

THE PICKING TABLE

FRANKLIN-OGDENSBURG MINERALOGICAL SOCIETY, INC.,

BOX 146

FRANKLIN, NEW JERSEY

Volume II

FEBRUARY, 1961

Number 1

VALIDATED FRANKLIN SPECIES

The list of Franklin-Ogdensburg mineral species validated by Professor Frondel has been brought up to date. Several additions have been made: almandite, anthophyllite, biotite, chalcopyrite, hexahydrate and erythrite. Glaucophane has been deleted. A number of other possibilities are being investigated, including gold, arsenolite, powellite, pyrolusite, leadhillite, hydrocerussite, annabergite, several amphiboles and clays, linarite, wurtzite, covellite and others.

In response to several requests, the order of listing follows Dana, except for the silicates. There are 176 species (exclusive of varieties) in the current list. In a future listing, we intend to differentiate among them as to their location with reference to the ore bodies.

native elements	4514 Todorokite	16.1.4 Aurichalcite
1113 Silver	453 Brookite	16.1.6 Malachite
1114 Copper	hydroxides	16.1.11 Azurite
1115 Lead		
1211 Arsenic	6111 Brucite	borates
1242 Graphite	6112 Pyrochroite	26.1.1 Fluoborite
	613 Manganite	26.1.5.1 Sussexite
sulfides		26.1.6 Roweite
	multiple oxides	27.1.2 Cahnite
2321 Chalcocite		
243 Bornite	7122 Goethite	sulfates
2611 Galena	7211 Spinel	
2621 Sphalerite	7213 Cahnite	28.3.1.1 Barite
2631 Chalcopyrite	7216 Magnetite	28.3.1.2 Celestite
2642 Greenockite	7217 Franklinite	28.3.1.3 anglesite
2651 Pyrrhotite	7221 Hausmannite	28.3.2 Anhydrite
2653 Niccolite	7222 Hetaerolite	29.6.3 Gypsum
2655 Millerite	7223 Hydrohetaerolite	29.6.6.1 Hexahydrate
26.10 Realgar	761 Chalcophanite	31.1.3 Mooreite
2911 Pyrite		31.1.4 Torreyite
2922 Gersdorffite	unlisted oxides	31.3.2 Ettringite
2931 Loellingite		
2933 Rammelsbergite	Birnessite	phosphates, arsenates
2934 Pararammelsbergite	Hydrohausmannite	
294 Marcasite	Woodruffite	38.2.1.2 Manganberzeliite
2951 Arsenopyrite		40.2.4.2 Brandtite
2961 Molybdenite	halides	40.2.15.2 Erythrite
2.10.11 Skutterudite	9.2.1 Fluorite	41.1.2 Holdenite
		41.1.4.1 Chlorophoenicite
3242 Tennantite	carbonates	41.1.4.2 Mg.Chlorophoenicite
		41.2.4. Allactite
oxides	14.1.1.1 Calcite	41.5.2.1 Descloizite
	14.1.1.3 Siderite	41.6.3.3 Sarkinite
411 Cuprite	14.1.1.4 Rhodochrosite	41.7.1.1. Fluocapatite
413 Water	14.1.1.6 Smithsonite	41.7.3.1 Svabite
4213 Manganosite	14.1.3.1 Aragonite	41.7.3.2 Hedyphane
4221 Zincite	14.1.3.4 Cerussite	
4411 Corundum	14.2.1.1 Dolomite	
4412 Hematite	14.2.1.3 Kutnahorite	
4413 Ilmenite	16.1.1 Loseyite	
4511 Rutile	16.1.3 Hydrozincite	

Quartz	Glauchochroite	Prehnite
	Forsterite	
Orthoclase	Hortonolite	Norbergite
Hyalophane	Tephroite	Chondrodite
Microcline		
Anorthoclase	Larsenite	Leucophoenicite
Albite	"Calcium Larsenite"	
Anorthite		Kentrolite
		Hemimorphite
	Willemite	Clinohedrite
Diopside		Tourmaline
Hedenbergite		
Jeffersonite		
Johannsenite	Friedelite	
Schefferite	Manganpyrosmalite	
Augite	Schallerite	Xonotlite
		Ganophyllite
	McGovernite	Apophyllite
		Heulandite
Rhodonite	Scapolite	Stilbite
Bustamite		Chabazite
Wollastonite		Natrolite
Pectolite		Thomsonite
	Hardystonite	
Anthophyllite	Idocrase	
Cumingtonite		Muscovite
Tremolite		Biotite
Edenite		Manganophyllite
Riebeckite	Zircon	Phlogopite
Hastingsite	Thorite	
Cuspidine	Sillimanite	
	Kyanite	Stilpnomelane
Barysilite		
Nasonite		
Margarosanite		
Barylite	Datolite	Antigorite
Roebbingite		Bementite
		Chrysotile
Grossularite	Zoisite	
Almandite	Epidote	Zinnsite
Spessartite	Allanite	Hodgkinsonite
Andradite	Hancockite	Cageite
	Axinite	Sphene
		Yeatmanite

