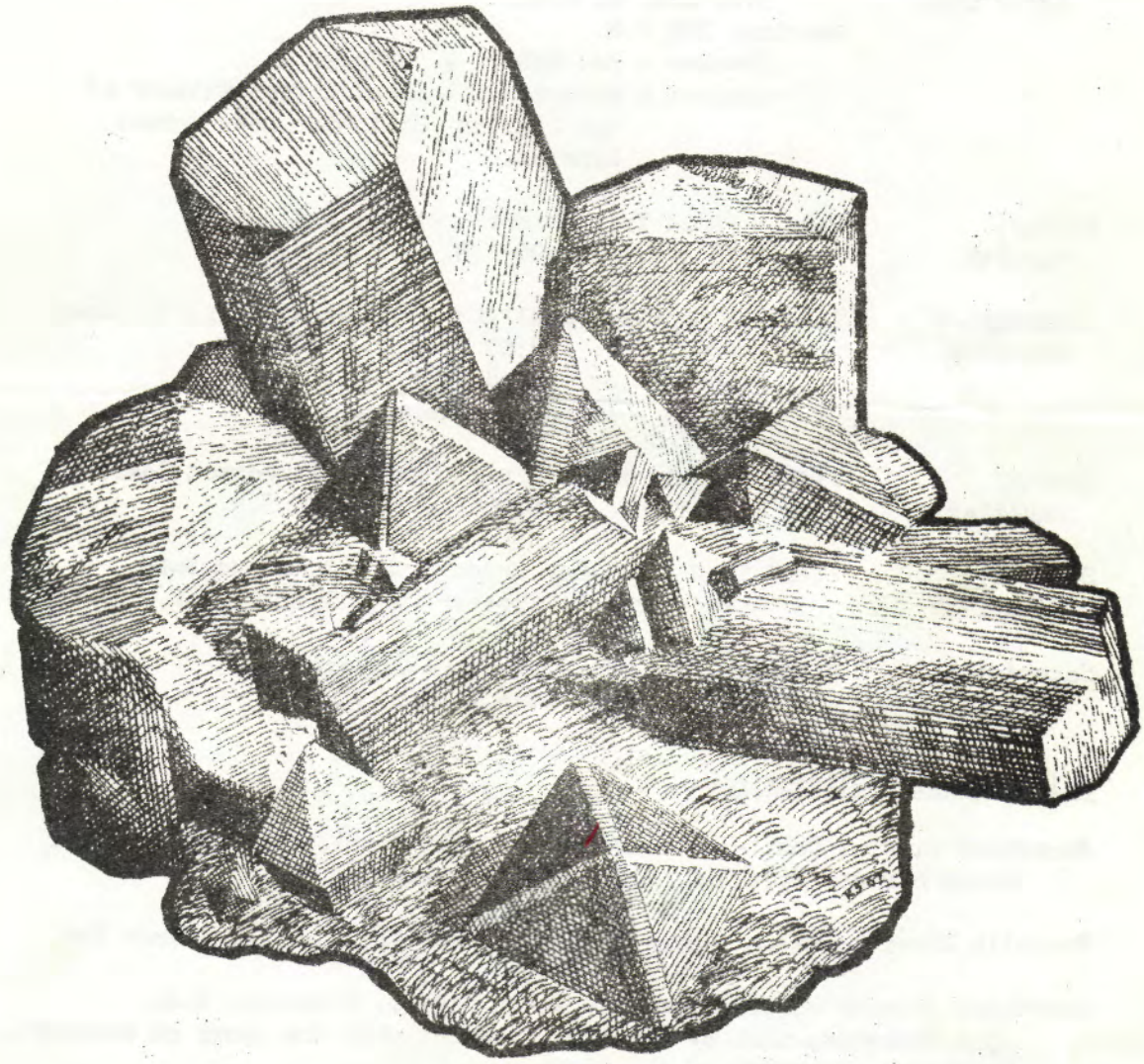
THE PICKING TABLE

JOURNAL OF THE FRANKLIN·OGDENSBURG MINERALOGICAL SOCIETY



VOLUME 13 FEBRUARY 1972 NUMBER 1

CLUB PROGRAM - SPRING 1972

All meetings, except where otherwise noted, will be held at the Hardyston School, intersection of Routes #23 and #517, Franklin, N.J. Pre meeting activities start at 1:30 P.M. Speaker will be introduced at 2:30 P.M.

Sunday, March 19th
Field trip to the Franklin Mineral Museum and/or The Gerstmann Private Museum, Franklin, N.J.
Meeting 2:30 P.M.
Speaker - Mr. Bruce Barr
Subject - The Electron Probe and X Ray Analysis.

Saturday, April 15th
Field trip to the Buckwheat Dump, Franklin, N.J.
9:00 A.M. to Noon.
Meeting: 230 P.M.
Speaker - Mr. Robert W. Metzger
Subject - Recent Geochemical Investigations at the Sterling Hill Mine, New Jersey Zinc Co.

