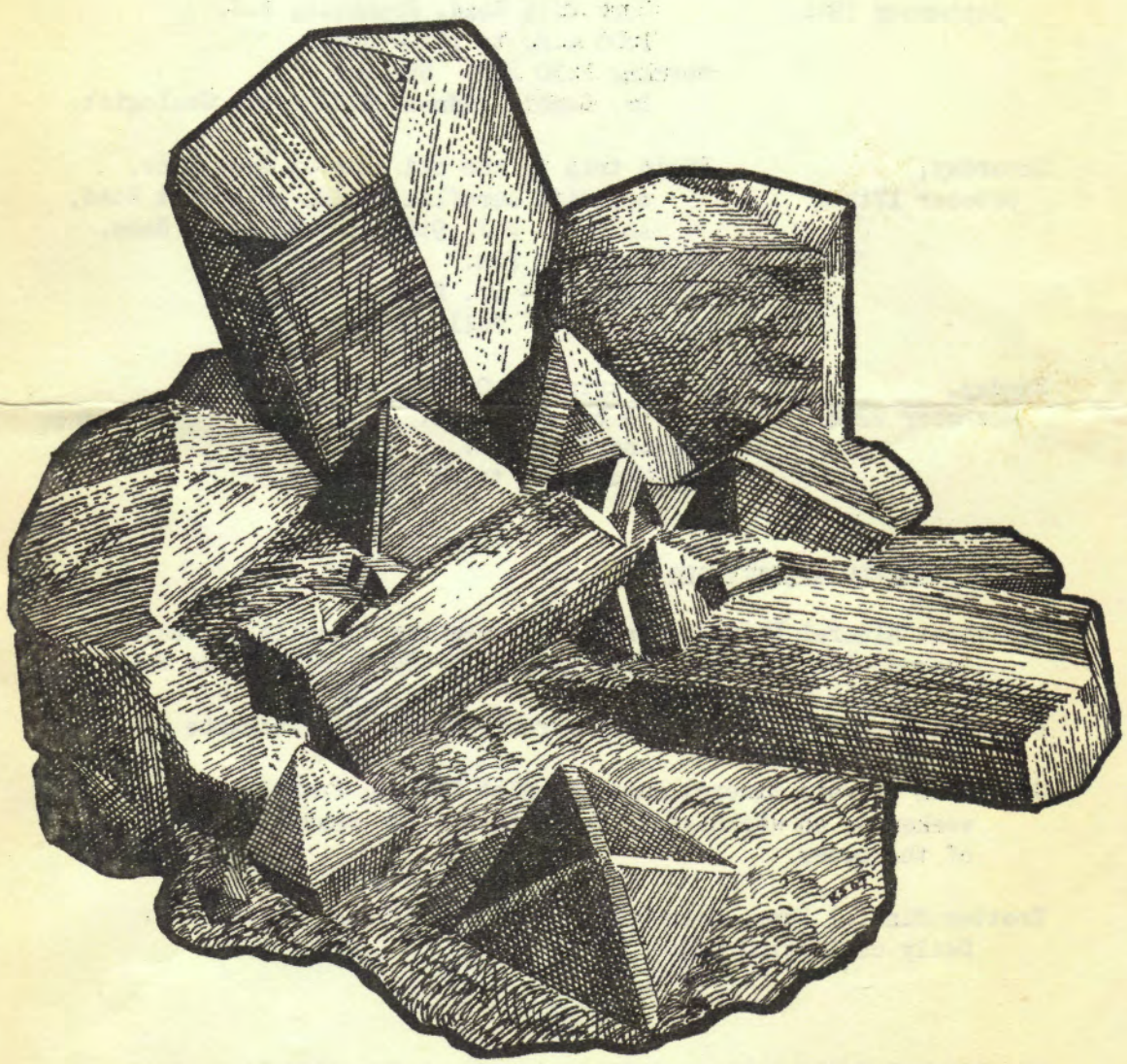
THE PICKING TABLE

JOURNAL OF THE FRANKLIN·OGDENSBURG MINERALOGICAL SOCIETY



VOLUME 11 AUGUST 1970 NUMBER 2

CLUB PROGRAM - FALL 1970

All meetings will be held at the Hardyston School, intersection of Routes #23 and #517, Franklin, New Jersey. Pre meeting activities start at 1:00 P.M. Speaker will be introduced at 2:30 P.M.

