THE PICKING TABLE

FRANKLIN OGDENSBURG MINERALOGICAL SOCIETY, INC.,

BOX 146
FRANKLIN, NEW JERSEY

Volume II September, 1961 Number 2

1961

CALENDAR OF EVENTS

Saturday, September 30 - Meeting - 2 P.M. American Legion Hall off Route 23, Franklin, New Jersey. Speaker - Dr. Arthur Montgomery of Lafayette College. Subject - The Atomic Structure of Crystals.

Saturday, September 30 - Fifth Annual Franklin Mineral Show at the
Sunday, October 1 - Franklin Armory, Franklin, New Jersey, sponsored by the Kiwanis Club of Franklin.

Saturday October 21 -
or October 28 To be announced.

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PROGRAM NOTES

Our speaker for the September 30th meeting will be Prof. Arthur Montgomery, of Lafayette College. His topic will be "The Atomic Structure of Crystals." This will be a practical approach to the subject - his talk will be illustrated with slides and mineral specimens.

Our original speaker for this date, Dr. H. Millson, has been unable to be here because of business. He has promised to speak to us on the same topic, "Luminescence," some time next year.

Up to this writing no speaker has been scheduled for our October meeting. As soon as complete information is available, all members will be notified by post card.

Visitors welcome at meetings.

THE PICKING TABLE

Previous issues of The Picking Table have been prepared by John G. Hendricks. John was one of the three founders of the F.O.M.S. and served as Secretary-Treasurer for 1959-60. The objectives of the Society were personally formulated by John and last year, under his active direction, the Club made great progress towards the achievement of those goals. Past issues of The Picking Table provide excellent evidence of his considerable efforts and ability.

Unfortunately for us, late last year John changed employment and relocated in Weston, Massachusetts. The pressures of his new position left him no time for outside activities and in March, 1961, John resigned from the Board of Trustees and the editorship of The Picking Table. It hurts to lose such an able and active member and we hope that some day soon John may again find time for Club affairs.

This issue of The Picking Table has been edited by Frank Edwards, for whom all writing is a chore. For future issues (three per year) we need a permanent editor. The main requirements are a thorough knowledge of mineralogy, the ability to write good English, and a desire to participate actively in Club affairs. If interested, please communicate with any officer promptly.

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KIWANIS MINERAL SHOW

We call your attention to the weekend of September 30th and October 1st. On these two days the Kiwanis Club of Franklin will hold their Fifth Annual Franklin Mineral Show at the Franklin Armory, Franklin, New Jersey. This Show will feature displays of Franklin minerals, a large dealer section, a field trip to the Buckwheat Dump and at the Taylor House, a replica of a mine section and pumping station. Hours are 9 to 9 on Saturday and 9 to 6 on Sunday. Admission charges $1.00 per day for adults and 50 cents per day for children.

Any F.O.M.S. member who would like to exhibit his choice material please contact Ed Selems at the Blue Clipper Diner, Route 23, Franklin or Dick Dolsen, Catlin Road, Franklin. This is an opportunity to display your prize specimens for all to see and aid a worthy cause.

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DUES AND OUR FISCAL YEAR

Our present year, which runs from October 1st to September 30th, creates problems with taxes and other fiscal matters. The Executive Board has decided that a calendar year is preferable and at our July 15th meeting, the following proposed amendment to the Constitution was read:

"The fiscal year of the F.O.M.S. shall run from January 1st to December 31st. All 1960-61 memberships shall be extended to December 31st, 1961. The new fiscal year shall begin January 1st, 1962."

This amendment will be proposed at the August 26th meeting. If approved, present dues will expire on December 31st instead of September 30th. New members joining on or after September 1st will be given paid-up memberships for the year 1962. Members who wish to renew for 1962 may do so at any time.