Sunday, May 7th
Fossil Field Trip to Port Jervis, N.J.
9:30 A.M. to 3:00 P.M.

Saturday May 20th
Luncheon Meeting, Gaslight Room, Great Gorge Ski Area, McAfee, N.J. 12:00 Noon.
Speaker - Mr. David Cook
Subject - Franklin Minerals.

Sunday, May 21st
Field trip to the Limcrest Quarry, Limecrest Road, Sparta, N.J. 9:00 A.M. to 3:00 P.M.

Saturday, June 17th
Field Trip - All day intra Club Outing and Swap Session at the Trotter Dump, Franklin, N.J.

Saturday, July 8th
Field trip - Bethlehem Steel Company Mine, Cornwall, Pa. Noon to 4:00 P.M.

Daily Franklin Attractions

Buckwheat Mineral Dump - entrance through the Franklin Mineral Museum, Evans Street, Franklin, N.J. Daily collecting fee.

Franklin Mineral Museum - Evans Street, Franklin, N.J. Entrance fee.

Gerstmann Private Mineral Museum - Walsh Street, Franklin, N.J.
Open weekends; also by prior arrangement with the owner on weekdays.
No charge, courtesy of the owner.

Trotter Mineral Dump, Main Street, Franklin, N.J. (behind the Bank)
Daily collecting fee.

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The PICKING TABLE is issued twice a year; a February issue to reach members about March 1st with news and the Club Spring program; and an August issue to reach members about September 1st with news and the Fall program. The PICKING TABLE is written and prepared by Frank Z. Edwards and the mimeo and typing by Louise Borgstrom, the cover by Kenneth Sproson.

F.O.M.S. OFFICERS FOR THE YEAR 1972

President	Henry M. Althoen	319 Third St., Dunellen, N.J.
1st Vice President	John L. Baum	70 Hamburg Turnpike, Hamburg, N.J.
2nd Vice President	Bernard Kozykowski	Box 634, Port Jervis, N.Y.
Secretary	Louis Benedict, Jr.	412 So. 21st St. Irvington, N.J.
Treasurer	Robert Thomas	802 Lindsley Drive, Morristown, N.J.
Asst. Treasurer	William Clinton	37 Orange St., Bloomfield, N.J.

TRUSTEES

Lee Areson '72	Frederick Kraissl, Jr., '73
Bruce Barr '72	Ervan F. Kushner, '73
Frank Z. Edwards '72	John E. Sebastian '73
Alexander Knoll '73	Pat Thomas '73
Alice L. Kraissl '73	

F.O.M.S. Notes

A new administration assumes office for the year 1972. Our President, Henry Althoen, has been a member for many years and formerly served us most capably as Secretary for the years 1963 through 1966 and as Vice President in 1970 and 1971. He has proven himself in the past and, we are sure, will continue to provide us with good leadership as our chief executive. His staff of officers and trustees are well known to our members as active and able people thoroughly interested in the F.O.M.S. and its affairs. Our administration is in good hands. As usual, our members are both invited and urged to participate in the activities of the Society. Our Executive Board meetings are open to all members; your presence is welcome. Our field trips and lecture meetings are always productive, interesting and informative; your attendance is welcome. The pages of The Picking Table are available to members; your contributions are welcome. Our committees always need additional willing workers; your participation is welcome. This year give a little more of yourself to your Club, you will find it most rewarding.

President Althoen has appointed the following committee chairmen:

Auditing	Bernard Kozykowski, Box 634, Port Jervis, N.Y.
Field Trip	John Sebastian, 36 Roxbury Drive, Kenvil, N.J.
and	Bernard Kozykowski
Field Trip Registration	Trudy Benedict, 412 So. 21st St., Irvington, N.J.
Historical	Frederick A. Kraissl, Jr. Box 155, No.Hackensack, NJ.
Identification	John L. Baum, 70 Hamburg Turnpike, Hamburg, N.J.
Membership	Robert Thomas, 802 Lindsley Drive, Morristown, N.J.
Mineral Sales	Lee Areson, 21 Irwin St., Middletown, N.Y.
Museum Coordinating	John L. Baum
Nominating	Alice L. Kraissl, Box 51, No. Hackensack, N.J.
Publicity	P.E. Scovern, N.J. Herald, Hamburg, N.J.
Program	Frank Z. Edwards, 100 West Shore Trail, Sparta, N.J.
Publications	Frank Z. Edwards
Safety	John Sebastian and Bernard Kozykowski
Social	Mr. and Mrs. Leslie Lydiate, Jeanne Marie Gardens, Apt. #10, Nanuet, N.Y.
Welcoming	Jennie Areson, 21 Irwin St., Middletown, N.Y.