Saturday September 19th	Field trip to the Cellate Quarry, Cork Hill Road, Franklin, N.J. 9:00 A.M. to 12:00 Noon. Meeting 2:30 P.M. Speaker - Dr. Kemble Widmer, N.J. State Geologist.
Saturday, October 17th	Field trip to the old Andover Iron Mine, opposite Aeroflex Field, Limecrest Road, Andover, N.J. 9:00 A.M. to 12:00 Noon. Meeting 2:30 P.M. Speaker - Dr. Kurt Nassau, Bell Laboratories.
Sunday, November 22nd	Field trip - 9:00 A.M. to 12:00 Noon. To be announced. Meeting 2:30 P.M. Speaker - to be announced.

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. Entrance fee.

Gerstmann Private Mineral Museum, Walsh Street, Franklin. Open weekends; on weekdays by arrangement. No charge, courtesy of the owner.

Trotter Mineral Dump, Main Street (behind the Bank), Franklin. 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; the mimeo and typing by Louise W. Borgstrom; the cover by Kenneth Sproson.

F.O.M.S. OFFICERS FOR THE YEAR 1970

President	Alice L. Kraissl	Box 51, North Hackensack, N.J.
Vice President	Henry M. Althoen	319 Third Street, Dunellen, N.J.
Secretary	Louis Benedict, Jr.	442 S. 21st St. Irvington, N.J.
Treasurer	Bernard Kozykowski	Box 634, Port Jervis, N.Y.
Asst. Treasurer	Robert Thomas	802 Lindsley Drive, Morristown, N.J.

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Frank Z. Edwards	'70	William Spencer	'71
John E. Sebastian	'71		

COMMITTEE CHAIRMEN

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Field Trip Registration	Trudy Benedict
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Identification	John L. Baum
Membership	Bernard Kozykowski
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Program and Entertaining	Frederick A. Kraissl
Publicity	Betsey Althoen
Publications	Frank Z. Edwards
Safety	John E. Sebastian
Welcoming	Jennie Areson

F.O.M.S. Notes

Program Chairman Frederick A. Kraissl and Field Trip Chairman John E. Sebastian have completed plans for the F.O.M.S. Fall program, which promises to be as interesting as our Spring events. As usual, details will be given in the monthly bulletins. Please note dates and plan to participate.

The Nominating Committee headed by John E. Sebastian, which will present a slate at our October meeting, asks F.O.M.S. members to communicate their personal choices as to desirable candidates for open positions.

John also needs additional members for his Safety Committee. If you can help in this capacity, please get in touch with Mr. Sebastian.

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We regret to announce the loss of another of our honored members, William C. Casperson. Mr. Casperson was one of the founders and the first president of the North Jersey Mineralogical Society. As Curator of the Paterson Museum, for many years until his retirement, he built up the very impressive collection of Franklin and Paterson minerals on display at that institution. When active in New Jersey, he was a keen student of Franklin minerals and mineralogy and he retained that interest to the very end. By permission of his widow, Mrs. Marian Casperson, we are reprinting his article on Franklin heulandite and stilbite which appeared in Rocks and Minerals in May, 1956.

Mrs. Casperson advises that she will continue to operate the Casperson Rock and Shell Shop on Route #1, Micco, Fla. (mail address Route #1, Box 377, Sebastian, Florida, 32958). Mr. Casperson's personal fluorescent collection is now for sale. If interested in this fine collection, please communicate with Mrs. Casperson

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Recently Vice President Henry Althoen received a letter from one of our more distant members, Mr. Robert Barnard of Bothell, Washington, which contained several paragraphs of interest to our members. We quote:

"Well, as to me, I still work and plan my vacations in the interest of fluorescence. This as a direct desire to tell the people of this area about the wonders in rocks that I first learned at Franklin. All of our members would be completely surprised how much Franklin, N.J. is on the map in this area. I was so much impressed by the color of Franklin minerals that I have been on a one man campaign to tell others about it for now seven years. They have been the best seven years I have spent in our hobby and that is the reason why I am glad to be a member of our Club.

