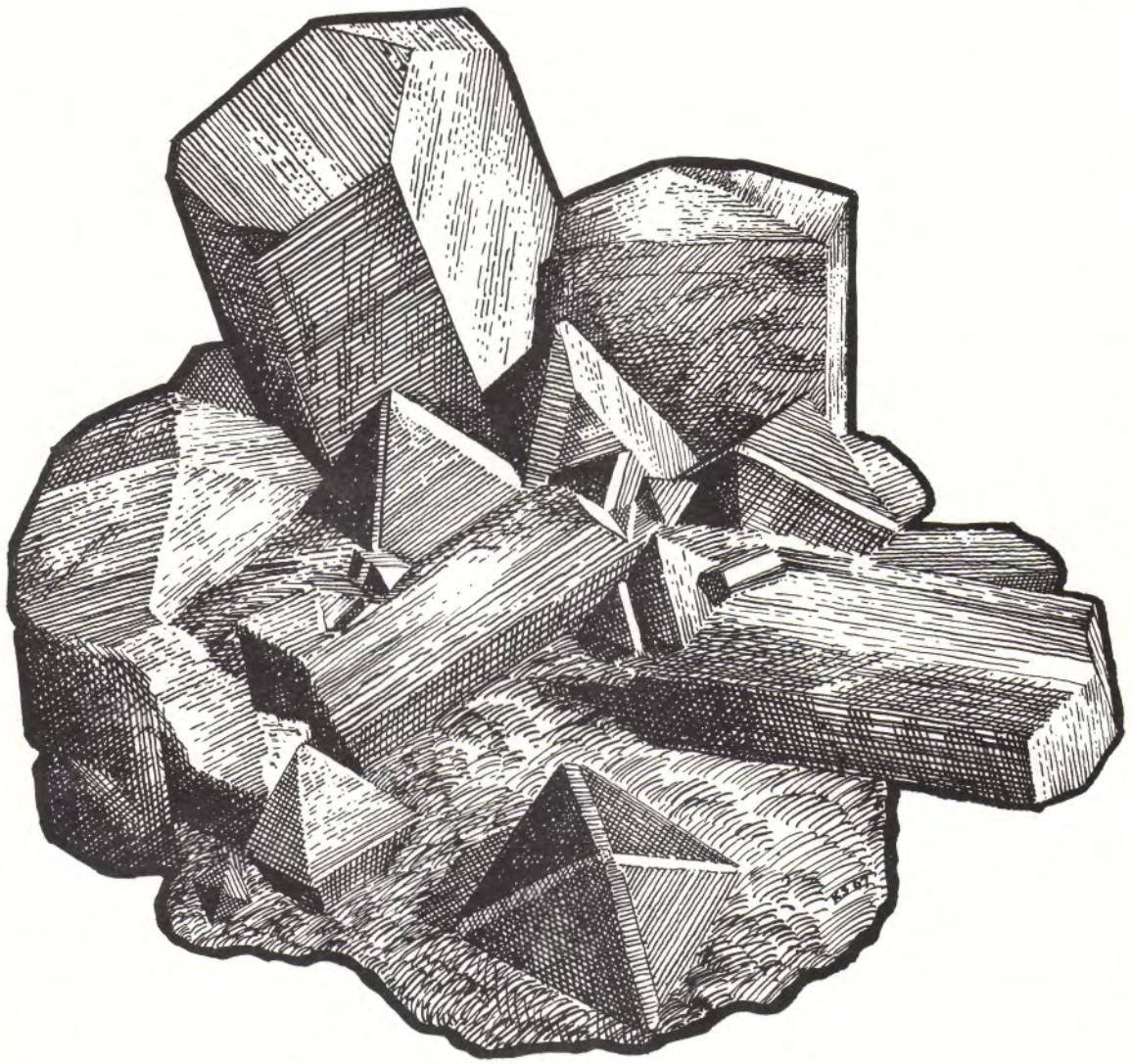
THE PICKING TABLE

JOURNAL OF THE FRANKLIN·OGDENSBURG MINERALOGICAL SOCIETY



VOLUME 9 AUGUST 1968 NUMBER 2

CLUB PROGRAM - FALL 1968

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

Saturday, September 21st	Field trip, 9 A.M. to Noon. Cellate Quarry, Cork Hill Road, Franklin. Meeting 2:30 P.M. Speaker, John Albanese on "The History of Mineralogy of the Franklin Area"
Saturday, October 19th	Field trip, 9 A.M. to Noon Andover Iron Mine, Andover, N. J. Meeting 2:30 P.M. Speaker, John Sebastian on "Mining in the Franklin Area"
Saturday, November 2nd	Fossil trip - proposed but not yet confirmed.
Sunday, November 17th	Field trip, 9 A.M. to Noon - Locality not yet confirmed. Meeting 2:30 P.M. Speakers - Mr. and Mrs.Alexander Knoll will deal with identification of Franklin minerals.

