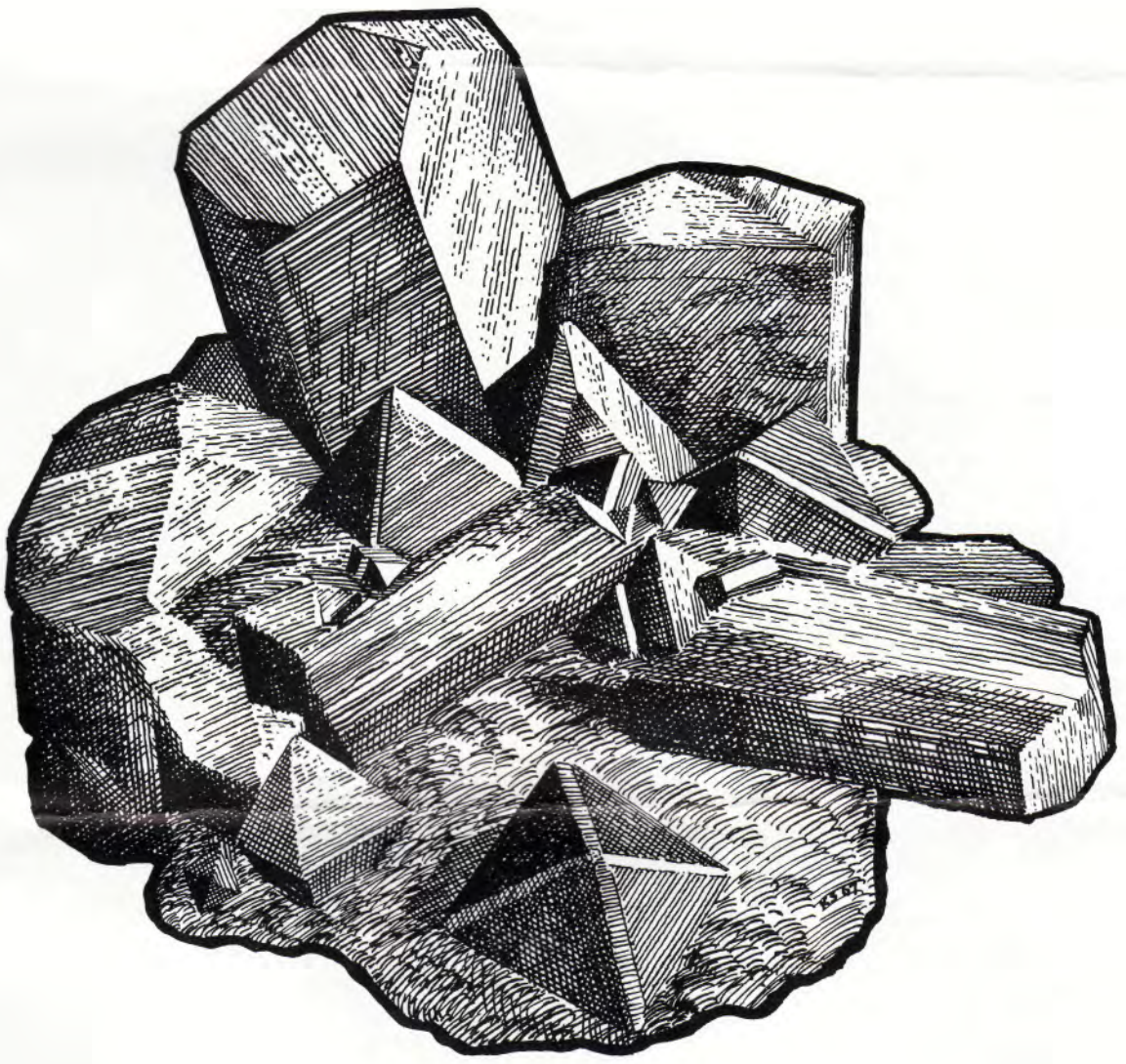
THE

PICKING TABLE



Journal of the Franklin-Ogdensburg Mineralogical Society, Incorporated

Volume 23
Spring

Number Two
1982

from the Editor

No Trespassing Danger

All of us as mineral collectors are familiar with signs prohibiting access to and warning of danger on private and occasionally public lands. Property owners may, and are sometimes obligated by law to, post such signs in order to preserve and protect their rights and those of others.

From time to time we hear of accidents in which a collector is seriously injured or killed. Though there may be specific exceptions, it is evident that the vast majority of such accidents occur when the victims are trespassing upon private property.

As a mineralogical society, we are very active in promoting mineral collecting through properly sanctioned and safely supervised field trips. In doing so, we are obligated to advise our members of the need to respect the rights of the property owner and that there is an element of risk in all mineral collecting which must be assumed solely by the collector.