I was in Franklin for only a few minutes last summer. I delivered some lamps on order to the Museum. This was because I was in Washington, D.C. and was going to Boonton before returning. While there I was shown the new Fluorescent display by the lady in charge. It was a beautiful sight to see. I also learned that a couple from Seattle bought one of the new field lamps a few days before. If any of our members don't realize that this hobby is stretched far and wide, I got the name of that couple and on returning to Seattle, I contacted that couple and found out I had sold them a small lamp three years ago.

In the East, fluorescence is taken as a common thing, due to the closeness of Franklin, but here the situation is the reverse. Two weeks ago, the Club I was president of last year held their Annual Show. I had a 7' x 16' display there; a perfect room to display in, and in two days gave a 20 minute lecture on fluorescence every hour and showed to about 1400 people in the two days. I enjoyed doing this."

Henry Althoen became acquainted with Mr. Barnard when he spent a year working in the Seattle area. Mr. Barnard operates a mineral shop, specializing in fluorescents at 2609 - 168th Street, S.E., Bothell, Washington.

Franklin Notes

The Kiwanis Club of Franklin, N.J. announces the 14th Annual Franklin-Sterling Mineral Exhibit for the second week in October. On Saturday, October 10th, hours will be 9:00 A.M. to 9:00 P.M.; on Sunday, October 11th, from 10:00 A.M. to 6:00 P.M. Daily admission charge $1.50 for adults, $.75 for children. Location, as usual, will be at the Franklin Armory, Routes #23 and #517, Franklin.

The admission charge will provide entrance to the Exhibit Area at the Franklin Armory; admission to the Franklin Mineral Museum with tours of the Mine Replica and the 35 ft. Display of Fluorescent Minerals; and admission to the Buckwheat Dump for mineral collecting. Free bus service between these attractions will be available.

This exhibit is one of the annual highlights for everyone interested in Franklin minerals. Come early and stay late.

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Other Notes

A new magazine of interest to mineral collectors has just published its first issue. This is The Mineralogical Record edited by John S. White, Jr. (of the Smithsonian Institution). Objective is to provide information for all collectors through semi technical articles. Both novices and more knowledgeable collectors should appreciate news and articles on minerals in language that they can comprehend. Featured in the first issue are articles by Clifford Frondel, Brian Mason and Richard A. Bideaux. Permanent columnists are Paul E. Desautels and Neal Yedlin.

The subscription price is $6.00 per year; from The Mineralogical Record, P.O. Box 783, Bowie, Md. 20715. Please advise if you wish your subscription to start with the first issue, Vol. 1, No. 1.

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Mineral Information

HEULANDITE AND STILBITE
From Franklin N.J.

by William C. Casperson

Minerals, even rare ones, may still be found on the Buckwheat Dump at Franklin, N.J. zinc mines although the material has been picked over again and again.

Sometimes the results of even a casual find will be surprising when followed by close and minute observation.

We visited the dump last summer with some friends who had never been there, and Mrs. Casperson idly picked up a few small pieces of the porous gray dolomite rock on the theory that the innumerable small cavities in it are always interesting when put under the binocular microscope.

And so they turned out!

Upon examining the dolomite we found several vugs containing clear and brilliant crystals of heulandite. They occur in little groups of a few crystals each and are colorless.

In other cavities we found tiny stilbite crystals, hundreds of them, yellowish in color. These are situated on and around clear crystals of quartz, and occur in the familiar sheaf like bunches and as individual crystals. On the outer surface of the dolomite the stilbite lies in flat rosettes.

In some forty years of collecting and studying the Franklin minerals I have never before seen exactly this same association of zeolites with the dolomite, although the zeolites heulandite and stilbite have been found in the Franklin mines.

Palache's classic work on the Franklin minerals, USGS Professional Paper 180, says "Heulandite has been seen only once ------from the 1000 ft. level in the Sterling Hill mine (Ogdensburg).

Further, he says: Stilbite was found in clusters of indistinct crystals - - - - - in pegmatite." Palache also reported stilbite from the 900 foot level in the Sterling Hill mine.