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NEW JERSEY ZINC COMPANY

The following editorial concerning the New Jersey Zinc Company appeared in a recent issue of the NEWARK SUNDAY NEWS:

"Rehiring of a maintenance crew at the Sterling zinc mine at Ogdensburg, closed since 1957, has undoubtedly stirred hopes of reviving an industry that once was dominant in the economy of Sussex County. These hopes, however, get little encouragement from Congress' latest effort to help the depressed zinc industry.

"Low prices, surpluses, imports and declining markets are the chief sources of the industry's troubles. Congress' difficulty is in arriving at a formula that would satisfy producers, consumers and, oddly enough, the State Department.

"The House last week passed and sent to the Senate a bill that would subsidize prices for small producers only. New Jersey Zinc Company, which owns the Sterling mine, is described as the nation's top producer and is, therefore, not likely to be affected by the House measure.

"The Senate has its own zinc bill which not only incorporated the subsidies but has an increased tariff feature. This measure is not likely to win administration approval. Like General Eisenhower who vetoed a similar bill last year, President Kennedy opposes large subsidies that would stimulate further overproduction, and he is against increased tariffs because of the impact on international relations of a strong protectionist policy. Canada and Mexico together supply about half of the zinc being shipped into this country.

"Apparantely the best that can be expected from Congress at the moment is a token political gesture toward congressmen from Western producing states where many of the marginal mines are located."

(Cont. on Page 4.)

New Jersey Zinc Company (Cont.)

The Ogdensburg mine was closed in August 1958. It was the first voluntary shutdown by the Company in over 100 years of operation in the area. The closing was caused by the low price of zinc in the world market. Foreign imports, mostly from Sweden, have been and are still selling well below the production cost of local zinc. However, there are signs of improvement and it is hoped that prices will increase gradually. It is estimated that the maintenance program and new safety installations will take two years to complete. Ore production will not resume until the price of zinc is high enough.

For two years, the only activity at the Ogdensburg mine has been on the 2100 ft. level where the Lamont Geological Institute conducts a seismological laboratory. Conditions have proved so favorable for seismic research that the original installation has been greatly expanded. Today this laboratory is ranked among the best in the nation.

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OUR DEEPEST SYMPATHY

It is not the custom of this paper to publish news of personalities, yet I am sure that the members of our Club would wish me to extend their expressions of sympathy to Bob Metzger, to Ray Gill and to the survivors of Dr. Richard H. Gault. Last week Bob lost his wife, Sylvia, after a short illness. Bob has helped our Club in many ways. He has spoken at our meetings and our Symposium. In his capacity as Resident Geologist at Sterling Hill, he has assisted with information and advice. We sympathize with him in his loss.

Just before our Symposium, Dr. Gault was hospitalized and never recovered. He too, was generous to our Club. Dr. Gault served as the Chairman of the Selection Committee for the Lawson H. Bauer Award, and was scheduled to be our October speaker. Good friends can never be replaced. Again, our deepest sympathy goes to his survivors.

Ray Gill, our Secretary Treasurer, has just been hospitalized with a heart attack. Ray has served all of us willingly and well, and we wish him a speedy recovery.

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MEETINGS

Attendance at our meetings has averaged 100 members and guests. As usual, they have been rewarded by excellent speakers and interesting subjects.

In March, Mr. Donald S. McKechnie, Superintendent of Operations at the Franklin, New Jersey Zinc Company, discussed the past, present and future of the Ogdensburg, or Sterling Hill mine. At that time, prospects for resuming ore production looked very remote. Further comments concerning the situation appear in another part of the Picking Table. (See Page 3.)

Meetings. (Cont.)

The April meeting featured Mr. Neil Wintringham on the Minerals of the Buckwheat Dump. To all collectors his talk was extremely interesting and informative. But, with his customary thoroughness, Neil brought with him a mimeographed paper which listed the minerals of the Buckwheat Dump, a map of the Buckwheat Cut and Dump area, and a list of the minerals of the Franklin area, reported from 1810 to 1961. These papers soon disappeared, and since they are highly prized by the recipients, today are in the "collector's item" class.