We recently learned of two incidents in which this fundimental edict was ignored. In the first incident, at a construction site located in a former trap rock quarry, a mineral collector was seriously injured in a tragic accident. In the second incident, two collectors were reportedly apprehended leaving the underground workings of the Sterling Hill mine of The New Jersey Zinc Company, Inc., in Ogdensburg. In the latter case, the offenders escaped injury, but not prosecution. In both cases the offenders were violating the law in trespassing upon private property, while ignoring obvious danger.

The real tragedy in such instances, however, lies in the fact that such unfortunate incidents cast a shadow of doubt on responsibe mineral collectors everywhere.

It is therefore appropriate that we speak out against irresponsible mineral collecting, and for the many responsible mineral collectors who respect the rights of property owners and recognize the dangers of irresponsible mineral collecting. *No Trespassing* signs must be respected. *Danger* signs must be heeded. Persons who blatantly disregard such warnings must accept the consequences of their indescretions; be they injury or prosecution.

In those instances where property owners must deal with such unfortunate inconsideration, we encourage them to prosecute the violators to the fullest extent of the law.

Field Trips

Limecrest, near Sparta, is one of the largest quarries in the State of New Jersey. It is operated by Limestone Products Corporation of America for calcitic and dolomitic limestone *(actually marble)* as well as a granitic gneiss, all of which offer a diversity of end products.

It is located within the Franklin marble, the same metamorphosed Precambrian limestone that encloses the Franklin and Sterling Hill zinc orebodies. For this reason, many of the minerals known from the marble in and around Franklin are also common to this quarry.

Owing to such similarities and to convenient access offered by its operators, this quarry has become a popular mineral collecting locality. Inter-club field trips are conducted here, on a semi-annual basis, under the supervision of our Society. Seven years ago attendance passed the 600 mark.

Mineral collectors are seldomly disappointed on a field trip to this quarry. Quarrying operations are constantly exposing new ground with excellent collecting potential. The most recent field trip produced a number of exceptional mineral specimens which included: deep sapphire-blue textbook corundum crystals nearly 5 inches in length; lustrous blue-black spinel octahedra to 1 inch on edge; highly modified light brown titanite *(sphene)* crystals exceeding 1½ inches on edge; silvery arsenopyrite crystals nearly 1 inch in length; very well developed hexagonal phlogopite mica books; as well as many other species common to the Franklin marble.

We are making particular mention of the success of such collecting at this time in order to exemplify the benefits of well organized field trips. Field trips, where mineral collectors can make exceptional finds, where they are assured of their welcome, which is condusive to an atmosphere of safe, mutual support, in which the risks are minimized and the rewards greatly enhanced.

The PICKING TABLE

Journal of the Franklin-Ogdensburg
Mineralogical Society, Incorporated

Features:

F.O.M.S. Notes

THE 26th ANNUAL FRANKLIN-STERLING HILL MINERAL SHOW

Saturday - October 2, 1982 and Sunday - October 3, 1982

This year marks the 26th year of the Franklin-Sterling Hill Mineral Show sponsored by the Franklin Kiwanis Club. In recent years, this show has gained the reputation of being one of the best in the east. This is due, in part, to the continuing interest that exists here throughout the year. In larger part, however, it is due to the diversity of activity that exists throughout the weekend, activities which include:

21 DEALERS AT THE ARMORY
Rock swap at THE POND
FRANKLIN MINERAL MUSEUM
The BLACK LIGHT Room
MINE REPLICA TOUR
Collecting on The BUCKWHEAT
MINERAL EXHIBITS
Micromount DEMONSTRATIONS

LECTURES *by:*
Pete J. Dunn - Smithsonian Institution
Alice L. Kraissl - Noted Collector
Dr. Warren Miller - SPEX Industries
FREE SHUTTLE BUS SERVICE
Gerstmann FRANKLIN MINERAL MUSEUM
TROTTER MINERAL DUMP *(separate fee)*
Annual F.O.M.S. DINNER *(separate reservation)*

ANNUAL F.O.M.S. DINNER

This year's Dinner will be held at the *Perona Farms Restaurant*, Rt. 517, Andover, NJ, Saturday evening, October 2, 1982. The Social Hour will begin at 6:30 p.m., dinner will be served at 7:30 p.m. The evening's dinner will feature an appetizer, salad, soup-du-jour, main course of Roast Chicken, with vegetable, dessert and beverage. The cost will be $13.00 per person including gratuities. Drinks may be ordered separately from your table. Please forward your reservations to: *F.O.M.S. Dinner* c/o Mrs. Helen U. Warinsky, Secretary, 695 Suffern Road, Teaneck, NJ 07666. *Make checks payable to the F.O.M.S.*

The evening's activities will commence with what has become a traditional form of entertainment, and, fund-raising in the form of an auction conducted by the "ole hog choker hisself," Richard "Dick" Hauck. This year we again ask your support in this effort to raise money for our Society, by your donating mineral specimens or other related items of interest which may be desirable. One-half of the proceeds will be returned to those making the donation should they so desire. Minimum bids will also be considered. Respecting the hour-of-the-day, this auction will be conducted during the course of the dinner so that we might better enjoy our guest speaker.