The crystals of heulandite and stilbite which we have are microscopic, to be sure, but are beautifully crystallized and unmistakeable.

This occurrence would have been passed by and never observed had it not been for the binocular microscope in the study of minerals and the possibility, even probability, of finding with enjoyment many beautiful crystal formations entirely lost to the ordinary vision.

The dolomite rock also contains small flakes of graphite, as it usually does, with sphalerite, both black and honey colored, and fine crystals of dolomite."

(This article originally appeared in Rocks and Minerals, May-June, 1966, page 245.)

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Franklin #254 - Fluoredenite

Fluoredenite is listed by Hey as #17.2.18a, a clino amphibole with the formula $Na\ Ca_2\ Mg_5Si_7Al\ O_{22}F_2$.

Specimens from the Gooseberry Mine Dumps, Franklin, N.J. submitted by Mr. Robert Coffee of Rochester, N.Y. have been Xray analyzed at Indiana University by Miss Jacque Bond (verified by Professor Bick) and found to contain fluor edenite. Mr. Coffee has also forwarded specimen material to Harvard University for additional substantiation.

The story of this find of fluor edenite is most remarkable and can best be told in the words of Mr. Coffee himself, who I quote:

"Memorial Day weekend, 1968, was a long one:- four days. Thus the Rochester Mineral Club had scheduled a field trip to Franklin, N.J., and the recently opened Trotter Dump. As a new member of the group I was anxious to go along since this was to be my first experience in the field and I was eager to find out what it would be like.

The first scheduled stop was at the home of the Aresons (Middletown, N.Y.) where we were warmly welcomed and introduced to their remarkable private collection. We received a broad exposure to the fluorescents of Franklin here and later to wider assemblages of both the varied minerals and the fluorescents of the area at the museum of Ewald Gerstmann. The next day we tried our luck on the Trotter with varied success.

By Saturday afternoon, after a day and a half of collecting under a hot sun, our group haddwindled to Bill and Laverne Lawrence, their daughter Pat, Paul Otto and yours truly, plus Lee and Jenny Areson who had joined us on Saturday to give us the benefit of their experience.

Lee wondered whether we had had enough of the Trotter for the moment and suggested a special location of his own. The diehards, we five, were still eager and off we went to collect some cleiophane. Lee's knowledge was so precise in this instance that in a very short time we assembled over one hundred pounds of good material. What could we do for an encore?

Our active leader for the day, Paul Otto, mentioned that apatite was to be found on the Gooseberry. So off we trekked into the woods. The apatite crystals were few and far between but we were having fun. Picking up a small rock I noticed some greenish yellow spots and wondered whether it might indicate apatite just below the surface (what a novice I was then!). I passed the stone to Paul who in turn passed it to Lee. If any comments were made I did not hear them. In any case Lee dropped the stone to the ground where I later ran into it again. In some ways it was distinctive to me and obeying my collecting instinct I again picked it up and placed it in my pocket. Later it was dumped unceremoneously in with the rest of my treasures.

That evening, our collecting done (we thought), the adventurous five were relaxing in my motel room over a cool collins. It was now ten o'clock and of course quite dark outside. Suddenly someone had the brilliant idea of examining our finds under U.V. light. Pat went outside to bring in one of the boxes and, as luck would have it, or there would be no story, returned with mine. Under the U.V. lamps the Franklin fluorescents blazed forth in all their glory; the red and orange calcite, the greens of willemite, and the lovely blue of cleiophane with a smattering of pink sphalerite. But what was this? Over in one corner of the box shone a brilliant yellow. No one in the club had found any yellow fluorescing material that we were aware of. The color was so brilliant that no one could say that it represented one of the minerals that we had seen at the Aresons or Gerstmann. I recognized the piece immediately as being the one I had questioned Paul and Lee about earlier. Thus I explained to the others just where I had found it and that it was a fragment of a larger piece.

Let's go see if we can find some more we all chorused since Paul assured us that the Gooseberry was not supposed to have fluorescents. Undaunted (and relaxed from the collinses) we collected our hand lanterns and our portable U.V. lamps. Around midnight we again ventured forth. Gingerly feeling our way through the woods we arrived back at the dump where our search resumed. Of the mating piece to my find no trace could we discover. However, after considerable effort, we did locate two more specimens resembling the original. These were subsequently broken up and divided among the five of us.