To repeat, all of these chairmen need help on these committees. If you can assist them in the performance of their duties, please contact the chairman directly.

Payment of 1972 dues is now required. Please use the form on our last page for your remittance. This is also a good time to buy a mineral book. Look over the selection available from our Treasurer listed on that last page.

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A letter from member Hal J. Clark contained two important suggestions. The first concerned SAFETY. "I have some dog tooth calcite from the Houdaille Quarry to swap, etc. This place is PERMANENTLY CLOSED due to the carelessness of a mineral hunter who got greedy and was severely injured! The enclosed cartoon is offered for use in The Picking Table. A SAFETY cartoon as a regular item is suggested (not necessarily mine). It could also be included in bulletins mailed out separately. The public does not pay much attention to words however well intended!" Unfortunately we have no facilities to reproduce cartoons in our bulletins or The Picking Table. However, we heartily agree with Mr. Clark on the necessity of observing all safety precautions on field trips. Our record to date on this score is excellent, primarily due to the vigilance of our Field Trip Chairman, John Sebastian, his Field Trip Committee and the cooperation of members on our trips. This record is the only reason we are permitted field trips to the locations we schedule. Continue to obey our Safety Committeemen and make 1972 another accident-free year, - and I also recommend that Mr. Clark be added to the Safety Committee.

The second suggestion of Mr. Clark is that a current Fluorescent and Phosphorescent list be published in The Picking Table. We will be very happy to do this in the August 1972 issue. However, to make this list as complete as possible, I ask that all members with any unusual or interesting occurrences of fluorescence or phosphorescence in Franklin/Sterling Hill minerals communicate with me on the subject, either in person, by phone (201-729-6043) or by mail - Frank Edwards, 100 West Shore Trail, Sparta, N. J. 07871.

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We also commend for your attention the fine article by member Robert Jones in the October 1971 issue of The Lapidary Journal on "Franklin - Fluorescent Mineral Capital of The World". It was very well done and we particularly appreciate the kind words concerning the F.O.M.S. and its activities.

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Member Ervan F. Kushner, author of "An Abbreviated Manual of Franklin Minerals" has just written and published a new book, "A Guide to Mineral Collecting in Ouray, Colorado". While this has nothing to do with Franklin or its minerals, we are calling this book to the attention of our members because it is the first comprehensive guide to an interesting and historical collecting area and the Society does benefit from sales. The price of this Guide is very reasonable and it comes well recommended. For particulars read the circular attached, which also provides an order form.

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Franklin Mineral Museum

In November 1971 the Franklin Mineral Museum was placed in a unique category when it was designated as a "State Historical Site" by the Committee of Environmental Protection of the State of New Jersey. Such public recognition of the importance of preserving what remains of the Franklin mineral deposits and their history is most welcome to all interested members of the community and to our Franklin mineral collectors.

Another step along similar lines has been undertaken by the Museum, in the form of a memorial to the miners who worked these deposits. Jarvis Boone (a descendant of Daniel Boone) of Sugarloaf, N.Y., has been commissioned to wood sculpt a statue, 5'8" tall, of a miner carrying an old fashioned lunch bucket and hand tools. This statue will be permanently emplaced on the concrete pedestal which sits in the middle of the front lawn of the Museum. It is planned to dedicate this memorial some time in April. This memorial is being financed by private contributions. If you would like to contribute to this memorial to the Franklin Miner, please mail your check to the Franklin Mineral Museum, Franklin, N.J. 07416.

A very welcome bequest to the Franklin Mineral Museum was made by the late Howard Pate, who died on September 9th, 1971. For many years Mr. Pate operated The Fluorescent House at Branford, Conn. He also participated as a dealer for many years at the annual Kiwanis Franklin Mineral Show and so was known to many of our members.

The Franklin Mineral Museum will reopen for the 1972 season on March 15th.

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Harvard University

Dr. Clifford Frondel has advised that his new book "A Check List of Franklin Minerals" is now being prepared for printing by John Wiley & Sons and will be available later in the year. The F.O.M.S. will arrange to stock this book and make it available to our members.

Dr. Frondel recently submitted an article on Margarite for publication in The Mineralogical Record. Also this journal will carry soon an article by Dr. Frondel and Jack Baum on the various theories of the Geological Origin of Franklin and Sterling Hill. David Cook too,has sent in a paper to The Mineralogical Record on the Willemites of New Jersey, which discusses the Andover occurrence as well as the Franklin/Sterling Hill. Mr. Cook is also working on another paper on Kutnahorite/Dolomite.

The Mineralogical Record, now two years old, is a magazine of interest to all mineral collectors, elementary through advanced. It features articles and papers on minerals in language that is non technical and can be understood by all. It is published bimonthly by The Mineralogical Record, Inc., P.O. Box 783, Bowie, Md., 20715, at a cost of $6.00 per year. The editor and publisher is John S. White, Jr., of the Division of Mineralogy, The Smithsonian Institution.

