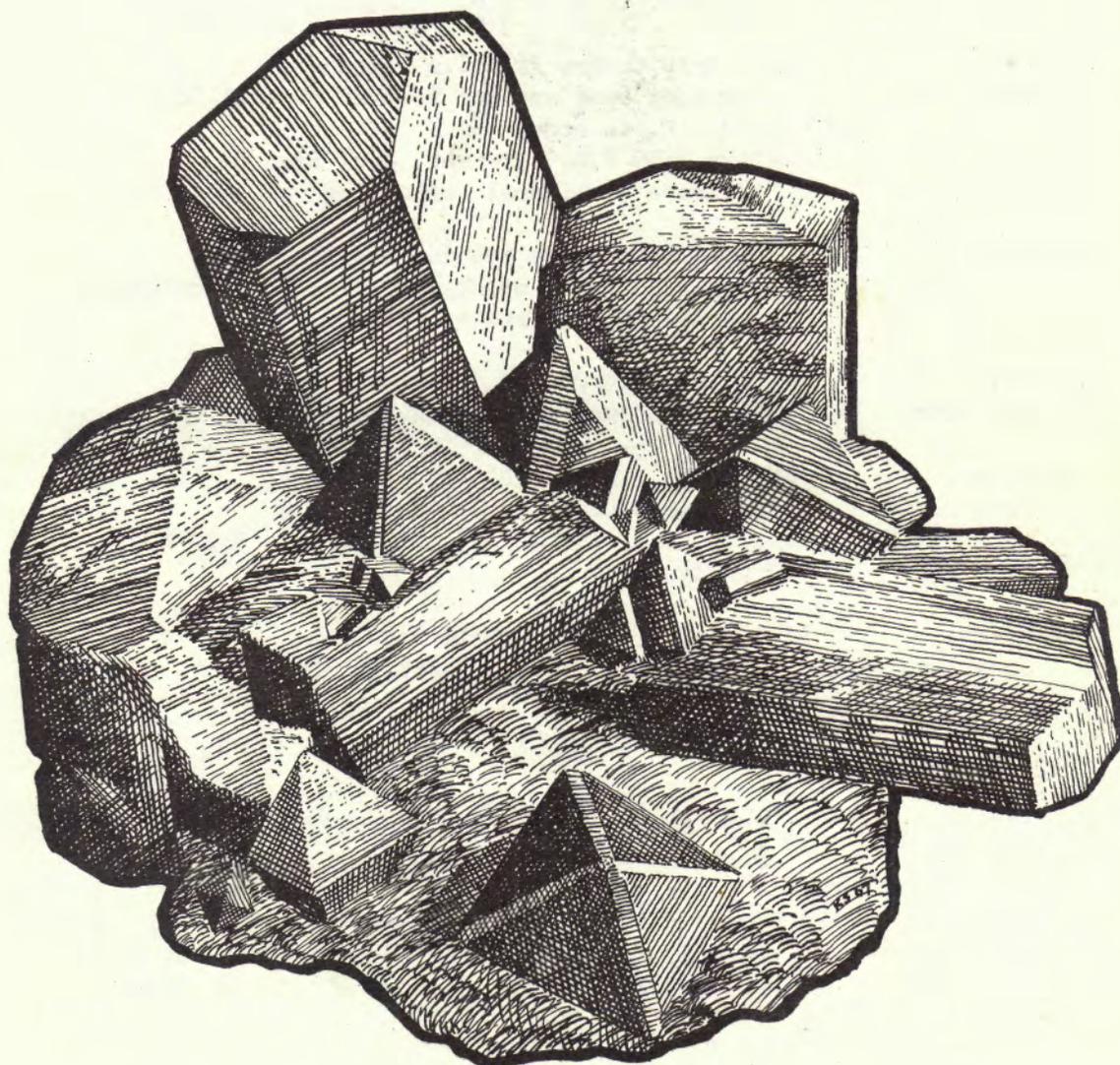


THE PICKING TABLE

JOURNAL OF THE FRANKLIN-OGDENSBURG MINERALOGICAL SOCIETY



VOLUME 10

FEBRUARY 1969

NUMBER 1

CLUB PROGRAM - SPRING 1969

All meetings 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 announced at 2:30 P.M.

Sunday,
March 16th - Field trip to the Franklin Museums -
The Franklin Mineral Museum and
The Gerstmann Private Museum.
2:00 P.M. to 5:00 P.M.

Saturday,
April 19th Field trip to the Franklin Dumps -
Buckwheat Dump and the Trotter Mineral Dump -
9:00 A.M. to Noon.
Meeting 2:30 P.M. Speaker, Jack Baum on
"45 Years of Mineral Collecting"

Saturday,
May 17th - No field trip - see Special Events
Meeting 2:30 P.M. Speaker Dr. Harry A. Montero on
"Fossils on the Tree of Life"

Sunday,
May 18th Field trip - 9:00 A.M. to 3:00 P.M.
Limecrest Quarry - Sparta, N. J.

Saturday,
June 21st Field trip - Farber Limestone Quarry,
Franklin, N.J. - 9:00 A.M. to Noon
Swap Session (Intraclub) 1:00 P.M. to 5:00 P.M.
Franklin, N. J.

Saturday,
July 12th Field trip, 12:00 Noon to 3:30 P.M.
Bethlehem Steel Co., Cornwall, Pa.

Special Events

May 17th/18th Spring Rockhound Jamboree at the Trotter Mineral Dump,
Franklin, N. J. (All day)

Note: A fossil field trip will be arranged for April or May,
probably first Saturday. Location not yet determined.
Full details in monthly bulletin.