Since no one could identify the material (and we talked to many) I brought the piece into my company's laboratory (Eastman Kodak) for analysis. Imagine our surprise when the preliminary analysis came back. To all appearances the material presented an X ray diffraction pattern similar to that of norbergite but it was not norbergite. Spectroanalysis showed a high calcium content of the order of 10/15%. Even European norbergites had a maximum calcium content of 1/2%. But it was apparently a hyrated fluoro-silicate of calcium and magnesium. Did we have a new mineral? It looked like it. We were all excited and I was even more so. Imagine discovering a new mineral on my first field trip.

Company business was interfering with further confirmational analysis and the time dragged. We showed our specimens to all we ran into who had any knowledge of Franklin minerals but no one could identify it. Finally Pat Lawrence, who was taking a geology major at Indiana, persuaded her professor to have a look at it. It excited him too, and he had one of his senior students undertake an analysis. The report finally came in. No, it was not a new mineral. The brilliant yellow fluorescing spots were a physical mixture of norbergite (dull yellow orange) and fluor-edenite (bright blue white). At the same time five other samples were analyzed which had been collected on subsequent trips to the Gooseberry in a vain attempt to locate some more of the original material. Three of them proved to be norbergite and one calcite. The reamining specimen (the others fluoresced yellow to yellow-orange) fluoresced a blue white and analyzed to be fluor edenite. This is not a new mineral but to the best of our knowledge this is the first time that it has been reported as a fluorescing mineral from Franklin or anywhere else." (end of quote)

Mr. Coffee was fortunate not only in his find but also in that he could not show his specimen to any one in Franklin, where any "expert" would have assured him that he had good fluorescent norbergite (which does vary in fluorescent response) and is common in the Franklin limestone. Lacking such on the spot "identification" he had to send his specimens away for analysis (paying the costs out of his pocket) but was rewarded with the discovery of a new fluorescent mineral.

The association of fluor edenite with norbergite causes no surprise for the formula for they are both fluorine bearing. Now that fluoredenite is known and will be sought, I feel that additional specimens should come to light. Some of our blue fluorescent amphiboles in the Franklin calcite or limestone that we have hitherto assumed to be tremolite or some other species may on analyses (or check for fluorine) prove to be fluor edenite. Particularly, check those associated with norbergite.

But the identification of fluor edenite is not the end of a good story. Since his first exposure to Franklin, Mr. Coffee has been a frequent visitor to the Trotter Dump. Recently he found another specimen with an unusual yellow orange fluorescence. This was another unknown and has been sent to Harvard University for identification. Preliminary examination seems to indicate that this material may be Dahllite or Carbonate Apatite. This would also be a new mineral for Franklin. Final identification by Dr. Frondel and his staff is being awaited.

Mr. Coffee has truly established a record that will be hard to beat. Frankly, I would not be at all surprised if he came up with number three soon. More power and good luck to him!

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New Age Data for Franklin and Sterling Hill

In his last talk to the F.O.M.S., Dr. Clifford Frondel advised that the Uraninite crystal found at the Sterling Hill Mine had been sectioned and a portion sent to Cal Tech for age determination. Dr. G. J. Wasserburg of that institution has now advised that the age of the normal ore at Sterling Hill has been dated as 955 (±30) million years, by lead isotope methods on the uraninite crystal portion. Comparable but much less precise ages were obtained on thorite and zircon from the metasedimentary Cork Hill gneiss.

Dr. Oliver Schaeffer, of the University of New York at Stony Brook has also determined the age of the skarn at Franklin by Potassium-Argon measurements on hendricksite as 900 (± 45) million years. Earlier K-Ar measurements by Long and Kulp in 1962, gave 905 million years for phlogopite from Sterling Hill, 810 million years for hendricksite from Franklin, and 903 (±25) million years for the Franklin marble.

Additional details are given in Dr. Frondel's paper entitled "Scandium Content of Ore and Skarn Minerals at Franklin, New Jersey", which appears on pages 1051-54, in the May/June 1970 issue of the American Mineralogist, Vol. 55, Nos. 5-6 - relevant portions of which are quoted later in this issue of The Picking Table.