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Although it does not pertain to Franklin, many of our New Jersey members should be interested in a bit of Americana that appeared in the January 1972 Tel-News bulletin of the New Jersey Bell Telephone Company. Quote "The Schuyler copper mines in North Arlington were a vital source of metal during the Revolution. Colonists and redcoats constantly battled for possession of them. One night the English discovered a tunnel which ran under the Passaic River from the basement of an old Belleville Church to the entrance of the mines and tried to gain access through it. But they hadn't reckoned on the local citizenry who bombarded the intruders with rocks, grape shot, even old chains. Then Van Riper, the town blacksmith, jammed a handful of nails and a horseshoe into a mortar and let fly with the whole load. When it landed the Britishers threw up their arms and fled. One redcoat was heard to shout, "Blimey, boys, let's get out of 'ere before they send over the anvil!"

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To even things up, here is a more pertinent bit of Americana for our Franklin enthusiasts. This is a paragraph found on page 254 of Irving S. Kull's "New Jersey: A History" published in 1930, American Historical Society, New York, N.Y.

"In that same Sussex County where the Andover works were located among the Hamburg Mountains, there were older metamorphic rocks containing iron associated with zinc and manganese and called "Franklinite", from the proximity to Franklin Furnace. The ore, as well as the iron, made Franklin Furnace famous from the time of its establishment shortly before the Revolution. Edwin Post used the Franklinite to make iron at Stanhope, by a catalan forge or bloomery; his success was such that the French National Establishment for the manufacture of chains and anchors for the Navy reported it to be more tenacious than any other iron they had tried. This made Post's product high priced, because adapted to cutlery and other refined uses. Franklinite was also mixed with ores known to produce red short iron; and came to be smelted for its zinc, which in a later period was valued for its use in paints."

To me this sounds like an early empirical recognition of the values of a manganese iron or steel.

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Franklin Mineral Notes

Wollastonite

Recently one of our members remarked that there was no literature on the occurrence of Wollastonite at Franklin and Sterling Hill and asked if we could remedy this neglect. For basic information I called on our expert, Jack Baum. He was kind enough to supply the following paper:

WOLLASTONITE
by John L. Baum

The mineral wollastonite, monoclinic calcium metasilicate, has been found a number of times at both the Sterling and Franklin mines. The initial find at Sterling was in drill core from a long hole westward which penetrated the horizon of the west limb and continued across the intervening Franklin marble to the gneiss footwall,

a distance of some 800 ft. The second occurrence at Sterling was in the 1020 North cross cut on the 900 ft. level, 70 feet East of the West Limb of the ore, and was well exposed. The two finds were similar in their geology, although probably not connected, and one description will suffice for both.

In appearance, Sterling wollastonite is nearly identical to the New York State material from Willsboro, Essex County, including as it does grains of green pyroxene and brown garnet. It is white, largely opaque, in elongate closely packed grains up to a quarter inch in length. The occurrence exposed in the mine and mapped immediately thereafter by the author was a limey interval of eight feet along the passageway with metamorphosed siliceous sediments bordering it. The interval from East to West consisted of three feet of calcite marble containing sparsely disseminated garnet, succeeded westward by bands or zones characterized by various proportions of the minerals calcite, garnet, pyroxene and wollastonite. Short wave fluorescence of the wollastonite under a Mineralight SL 2537 is a pink white of the same intensity as the blue white response of Franklin microcline. There is a definite although faint blue white phosphorescence when exposed to the unfiltered tube. The occurrence has been obliterated by subsequent mine development. Several tons of the New York State wollastonite were dumped alongside the Franklin plant for experimental purposes and may have found its way into local collections. This material contains veinlets of green fluorescence and it splinters to needles upon fine crushing better than the Sterling material does.

Franklin wollastonite is noted for its strong orange fluorescence although the response varies according to the short wave source. Its orange phosphorescence is very brief, enduring only a fraction of a second. The first find here was made in mid 1944 and was the most spectacular. Art Watt, the Mine Captain, a position between the Mine Superintendent, C. M. Haight, and the ten shift bosses, observed the nearly vertical band of wollastonite on the wall of a working place called the 710 North top slice, 70 feet below the 600 ft. level, in disseminated lean ore 12 feet East of a pegmatite on the footwall. He gave it to the author for identification, and study of specimens obtained from the working place and again from the succeeding working places below, show a well defined band of wollastonite a few inches thick containing disseminated garnet and minor franklinite and willemite. The band was bordered locally by gray bustamite. The mineral is opaque white, and the grains have an irregular outline, tending less toward elongate than the Sterling material, from which they also differ in developing larger grains, some being an inch long and a half inch wide. On the fracture surface they display the same semi fibrous appearance commonly observed in bustamite.