Recommended

Saturday/Sunday Sept. 7th/8th.	F.O.M.S. members are invited to three Swap Sessions - Trotter Dump, Franklin; Chateau Gorge, Hamburg; Valley Forge State Park, Valley Forge, Pa. For details see monthly bulletin.
Saturday/Sunday October 12th/13th	Eleventh Annual Mineral Show sponsored by the Franklin Kiwanis Club - Franklin Armory, Routes #23 and #517, Franklin, N. J. Saturday - 9:00 A.M. to 9:00 P.M. Sunday - 9:00 A.M. to 6:00 P.M.

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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.

F.O.M.S. OFFICERS FOR THE YEAR 1968

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	Alice L. Kraissl	Box 51, North Hackensack, N.J.
Asst. Secretary	Frank Z. Edwards	100 West Shore Trail, Sparta, N.J.

TRUSTEES

John L. Baum '69
Frank Z. Edwards '68
Edmund Frey '68
Alexander F. Knoll '69
Frederick A. Kraissl '69
Kenneth Sproson '68
Dr. Harry E. Montero '68 (alternate)

COMMITTEE CHAIRMEN

Entertainment -	Frederick A. Kraissl
Field Identification -	Alexander F. Knoll
Field Trip -	Kenneth Sproson and Henry Holusha
Finance -	Julian M. Butler
Membership -	Alice L. Kraissl
Nominating -	Julian M. Butler
Picking Table -	Frank Z. Edwards
Program -	Frederick A. Kraissl
Safety	John Sebastian and Jack LaRue

F.O.M.S. NOTES

Too quickly another six months have passed by. As usual, they have left their mark with events and information that merits recording. Club members who took part in our Spring program have added to their stock of specimens and their store of knowledge. Participants in our Fall program will do likewise. Mineral collecting is a hobby which grants its greatest gift to those who meet with and enjoy the company of their fellow collectors. Are you missing out on such benefits? If so, come meet your fellow members at our Fall events. You will enjoy and profit from the experience.

The report of the Nominating Committee headed by Jack Butler, with Jack Baum and Frank Edwards as members, will be presented at our October meeting. There are several openings for members of the Executive Board. All nominations will be considered by the Committee. Please communicate your personal choice for any position to one of the committee members.

In addition to openings in our elective positions, we have need of additional personnel for our club committees. If you would like to participate actively in club affairs and administration, please talk to John Sebastian, our Club President, or any other Club official.

We particularly require a new Field Trip Chairman. For three years we have enjoyed the services of Kenneth Sproson at this position. I believe most members share my personal opinion that he did an outstanding job and contributed greatly to the pleasure of every one who attended a field trip. Unfortunately Kenneth, who is an independent industrial designer can no longer spare the time required for our position. We need another good man as his successor. Nominations are in order.

It is with great regret that we announce the death of Edmund Frey, one of our Trustees. From the time that he joined the F.O.M.S. until the day he was confined to his bed, Ed worked for and contributed to the Club and his fellow members. He will be missed for his efforts, his unfailing good humor and his gracious personality. Our sincere condolences to his widow and family.

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FRANKLIN - "The Fluorescent Mineral Capital of the World"

By official resolution of the New Jersey State Legislature, the Borough Council and the Sussex County Board of Freeholders, Franklin Borough has now been officially designated as "The Fluorescent Mineral Capital of the World."

Mayor William Hodas of Franklin explained that "We in Franklin were blessed with more than 200 different minerals with many specimens, when properly displayed, that glow with a tonality of colors never to be forgotten. Many of these specimens are not found elsewhere in the world. Rightfully, Franklin, through this phenomena of mineral wonders is in reality the Fluorescent Mineral Capital of the World."