ANIMAL, MINERAL AND VEGETABLE

Man's need for metals has resulted in increasing use of botanical methods of prospecting for ore deposits. The principle of using plants for this purpose is based on the ability of plants to absorb and be affected by high concentrations of metals from deposits at considerable depths or from a mineralized halo surrounding the ore. This is manifest by the presence of certain plants, or the complete absence of vegetation; the appearance of the plant, which may be unusual in color, size, form or habit; and by chemical composition of the plants on analysis.

Of particular interest to those interested in Franklin minerals are the zinc indicators, plants which grow only in the presence of appreciable quantities of zinc. The early literature contains extensive notes on certain mustards and pinks occurring on the zinc dumps of Aachen, Germany and other previously discovered mineralized areas. The European indicator Silene latifolia or bladder campion (a member of the pink family with white flowers and with stems greatly swollen at the joints) grows on the zinc-bearing limestone dumps of Franklin, New Jersey.

A specialized condensation from "Botanical Prospecting for Ore Deposits" by Helen L. Cannon, Science, 132, No. 3427, 591-598, Sept. 2, 1960.

* * * * *

YELLOW "HODGKINSONITE"

Palache illustrated and described stout prismatic clear yellow crystals of hodgkinsonite found in cavities with crystals of hetaerolite and willemite. "Because of their pronounced pseudo-orthorhombic habit they were not recognized as hodgkinsonite until they were measured."

F-QMS member Dr. Paul Desautel, Associate Curator of the National Museum, reports that X-ray analysis reveals that the crystals are in fact orthorhombic and that the mineral is barite, rather than hodgkinsonite. Barite is frequently associated with hodgkinsonite.

* * * * *

BIRNESSITE

Birnessite (MnO_2) was identified by its X-ray pattern as a secondary mineral associated with chalcophanite as a weathering product of franklinite-willemite ore from the old surface workings at Sterling Hill, New Jersey.

C. Frondel, U. B. Marvin and J. Ito, Am. Min. 45 871, July-Aug., 1960.

* * * * *

ATTENTION COLLECTORS

For some time we have endeavored to work out a procedure to bring together those wishing to buy, sell or trade Franklin minerals and at the same time avoid the numerous complications that can arise. We propose to circulate to participating members only a list of members interested in one or more of these activities. Those wishing to participate should send their name and address, 10 cents in coin, and state whether they wish to buy, sell and/or trade together with some indication of the type or class of Franklin material they are interested in buying, selling or trading. The Society cannot assume responsibility for any private transactions that might ensue and cautions that such transactions may prove disappointing. It is hoped that this additional service of the Society will benefit the membership.

* * * * *

McGOVERNITE AND DIXENITE¹ - B. J. Wuensch

McGovernite from Sterling Hill has the largest unit cell for any mineral which is not a stacking polytype. It has the unit cell dimensions $a=8.22^{\circ}\text{A}$, $c=205.5^{\circ}\text{A}$. Dixenite from Langban, Sweden has an identical value of a , but the c value is but $2/11$ that of mcgovernite. The structure may be based on close-packed sheets of oxygen ions with cations in octahedral interstices.

CRYSTAL STRUCTURE OF CAHNITE¹ - C. T. Prewitt and M. J. Buerger

Cahnite has a very unusual structure which is similar to only one other mineral, nagyagite. Its unit cell ($a=7.11^{\circ}\text{A}$, $c=6.20^{\circ}\text{A}$) contains two formula-weights of $\text{Ca}_2\text{Ba}_2\text{O}_4(\text{OH})_4$. The detailed structure of the mineral has been determined from single crystal diffraction studies.

¹From abstracts of papers presented at November meeting of MSA in Denver.

* * * * *

BUCKWHEAT DUMP

Admission to Buckwheat Dump is provided by the Borough of Franklin on payment of a fee (\$1.00 per day, \$5.00 annual) to Special Officer Ray Rude on duty there. Palache reprints and information concerning your Society also may be obtained from F-OMS member Rude. Your Society membership entitles you to admission only on the special occasions announced by the Society.

* * * * *

MEETINGS AND FIELD TRIP:

A total of 600 members and guests were present at our last three meetings; a merited tribute to the speakers and clear evidence of the interest in Franklin mineralogy. Our facilities for such gatherings were greatly expanded by the availability of a new large hall at the Legion home.