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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; 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; the mimeo and typing by Louise W. Borgstrom; cover by Kenneth Sproson.

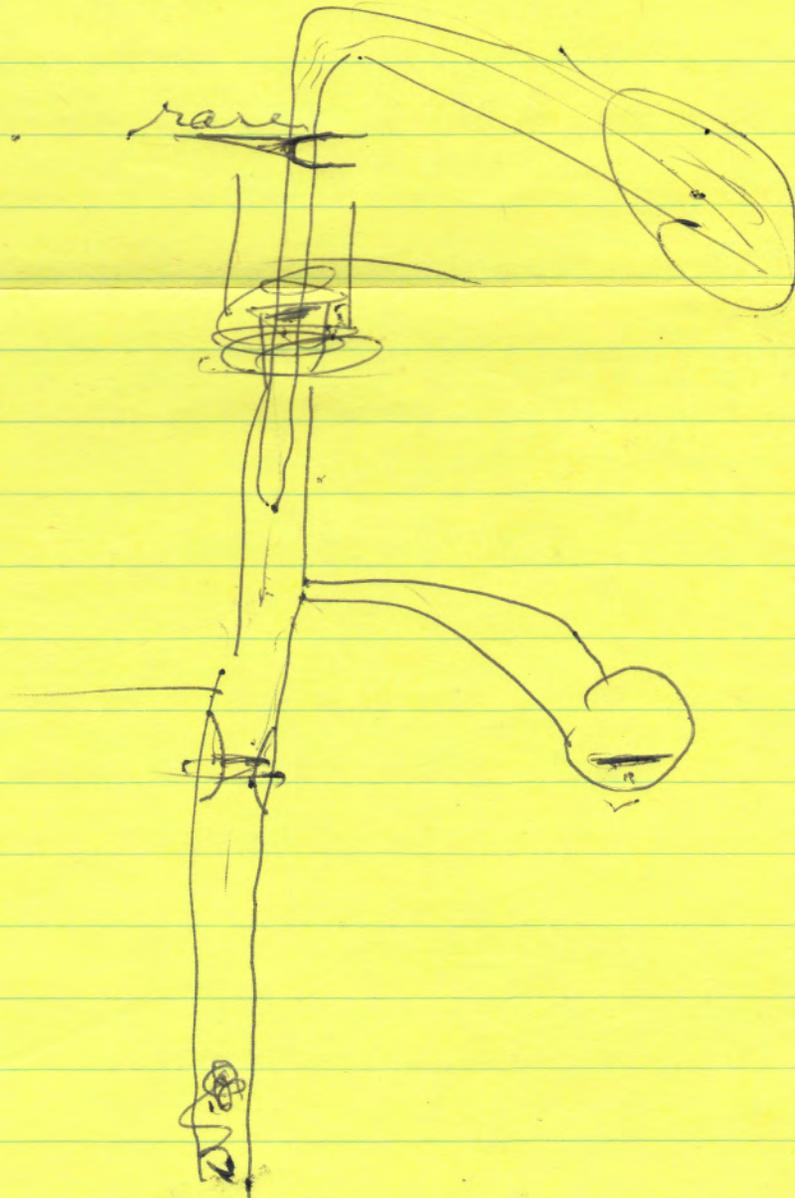
Barylite rare

Bustamite

Mooreite - very rare -

Nasonite - rare
(with ophelinite)
lead chlorosilicate.

Rooblingite - rare



F.O.M.S. OFFICERS FOR THE YEAR 1969

President	John E. Sebastian, Jr.	36 Roxbury Drive, Kenvil, N.J.
Vice President	Alice L. Kraissl	Box 51, North Hackensack, N.J.
Treasurer	Julian M. Butler	712 Pemberton Ave., Plainfield, N.J.
Secretary	Louis Benedict, Jr.	442 South 21st St., Livingston, N.J.
Asst. Secty.	Frank Z. Edwards	100 West Shore Trail, Sparta, N.J.

TRUSTEES

Lee Areson '70	Frank Z. Edwards '70
Henry M. Althoen	Alexander F. Knoll '69
John L. Baum '69	Frederick A. Kraissl '69
Alternate Trustees -	Richard Hauck '69
" "	Dr. Harry E. Montero '69
" "	William Spencer '69

COMMITTEE CHAIRMEN

Entertainment	- Frederick A. Kraissl
Field Identification	- Alexander F. Knoll
Field Trip	John E. Sebastian and Frank Z. Edwards
Finance	Julian M. Butler
Membership	Alice L. Kraissl
Nominating	Julian M. Butler
Picking Table	Frank Z. Edwards
Program	Frederick A. Kraissl
Safety	John E. Sebastian and Jack La Rue

F.O.M.S. Notes

Since our election two changes have been made in the Executive Board. Alice Kraissl has resigned as Secretary and has been replaced by Louis Benedict, Jr. Kenneth Sproson has resigned as Trustee and has been replaced by Henry Althoen. The new Secretary and Trustee are known to many of our members. They have been active in Club affairs for some time and their presence on the Executive Board is merited and welcome.

Arrangements have been completed for our Spring program. Please note the dates on your calendar. Attendance on our field trips is limited to paid up members only. If you have not paid your 1969 dues, please use the renewal form on our back page and forward promptly.

Franklin Museums

The Franklin Museum, which has been closed for the winter, will reopen to the public on April 2nd. (It will be open to F.O.M.S. members on Sunday afternoon, March 16th, as part of our joint Museum field trip.) The expanded fluorescent display in the new addition is entrancing and is only one of the attractions of this institution.