This resolution and designation is the first step taken by the officials of Franklin Borough to publicize and promote the mineral deposits of Franklin as an attraction for mineral collectors and tourists.

It all began when Amos Phillips, owner of the Trotter Mineral Dump, hosted a dinner in February to which he invited members of the Borough Council, the Sussex County Board of Freeholders and other county officials, Franklin businessmen, the Franklin Kiwanis and other Franklin service clubs, and members of the F.O.M.S. Through various speakers, particularly a guest from Franklin, N.C.,"Gem Capital of the World", Mr. Phillips was able to show his guests that Franklin Borough had a great natural attraction yet was doing nothing to promote or publicize it for the benefit of the community. The meeting did serve its purpose. Mayor Hodas has now appointed a five member committee to promote the Fluorescent title for Franklin, to prepare pamphlets and to publicize the Franklin mineral deposits with particular emphasis on the areas open to the public - the Franklih Mineral Museum, The Gerstmann Private Mineral Museum, the Buckwheat Dump and the Trotter Mineral Dump.

Mayor Hodas claims that "Adventure is not lost or only to be found in books - just discover or rediscover Sussex County, the four season county, and visit the Fluorescent Mineral Capital of the World, Franklin, N. J."

Franklin Mineral Museum

The Franklin Kiwanis Club of Franklin, sponsor of the Franklin Mineral Museum, has announced that plans have been approved for the expansion and improvement of the museum, including the construction of an annex for a more effective display of the fluorescent collection.

The construction plans call for an annex, 15 ft. by 40 ft., plus a new storage section, relocation of the rest rooms and an enlargement of the lobby and sales area. The major change will be the fluorescent display in the new addition. A bank of minerals forty feet long will be set up on one side of the new building, protected by a glass wall and railing. The only illumination will come from concealed floor lights to enable visitors to pass through with ease and safety. Ultra-violet lights will shine on the ore display, causing them to glow in a wide range of soft, beautiful colors. Relocation of the fluorescent display will permit greater utilization of the mine replica building.

The construction contract has now been awarded and completion of the work is expected by October 12th, when the Annual Mineral Exhibit will open.

At the present time, much of the specimen material on display at the Franklin Mineral Museum is on loan. The officials of the Museum are concerned about this and are seekig donations of specimen material for permanent display. If you would care to contribute a specimen or specimens, please write to Mr. J. L. Baum, Curator, Franklin Mineral Museum, Evans Street, Franklin, N.J. 07416. All donations will be gratefully accepted.

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The Value of a Specimen

Second only to "What is it?" the question I am most frequently asked is "What is this specimen worth?". The question comes easy; the answer never. Fortunately, when worded in this manner, it is clear that only the monetary value is being requested; other values need not be considered. Allowing for changed conditions, the best answer on the subject may be found in the article by the late George L. English, published in the American Mineralogist, volume 12, pages 197-209 (1927). For many years Mr. English was the buyer of mineral specimens for Ward's Mineral Science Establishment, Rochester, N.Y. He outlined a scheme for specimen evaluation somewhat as follows:

1) As a preliminary basis, determine the specimen's commercial value; or, if it is a rare mineral, set a value on this basis: if the specimen is unique (no other known samples), its initial value would be $100, or if it is one of 100 known specimens, its value would be $20, for specimens of standard size, 3 x 4 inches.

2) Adjust this value according to size; a 3 x 2 inch specimen would have half the value of a 3 x 4 inch specimen. Those larger than 3 x 4 inches generally do not have greater value, except to museums and are better broken into smaller pieces.

3) If it is not massive, increase the value according to degree and rarity of form. A display of crystals naturally greatly increases the value of a specimen, by what amount depending on the rarity of crystals for the species in question, their size and perfection, presence of unusual forms, and state of preservation. Thus a one inch cube of fluorite, nearly perfect with brilliant faces might be worth $5.00 while a crystal of similar size, distorted and somewhat bruised, would not be worth more than ten to twenty five cents. Even slight bruises greatly reduce the value of crystallized pieces; for example, an absolutely perfect Arkansas quartz crystal would be worth three to five times as much as the slightly chipped specimens one ordinarily sees. Imitative form, pseudomorphs, and so on, all add to the evaluation under this heading.

4) If the mineral contains rare elements, such as rare earths and radioactive elements, its value will be increased according to the amount in which they are present.