Thee other occurrences of Franklin wollastonite are known. One, in the footwall drift on the 900 ft. level at the South end of the Palmer Shaft pillar was never recorded or exploited. The other two were in the hanging wall at the contact of the ore with the marble to the East, as in the 290 North top slice on the 1050 level, found in 1947. In these showings, the wollastonite was in relatively coarse, roughly elongated crystals, some an inch or more in length. Associated were barite and a peculiar variant of tremolite. The wollastonite contained 40% CaO, 2.60% MnO and 1% basic (built in) water. 20% of the mineral is admixed magnesium silicate, probably diopside. The fluorescence of some large wollastonite grains varies from orange to yellow-orange or peach under the Mineralight SL 2537, unlike the uniform response of the original Franklin find. Analysis of the latter was 48% SiO_2, 41.7% CaO, 6.9% MnO, and 0.23% MgO."

An examination of Franklin wollastonites corroborates Mr. Baum's information. The most spectacular specimen I have seen is the centerpiece in Ewald Gerstmann's fluorescent display. The piece is about 12" x 18" x 10" thick, of which an area 12" x 12" is almost pure wollastonite, the other 6" x 12" adjoining the wollastonite is a mixture of ore (calcite, willemite, franklinite) and garnet. This piece, and several others, were personally collected by Harry Hardy from the first locality described above. The fluoresnce is a strong orange. Ewald also has other good specimens, which vary appreciably in their fluorescent response from vivid to dull. One piece, associated with barite, no doubt from the second location described, seems to provide the weakest or dullest response.

At Sterling Hill there has been at least one more find of wollastonite. In 1967, I and several other collectors obtained wollastonite specimens that unquestionably came up from the Mine. These agree with Jack Baum's description in paragraph two above. They are almost pure masses of white, fibrous or columnar, crystalline grains of wollastonite with interspersed grains of a green pyroxene and a brown garnet. However, I have found no response, either fluorescence or phosphorescence, short wave or long wave on the three specimens in my collection. A similar specimen in the Gerstmann collection also fails to respond. One of my specimens evidently occurred in a fissure, for on one surface crystals emerge fully and individually developed from the crystalline mass. The crystals are about 3/8" wide and about 1/2" tall. On some of the crystals, stalagmatic little clusters of a mixture of clay and carbonates have formed from watery solutions. This piece was displayed at the Franklin Show two years ago.

I was interested to learn of the cache of Willsboro wollastonite somewhere in Franklin. I personally have not seen any of this material in collections I have examined. But now that the news is out, there surely will be a grand treasure hunt for this material this Spring.

Wollastonite (Hey 14.5.3) has formula $6\ CaSiO_3$. An accepted variety Manganwollastonite (Hey 14.18.11) has the formula $6\ (Ca,Mn)SiO_3$ which probably forms a complete isomorphous series to Bustamite, which is $6\ (Mn,Ca)SiO_3$. Examination or reexamination of our occurrences would probably show that the Sterling Hill material is wollastonite while the Franklin material is mangan-wollastonite (because of the fluorescence). Would like to see some work on this species.

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Last Fall, David Cook accepted the position as Assistant Curator of the Mineralogical Museum at Harvard University. As part of his duties, he rearranged some of the Harvard collections. Where he found Franklin material, he removed the specimens and placed them in their proper place in the very extensive Franklin collection. During such transfers he came across a number of interesting old Franklin specimens which attracted his attention and led to investigation. As a result he has found a number of species which are new to Franklin/Sterling Hill and can be added to our list. All verifications were made by X-ray analysis. A description of his finds follows:

Adamite

Harvard specimen #89973 now bears a label "Adamite (probably cupro adamite), Stilpnomelane, Azurite crystals, an Unknown Copper Arsenate." This old Franklin specimen came from either the Buckwheat Pit or the upper oxidized portion of the Franklin Mine. The matrix is an old calcite, heavily stained a dark brown by limonite. On the upper surface is a vug, 3/4" x 1-1/2" x 1/2" deep, which is almost completely covered on bottom and sides with closely packed rosettes of brilliant deep blue micro crystals of azurite. On top of these are five small areas, the largest of which is 1/4" x 5/16", like little mounds, of a sugary green adamite (similar in color to malachite). In one small area, 1/4" in diameter, is a powdery radiating light blue mineral, which is the unknown copper arsenate (insufficient material for complete determination). The stilpnomelane also occurs on the surface of the azurite crystals in small dark brown drusy masses.

I was unable to determine if this adamite fluoresced. This is the first find of adamite at Franklin. An additional description of the adamite found at Sterling Hill is given later in this issue of The Picking Table.