Curator John L. Baum announces three major additions to the permanent collection of the Museum. The former Lemanski collection has been purchased and presented to the Museum by Mrs. Frederick A. (Alice) Kraissl, in memory of her parents. This handsome collection is on display along the north wall of the Museum. Jim Gouger, of Ogdensburg and Franklin, has contributed a substantial collection; and Dr. W. B. Thomas, of Lavallette, N.J. has donated some 400 Franklin/Ogdensburg micromounts. The choicest specimens in these collections will be placed on display; other specimens will be offered for sale at the Museum with all proceeds applied against operating expenses. Franklin Mineral Museum officials have personally thanked these F.O.M.S. members for their contributions.

Ewald Gerstmann again invites all Franklin collectors to visit his Gerstmann Private Mineral Museum at 14 Walsh Street, Franklin. On permanent display is one of the finest Franklin mineral collections ever assembled. Every collector, novice or expert, will see and learn something new on every visit to this fine display. When in Franklin, take advantage of Mr. Gerstmann's generous invitation. The Gerstmann Private Museum is open all year round by appointment.

Please note that the Gerstmann Private Museum will be open on Sunday afternoon, March 16th, to F.O.M.S. members as part of our Museum field trip. Your attendance will be well rewarded by the sight of these outstanding specimens and good mineral conversation with fellow collectors.

Franklin Area Notes

On January 2nd, 1969, the Franklin Borough Council announced that the old Shuster Park tract, approximately ten acres of land located between Buckwheat Road and High Street, had been turned over to the Borough of Franklin by The New Jersey Zinc Company. It is expected that the park tract, which is adjacent to the Franklin High School, will be turned over to the Board of Education and dedicated to school use.

Shuster Park has not been in use for many years. It was closed and fenced in after hazardous conditions developed as a result of settling. It was named after Elwood D. Shuster, a charter member of the first borough council in 1913 and later a long time mayor. Shuster Park was the center of many summer activities during its early years. The park contained playground equipment, a band shell and many benches in its heavily wooded area. Many affairs were held on its grounds including weekly band concerts, annual community picnics, carnivals and Chatauqua sessions.

* * * * *

Also of interest is the announcement by Playboy Clubs International of a new resort complex to be built this Spring in the McAfee area. The tract, 550 acres of wooded, mountainous countryside, acquired for the complex includes the old Bethlehem Steel quarry visited previously by the F.O.M.S. The Playboy plans are quite elaborate. According to their fact sheet: "The New Jersey Playboy Club Hotel will feature the many diversified activities of the Lake Geneva (Wisconsin) Playboy Club Hotel, such as golf courses, horseback riding, skeet and trap shooting, indoor and outdoor pools, lake for boating, fishing and ice skating, health club with sauna, outdoor tennis, and in addition, indoor tennis and many, many more facilities." The grand opening party of the \$20 million resort complex is scheduled for October 1970.

Major Zinc Deposit Found by New Jersey Zinc Company

A recent announcement (January 7th, 1969) by the New Jersey Zinc Company division of Gulf and Western Industries is of interest to geologists, mineralogists and mineral collectors as well as stock brokers and investors. The press release announced the discovery of a major zinc ore deposit in middle Tennessee as follows:

"Analysis and projection of data on recent ore grade penetrations indicate between 13,000,000 and 50,000,000 tons of ore averaging between 5% and 10% zinc. The deposit, which has not been delimited, underlies a four square mile section of an area of several hundred square miles where significant mineralization has been encountered by wide spaced drilling.

The New Jersey Zinc Company holds mineral leases on acreage in excess of 500 square miles in the area.

The initial wide spaced drilling with holes five to twenty miles apart indicated at least five widely spaced locations in which significant mineralization in favorable geologic environment justified closer spaced drilling. This was undertaken at one of the locations, resulting in the discovery of mineralization of ore grade and thickness.

William H. Callahan, New Jersey Zinc Manager of Exploration, has directed the project from its original conception. He said that geologically there is no reason not to find at the other locations ore occurrences similar to that discovered at the first location, drilled on closer spacing. He said that in view of the geologic setting the potential of the discovery can well be that of a major zinc district involving several hundred million tons of mineable ore. He added that the potential of the area may far exceed the known occurrences of zinc in the Mascot-Jefferson City and Copper Ridge Districts in Eastern Tennessee and could approach or surpass the total zinc of the Tri-State District, one of the major districts in the history of zinc mining in the United States.

Callahan said that the sphalerite encountered is of high purity and lies in gently sloping beds 900 ft. to 1700 ft. below the surface. He said it appears that the physical attitude of the ore is such that highly mechanized mining will be possible.

Callahan further stated that there is good prospect that New Jersey Zinc will easily more than double its sulfide ore reserves, with the added reserves having a grade considerably higher than the average of its present sulfide mines. He said, however, that since the initial discovery has by no means been delimited and a vast area remains to be explored more specifically, there is no way at this point to even speculate quantitatively on the extent to which ore reserves will be further enhanced. Callahan said that grade tonnage expectations permit forecasts of costs lower than at present and that for use in the United States the mine product will be fully competitive with zinc mined elsewhere in the world.

Lindsay F. Johnson, President of New Jersey Zinc, said that New Jersey Zinc currently mines about 3,000,000 tons of ore annually from its mines, supplying about 75% of feed required for its smelters, the remaining quantity being purchased from mines outside the United States. He said that the Tennessee discovery indicates the possibility of mining operations there that not only would make the company entirely self sufficient in smelter feed, even taking into account that some existing mines may be exhausted over the next several years, but could also make zinc concentrates available for sale to other United States smelters who now depend on foreign sources for all or part of their supplies.