In May we again had the pleasure of hearing from Mr. Clarence Haight, predecessor of Mr. McKechnie as Superintendent of Operations at Franklin. Last year Mr. Haight had described with words and pictures the ore extraction operations of the Franklin Mine of the New Jersey Zinc Company. This year he took us one step further in their operations - the milling and processing of ores at Franklin prior to shipment to the Palmerton smelter. Again specimens and moving pictures helped illuminate and illustrate the subject. Next year we hope to complete this series with a speaker on the smelting and marketing operations of the New Jersey Zinc Company.

The reliable Jack Baum, Resident Geologist for the New Jersey Zinc Company at Franklin, was our July speaker. His subject was "Exploratory Geology" and I have been told that yours truly and all others who failed to attend this meeting really missed a sparkling presentation. "Best meeting yet" was the comment from many people. Considering the high caliber of our other speakers, he must have been real good. I wonder if we can get him back for an encore?

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OUR SYMPOSIUM ON FRANKLIN MINERALOGY AND GEOLOGY

The biggest event to date in the young life of our Club was the Symposium on Franklin Mineralogy and Geology, held at Franklin Armory on June 3rd and 4th. Thanks to the cooperation of many people, it proved to be highly successful in many respects.

Our first thanks must go to our speakers, many of whom traveled considerable distances to present their papers, gave freely of their time in preparation, and were gracious and patient with our listeners and their questions.

On Saturday, June 3rd, Mr. Alan W. Pinger presented "A Review of the Mineralogical, Geological and Mining Activities in the Franklin Area." He was followed by Mr. John L. Baum, on the "Geology of the Franklin Area." After lunch, Mr. Pinger presented the Lawson H. Bauer Award to Dr. Clifford Frondel, who then spoke on "Franklin Mineralogy" and then read a paper on "Tephroite" by Cornelius Hurlbut, Jr. (abstract elsewhere in this issue).

On Sunday, June 4th, Mr. Neil Wintringham spoke on the "Mineralogy of the Franklin Limestone." Dr. Taro Takahashi presented a paper on "Thermochemical Interpretation of the Franklin-Sterling Hill Mineral Assemblage" which had been prepared jointly with Dr. Clifford E. Meyers. Dr. John B. Ridge, who had suffered through a series of travel misfortunes, talked on the "Geochemistry of the Franklin Ores."

OUR SYMPOSIUM....(Cont.)

Sunday afternoon Dr. Bennett L. Smith spoke on "Recent Progress in the Geologic Mapping of the Jersey Highlands," New Jersey State Geologist, Kemble Widmer, with excerpts from a manuscript by M. Wilkerson on "The Minerals of Franklin and Sterling Hill," and concluding with Mr. Robert Metzger on "The Geology of Sterling Hill."

These papers by scientists of national reputation provided the many intelligent listeners with considerable information, old and new, on Franklin. There have been many requests for printed copies of these talks. The F.O.M.S. is investigating reproduction costs and, if at all possible and practical, will endeavor to print these papers in a single volume.

Many visitors, either personally or by mail, have expressed their compliments on the program and have urged repetition on an annual basis. Such remarks and the requests for reprints indicate the interest and appreciation with which the audiences received these talks.

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Our thanks also go to our dealers, who contributed greatly to the success of this affair. Good specimens were available at reasonable prices. Our visitors not only praised the displays, but bought heavily of the colorful wares. The dealer area had definite inconveniences, but these were generally overlooked in the clang of the cash register.

Our sincere thanks again go to the New Jersey Zinc Company, its officers and employees, for their encouragement, collaboration and cooperation as a unit and as individuals - before, during and after this event. Only your editor knows the extent of the aid rendered to us by these people. Without their help there would have been no Symposium - with less help, it could not have been successful.

Last, but not least, our thanks must go to those of our own Club members who volunteered their time and labor. This applies not only to the Committee, but to those members who came to see, and stayed to work.

Attendance at the Symposium was good, although below expectations on Sunday. Thus, while the event was an "artistic" and scientific success, it was not so good financially. Our total profit was only $257.12.