Brochantite/Devilite/Linarite

One specimen analyzed by Mr. Cook contained the following minerals on its franklinite matrix - brochantite, devilite, linarite, magnetite, garnet, galena, calcite, malachite, friedelite, apatite, gypsum. While this specimen is marked Franklin, I believe it to be Sterling Hill. From the original calcite/franklinite matrix, the calcite has been completely leached and the remaining franklinite superficially altered. The vugs created by the leached out calcite are covered with coatings of secondary minerals and crystals. Similar specimens in my collection came up from Sterling Hill in October, 1964. They came from the area adjoining the Mud Zone, which provided the leaching solutions, and the so called copper alteration zone previously described in The Picking Table, (no doubt the source for the copper alteration minerals listed above). An examination of your specimens from this area should reveal some of the minerals listed although the copper alteration minerals are difficult to determine by sight. Incidentally, all of the above are micro crystals only.

The brochantite crystals greatly resemble malachite, and in this occurrence they are found in small clumps of bright green micro crystals. The linarite crystals are also found in small clusters of deep blue micro crystals and will easily be confused with azurite. The devilite occurs as fine light aqua colored hairs and may be confused with aurichalcite.

Brochantite (Hey 25.2.10) is $4[Cu_4\ SO_4\ (OH)_6]$

Devillite (or Devilline)(Hey 25.2.18) is $CaCu_4(SO4)_2\ (OH)_6.3H_2O$

Linarite (Hey 25.7.4) is $2[(Pb,Cu)_2\ SO_4\ (OH)_2]$

Chalcotrichite a variety of Cuprite

This specimen (no number) was obtained by Harvard from the Canfield Collection. Adhered to one side is an old label which read "Azurite xls - cuprite - aurichalcite - Franklin, N.J. - G. Rowe - P - 1910." New label prepared by David Cook after re-examination read "Chalcotrichite/Malachite/Azurite/Aurichalcite/Chalcocite-Franklin,N.J."

The specimen measures 2-1/2" x 4" x 1-1/4". The matrix is a sugary light grey dolomite capped by a surface 1/4" to 1/2" thick of calcite and other carbonates, on top of which are areas of altered copper minerals, including several small rosettes of fine blue azurite crystals. Also on the surface are areas of chalcocite and chalcopyrite, parts of which have been altered to malachite, azurite and aurichalcite. The red chalcotrichite hairs are found with malachite in a small vug only 1/8" across.

Epsomite (Hey 25.3.3) $4[MgSO_4.7H_2O]$

Although previously verified by other sources, this is the first specimen authenticated by Harvard. It comes from Sterling Hill, from either the hanging wall or footwall. It is a hairy to fibrous grey white efflorescence coating a greyish calcite.

Flinkite (Hey 20.8.5) $Mn^{\cdot\cdot}{}_2\,Mn^{\cdot\cdot\cdot}AsO_4(OH)_4$

This specimen is marked FF27. It measures 2-1/4" x 3-1/4 x 1-1/4". The matrix is franklinite (possibly magnetite) and a green garnet, which looks just like epidote. On the surface there are three vugs, the largest of which 1/2" x 1" is filled with micro calcite crystals which are coated with a brown manganese solution. On top of these, the last deposition, are small shiny black balls or mounds of flinkite crystals.

Flinkite has previously been found only at the Harstig mine at Pajsberg, Sweden, where it occurred as veinlets in magnetite ore associated with sarkinite, brandtite, caryopilite, nadorite, native lead, manganoan calcite and barite. Dana (7th edition, volume two, page 793) says that it is greenish brown to dark green with a vitreous to somewhat greasy luster; that isolated crystals are rare and that is usually found as feather like aggregates. The Franklin occurrence agrees substantially with this description.

Yttrian Garnet

Upon analysis, a most unusual looking specimen proved to be a garnet with an appreciable yttrian content, as well as some zinc and beryllium. This specimen, FF#11, 2-1/2 x 4-1/4 x 1-5/8", has a matrix of gneissic, very pale green to greyish willemite and considerable franklinite. This is capped by a surface coating, 3/8" to 1/2" thick, plus two small veinlets vertically penetrating the ore, of solid garnet containing some little vesicles of bright red zincite. The garnet is a drab light gray with a hint of pink in spots. It greatly resembles the broken edge of an earthenware crock in texture and lack of luster. It is most unusual in appearance and does not resemble any specimen from Franklin that I have seen before.

Hodgkinsonite

Aother head shaker turned out to be the first hodgkinsonite from Sterling Hill. In no way does it resemble the lovely violet hodgkinsonite from Franklin. It may be fairly plentiful at Sterling Hill but I doubt if any one can identify this mineral even after seeing the verified specimen. Harvard has two specimens of this material.

The first is a piece 2-1/2 x 2-1/2 x 2" thick. The matrix is calcite with buckshot of franklinite, willemite and zincite. This is coated with 1/16" to 1/8" ruby-like zincite, which is finally covered by a dull dirty tan white earthy like coating, parts of which are divided into micro mounds or balls from which the domes have been eroded. This final coating is the hodgkinsonite. The second piece is 2 x 3-1/4" but only 3/8" thick and except for the complete absence of matrix, exactly matches the first piece.