August Meeting: Dr Henry Millson gave an outstanding presentation, both in technical interest and showmanship, on luminescence. While the subject does not lend itself well to abstracting, one feature of the program was the simultaneous projection of natural color slides of minerals, color slides of the same minerals fluorescing under ultra-violet light and phosphorograms. The latter were brilliant color transparencies made by exposing the mineral to the Skidmore cold quartz lamp for one minute, then placing the phosphorescing mineral directly on Ektachrome cut film for 48 hours to 2 weeks depending on the magnitude of the phosphorescence. In many instances, colors not seen in normal fluorescence were present in the phosphorograms.

August Field Trip: The same evening, some 400 people were on hand for the fluorescent program at Buckwheat. Because of prior commitments, tests could not be made prior to the trip. It developed that the surface of the dump had been rather thoroughly picked over using portable lights and was not as responsive as anticipated to the powerful ultra-violet lights.

September Meeting: Following presentation of the new officers, Neal Yedlin, the recognized authority on micromounts showed the audience what most of them had been missing. Minerals crystallize much more perfectly when they are minute, and this was demonstrated by a superb collection of color slides of micromounts of Franklin minerals.

Mr. Yedlin joined your editor in speaking to the Mineral Society of Pennsylvania at their show at Doylestown about Franklin minerals and your Society.

November Meeting: The last meeting of the calendar year and first meeting of our second club year featured an excellent blending of Franklin and basic mineralogy. Dr. Ralph Holmes transmitted an understanding of the several types of X-ray machines and how they are used for mineral identification. From this basis, he then proceeded to show that chloanthite is not a mineral, but rather a mixture of several species. The Franklin 'chloanthite' is in fact a mixture of skutterudite, rammelsbergite, pararammelsbergite and gersdorffite.

* * * * *

MEMBERSHIP LIST

Enclosed with this issue is your list of the members of F-OMS for 1959-60 and/or 1960-61. Please check your name and address for spelling and correctness and advise us of necessary changes. There have been some errors that we have not been able to correct as yet - for which our apologies.

* * * * *

1959 - 1960

Our first year has seen tremendous progress toward our objective under the leadership of Richard Hauck and demonstrated the tremendous interest in Franklin minerals and mineralogy.

Membership: Nationwide membership in F-OMS reached 377 in our first year, with 292 already enrolled for 1960-61 as of January, 1961.

Organization: F-OMS incorporated as a non-profit organization; adopted a sound constitution and established a sound financial basis. Policy established for mineralogical, not organizational, activities to dominate meetings and publications.

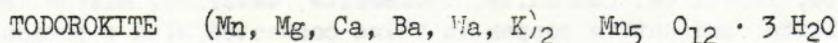
Collecting: Field trips have been provided to mineralogically historical areas in Franklin that were previously inaccessible to collectors. Major strides were made toward other means of making specimens available.

Information: The keystone of F-OMS has been painstaking accuracy regarding the complex mineralogy of Franklin both in "The Picking Table" and by the excellent selected speakers provided for our meetings. Speakers discuss either basic mineralogy/geology or Franklin minerals, or both. The listing of validated specimens we feel is particularly important. An adult course in Mineralogy and Geology was co-sponsored at Parsippany, New Jersey. Reprints of Palache's P.P. 180 and other reprints were made readily accessible to those interested. Progress has been made toward establishing a public museum of Franklin minerals in Franklin. A comprehensive scientific research program has been put into operation.

1960 - 1961

Basic policies will remain essentially unchanged, with higher goals in some areas and consolidation of efforts in others. Improvements are scheduled, for example, in assistance in identification and mineral displays at meetings. Every effort will be made to maintain the quality level of speakers. The research programs now being initiated and developed will culminate periodically in symposiums, the first of which is scheduled for early June, 1961.

* * * * *



Todorokite was identified among secondary manganese oxides from the old surface workings at Sterling Hill. It forms soft, dark brownish black masses with a confused, leafy-fibrous structure. It is associated with chalcophanite and secondary calcite crystals in altering franklinite-willemite ore.

Abstracted from Am. Min. 45, 1167-1173; Nov.-Dec., 1960 C. E. Frondel, U.B. Marvin and J. Ito.

* * * * *

PROFFESIONAL SYMPOSIUM

Plans for the Symposium on Franklin mineralogy and geology have firmed. It will be held Saturday and Sunday June 3rd and 4th at the Franklin Armory. The Symposium will be supplemented by special mineral exhibits and the sale of minerals by dealers, both located in the separate but adjacent armory garage. Several field trips will be conducted during the Symposium. Registration will be \$1.50 (F-OMS members) or \$2.00 (non-members) for one day and \$2.00 (members) or \$3.00 for both days. Children under 12 accompanied by adults will be admitted for 50 cents each day, but must be properly supervised.