The F.O.M.S. is a non-profit group, and we state in our objectives that "The F.O.M.S. is an organization established to provide a framework for a series of active programs, designed to benefit the community..." In accordance with this aim, we will present a check for $200 to the Borough of Franklin for some worthwhile community project. As collectors we derive much pleasure and possibly profit from the specimens we bring home from Franklin. While this check will convey our thanks to the people of Franklin, it may also help destroy the impression prevalent in many areas that collectors are self-centered and destructive.

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LAWSON H. BAUER AWARD

The highlight of our Symposium on Franklin Mineralogy and Geology was the presentation of the Lawson H. Bauer Award to Dr. Clifford Frondel of Harvard University.

This award was made for "outstanding contributions to the understanding of Franklin mineralogy and/or geology within the ten year period preceding the date of the award."

Dr. Frondel was the unanimous choice of the award committee headed by Dr. H. Richard Gault of Lehigh University. Other members of the committee were Dr. E. F. Osborn, Pennsylvania State University and currently president of the 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.

Some of their comments on the choice of Dr. Frondel are revealing and interesting.

> " He is foremost among possible contestants. His bibliography on Franklin, his curatorship of one of the foremost collections of Franklin minerals, his constant and continuing work on the subject of Franklin, extending even to the subject of ore genesis, and his patient cooperation with phrenetic amateur mineral enthusiasts make him my candidate."

> " He has carried on or directed probably 90 percent of all research of the past ten years on Franklin-Sterling minerals."

Hospitalized with a fatal illness, Dr. Gault was unable to personally present the Bauer Award to Dr. Frondel. Mr. Allen W. Pinger, dean of Franklin geologists, made the presentation with these words -

> " His (Dr. Frondel's) interest in Franklin minerals began in 1939 as an associate of Charles Palache and Harry Berman in the revision of Dana's System of Mineralogy. Despite his many and pressing duties, his interest in Franklin never lagged and we are indebted to him for many contributions to our knowledge of Franklin minerals."

The selection of Dr. Frondel for the first Lawson H. Bauer award was particularly appropriate because of their past association. The last three papers published by Mr. Bauer were written in collaboration with Dr. Frondel and upon the death of Mr. Bauer, Dr. Frondel wrote his memorial in the American Mineralogist. I am sure that Dr. Frondel values the Bauer Award as much for personal significance as for its testimony to the value of his work as judged by his colleagues.

At the present time, Dr. Frondel is enjoying a sabbatical year. He hopes to complete his work on Franklin-Sterling minerals, which will bring Palache up to date. This includes many new analyses, occurences of numerous minerals new to Franklin, a complete study of the Franklin barium feldspars, a new interpretation of the "pegmatites," new data on mineral paragenesis, new ideas on the origin of the Franklin-Sterling ore deposits. This manuscript is about 90 percent completed and should be published in 1962.

Lawson H. Bauer Award (Cont.)

It is the intention of the F.O.M.S. to present the Lawson H. Bauer award on an annual basis. Additional information on this subject will be announced shortly.

Because few of our readers have known Mr. Bauer, we are reprinting Dr. Frondel's Memorial to him. We are also reprinting portions of the Frondel/Bauer paper on Kutnahorite as an example of their collaboration and because of the confusion which exists about this mineral in the minds of our collectors.

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American Mineralogist, Vol. 40
March-April, 1955.

MEMORIAL OF LAWSON H. BAUER

Clifford Frondel, Harvard University, Cambridge, Mass.

Lawson H. Bauer, for over 40 years chemist and finally Chief Chemist to the New Jersey Zinc Company at Franklin, New Jersey, died at the Franklin Hospital on January 27, 1954. Mr. Bauer was born at Mertztown, Pennsylvania, on August 18, 1889. After graduation from High School in Kutztown in 1905, he taught school for two years in Lehigh County, Pennsylvania, and then entered Lafayette College. An honor student and member of Phi Beta Kappa, he graduated in 1911. Following several years of work in industrial laboratories in Maryland, he entered the employment of the New Jersey Zinc Company at Franklin, 1913. Here, aside from his official duties, he was active in civic affairs in the town, as a member of the Board of Education and as President for many years of the Board of Health. Mr. Bauer's wife died in 1953. He is survived by two sons and two daughters.