Johnson said that the Middle Tennessee project has been accelerated due to favorable results in recent months and now will be further accelerated. A drilling plan is being continued at the first location to explore continuity of mineralization between ore penetrations and to study hydrologic environment in anticipation of locating and sinking a prospect shaft this Spring to permit more detailed exploration from underground. Closer spaced drilling will be undertaken in at least two other favorable locations and wide spaced drilling in the area will continue. He said that much time and work will be required to determine the full extent of the discovery, but that with continued favorable results it is likely that development of a mining operation or operations will be commenced in 1970".

The story behind this announcement is even more dramatic. The new field is located in an area several hundred miles from any previous mining activities and, therefore, had been believed to be free of any mineralization. However, Mr. Callahan through his years of association with and study of ore bodies, had developed his own theories as to the geology favorable for ore deposition. His study of the region convinced him that the geological conditions were favorable and that ore should be present. To substantiate his theories, he requested approval of the wide drilling program. His superiors showed their faith in his judgement and authorized that expenditure. The results of the drilling program have vindicated their judgement so that the new find represents a triumph for the organization and teamwork at the New Jersey Zinc Company. Rival mining companies, caught by surprise, are now actively acquiring land and mineral rights in the new field.

Our congratulations to Mr. Callahan and the New Jersey Zinc Company, whose stockholders should be very happy with the good news. As for us mineral collectors, we can only hope that the new deposits are well crystallized and will produce attractive specimens for our display cabinets.

* * * * *

New Books

Recommended for every mineral collector's library are three books recently published -

Fluorescence and Allied Radiations - by William Casperson
The Mineral Kingdom - by Paul Desautels
Minerals and Man - by Cornelius S. Hurlbut, Jr.

These books are interesting, comprehensive and authoritative. The Desautels and Hurlbut volumes are beautifully illustrated in color. All of the authors are good friends of the mineral collecting fraternity and personally known to many of our members. Their works belong on your library shelves.

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Mineral Picturizations

Your editor would like to acquire all picturizations such as photos, slides, color plates, sketches, etc. of Franklin/Ogdensburg minerals. Also, any non published information concerning mining operations in the area. Please communicate all offers to Frank Edwards, 100 West Shore Trail, Sparta, N. J. 07871, or phone 729-6043, area code 201.

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Mineral Notes

The last issue of The Picking Table (August 1968) contained a list of Validated Mineral Species Found at Franklin/Ogdensburg, N.J. All questions concerning this list have been resolved and no changes found necessary. However, work continues on Franklin minerals and two additions should now be made to this list.

(#251) Bronzite, a variety of Enstatite

In 1965, specimens from the partially altered area between the mud zone and the ore body, containing such copper alteration products as azurite, malachite, chrysocolla and covellite, were fairly plentiful. Some of these specimens contained yellow to bronze cleavages, which to your editor resembled bronzite specimens from Warwick and Tilly Foster. One such specimen was submitted to Harvard for verification. It was returned in September with

the notation that the X ray powder pattern exactly matched the standard pattern for bronzite, making this mineral 251 for the area. The verified specimen is on display at the Franklin Mineral Museum.

#252 - Anatase

Credit mineral #252 to the keen eyes of Dr. W. B. Thomas, our micromount expert. In the gray vuggy dolomite from the Buckwheat Dump Dr. Thomas had found a picture crystal, blue in color, of anatase, the low temperature titanium oxide. The crystal was mounted and displayed at the Micromount Symposium at Baltimore last September. Verification of the species was made by Joel Arem of Harvard University. The mount is now the property of Mr. William H. Trench.

Anatase was previously reported from Franklin but proved to be rutile. In this case, the crystal form is unmistakable.

Franklinite

A new report removes franklinite from the Franklin/Ogdensburg exclusive mineral list. Note:

"Pennantite from the Ushkatyn deposit, central Kazakhstan, U.S.S.R., occurs in stringers as much as 3 cm. wide cutting hematite or franklinite-magnetite ore and associated with friedelite, franklinite, and calcite or with calcite alone. The pennantite is monoclinic, with specific gravity 3.04, hardness 2.5; it occurs in brownish to black lamellar crystals with perfect cleavage; Chemical analysis by R.I. Zaytseva gave SiO₂ 21.29, Al₂O₃ 19.07, Fe₂O₃ 6.67, MnO 39.82, ZnO 0.97, H₂O 12.11, = 99.93. Formula (Mn,Zn,Al,Fe)(OH)₂(Si,Al)₁₀Mn₃(O,OH)." From Min. Abst., Volume 19, number 4, December 1968, page 307. Original article - Kayupova, M.M. - Pennantite from the Ushkatyn Deposit, central Kazakhstan - Dokl. Acad. Sc. U.S.S.R., Earth Science Section, 163, 97-100.

Bannisterite/Ganophyllite/Stilpnomelane

The following abstract should clear up some of the confusion as to bannisterite and ganophyllite.

Marie L. Smith and Clifford Frondel - "The related layered minerals ganophyllite, bannisterite, and stilpnomelane." Min. Mag., vol. 36, pages 493-913, and Min. Abst., vol. 19, no. 4, page 314. Abstract:

"Two monoclinic minerals formerly classified as ganophyllite have been differentiated by single crystal X ray data. True ganophyllite occurs at the Harstig mine, Pajsberg, Sweden, at the Benallt mine, Caernarvonshire, and in Aroostook County, Maine. The ganophyllite from the Harstig mine has a 16.60, b 27.04, c 50.34 Å, β 94°10'; space group A2/a; indexed powder data are tabulated; α (dark brown) 1.573, β (pale brown) 1.611, γ (pale brown) 1.613; 2V small, $\epsilon < \nu$; O.A.P. near [100]. A mineral also found at the Benallt mine and mentioned by Campbell Smith as having a different optical orientation has now been found to occur at Franklin, N.J. and is described as a new mineral - bannisterite.

