouaite
Roweite
Rutile

Safflorite
Samfowlerite
Sarkinite
Sauconite
Schallerite
Scheelite
Schorl
Sclarite
Scorodite
Seligmannite
Sepiolite

Serpierite
Siderite
Sillimanite
Silver
Sjögrenite
Skutterudite
Smithsonite
Sonolite
Spangolite
Spessartine
Sphalerite
Spinel
Starkeyite
Sterlinghillite
Stibnite
Stilbite-Ca
Stilbite-Na
Stilpnomelane
Strontianite
Sulfur
Sussexite
Synadelphite
Synchysite-(Ce)

Talc
Tennantite
Tephroite
Tetrahedrite
Thomsonite-Ca
Thorite
Thortveitite
Thorutite
Tilasite
Titanite
Todorokite

Torreyite
Tremolite
Turneaureite

Uraninite
Uranophane-alpha
Uranospinite
Uvite

Vesuvianite
Villyaellenite

Wallkilldellite
Wawayandaite
Wendwilsonite
Willemite
Wollastonite
Woodruffite
Wulfenite
Wurtzite

Xonotlite

Yeatmanite
Yukonite

Zincite
Zinkenite
Zircon
Znucalite

Total
Mineral Species = 357

Total
Unique to Area = 28
(bold type)

*Biotite is the name for a mineral series, not a species, but which member(s) of the biotite series occur(s) at Franklin & Sterling Hill is not yet known.

**Illite is an accepted name for a series of minerals with a known range of compositions, but no end-member species within this series have yet been formally named or described.

October 31, 2009 Fluorescent Mineral 20th show

"Ultraviolation"

by the Rock and Mineral Club of Lower Bucks County, Pa. at the First United Methodist Church at 840 Trenton Road, Fairless Hills, Pa. from 9 am to 4 pm.

$25 for an 8 ft table, $15 for a 4 ft table
Contact Chuck O'Loughlin,
130 Maple Terrace, Merchantville, NJ 08109-5010
phone (856) 663-1383
e-mail ultraviolation@yahoo.com

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HONOR ROLL OF FOMS PRESIDENTS

Richard Hauck
1959-1960

Frank Edwards
1961

William Spencer
1962-1963

Frederick A. Kraissl
1964-1965

Dr. Harry E. Montero
1966-1967

John E. Sebastian, Jr.
1968-1969

Alice L. Kraissl
1970-1971

Henry M. Althoen
1972-1973

John L. Baum
1974

Bernard T. Kozykowski
1975-1976

Wilfred B. Welsh
1977-1978

Warren Miller
1979-1980

Ralph E. Thomas
1981-1982

Joseph Cilen
1983-spring 1984

Richard C. Bostwick
fall 1984-1986

William J. Trost
1987-1988

Omer S. Dean
1989-1990

Philip P. Betancourt
1991-1992

Chester S. Lemanski, Jr.
1993-1994

Lee Lowell
1995-1996

George Elling
1997-1998

Steven Kuitems
1999-2000

William Kroth
2001-2002

C. Richard Bieling
2003-2004

Frederick A. Young
2005-2006

Mark Boyer
2007-2008

Bill Truran
2009-2010

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1915 PICKING TABLE

This photo is an excellent depiction of the real picking table. The picking table was the prime location in the New Jersey Zinc Co. concentrating plant Mill no. 2 in Franklin for the specimens that are today the reminders of the great ores extracted from the ground. This circular table was the first point, after the ore cars had dumped from the Palmer Shaft headframe, that the ore was processed. The time period of the photo is around 1915. This is the one and only print from this photo. It came directly from the album of Sidney Hall, who was the Safety Director for the mine. The man on the right in the photo is William John Garrity. W.J. Garrity is mentioned as having one of the notable collections of Franklin ore by Dr. Clifford Frondel in The Minerals of Franklin and Sterling Hill (1972) and both men (Garrity and Hall) are mentioned as having two of the seven significant Franklin area collections in The American Mineralogist Journal of Mineralogical Society of America in the September 1933 issue. W.J. Garrity came from Lakeville, CT back in the 1890s when the iron mines up there closed down, and worked as a mucker in the Franklin zinc mines. He lived just outside the Palmer plant on no. 2 Mill Street in an old Thomas Edison house. W.J. Garrity suffered a mining accident and had his leg sawed off on his own kitchen table. The Zinc Co. continued to provide a livelihood for W.J. by allowing him to work the picking table, sitting down of course because of the injury. All workers of the New Jersey Zinc Co. were allowed to take home minerals each day, as long as the find would fit into their lunch buckets; thus a reason for the size of the remaining specimens of today.

Photo and historical perspective courtesy of FOMS President Bill Truran.

The editors of *The Picking Table* wish to thank all of our contributers past, present and future...

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