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Manganopyrosmalite

Abstract of paper entitled "The Crystal Structure and Polytypism of Manganopyrosmalite" by Takeuchi, Kawada, Irimaziri and Sadanaga, which appeared in the Mineralogical Journal of Japan, volume 5, 1969, pages 450-467 and Mineralogical Abstracts, March 1970, volume 21, number 1, page 19.

"The crystal structure of manganopyrosmalite has been determined. There are two chemical units of $(Mn,Fe)_8Si_6O_{15}(Oh,Cl)_{10}$ in the unit cell of symmetry $P\bar{3}m1$ with a 13.42 and c 7.59 Å. The reciprocal lattice constructed from Weissenberg photographs revealed a marked substructure corresponding to the pyrochroite layer, suggesting that the structure contains the same type of layers. The structure analysis was therefore initiated with this assumption in mind, and a completement structure consisting of Si and O was determined revealed that a silicate sheet of a new type is contained, which is composed of 12-, 6-, and 4-membered rings of SiO_4 tetrahedra with the ratio of 1:2:3, and the whole structure is built up of layers composite of a pyrochroite-like Mn octahedral sheet and a silicate sheet. Since this structure is the first example of Mn sheet silicates which, owing to the large size of Mn ions, inevitably exhibit considerable misfits between octahedral and tetrahedral sheets, some details of deformations of these sheets are described. The structures polytypic of this crystal and having three fold axes are derived and possible polytypic relations between manganopyrosmalite-pyrosmalite and schallerite-friedelite are discussed."

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Pyrosmalite

Abstract of paper "Pyrosmalite from the Dzhumart and Ushkatyn Deposits of Central Kazakhstan." by M.M. Kayupova - Dokl.Acad. Science, U.S.S.R., Earth Science Section, volume 159, 1964, pages 82-85. Also Min. Abst., March 1970, vol.21 no.1, page 56.

"Pyrosmalite occurs in discordant stringers in iron-manganese ore and is associated with chlorite, calcite, galena, sphalerite, chalcopyrite or barite. It forms green to brown lamellar aggregates and has sp.gr. 3.07 with ω1.671, ε1.636. Chemical analyses gave SiO_2 32.39, FeO 21.41, MnO 32.39, ZnO 0.07, H_2O+ 10.22, Cl. 3.62, less Cl = 00.81, total 99.29. X ray powder data and d.t.a. results are given. Unit cell constants are a 13.39, c 7.18Å. It is suggested that pyrosmalite is of hydrothermal origin but is unrelated to early and middle Palazeozoic intrusive rocks of the district."

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Pyroaurite and Sjogrenite

"Rhombohedral pyroaurite ($R\bar{3}m$, a 3.1094, c 23.4117 Å at 21°C) consists like sjogrenite ($P6_3/mmc$, a 3.113, c 15.61 Å) of positively charged brucite like layers $(Mg_6Fe_2^{3+}(OH)_{16})^{2+}$ alternating with disordered negatively charged interlayers $(Co_3.4H_2O)^{3}$. Mg and Fe are randomly distributed among the octahedral positions. The OH layer sequence is BC-CA-AB-BC- in pyroaurite and BC-CB-BC in sjogrenite. Intergrowths of the two minerals showed no mixed layer structures. The reason for this and the nature of related mineral structures is discussed." Abstract of paper "The Crystal Structure of Pyroaurite" by R. Allmann - Acta Cryst., Volume B24, 1968 pages 972-977; Min. Abst. March 1970, volume 21, page 18.

"A specimen of pyroaurite from Langban, Sweden consists largely of sjogrenite in which segregation and ordering of the metal cations has occurred giving an intergrowth of two types with probable compositions near $Mg_{2/3}Fe_{1/3}(OH)_2(-C_{O3})_{16}(H_2O)_{0.4}$ and $Mg_{12/13}Fe_{1/18}(OH)_2(CO_2)_{1/26}(H_2O)_{0.8}$. It is suggested that the names sjogrenite and pyroaurite be used respectively for the 2H- and 3R- polytypes of this structure irrespective of Mg/Fe ratio, segregation, or cation ordering." Paper by H.F.W. Taylor "Segregation and cation-ordering in sjogrenite and pyroaurite" Min. Mag., volume 37, 1969, pages 338-342, Min. Abst., March 1970, volume 21, page 67.