At Franklin it occurs as aggregates of anhedral dark brown plates, associated with a greenish black manganoan amphibole, calcite, and baryte; this so-called "ganophyllite" was described by Foshag (A.M. 21-63). Chemical analysis of bannisterite from Franklin by J. Ito, gave SiO_2 46.20, Al_2O_3 4.74, MnO 23.02, FeO 6.40, ZnO 4.67, CaO 1.52, MgO 1.99, Na_2O 0.29, K_2O 1.21, H_2O 9.74, = 99.78; it has sp. gr. 2.92, a 22.20, b 16.32, c 24.70 Å, β 94°20'; space group A2/a; indexed powder data are tabulated. The name is in honour of Dr. F.A. Bannister who did the original X ray work on the Benallt material. Both ganophyllite and bannisterite are similar structurally to stilpnomelane from Deer Island, Maine. This stilpnomelane has a trigonal sub cell with x 3.2, c 36.4Å, whereas small distorted trigonal subcells for ganophyllite and bannisterite have a' 3.38, c' 37.7Å and a' 3.264, c 37Å, respectively."

Since the publication of this abstract, ganophyllite has been identified as present at Franklin. In May, 1968 Dr. Frondel took back to Harvard a specimen from your editor's collection which was marked "Bementite" by the original owner but which Dr. Frondel felt might be inesite. However, his X ray examination proved that the mineral was actually ganophyllite. This specimen is on exhibit at the Franklin Mineral Museum. On the basis of these reports, bannisterite

and ganophyllite continue on the validated list of Franklin/Ogdensburg minerals as shown. However, bannisterite should be added to the list of Franklin-Ogdensburg exclusive minerals, as it has not been reported from any other source.

This still leaves unresolved the identity of the bright brown micaceous appearing material from Franklin which was identified as ganophyllite by Dr. Brian Mason about five years ago. X ray identification of this mineral is now imperative.

Harvard Research on Franklin Minerals

On a recent visit to Harvard University, your editor checked with Mr. David Cook as to his research work on Franklin minerals. Mr. Cook reported that his paper on the leucophoenicite/baumite series of minerals has been submitted for publication. Several of the new minerals will be named after F.O.M.S. members who submitted specimen material for study.

Mr. Cook has also found two more new minerals, both exclusive to Franklin/Ogdensburg. The first is a zincian tephroite with a zinc content of about 40%. The second is a zincian fosterite.

He has also found that glaucochroite is far more plentiful at Franklin than originally believed. X ray analyses have shown that the brownish rim around esperite is glaucochroite. Also, that other gray massives are glaucochroite and not tephroite. However, the gray blue mineral, associated with Parker Shaft material, is glaucochroite as originally identified.

Mr. Cook's work on tephroite continues. X ray analyses of numerous specimens show that most of the gray tephroites are actually that species. However, the tan, pink or brown "tephroites" are suspect as most of them have proven to be other species. A number of X-ray identified specimens are now on display at the Franklin Mineral Museum.

Mr. Cook received his Master's degree from Harvard in January. However, his work in the immediate future is uncertain as he is awaiting a draft board call.

During this visit, Dr. Frondel showed your editor another new mineral from Franklin. The specimen was submitted by Mr. John Albanese and the new species will be named "albanesite" in his honor.

Barylite

June Ito and Clifford Frondel - "Syntheses of barylite, strontium-barylite and lead-barylite". Arkiv Min. Geol. Stockholm, vol. 4, pages 390-394, 1966. Min. Abst., vol. 19, number 2, page 109, June 1968. Abstract follows:

"Natural barylites have been analysed previously from localities at Langban, Franklin and from Vishnev Mts., Russia. $BaBe_2Si_2O_7$ and the isostructural compounds $SrBe_2Si_2O_7$ and $PbBe_2Si_2O_7$ have been synthesized by heating precipitated gels and by hydrothermal treatment. Heating in air at temperatures from 800° to $1150^\circ C$ lasted 10 to 24 hours; the hydrothermal crystallization took place at 450° to $750^\circ C$ under H_2O pressures of 2000 to 3000 bars in 48 to 72 hours. The synthetic barylite has a 9.82, b 11.67, c 4.69 Å; Sr-barylite a 9.70, b 11.56, c 4.61 Å; Pb-barylite a 9.73, b 11.60, c 4.62 Å. X ray powder data of natural and synthetic barylite are given. Unit cell dimensions and diffraction patterns are in close agreement. The $BaBe_2Si_2O_7$ crystals are biaxial, α 1.694, β 1.70, γ 1.706, 2V large, optical sign uncertain. The natural barylite from Franklin fluoresces a bright blue, but none of the synthetic minerals fluoresced perceptibly in ultraviolet radiation."

Chlorophoenicite

In his continuing study of the basic manganese arsenates and their structure, Dr. Paul B. Moore recently worked on the crystal structure of chlorophoenicite. Interesting abstracts from his paper follow:

"The unusual mineral chlorophoenicite was originally described by Foshag and Gage (1924). It is known only from the Franklin and Sterling Hill, New Jersey, zinc-manganese-iron oxide and silicate orebodies of the pyrometasomatic type in marbles, where the mineral occurs as needles and matted fibers associated with pyrochroite, gageite, willemite, etc. implanted upon open cracks and fissures. Although the mineral occurs sparingly, it has been witnessed in many collections and its identification is by no means simple due to its needle like habit."