5) The value of a specimen may be increased or decreased according to other miscellaneous characteristics. An unusually attractive arrangement of crystals on the matrix, fine quality of color, unusual crystal zoning, interesting association of minerals, attractive fluorescence, movable bubbles, and so on, all add to the value of a specimen. A poorly arranged crystal group, or a specimen that does not stand well, or a badly stained crystal of poor lustre, will have a reduced value. At this point, the collector will use his instinctive knowledge of all these factors, tangible and intangible, to choose the specimen of greatest value.

The result of all these considerations will fix the value of the specimen. Of course, without a locality, a specimen can never have greater than commercial value. A mineral collection represents a real and definite investment, and by becoming acquainted with all the factors that increase and decrease the value of specimens, the collector will greatly improve his collection and save himself much money otherwise lost through damage and injudicious expenditures.

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History of the Parker Shaft

Every time that Mr. John S. Albanese talks to the members of our Society, he contributes some worthwhile information, which we feel should be made available to all our members. In his last talk, John spoke at length on the history of the Parker Shaft. He has given us permission to print this information. We thank him again for his cooperation.

HISTORY OF THE PARKER SHAFT

by John S. Albanese

Early mining at Franklin was confined to the southerly end of the outcropping, near what was later called the Buckwheat Open Pit, so called because the outcrop was in a buckwheat field. The outcrop ran a distance of a little more than half a mile, and from four to 30 feet in diameter. The northern end of the outcrop, near what is now the Community House, was only four to five feet thick, resting right on the ground.

At a point near what is now called the Buckwheat Pit, the zinc ore outcrop made a small angle with the principal ore bed. Its dip was almost vertical. During mining operations in the open pit, the ore body came to an abrupt end due to a fault (camptonite dike). But, it was believed that the continuation of the ore body could be found somewhere to the north.

North of this fault was the Rutherford Farm. Richard Wayne Parker, a lawyer who had been prominent in the many law suits over mining rights, felt that the probable northward extension of the lost ore body continued under the Rutherford Farm. He then leased the Rutherford Farm but assigned the lease to the Lehigh Zinc and Iron Company. Exploratory drilling in search of the lost segment of the ore body began in 1891. Drill cores showed a granite dike at the 578 foot level, and again at the 700 ft. level. Finally the zinc ore body was found at the 825 foot level, continuing to the 1000 foot level. (A fault drop of about 550 feet). At 1100 feet pure white marble was found between two pegmatite dikes. At 1205 feet the limestone was pink, just below a thin band of hornblende gneiss. The drilling ceased at 1245 feet below the surface. This exploratory drilling showed that the granites were the most abundant intrusives into the limestone country rock. No intrusives carrying metallic ore or any nature were met during this exploratory work. The keel of the ore body rested on limestone.

The Parker Shaft, a vertical opening ten feet square, was sunk to a depth of 1100 feet and a cross cut run at the bottom to intersect the ore body. From 1898, the year the Parker Shaft was completed, until 1910, when it was abandoned, this was the chief opening of the mine, and the minerals brought out through it may have come from anywhere in a considerable underground area.

During the sinking of the Parker Shaft, the limestone, pegmatites, and all minerals not considered useful ore were dumped on the surface. In time, a considerable amount of waste was accumulated. Included in this waste material were many unknown minerals, later to be designated at the Parker Shaft minerals. This waste pile became known as the Parker Shaft Dump. In those early days, mineral collectors were not familiar with these ugly ducklings, and they lay there ignored and untouched. Later, when their unique compositions became known, the dump was almost gone. Much of the waste material had been hauled away for fill, road beds and other similar uses.

I have gathered considerable information on the Parker Shaft lead mineral zone from the men who worked in the mine. These men worked on the old pillars, which were used as supports for the Palmer Shaft (an inclined shaft with an inclination from the horizontal of about 47 degrees within the limestone foot wall). The Parker Shaft was not satisfactory because the ore brought up through this vertical shaft had to be transferred to the mill by a narrow gauge railroad about a mile and a half long. The Palmer Shaft was started in 1906, and when completed, the Parker Shaft was abandoned. The Palmer Shaft had the advantage of all the ore mined underground at the mill, eliminating the loading and unloading of railroad cars.