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Scandium Content of Ore and Skarn Minerals.

Paper by Clifford Frondel - "Scandium Content of Ore and Skarn Minerals at Franklin, New Jersey" - in the American Mineralogist, May-June 1970, volume 55, numbers 5/6, pages 1051-54. Full paper quoted but one table omitted.

"The skarn zones locally present in the orebody at Franklin, New Jersey are believed to represent metamorphosed interbedded lenses of argillaceous material in a sedimentary Mn-Zn deposit of Grenville age. Callahan (1966) has suggested that the original deposit was of the sub-aqueous volcanic exhalative type. The skarn zones are intercalated with normal franklinite-willemite-tephroite-calcite ore and consist mainly of andradite, rhodonite, hyalophane, pyroxenes, amphiboles, hendricksite and calcite, together with a large number of minor constituents. Descriptions of the skarn minerals have been given by Palache (1937), Frondel and Ito (1966a,b,c), Klein and Ito (1968) and others.

The geologic setting of the Franklin area has been described by Hague et al (1956). The age of the normal ore has been dated (by Dr. G. J. Wasserburg, California Institute of Technology, but much less precise ages were obtained on thorite and zircon from the metasedimentary Cork Hill gneiss. The age of the skarn has been determined (Dr. Oliver Schaeffer, University of New York at Stony Brook, 1969) by K-Ar measurements on hendricksite as 900 ± 45 m.y. Earlier K-Ar measurements by Long and Kulp (1962) gave 905 m.y. for phlogopite from Sterling Hill, 810 m.y. for hendricksite from Franklin, and 903 ± 25 m.y. for the Franklin marble. These ages indicate that the present mineralogy of both the ore and the skarn was imposed during the same metamorphic event. Lower grade metamorphism may have taken place during Paleozoic orogenies. The carbonate veinlets present along fractures in the orebody, and small replacement areas in the skarns, may be related thereto. They contain a low temperature hydrothermal assemblage of minerals that derived their content of metal locally.

The Franklin orebody represents a type of deposit from which Sc analyses have not hitherto been reported (Table 1). The main host minerals for Sc in the skarn are pyroxene, amphibole and garnet. These minerals together with biotite are also the main host minerals for Sc in metamorphic and igneous rocks. The general level of Sc content found here is low in comparison. Very small amounts of Sc are found in the hendricksite, feldspar, rhodonite, idocrase and accessory minerals of the skarn. The low content of Sc in hendricksite, a Zn-Mn mica, is noteworthy, since the biotite of metamorphic and igneous rocks typically contains Sc from roughly 20 to 80 ppm.

The equilibrium Sc partition ratio for hornblende/biotite reported by Tilling, Greenland and Gottfried (1969) in various igneous rocks mostly range from 3 to 10 and tend to be higher than in metamorphic rocks. Hendricksite generally is absent in Franklin assemblages that contain abundant amphibole or pyroxene. The only partition ratio that could be obtained on the pair amphibole (cummingtonite/hendricksite) had the high value 18.6. The Sc partition ratios for garnet/biotite reported by Engel and Engel (1960) for various paragneisses are in the range 8 to 10. The two determinations here obtained on andradite/hendricksite both gave values of 30. There is a wide variation in the SC content of an individual mineral in different skarn specimens, and in the partition ratio of andradite/rhodonite (from 1.9 to 80). This variation is indicative of non-equilibrium conditions.

In the normal ore, franklinite is the main host mineral (Table 1). This correlates with the mutual substitution of Sc and Fe observed experimentally in the spinel structure type (Maxwell and Pickart, 1954). The average content of Sc in the normal ore calculated from the relative abundance of the minerals as given by Frondel and Ito (1966a), is 1.3 ppm. The average Sc content of the skarn, calculated from the average contents of the minerals listed in table 1, and their relative abundance, is about 10 ppm. Volumetrically, the great bulk of the Sc in the deposit is present in solid solution, in substitution for Fe^{3+}, in the franklinite and andradite."