"All basic manganese arsenates structurally analyzed so far have pyrochroite fragments as their principal units. Flinkite (Moore 1967) is a derivative structure of pyrochroite with octahedral voids permitting AsO_4 -3 tetrahedral linkages. Retzian (Moore 1967) is similar, but includes square antiprisms. Allactite (Moore 1968) has double bands of pyrochroite fragments linked to each other

to produce a strong sheet-like character. Gageite (Moore 1968), though not an arsenate, shares with chlorophoenicite the presence of octahedral triple bands, one 3.3 Å cell translation, and disorder over the tetrahedral positions.

As more of these peculiar structures come to light, two principal classes of structures appear to be prevalent. One class includes sheets of broken pyrochroite fragments (flinkite, retzian, allactite). The other class includes the fibrous minerals or the "pipe" structures, to borrow an apt term from Takeuchi. Included here are chlorophoenicite, gageite, hollandite, all having in common a fibrous habit with bands of edge-sharing octahedra running in that direction, linked to form bundles of tubular spaces. It is no surprise that chlorophoenicite, gageite, and fluoborite all belong to the same paragenesis at Franklin and Sterling Hill and often occur together. It is tempting to add that the myriads of fibrous materials encountered in the low temperature hydrothermal vein parageneses at Franklin, N.J. or Langban, Sweden may include an abundance of novel linkages hitherto undocumented in the annals of science."

Dr. Moore's abstract of his paper follows:

"Chlorophoenicite, $(\text{Mn}, \text{Mg})_3\text{Zn}_2(\text{OH}) \left[6(\text{AsO}_{0.5}\text{H}_{0.5})(\text{O}, \text{OH})_3 \right]_2$ with a 22.98, b 3.32, c 7.32 Å, $\beta = 106^\circ 0'$, $z = 2, 02/\text{m}$, was solved by vector sets applied to $P(\text{uw})$. The final R_{h01} , $h_{k0} = 0.122$ for 330 independent reflections. The principal structural features are infinite insular slabs of the formula units parallel to $a(100)$. Slabs are hydrogen bonded to each other only and perfect $a(100)$ cleavage is observed. The slabs are in turn made up of $\text{Mn}(\text{O}, \text{OH})$ octahedral pyrochroite fragments or bands three octahedra wide running parallel to $b(010)$ connected along $c(001)$ by $(\text{AsO}_{0.5}\text{H}_{0.5})(\text{O}, \text{OH})_3$ and $[\text{Zn}(\text{O}, \text{OH})_3]$ tetrahedral chains which also run parallel to $b(010)$.

The As atoms only half populate their sites and the $\text{As}(\text{O}, \text{OH})_4$ and H_4O_4 tetrahedra apparently order over one set of equivalent positions along $b(010)$ to form chains. As-O distances, however, are anomalous. The population sequence along a is infinitely variable and prominent streaks parallel to a^* and requiring a doubling of the b -axis are observed on photographs.

Chlorophoenicite is yet another example of pyrochroite fragment structure in the basic manganese arsenate group."

Paul B. Moore - "The crystal structure of chlorophoenicite". Amer. Min., volume 53, pages 1110-1120, July-August 1968.

Willemite

Hayashi, H., Nakayama, N., Hasegawa, K., Mizukusa, S., Noguchi, T., Ogiso, S., and Takagi, H. *"Phase transition under high pressure (V) Transition of (Willemite) ZnSiO_4 . Report Govt. Industr. Res. Inst., Nagoya, Japan, volume 14, pages 389-393, 1965. Min. Abst., volume 19, no. 2, June 1968, page 109. Abstract follows:

Willemite, synthesized from an equimolar mixture of quartzite and ZnO with a solar furnace, was subjected to high temperature-pressure treatment, using a tetrahedral anvil. X ray and microscopic examinations of the products revealed the following: (1) Above 3.5 kbar and 750°C, willemite decomposes into a monoclinic Zn-pyroxene and zinc oxide. (2) These products transform to an orthorhombic Zn-pyroxene and willemite at 37 kbar and 1250°C. (3) Subsequent transformation to a Zn-olivene takes place at above 42 kbar and 1500°C.

Axinites

Sanero, E. and Gottardi, G. - Nomenclature and Crystal Chemistry of Axinites - Amer. Min., volume 53, pages 1407-10, July-August 1968. Pertinent information for collectors is quoted:

"Heretofore the nomenclature of axinites was very simple; the only name accepted by everybody was "axinite" itself, sometimes associated with the adjective "manganous". Since most, if not all axinites are manganous, we felt that this nomenclature was inadequate and could be improved by reintroducing some old names. The nomenclature here proposed has been approved prior to publication by the New Minerals and Mineral Name Commission of the IMA."

"Although no rigid rules have been established so far for the naming of minerals, and a flexible pragmatism has also been preferred by the New Mineral and Mineral Name Commission of IMA, there is a tendency to associate each mineral name with a chemical formula, normally a schematic one, which ignores minor isomorphic replacements. In the case of a solid solution series, two names are accepted for the two pure end members. For minerals of intermediate composition, the name of the predominating molecule is used.