The Palmer Shaft pillars were not disturbed during the 56 years of mining operations, or until 1954, when the old pillars were mined after the main ore body had been depleted. Workers sinking the Parker Shaft had just barely missed the main source of the lead silicates and associated minerals, and at least 95% of all the Parker Shaft lead mineral specimens came from these old Palmer Shaft pillars.

One of these miners was Nicholas Trofimuk, an observing and intelligent man, who told me the "lead silicate vein" was wholly enclosed in the zinc ore body, and ran roughly 20 feet parallel with the limestone hanging wall. It was not a true vein, as the miners called it, but an upturned bed which ran 20 feet below the 800 foot level and continued to the 900 foot level; averaged two feet in thickness, and ran smack through the pillars used to prevent the Palmer Shaft from caving in."

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Dr. Frondel Reports

Another speaker who always leaves us with a fund of information is Dr. Clifford Frondel. This year the major portion of his talk concerned the Minerals of the Moon, a fascinating and comprehensive review of how our space vehicles will extract mineral specimens from the lunar surface and bring them back to Earth, and the subsequent processing and identtification of that material.

In the preamble to his talk, Dr. Frondel told us about the work at Harvard on Franklin minerals.

1) A comprehensive study on a large number and variety of micas from Franklin and Sterling Hill has failed to produce a manganese mica. Most specimens contained both manganese and zinc in varying amounts but the manganese content was insufficient to class any material as a manganese mica. Complete details will be published soon.

2) The specimen from Sterling Hill containing the only uraninite crystal reported from the area has been carefully broken up. No additional uraninite was found. The crystal itself has now been sectioned and one piece sent to Cal Tech for age determination. The answer will provide a definite dating for the ore deposit.

3) The pink material from the 900 foot level at Sterling Hill has been x-rayed and definitely determined to be kutnahorite.

4) Several "caswellite" specimens have been reexamined and found to be hydro-andradite. Work on the hydro-garnets is continuing.

5) The most interesting results came from the research on leucophoenicite by a first year graduate student, Mr. David Cook of Plainfield, N.J. As predicted by Dr. Paul Moore, many so-called leucophoenicite specimens proved to be other species, four of which had been identified by Mr. Cook at the time of Dr. Frondel's talk in May. It has been determined that there is a manganese series analagous to the humite family. Of this manganese series, three or four members have been identified. It is also postulated that a third series (Zinc, Manganese) will be found. One of the four minerals in such a series has already been identified. This is a new species to be named Baumite, after Jack Baum, who provided the original material for research and triggered the entire investigation. The three series should appear as follows:

Humites	Leucophoenicites	Baumites
Norbergite $Mg_3(SiO_4)(F,OH)_2$	Not found yet $Mn_3(SiO_4)(OH)_2$	Not found yet $(Zn,Mn)_3(SiO_4(OH)_2$
Chondrodite $Mg_3(SiO_4)_2(F,OH)_2$	Alleghanyite $Mn_3(SiO_4)_2(OH)_2$	Baumite $(Zn,Mn)_3(SiO_4)_2(OH)_2$
Humite $Mg_7(SiO_4)_3(F,OH)_2$	Leucophoenicite $Mn_7(SiO_4)_3(OH)_2$	Found,but not named yet $(Zn,Mn)_7(SiO_4)_3(OH)_2$
Clinohumite $Mg9(SiO_4)_4(F,OH)_2$	Sonolite $Mn_g(SiO_4)_4(OH)_2$	Found, but not named yet $(Zn,Mn)_9(SiO_4)_4(OH)_2$

It was particularly gratifying to learn that Mr. Cook has been an F.O.M.S. member for six years, and that his interest in Franklin minerals was stimulated by his association with our Club and its members. He has made a fine start and we wish him continued success.

And finally, Dr. Frondel advised that he has arranged for a sabbatical leave next year. His main objective during his absence from academic duties will be to complete the work on the Silicates for the 7th Edition of Dana's System. We wish him well and are looking forward to the publication of that monumental work.

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Mineralogical Data

Barysilite and Other Lead Calcium Zinc Silicates

"Syntheses of Some Lead Calcium Zinc Silicates" a paper by Jun Ito, American Mineralogist, January-February 1968, Volume 53, Nos. 1/2, page #231. Abstract as follows:

Compounds of the general formula $Pb_xCa_yZn_zSiO_{2+n}$ were synthesized both by heating in air and by hydrothermal crystallization of chemically precipitated gels.