The death of Mr. Bauer followed by the final closing in October 1954 of the Franklin mine after more than a century of operation and the death late in 1954 of Professor Charles Palache, mark the end of an era in Franklin mineralogy. Mr. Bauer contributed directly through his analytical work to the mineralogy of the famous deposit that he knew so well, but his most important contribution, stemming from the unselfish and truly scientific desire to bring the mineralogy of Franklin to description and interpretation, was in aiding the flow of specimen material from the Franklin and Sterling Hill mines to investigators and collectors over the world. Very little is publicly known of the details of these great and unique deposits, and the knowledge that has been gained has come in considerable part from his efforts in this regard, made with the permission of the Zinc Company, and the activities of earlier collectors such as Hancock and Roebling.

Mr. Bauer published 18 mineralogical papers, all written in cooperation with other people. These included the description of 8 new mineral species; cahnite, larsenite, calcium larsenite, mcgovernite, loseyite, mooreite, yeatmanite and manganpyrosmalite. Many of these and other new species were first recognized by Bauer, chiefly from specimens obtained on the picking table - that almost unreachable Mecca of collectors -

or miners. The monographic work by Charles Palache, "The Minerals of Franklin and Sterling Hill, Sussex County, New Jersey," published in 1935 as Professional Paper 180 of the U. S. Geological Survey, contains over 70 analyses by Bauer, in part made jointly with his associate David Jenkins. A number of additional analyses have appeared in more recent publications. There are also many as yet unpublished analyses, all carefully preserved on labels glued to specimens in his personal collection. This collection, although small as compared to others, amassed at Franklin, contained many type specimens and others of outstanding beauty or rarity. Among the latter are the finest known specimen of hodgkinsonite and the extraordinary twinned crystal of cahnite figured in Palache's work. The collection was purchased from Mr. Bauer's estate jointly by the U. S. National Museum and Harvard University.

Those collectors or students who visited Mr. Bauer's home to see his collection usually were grilled over the identity of a suite of about 60 specimens kept in a special tray. All were of identical size, although of very unlike color and appearance, and all observers were dismayed to be finally informed that only one species was represented - willemite. The less common Franklin minerals are much more troublesome, and innumerable identifications have been accepted solely on the authority that "Bauer said so."

Mr. Bauer became a member of the Mineralogical Society of America in 1929 and he was elected a Fellow in 1932. His work is part of the history of Franklin and warm personal memories will be carried by those fortunate to have known this spirited man.

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American Mineralogist, Vol.40
July-August 1955

KUTNAHORITE - A MANGANESE DOLOMITE

Clifford Frondel an L. H. Bauer, Dept. of Mineralogy,
Harvard University, Cambridge, Mass. and New Jersey
Zinc Company, Franklin, New Jersey.

Kutnahorite from Czechoslovakia

The name kutnahorite was proposed by Bukowsky (1901) for a supposed manganese member of the dolomite group, ideally $CaMn(CO_3)_2$, One of his analyses of pale rose cleavable aggregates from Kutnahora, Czechoslovakia corresponded approximately to $Ca(Mn, Mg, Fe)CO_3)_2$, with Mn: Mg: Fe ~ 6:2 : 1. Rigorous proof has been lacking that his mineral belonged in the dolomite structure-type and was not merely a calcite type solid solution, with the formula $(Ca,Mn,Mg,Fe)CO_3)_2$, that fortuitously approached the dolomite ratios.