Our proposal for the axinites are as follows:

- 1) The name "axinite" must be used as a group name
- 2) The name "ferroaxinite" must be used for the end member $\text{Hca}_2\text{FeAl}_2\text{BSi}_4\text{O}_{16}$ and for those axinites with $\text{Ca} > 1.5$ and $\text{Fe} > \text{Mn}$. Please note that no axinite with $\text{Ca} < 1.5$ and $\text{Fe} > \text{Mn}$ has ever been found.
- 3) The name "manganaxinite" must be used for the end member $\text{Hca}_2\text{MnAl}_2\text{BSi}_4\text{O}_{16}$ and for those axinites with $\text{Ca} > 1.5$ and $\text{Mn} > \text{Fe}$.
- 4) The name "tinzenite" must be used for those axinites with $\text{Ca} < 1.5$ and $\text{Mn} > \text{Fe}$ (but usually $\text{Mn} \gg \text{Fe}$).

At this stage it is impossible to say whether tinzenite is an independent mineralogical species or only a variety."

Zincian and Manganooan Amphiboles

Cornelius Klein, Jr. and Jun Ito - "Zincian and Manganooan Amphiboles from Franklin, New Jersey." Amer. Min., volume 53, July-August 1968, pages 1264-75.

Abstract follows:

"Zincite and manganian amphiboles occur locally as coarse-grained, irregular masses in the skarn zones of the Franklin ore body. These amphiboles are associated mainly with calcite, rhodochrosite, rhodonite, tephroite, andradite, willemite and franklinite. Chemical analyses, optical and X ray parameters, and assemblage descriptions are given for three cummingtonites, nine members of the tremolite-actinolite series and one magnesioriebeckite. The cummingtonites show maximum ZnO and MnO contents of 10.8 and 13.79 weight percent respectively (1.22 and 1.83 atoms/half unit cell); members of the tremolite-actinolite series contain smaller amounts of ZnO and MnO, the maximum being 9.54 and 5.42 weight percent respectively (1.04 and 0.67 atoms/half unit cell); a magnesioriebeckite contains 7.84 weight percent ZnO and 4.16 weight percent MnO (0.86 and 0.81 atoms/half unit cell)."

Other information in the body of this article of interest to collectors is quoted:

"In his study of Franklin minerals, Palache (1937) reported the analysis and optical parameters of a zinc-rich cummingtonite but no other zinc-rich amphiboles are described in the literature. Manganian amphiboles are much more common in nature and have been studied by various authors.

The amphiboles of this study are of interest because of the large and variable amounts of Zn and Mn²⁺ that are present in their structure. These amphiboles which include members of the cummingtonite-grunerite series, of the tremolite-actinolite series and one magnesioriebeckite, occur in the skarn zones of the orebodies at Franklin. They are part of Zn-rich and Mn-rich assemblages which consist of rhodonite, tephroite, franklinite, willemite, calcite, rhodochrosite and other minerals."

Magnesioriebeckite - "This sodium amphibole is very dark green, almost black, and occurs as coarsely crystalline masses closely intergrown with rhodonite, calcite and franklinite. The MnO content (4.16 weight percent) of this magnesioriebeckite is less than that of magnesioriebeckite (5.9 weight percent) coexisting with a manganian cummingtonite (from Labrador) reported by Klein (1966). The ZnO content of 7.84 weight percent is somewhat smaller than that found in the actinolites of Table 3. The unit cell parameters of this magnesioriebeckite are very similar to those reported by Borg (1967) for end member magnesioriebeckite (Na₂Mg₃Fe₂³⁺Si₈O₂₂(OH)₂."

Zinc Rich Micas

Clifford Frondel and Marco Einaudi - "Zinc Rich Micas from Sterling Hill, New Jersey" - Amer. Min., volume 53, September-October 1968, pages 1752-54. Pertinent information for collectors is quoted:

"The occurrence of the zinc-mica hendricksite and of zincian and manganian varieties of phlogopite at Franklin, New Jersey, has been described by Frondel and Ito (1966). The present note records similar micas from the nearby zinc deposit at Sterling Hill. The geology and general mineralogy of the occurrence has been described by Palache (1935) and by Metsger, Tennant and Rodda (1958).

Nine partial analyses are cited. The occupancy of the octahedral layer has been calculated to a total of three cations on the assumption that the Fe and Mn are wholly present in the divalent state. On this basis, following rules for the nomenclature of the trioctahedral micas earlier suggested, the material of two analyses corresponds to hendricksite, that of one analysis to zincian and manganooan phlogopite and that of the remaining six analyses to zincian and manganooan biotite. These micas as a group contain more Mg and Fe and less Zn and Mn, with a higher Zn/Mn ration, than do the related micas from Franklin (Fig. 1).

Phlogopite lacking significant amounts of Zn and Mn occurs at both Franklin and Sterling Hill but is generally confined to the marble country rock. An extended search has failed to find micas from these localities or from Langban, Sweden, that contain Mn as the dominant trioctahedral cation.

The zincian and manganooan pyroxenes and amphiboles associated with mica at Sterling Hill and Franklin have been described by Frondel and Ito (1966) and by Klein and Ito (1968). On the whole, these minerals have a considerably lower Zn/Mn ratio than do the micas."

Additional Mineral Notes

Allactite - $Mn_7(OH)_8(AsO_4)_2$ - crystal structure determined by Dr. Paul Moore - double bands of pyrochroite fragments. (see article on chlorophoenicite earlier in this issue).

Epidesmine discredited - found to be identical to stilbite. Name to be dropped by IMA.

Gageite - previous paper corrected by Dr. Moore. There is no relationship between gageite and harstigitite.

Gamisgradite discredited; found to be hornblende. Name to be discontinued.

Kentrolite - Drs. Frondel and Ito give data on synthesized kentrolite-melanotekite series.