Newly synthesized phases are larsenite, $PbZnSiO_4$, barysilite $(Pb,Mn)_3SiO_7$, esperite $(Ca,Pb)_4Zn_4Si_4O_{16}$, margarosonite $Ca_2PbSi_3O_9$, Phase X_1 $CaPb_2Zn_3Si_3O_{12}$, Phase X_2 (possibly a high temperature polymorph of nasonite) $Ca_2Pb_3Si_3O_{11}$, and Phase X_3 with a probable formula of $CaZnSi_2O_6.H_2O$.

X-ray powder data of the new phases are recorded and unit cell constants are given where known.

Berzeliite/Manganese Berzeliite

"Syntheses of The Berzeliite/Manganese Berzeliite Series (Arsenate Garnet) - a paper by Jun Ito published in The American Mineralogist, January-February 1968, Volume 53, Nos. 1/2, page #316. Abstract and other pertinent information as follows:

As part of the present author's investigation of compounds having the garnet structure, the synthesis of berzeliite ($CaNaMg_2As_3O_{12}$) and manganese berzeliite ($Ca_2NaMn_2As_3O_{12}$) was studied. The end members and compounds of three intermediate compositions in the solid solution series have been synthesized hydrothermally.

The products came out as fairly homgenous small cubic crystals up to 30m in diameter. Synthetic Mg berzeliite appeared colorless and under the microscope it occurred as aggregates of faintly bluish transparent crystals. Mn berzeliite formed small brownish particles which under the microscope appeared as slightly yellowish single crystals which are probably dodecahedral. The intermediate compounds showed a light brown to greyish appearance. The color changes progressively with Mn content.

The x-ray powder diffraction patterns were indexed. Very strong reflections at (211) and (321) are quite similar to those of hydrogarnet and rare earth garnet.

At temperatures higher than 550°C with 1.5 kilobars, Mg berzeliite decomposed to adelite ($CaMgAsO_4$) plus an amorphouse phase and Mn berzeliite decomposed to two crystalline compounds for which no match was found in the ASTM X-Ray Powder Data File. Adelite occurs frequently in the localities where berzeliite is found.

Celsian

"Studies in the System $BaO-Al_2O_3SiO_2$ The Polymorphism of Celsian" a paper by H.C. Lin and W.R. Foster, published in the American Mineralogist, January-February 1968, volume 53, Nos. 1/2, page #134. Abstract as follows:

"Prolonged anhydrous and hydrothermal heating experiments made with natural and synthetic materials have confirmed the following polymorphic relations: Monoclinic celsian is stable from room temperature up to 1590°C, where it inverts sluggishly and reversibly to hexagonal hexacelsian. The latter, stable to the melting point at about 1760°C. readily persists metastably on cooling below 1590°C. and inverts rapidly and reversibly to an orthorhombic form on cooling through 300°C. Paracelsian appears to be a metastable phase and changes monotropically through hexacelsian to celsian at temperatures at least as low as 500° and possibly at lower temperatures also."

Chrysotile/Antigorite

"Chemical Differences Among the Serpentine "Polymorphs" " a paper by Norman J. Page, published in the American Mineralogist, January-February 1968, Volume 53, Nos. 1/2, page #201. Abstract follows:

"Existing wet chemical analyses and structural studies of the serpentine minerals, chrysotile, lizardite, and antigorite suggest that these minerals have different chemical compositions and could be identified by composition alone. Triangular composition diagrams, a statistical treatment of the oxide components, MgO, FeO, Fe_2O_3, Al_2O_3, and H_2O, and calculated mineral formulae from chemical analyses all suggest that chrysotile, lizardite and antigorite are not polymorphs. Antigorite is distinguished by its comparatively low H_2O and high SiO_2 contents. Chrysotile is characterized by a relatively high H_2O and MgO content and by a small ration of Fe_2O_3 to FeO; while lizardite has high SiO_2 and low FeO contents."

Gageite

"Relations of the Manganese-Calcium Silicates, Gageite and Harstigite" a paper by Paul B. Moore, published in the American Mineralogist, January-February 1968, Volume 53, Nos. 1/2, Pages 309-311. Pertinent data as follows:

A systematic study of the crystal chemistry of manganese silicates prompted further investigations on gageite and harstigite, two rare and poorly understood species. These studies indicate that the two minerals are structurally related but their unusual compositions are difficult to interpret without recourse to crystal structure analysis.