Through the kind effort of Dr. Jan Kutina of the Department of Mineralogy of the Charles University, Prague, a type specimen of kutnahorite was obtained from the museum of the school in Kutna Hora where Professor Bukowsky taught. The label glued on the specimen reads (translation by Dr. Kutina): "Kutnahorite (ferroan mangandolomite with cleavage). Kutna Hora, from a stony fencing of a field above the Vasata's quarries: Ant. Bukowsky, 1900." An analysis is also given, which is stated in recast form in Table 1, column 5. A differential thermal analysis and x-ray study of this specimen has now shown that the mineral is in fact of the dolomite-type. In addition, Dr. Kutina sent us a specimen of a carbonate from Chvaletice, Czechoslovakia, described by Zak (1949) that has a composition very close to that of the original kutnahorite. The analysis of this material is repeated in Table #1, column 6. Zak states that the mineral gives an x-ray pattern similar to that of ankerite (in the old sense of ferroan dolomite,) and we have confirmed this identification as a member of the dolomite group by both x-ray and differential thermal analysis. The existence of kutnahorite as a valid member of the dolomite group thus is established.

Kutnahorite from Franklin, New Jersey

The writers surveyed a small collection of pink, manganese-containing carbonates from Franklin and Sterling Hill, New Jersey, and found four specimens that gave an x-ray powder pattern resembling that of dolomite. One of these specimens, No. 85670, was found on chemical analysis and differential thermal analysis to be a member of the dolomite group with almost the ideal composition $CaMn(CO_3)_2$. Small amounts of Mg and Fe are present in substitution for the Mn (analysis 1, Table 1). The grouping of the Mg and Fe with Mn rather than with Ca, here required to make the analysis conform to the dolomite type of formula, is consistent with the closer approach of Mg and Fe in ionic size to Mn than to Ca. There is also a small excess of Ca over the requirement of the A position of the formula. This presumably is in substitution for Mn in the B position, analagous to calcian dolomite, $Ca(Mg, Ca)(CO_3)_2$, and the complete formula may be written $Ca(MN, Mg, Ca, Fe)(CO_3)_2$.

The differential thermal analysis curve closely resembles the DTA curve of ankerite, and to a less extent the curve of dolomite proper (which lacks oxidizable cations). It differs completely from the DTA curves of calcite and rhodochrosite.

The indeces of refraction of kutnahorite, nO 1.727, nE 1.535, agree exactly with the values calculated from the indices of refraction of the $CaCO_3$ and $FeCO_3$, end-members taken in the ratio of the analysis. The specific gravity, 3.12, is slightly lower than the value 3.15 similarly calculated from the end-members. The unit cell dimensions obtained are ao 4.85 A, co 16.34. The pattern contains several of the lines diagnostic of dolomite-type structures. The kutnahorite from Chvaletice analyzed by Zak (analysis 6 Table 1) has the cell dimensions as 4.83 A, co 16.18.

Kutnahorite occurs at Franklin as anhedral masses with curved cleavage surfaces up to three centimeters in size in a small veinlet cutting the normal franklinite ore. It is translucent, with a pale pink color. The vein is bordered by a thin layer of dark pink rhodochrosite; this has nO 1.792, corresponding to a content of 85% $MnCO_2$ according to the data of Wayland (1942).

Kutnahorite (Cont.)

The other three specimens examined appeared on optical, x-ray and thermal analysis to be mechanical mixtures of kutnahorite with a calcite-type carbonate. It is hoped to give a fuller description of this material at a later time.

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TABLE I. ANALYSES OF KUTNAHORITE AND OF MINERALS POSSIBLY IDENTICAL THEREWITH

	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6
CaO	27.44	28.24	26.71	26.83	24.66	24.43
MgO	2.21	2.72	-	6.88	5.18	5.16
MnO	28.31	26.87	24.61	11.43	23.76	23.39
FeO	0.50	0.47	6.95	8.58	4.27	4.79
CO_2	41.80	42.09	40.58	43.28	42.62	42.17
Rem.	-	0.08	1.15	-	-	0.17
	100.26	100.47	100.00	100.00	100.49	100.11

No. 1. Kutnahorite, Franklin, N. J. - C. M. Smink, Analyst, New Jersey Zinc Company - Harvard Specimen 85670.