Rosasite (Hey 11.6.6) $4[(Cu,Zn)_2\ CO_2(OH)_2]$

Another new copper mineral for Franklin, Rosasite, was verified in Harvard specimen #89979. Like the adamite specimen from Franklin described earlier, this specimen most likely came from the Buckwheat Pit or the upper or oxidized portion of the mine. The matrix again dark brown heavily limonite stained calcite mixed in areas with newly crystallized hemimorphite (calamine to old timers). In one vug, 5/8" x 5/8", some unusual hemimorphite xls are covered with microscopic balls of dark blue green rosasite, which greatly resembles malachite. The rosasite balls are quite distinctive and closely resemble Mexican material. The hemimorphite crystals are of an unusual habit for the area. They are elongated single crystals resembling selenites.

Others

Mr. Cook also advises that they have analyzed additional specimens in a search for pyrosmalite but that all have turned out to be manganpyrosmalite. A zincian clay proved to be Sauconite. The jury is still out on Harvard specimon #107697 which is a sulphury yellow green sphalerite being replaced in part by a chlorite, which is under investigation.

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Adamite (Sterling Hill)

In the last issue of The Picking Table we advised that George Pigeon had found a number of Adamite specimens through chemical and optical means. However, we did confuse the occurrence at Sterling Hill and ask that you correct your records.

The lead alteration products, pyromorphite-mimetite, anglesite, cerussite and also greenockite are found as small masses and as coatings on aegerine-augite, or what we formerly knew as jeffersonite. They came from the southwest corner of the Open Pit area along the neck of land, where on our last field trip, many of our members were digging for jeffersonite crystals and were finding galena specimens as well.

The adamite occurrence at Sterling Hill occurs on the 500 ft. level in ore, most of which is brown buckshot willemite with minor franklinite and zincite, but ranging in the zincite content to where it predominates in some specimens. While minor amounts of adamite are disseminated through the ore, the major finds of adamite have been admixtures with zincite in calcite veins cutting the ore, indicating a secondary hydrothermal origin. The adamite ranges in color from a lemon yellow to light orange, but this is no accurate guide to identification for zincite has the same color range. Mr. Pigeon recently analyzed 14 specimens and only 5 of these proved to be adamite. The rest were zincites.

To distinguish between the two, an arsenic test is advised. In the pieces I have seen, the fluorescent response varies. The best is under long wave where the adamite fluoresces a yellow green, similar to the Mexican material. However, the response dulls as the zincite content increases. Under short wave, the response is a dull cream. There is a very fleeting phosphorescence long wave. Adamite is a zinc arsenate, Hey #20.3.3, 4[Zn_2AsO_4OH].

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Mr. Pigeon, again through chemical tests and optics, has found two new phosphates on Sterling Hill material. These are Konickite, Hey #19.13.9, $FePO_4.3H_2O$ and Spencerite, Hey #19.6.6, $Zn_2PO_4OH.1\frac{1}{2}H_2O$. The specimens have come from the old workings of the mine, the 430 ft. level or just above, in an oxidized footwall or hanging wall and close to the mud zone. The matrix is a mixture of sphalerite, fluorite and pyroxene. Efforts are being made to have these findings verified by X ray analysis.

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Scheelite/Powellite

Last Spring, a noteworthy find was made at the Trotter Dump, in an unprepossessing boulder, 12" in diameter, of brown garnet interspersed with black pyroxene and a colorless mineral, which fluoresced a pale yellow under short wave. Also activated by the light were minor amounts of calcite, willemite and svabite. The pale yellow fluorescent occurred as blebs and small masses up to 3/4" in diameter. The mineral was submitted for X ray identification to the Bethlehem Steel Company, Bethlehem, Pa., who found it to be scheelite, but with sufficient molybdenum content to give it the yellow fluorescence and place the mineral in the Scheelite-Powellite series. The boulder was broken into a number of pieces and is now in the hands of several Franklin collectors.

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Axinite

Paper by M. Ozaki - "Notes on the chemical composition of Axinite" Science Report, Fac. Science, Kyushu University, Geology, Volume 9, 1969, pages 129-142; Min.Abst., Vol. 22, No. 4, December 1971, page 291. Abstract follows:

"Eighteen axinite specimens from manganese ore deposits, five from pyrometasomatic tin ore deposits, two from acidic igneous rocks, and one from basic tuffaceous sediment, were analyzed by chemical and XRF methods. The writer proposes to classify the minerals of the axinite group into three species: i.e. ferroaxinite, manganoaxinite, and tinzenite. Manganese atom numbers per unit cell are from 0 to 1 ferroaxinite, from 1 to 2 manganoaxinite, and from 2 to 4 in tinzenite. Relations between the physical properties and the chemical composition of the axinite group are also described."