Gageite Gageite was frequently found during mining at Franklin, Sussex County, N.J., its only reported locality, though it could hardly be called an abundant mineral. It is a late stage, low temperature mineral, usually implanted upon other species in fissure fillings and solution cavities. Palache (1935) mentions its occurrence with pyrochroite, leucophoenicite and calcite; and often with chlorophoenicite. The specimens used here included fibres from the vial of type material, kindly loaned by Professor Clifford Frondel, and a slightly warped prismatic crystal extracted from a solution cavity in zincite located in the Sjogren collection at the Swedish Natural History Museum in Stockholm.

Gageite was described as a new species by Phillips (1911) and a subsequent analysis on more plentiful material by Bauer (Palache, 1928) led to the composition $(Mn,Mg,Zn)_8(OH)_4(SiO_4)_3.3/2H_2O$ with Mn:Mg:Zn= 0.72; 0.23; 0.05. Since the data on gageite was meager and not quite convincing, it was understandable that Strunz (1957) considered gageite synonymous with leucophoenicite to which gageite is chemically related.

Gageite can easily be confused with chlorophoenicite upon visual examination. It appears as colorless, pale brown or pale pink laths and matted fibers and often occurs with the grayish green to colorless laths of chlorophoenicite. However, unlike chlorophoenicite, gageite crystals display no terminal hemipyramidal faces, the termination usually being a simple basal pinacoid with rectangular cross section. Upon microscopic examination, the gageite laths appear to be composites of single crystals in near parallel growth, often considerably warped so that Weissenberg photographs with the fiber as rotation axis showed smeared spots which are difficult to interpret. Fortunately, one crystal on the Sjogren specimen was found sufficiently "single" for suitable photographs for structure cell determination. The dominant form is the unit prism.

The ideal end member composition for gageite is evidently $Mn_7(OH)_6(Si_3O_{10})$. Based on the x-ray data, there is no indication of any obvious relationship to leucophoenicite and gageite is apparently a valid species."

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Validated List of Franklin/Ogdensburg Minerals

Prompted by the considerable changes brought about by research work in the last few years, many members have requested a current list of validated minerals for the Franklin/Ogdensburg area. In compliance with these requests, I present my personal list, which I believe is accurate as well as up to date. However, there are always questions on any list. If you do find any inaccuracies or omissions, please advise me so that all questions may be resolved.

Evidently we picked the right time to print this list for the total number of species and varieties listed is exactly 250. Research continues on the hydro garnets, micas, leucophoenicite, glaucochroite and other species. This work will in the near future add additional minerals to this list. Personally, I believe that we will reach the 300 mark within ten years. With the equipment now available to our research mineralogists, reexamination of old species and research on new material is sure to uncover new species for the area. Such results depend only upon the number of qualified people doing active research on the large amount of unusual specimen material available in collections.

MINERAL SPECIES FOUND AT FRANKLIN/OGDENSBURG, N.J.

Prepared by Frank Z. Edwards, August 1, 1968
Includes all published data in the American Mineralogist issue of March/April, 1968 and Mineralogical Abstracts issue of March 1968.

Hey used as guide to species and varieties

Allactite
Allanite
Alleghanyite (note #1)
Amphiboles
- Actinolite
- Anthophyllite
- Cummingtonite
  - also Zinc/Mn Cummingtonite
- Edenite
- Hastingsite
- Hornblende
- Riebeckite
- Tremolite
  - also Asbestos

Analcine
Anglesite
Anhydrite
Apatite
- Fluorapatite
- Manganoan Fluorapatite

Apophyllite
Aragonite
Arsenic
Arseniosiderite
Arsenopyrite
Aurichalcite
Axinite
- Ferroan
- Manganoan

Azurite

Bannisterite (Note #2)
Barite
Barylite
Barysilite
Baumite (See Note #1)
Bementite
Berzeliite/var. Manganberzeliite
Biotite
Birnessite
Bornite
Brandtite
Brookite
Brucite
- Brucite
- Manganbrucite

Bustamite

Cahnite
Calcite
- Calcite
- Spartaite

Celestite
Cerussite
Chabazite
Chalcocite
Chalcophannite
- Chalcophannite
- Hydrofranklinite