No. 2. Kutnahorite, Franklin, N. J. - The "magnesian dolomite" of Roepper, 1870.

No. 3. Kutnahorite? Vester Silfberg, Dalecarlia, Sweden - the "mangan-calcite" of Weibull, 1885.

No. 4. Kutnahorite, Kutnahora, Czechoslovakia. The original material of Bukowsky, 1901.

No. 5. Same.

No. 6. Kutnahorite, Chvaletice, Czechoslovakia. Called ankerite by Zak, and compared by him to the kutnahorite of Bukowsky.

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TEPHROITE

Cornelius S. Hurlbut, Jr.

A study of tephroite specimens from Franklin and Sterling Hill, New Jersey, showed in all of them the presence of thin sheets of willemite believed to be a product of exsolution. These sheets are oriented parallel to the (100) and (010) planes of tephroite with the a and c axes of tephroite and willemite parallel. It is believed that little zinc remains in the tephroite structure and that much of it reported in chemical analyses has been contributed by intergrown willemite. This conclusion is supported by experiments synthesizing tephroite. The indices of refraction and a spacing of (130) vary, as would be expected, with changes in amounts of MgO, FeO and CaO.

For this study, Dr. Hurlbut assembled 30 specimens labeled tephroite and roepperite. Tephroite is usually considered to be gray in color, but only six of the specimens were gray; thirteen were reddish brown; four rose red. Roepperite, which has been described as a variety of tephroite, is black. Examination of the four labeled specimens of roepperite proved three to be black willemite. Previous studies show that color variations in tephroite are due to the presence of minute inclusions of franklinite. Black franklinite is present in roepperite. Red franklinite (spinel) is present in red tephroite and paler shades of pink and gray are due to sparse scattering of inclusions.

Under ultraviolet light, portions of all specimens gave the characteristic green luminescence of willemite. Some of this fluorescence resulted from massive willemite intergrown with the tephroite, but much of it seemed to be coming from the tephroite itself. Closer examination showed thin fluorescing sheets of colorless willemite lying along the (100) and (010) planes of the tephroite (the cleavage or parting planes of tephroite). Sections normal to these directions (001) show traces of willemite sheets intersecting at right angles and under magnification more and thinner sheets became visible, forming a minute cross hatched pattern of willemite. A similar intimate intergrowth of willemite with glaucochroite has also been reported.

The oriented intergrowth of willemite in tephroite speaks eloquently for its origin as a product of exsolution. With the slow cooling of natural tephroite, the unmixing of $Zn_2 SiO_4$ may have been nearly complete. Most certainly one can conclude that it contains much less zinc than has been reported in many chemical analyses. The variations that exist in the properties of tephroite result, therefore, from the substitution of Mg^{++}, Fe^{++}, and Ca for Mn^{++} rather than from the substitution of Zn.

Abstracted from The American Mineralogist, Vol. 46, Nos. 5 and 6.
May - June, 1961 - pages 549-559.

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 collection 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.

Anyone interested in 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.

MEMBERSHIP RENEWAL FOR YEAR 1962

I would like to renew my membership in the Franklin-Ogdensburg Mineralogical Society for the year 1962. Dues of $2.00 attached.

Name _____

Address _____

_____

(Please show exactly as you wish your name and mailing address to appear on our mailing list.)

PROSPECTIVE MEMBERS

I believe the person or persons listed below may be interested in the F.O.M.S. and its activities. Please send them information.

Prospect's name and address _____

_____

_____

Recommending Member _____

APPLICATION FOR MEMBERSHIP

I am interested in the Franklin Ogdensburg Mineralogical Society and would like to apply for admissiom as a member. $2.00 in payment of 1962 dues is attached hereto.

Name _____

Address _____

_____

(Please show exactly as you wish your name and mailing address to appear on our miling list.)

RETURN TO:
FRANKLIN OGDENSBURG MINERALOGICAL SOCIETY
BOX 146, FRANKLIN, NEW JERSEY.