Larsenite - $PbZnSiO_4$ - crystal structure determined by Prewitt, Kirchner and Preisinger. Found to be a new type of structure composed of a network of corner-linked Zn and Si tetrahedra and 3-sided and distorted 4-sided Pb pyramids, respectively.

Pyroaurite - $Mg_6Fe_2(OH)_{16}(CO_3).4H_2O$ - crystal structure determined by Ingram and Taylor.

Sphalerite - Roedder and Dwornik investigated normal sphalerite coloration (colorless through yellows to dark red brown) which has generally been attributed to iron content. Their electron microprobe scanning and analyses of individual thin colloform bands show that although total iron content does vary with the banding, it cannot be correlated with band color in the samples. They conclude that the true coloring mechanism is not known.

Todorokite - Nambu, Okada and Tanida give four chemical analyses for todorokite and propose the following formula $(\text{Mn}^{2+}, \text{Ca}, \text{Ba}, \text{Mg}, \text{Na}, \text{K})\text{Mn}^{2+}_3\text{O}_{7.2+x}\text{-H}_2\text{O}$

Zincite - Gevork'yan, Platonov, and Povarennykh report that the optical absorption spectrum of red zincite shows the presence of Mn^{2+} which is apparently responsible for the red colour.

* * * * *

Harvard-New Jersey Zinc Company Correspondence

Recently your editor was permitted to examine the correspondence during the 1920's and 1930's that passed between Charles Palache and Harry Berman of Harvard University and David Jenkins and Lawson Bauer of the New Jersey Zinc Company. Much of the information contained in these letters has been incorporated in Palache's Professional Paper #180 - The Minerals of Franklin and Sterling Hill, Sussex County, New Jersey. However, the correspondence contains other nuggets of interest to Franklin collectors which have not appeared previously in print. It is a privilege to bring some of these passages to your attention.

Jenkins to Palache - 9/14/25. "We are interested in the investigation of minerals that occur at these deposits for two reasons; first from a scientific point of view, and second, for any impurities they may contain that might affect our products. Knowing that your interest is purely scientific we are delighted to do anything that may be of assistance to you."

Palache to Bauer - 9/29/25. "The specimen of white pyroxene sent by Mr. Jenkins was duly received in my absence. It is a remarkable looking mineral, very different from anything I have seen from Franklin. A study of the analysis which Mr. Jenkins sent, showed that it was almost a typical diopside and not leucaugite in which there is an essential amount of alumina. Mr. Berman has determined the indices which confirm its place as diopside. It is the only analyzed diopside we have from Franklin."

Jenkins to Palache - 3/12/27. "There was a large amount of native lead that made its appearance on the (Picking) table this week and we have taken off a number of pieces from the table. It was a shame to see chunks about two feet in diameter with a coating of native lead thrown in the bin to be shipped with the leaded ore to Palmerton. We will keep the specimens or will send you some if you would care to have them as they are associated with serpentine of the vorhauserite variety."

Palache to Jenkins - 11/18/27. "I think you will be interested to know that we feel that we have practically identified the tiny red crystals which accompanied the wonderful hodgkinsite-green willemite specimen. You may recall that we had a suspicion that they were hetaerolite. Further investigations showed that they were orthorhombic and the indices led us to a place in the tables that indicated possibly descloizite. We then found that they were readily soluble in acid, giving vanadium, and on looking again at Mr. Nitchie's spectroscopic analysis, I discovered that he had identified lead and vanadium and

suggested arsenic as possible constituents. It may be that they are manganese descloizite instead of zinc compounds but, of course, there is not enough for further tests. At any rate their place is practically fixed. It would seem an odd place for this mineral were it not that the arsenates turn up everywhere in Franklin, and arsenic and vanadium replace each other in such minerals as these."

Berman to Bauer - 2/24/37. "I received a letter the other day from Captain Rowe saying that he had already told you something of the new mineral we have found in his collection and are going to name in his honor. I believe this is the proper thing to do since Rowe has actually preserved a great many fine things from Franklin.

Roweite is a hydrous manganese calcium borate with a formula analogous to that of sussexite with half the manganese replaced by calcium. The relation between rhodonite and bustamite might be considered in the same way, and I believe roweite to be not simply a calcium sussexite but a distinct species just as bustamite is distinct in every respect from rhodonite.

There are no terminated crystals of this material but we have succeeded here in determining the symmetry as well as the dimensions of the unit cell from an X ray study. This shows the mineral to be definitely orthorhombic and also shows that the composition as we have it is correct with four molecules of $H_2MnCa(Bo_3)_2$.

The mineral is light brown in color, consisting mostly of radial aggregates of tiny laths or of cross fibers in the narrow vein in which it occurs.

The size of the original specimen was about three quarters of a square inch by one quarter of an inch in thickness. I have sent Captain Rowe some of it and I am sending you another piece under separate cover. As far as I know, these three specimens represent the total of all the roweite, but I am hoping that some more will turn up soon."

With sorrow we announce the sudden death of Edward Selems of Franklin, New Jersey. Mr. Edward Selems was the current president of the Franklin Mineral Museum and for the past eight years headed the committee that produced the Annual Franklin Mineral Show for the Franklin Kiwanis Club. Mr. Selems was a good member of this Club and a friend to all Franklin collectors. He will be missed.

It was a shock to learn that another good friend, John Albanese, has gone. John was a major figure in Franklin mineralogy. He contributed greatly to our fund of knowledge through his studies, and as a writer and speaker. As a dealer, he supplied many fine specimens for our public and private collections. John's death is a great loss to every collector. He too will be sorely missed.

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