Chalcopyrite
Chloropal var Nontronite
Chlorophoenicite
- Chlorophoenicite
- Mag. Chlorophoenicite

Chondrodite
Chrysocolla
Clinohedrite
Copper
Corundum
Covellite
Cryptomelane
Cuprite
Cuspidine

Datolite
- Datolite
- Botryolite

Descloizite
Dolomite

Epidote
Epistilbite (Note #3)
Erythrite
Esperite
Ettringite

Feitknechite
Feldspar
- Albite
- Anorthite
  - also Celsian
- Anorthoclase
  - also Barian Anorthoclase
- Microcline
  - also Barian Microcline
- Oligoclase

Feldspar (continued)
Orthoclase
Hyalophane
Fluoborite
Fluorite
Franklinite
Friedelite

Gageite
Gahnite
Galena
Ganophyllite
Garnet (Note #4)
Var. Almandine
Var. Andradite
Andradite
Melanite
Titanmelanite
Polyadelphite
Topazolite
Caswellite (Note #4)
Var. Grossularite
Var. Spessartite
Gersdorffite
Glaucochroite
Glauchophane
Goethite
Gold
Graphite
Greenockite
Groutite var. Antimonian
Gypsum

Halloysite
Hancockite
Hardystonite
Hausmannite
Hedyphane
Hematite
Hemimorphite
Hendricksite
Hetaerolite
Heulandite
Hexahydrite
Hodgkinsonite
Holdenite
Hortonolite var Manganoan
Hydrohetaerolite
Hydrozincite

Idocrase
Idocrase
Cyprine
Be. Vesuvianite
Ilmenite

Kaolinite
Kentrolite

Larsenite
Lead
Leucophoenicite
Limonite
Loellingite
Loseyite

Magnetite
Magnussonite
Malachite
Manganite
Manganosite
Manganpyrosmalite
Marcasite
Margarite
Margarosonite
McGovernite
Melanterite
Millersite
Molybdenite
Mooreite
Muscovite
Muscovite
Oellacherite

Nasonite
Natrolite
Neotocite
Niccolite
Norbergite

Opal var. Cachalong
Orpiment

Pararammelsbergite
Pectolite
Phlogopite
Pimelite
Powellite
Prehnite
Psilomelane
Pyrite
Pyroaurite
Pyrochroite
Pyrolusite
Pyrophyllite
Pyrosmalite
Pyroxenese
Augite
also Aegerine-Augite
also Leucaugite

Proxenes (Continuted)
- Diopside
- Hedenbergite
- Jeffersonite (See Note #5)
- Johannsenite
- Schefferite
- also Zincian

Pyrrhotite

Quartz
- Agate
- Chalcedony
- Flint
- Jasper
- Rock Crystal
- Rose
- Smoky

Rammelsbergite
Realgar

Rhodochrosite
- Rhodocrosite
- Mangannocalcite
- Kutnahorite

Rhodonite
- Rhodonite
- Fowlerite

Roeblingite
Roepperite
Roweite
Rutile

Sarkinite
Scapolite
Schallerite
Scheelite

Serpentine
- Antigorite
- Chrysotile
- also Vorhausserite

Siderite
Sillimanite
Silver
Skutterudite
Smithsonite
Sonolite (See Note #1)

Sphalerite
- Sphalerite
- Cleiophane
- Marmatite

Spinel
Stilbite
Stilpnomelane
Sussexite
Svabite
Talc
Tennantite

Tephroite
- Tephroite
- Picrotephroite
- Iron Tephroite

Thomsonite var. Calcio Thomsonite
Thorite
Titanite
Todorokite
Torreyite

Tourmaline
- Dravite
- Schorl

Uraninite

Voltzite
Vredenbergite

Wad

Willemite
- Willemite
- Troostite

Wollastonite
Woodruffite

Xonotlite

Yeatmanite

Zinalsite
Zincite
Zircon
Zoisite

Note #1 - species verified by Dr. Frondel - paper soon.
Note #2 - Bannisterite verified by Dr. Frondel - paper soon.
Note #3 - Specimen at Harvard from Bauer collection
Note #4 - Does not include hydro-garnets verified by Dr. Frondel.Caswellite is now classed by Dr. Frondel as a hydro andradite.
Note #5 - Jeffersonite discredited by Dr.Frondel but by his own admission original material needs analysis and may still be Jeffersonite.

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