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Leucophoenicite

From a paper by Paul B. Moore entitled "Edge Sharing Silicate Tetrahedra in the Crystal Structure of Leucophoenicite" in the American Mineralogist, volume 55, July-August 1970, pages 1146-1166: Pertinent portions of the abstract follow:

"Leucophoenicite, $Mn_7(SiO_4)_2[(SiO_4)(OH)_2]$ with two formula units in the crystal cell with a 10.842, b 4.826, c 11.324 Å, B 103.93°, space group $P2_1/a$, Z=2. Its structure based on hexagonal closed packed oxygens stacked parallel to (010) with a 2-layer oxtahedral repeat, is distinct from that of the humite group. The Mn atoms with minor substituents occupy half the octahedral positions. Two thirds of the Si atoms occupy separate tetrahedral positions, whereas the reamining Si atoms are disordered in half occupied tetrahedra in edge-sharing pairs. Earlier conclusions regarding leucophoenicite based on morphological study are revised."

Other portions of Dr. Moore's paper which are of interest to our members are further quoted:

"Leucophoenicite was a fairly abundant basic manganese silicate which occurred as crystals in late stage open hydrothermal veins and as granular masses in ore and skarn from Franklin, N.J., its type locality. It most frequently occurred as interlocking grains of a purplish-pink color, usually in association with green willemite, tephroite, glaucochroite and coarsely crystalline franklinite. The crystals, from a younger and distinctly different paragenesis, are rich raspberry-red in color, rendering the species one of the most beautiful members of the mineral kingdom.

Leucophoenicite was named and first described by Penfield and Warren (1899) during their studies on the paragenesis of a bewildering array of lead-zinc-manganese silicates encountered in the Parker Shaft workings. They interpreted leucophoenecite as a manganese member of the humite group, isotypic to humite. Palache (1910, 1928) presented his results of morphological investigation on fifteen crystals, established the symmetry as monoclinic holosymmetric, and later summarized the leucophoenicite paragenesis in considerable detail (Palache, 1935). In spite of the close chemical similarity to humite, he concluded that leucophoenicite was not allied to the humite group. Based on Palache's data, a morphological analysis was presented by Moore (1967). He confirmed the monoclinic character of the mineral, but showed that a pseudo-orthorhombic cell could be chosen which was related to humite. Recently, Cook (1969) routinely investigated many specimens labelled "leucophoenicite" and "tephroite" from Franklin and Sterling Hill by X ray powder diffraction, and further showed that the studies of Palache and Moore were based on more than one species, which included leucophoenicite proper and sonolite.

To add to the complex history of this mineralogical curiosity, Moore (1967) stated that there exists more than one kind of leucophoenicite. Massive pink leucophoenicite yields "orthorhombic" single crystal data which are closely related to the monoclinic cell criteria found for single crystal hydrothermal vein material. Finally, a new species, isotypic to humite and dimorphous to leucophoenicite has been studied recently in my laboratory." - - - - - - - -

"Nomenclature. The only previous suggestion of a leucophoenicite nomenclature was by Moore (1967) where I casually designated the monoclinic members "o-leucophoenicite". The foregoing discussion clearly indicates that such nomenclature is not necessary, since all carefully investigated leucophoenicites are actually the monoclinic member. The manganese isotype of humite does not belong to the leucophoenicite group and accordingly it has been treated as a new and distinct species. There remain additional incompletely investigated

variants: Moore (1967) mentions examples of variants which yield complex streaked photographs and distinct powder patterns, and Cook (1969) reports related compounds with distinct powder photographs. More detailed study will be necessary to establish their relationship with leucophoenicite and the humites. Perhaps some of these compounds will prove to be members of the homologous series discussed herein."

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Nasonite

"The Crystal Structure of Nasonite" has been determined by Messrs. G. Giuseppetti, G. Rossi and C. Tadini. Paper appears in the American Mineralogist, Volume 56, July-August 1971, pages 1174-1179. Abstract follows:

Nasonite, $Pb_6Ca_4(Si_2O_7)_3Cl_2$, is hexagonal, $P6_3/m$, a 10.08, c 13.27 Å, Z =2. Using the 872 hkl intensities measured photometrically from Weissenberg photographs, the structure was determined with the heavy atom method. Least-squares refinement reduced the convention R factor to 0.054. The crystal structure of nasonite can be derived in a simple way from that of the members of the apatite group. Si_2O_7 groups characterize the structure of nasonite. The Pb atoms have irregular coordination polyhedra; Ca atoms are surrounded by six oxygens at the vertices of trigonal prisms forming columns along the three-fold axis. A partically covalent bonding system involving Pb, Cl, and O is described."

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A Franklin Bibliography

The fourth and final installment of "A Franklin Bibliography" by Dave R. Cook is listed on Pages 13 - 16, immediately following.

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