The Symposium proper will feature papers by outstanding mineralogists and geologists. Both modern reviews and new research on the Franklin minerals will be included. Some of the papers are tentative, as completion dates for research and availability of authors cannot always be foretold.

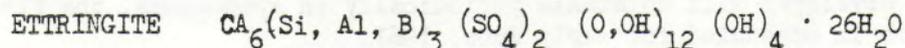
* * * * *

LAWSON H. BAUER AWARD

Your Society is sponsoring a Lawson H. Bauer Award to be awarded for outstanding contributions to the understanding of Franklin mineralogy and geology. It will commemorate the late Dr. Bauer who contributed so much in these fields to both the amateur and professional. The first presentation of the award will be made at the Symposium in June.

Dr. H. Richard Gault of Lehigh University is chairman of the award committee which includes Dr. E. F. Osborn, Pennsylvania State University and president, Mineralogical Society of America; Dr. George Switzer, U. S. National Museum; John L. Baum, New Jersey Zinc Company; Dr. Arthur Montgomery, Lafayette College and Dr. Ralph J. Holmes, Columbia University.

* * * * *



Ettringite was identified in white to clear low hexagonal dipyramidal crystals, associated with hancockite, roeblingite, clinohedrite, andradite, xonotlite, rhodonite, thomsonite, datolite, muscovite, mangano-phyllite, and native copper in veins connected with a potash feldspar zone above, near the hanging wall and close to the Palmer shaft pillar. The presence of B_2O_3 and SiO_2 in the Franklin ettringite is unusual and reflected in higher indices of refraction (1, 491, 1, 470) than other sources. This study has also showed that true unit cell dimensions of ettringite are $\text{A}_0=22.3^\circ\text{A}$, $\text{C}_0=21.3^\circ\text{A}$; the former being twice that previously reported.

Abstracted from Am. Min. 45, 1137-1143, Nov. Dec. 1960,
C. S. Hurlbut, Jr. and J. L. Baum

TENTATIVE CALENDAR OF EVENTS FOR 1961

- Sun. March 26 Mr. D. S. McKechnie, New Jersey Zinc Company, "Mining at Sterling Hill". Display: Minerals of Sterling Hill Mine.
- Sun. April 16 Field Trip. Farber Quarry. 9:00 - 12:00.
- Sun. April 23 Mr. N. Wintringham, American Cyanamid Company, "Minerals of Buckwheat Dump". Display of Buckwheat Dump minerals.
- Sun. May 7 Field Trip. Munson Quarry. 9:00 - 12:00.
- Sat. May 13 Meeting.
- Sat. June 3)
Sun. June 4) Symposium of Franklin Mineralogy and Geology - Armory.
- Mineral Exhibits: Dana, Buckwheat Dump, willemite, sphalerite and copper collections - Armory garage.
- Dealers in minerals and equipment - Armory garage.
- Field Trip: Buckwheat Dump.
- Sat. July 15 Mr. John L. Baum, New Jersey Zinc Company, "Exploratory Geology".
- Sat. Aug. 12 Field Trip, B. Nicols Quarry. 9:00 - 12:00.
- Sat. Aug. 19 or
26 Meeting.
- Sat. Sept. 30 Annual Meeting.
Dr. H. Millson, American Cyanamid Company, "Luminescence".
Display of luminescent Franklin Minerals.
- Sat. Oct. 21 Prof. H. R. Gault, Lehigh University, "Sulfides".
Display of Franklin Sulfides.

Meetings held at Legion Home, off Route 23, Franklin, New Jersey at 2 P.M. Visitors welcome at meetings. Members only at field trips.

FRANKLIN-OGDENSBURG MINERALOGICAL SOCIETY, INC.

BOX 146

FRANKLIN, NEW JERSEY

The Franklin-Ogdensburg Mineralogical Society is a new organization established to provide a framework for a series of active programs designed to benefit the community, the collector and those interested in the minerals, mineralogy and geology of Franklin and Sterling Hill, New Jersey.

1. To establish, in cooperation with other interested groups, and maintain a sound, permanent museum of Franklin minerals in Franklin, New Jersey.
2. To develop new information on Franklin minerals and mineralogy, through cooperative scientific programs with universities, and other organizations and individuals.
3. To obtain and make available accurate up-to-date information on Franklin minerals and mineralogy.
4. To facilitate collecting of Franklin minerals while conserving material for future collectors.
5. To facilitate identification of Franklin minerals.
6. To promote fellowship and the advancement of mineralogy and geology by providing meetings of those interested in the Franklin Area.

Any adult interested in any of these or related programs is invited to join us. Membership dues of \$2.00 or questions concerning the Society may be addressed to:

Franklin-Ogdensburg Mineralogical Society, Inc.

Box 146
Franklin, New Jersey