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Barysilite

Abstract from paper by D. Bourdeaux and J. Lajzerowicz - "Synthese de la Barysilite" Bull. Soc. franc. Min. Crist., volume 92, 1969, pages 383-385. Min. Abst., March 1970, volume 21, no. 1, page 37.

"Barysilite was synthesized by pelleting a stoichiometruc mixture of SiO_2 and PbO at 10 tons/cm^2 and by heating the pellet to around 800°C when it became molten and recrystallized slowly to form $Pb_2Si_2O_7$. It has a 10.204, c 38.977 Å; space group $R\bar{3}c$, Z = 18; the indexed powder data are tabulated. The cell parameters and IR spectra of the compounds with general formul $XPb_8(Si_2O_7)$ are discussed; with X = Pb the IR curve shows a strong absorption at 665 cm^{-1}. The melting temperature is given as 712°C."

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Additional Mineral Notes

Bustamite/Rhodonite

P.G. Manning has reported on the optical absorption spectra of bustamite and rhodonite. He attributes the pink color of rhodonite to octahedrally bonded Mn(II) bands on strong background absorption. (Canadian Mineralogist, volume 9, 1968, pages 348-357). (Min. Abst. Sept. 1969, volume 20, page 191.)

Franklinite

Additional studies on franklinite provide more data. Yagnik and Mathur through Mossbauer studies have shown that both Mn and Fe are present in the trivalent state in franklinite, which has a spinel structure. (Indian Journal Pure & Applied Physics, volume 6, 1968, pages 211-3) (Min. Abst., March 1970, vol. 21, page 17).

Barasonov and Kolesnkov investigating the magnetic properties of franklinite present data to show that the Curie point is appreciably sensitive to isomorphism in the minerals franklinite, magnetite and jacobsite, and that the thermo-magnetic method, using unit cell constants and Curie points, is more effective than the X ray powder method for determining chemical composition. (Dokl.Acad.Sc.U.S.S.R. Earth Sci.Sect.,vol.171,1966)(Min. Abst., March 1970, volume 21, page 65).

Idocrase (Vesuvianite)

Joel Arem and Charles Burnham (both of Harvard University) have found that Idocrase from several localities crystallized with space groups not previously reported for this mineral. Cell dimensions of the various modifications are all similar. Structural differences indicated by these symmetry variations are not controlled by gross changes in chemical composition, The space group was determined with crystals from Sanford, Maine and Franklin, N.J. The authors calculated that one unit cell of idocrase contains 4 formula units, with an ideal composition: $Ca_{10}(Fe,Mg)_2Al_4Si_9O_{34}(OH)_4$. (Amer.Min., vol.54, nos.11-12, Nov.Dec.1969,pages 1546-1550).

Pyrite

The decomposition of pyrite was investigated in a thermo-balance. In netral or reducing gases it decomposes between 550°C and 700°C to volatile S and FeS. In oxygen it oxidizes in two stages: between 445° and 520°C it forms SO_2 and FeS, and between 610° and 660°C it forms more SO_2 and Fe_2O_3. In CO_2 the reaction is slow and magnetite is produced. (R.A. Schoenlaub - Journal American Ceramic Society, vol. 52, 1969, pages 40-43) (Min. Abst. March 1970, volume 21, page 33).

Native Zinc/a Natural Brass

Native Zinc and the first recorded natural occurrence of a brass are reported from the Mina Dulchinea de Llampos, Copiapo, Chile. Both phases occur in association with native copper and represent products of the oxidation of sphalerite intergrown with supergene djurleite.(A.H.Clark and R.H.Sillitoe in the American Mineralogist, volume 55, May June 1970, pages 1019-1021).

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Franklin/Ogdensburg Bibliography

A good bibliography is an essential tool for any serious collector. Mr. David K. Cook, formerly a graduate student at Harvard University and now in the United States Army, compiled an up to date bibliography in conjunction with his work at Rutgers and Harvard Universities involving the mineralogy of Franklin and Sterling Hill. For the benefit of those members that have not compiled a bibliography of their own and as a check list for those who have, we are reprinting herewith Mr. Cook's listings. This is a first installment; the entire list will be completed in future issues of The Picking Table.

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