The highlight of the evening will, as in years past, be our guest speaker. This year we are particularly proud to have Pete J. Dunn of the Department of Mineral Sciences, Smithsonian Institution, Washington, DC. The topic of Mr. Dunn's talk will be *"Franklin and Sterling Hill - Heritage, Contemporary Research and Prognosis."*

Rocks & Minerals,

Franklin and Sterling Hill.

Rocks & Minerals magazine, in conjunction with this year's Franklin-Sterling Hill Mineral Show, sponsored by the Kiwanis Club of Franklin, is devoting its September issue to Franklin and Sterling Hill. The issue is expected to be "off the press" by the middle of this month, well in advance of the show.

Rocks & Minerals is the oldest, and perhaps the best known, mineral hobbyist magazine in this country. In years past, numerous articles about Franklin and Sterling Hill have appeared in this magazine. This issue will feature articles by John L. Baum, Dr. Phillip Betancourt, Richard C. Bostwick, John Cianciulli, Dr. Warren Miller, and Dr. Richard S. Mitchell, with accompanying photographs and listings.

Rocks & Minerals editor Marie Huizing will be at the show to formally introduce the issue and take subscriptions to the magazine.

MINERAL NOTES

A Mineral New To Science

RETZIAN-(Nd) - $Mn_2Nd[(OH)_4AsO_4]$

Since the last issue of the Picking Table, yet another mineral new to science had been described as occurring at the Sterling Hill mine, Ogdensburg, New Jersey. The new mineral, retzian-(Nd), was announced in an article entitled "Retzian-(Nd), a new mineral from Sterling Hill, New Jersey and a redefinition of retzian," by Pete J. Dunn of the Department of Mineral Sciences, Smithsonian Institution, Washington, D.C. and B. Darko Sturman of the Department of Mineralogy and Geology, Royal Ontario Museum, Toronto, Ontario, Canada, which appeared in the American Mineralogist, Vol. 67, pp. 841-845, (1982), from which we quote, in part:

Introduction

"Retzian was originally described by Sjögren (1894) as a new manganese calcium arsenate from the Moss Mine, Nordmark, Varmland, Sweden."

"Retzian was subsequently re-examined by Moore (1968) who presented crystallographic data and proposed the tentative formula $Mn_2Y(AsO_4)(OH)_4$, assigning the rare-earth content to yttrium on the basis of Gladstone-Dale calculations. Moore (1967) also described the crystal structure of retzian, carefully pointing out that "the structure analysis of retzian is largely a study of a compound with an unknown composition."

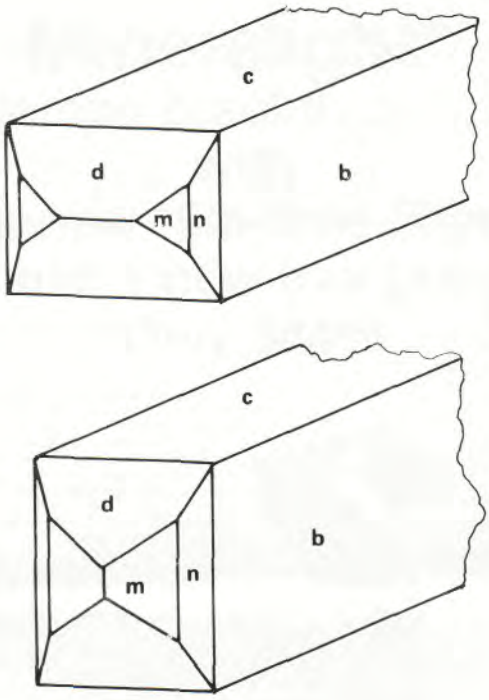
"The recent discovery of a second occurrence of "retzian" at the Sterling Hill Mine, Ogdensburg, New Jersey prompted an analytical investigation of retzian to ascertain its composition and to simultaneously describe the Sterling Hill material. A fragment of the type retzian was obtained for use in this study. This fragment is now recatalogued under NMNH No. 145882."

"The present study determined that the type material is Ce-rich and the new material from Sterling Hill is Nd-rich. This necessitates a redefinition of retzian as $Mn_2Ce(AsO_4)(OH)_4$ and the naming of the Sterling Hill material as retzian-(Nd), in accordance with Levinson's rules for the naming of rare-earth analogs of known species (Levinson, 1966). The holotype retzian-(Nd) is deposited in the Smithsonian Institution under catalog No. 143762."

Retzian-(Nd)

"Six crystals of retzian-(Nd) from Sterling Hill were studied on the goniometer and two were oriented with the precession camera. Crystal drawings of typical crystals are presented as Figure 1. The predominant forms on retzian-(Nd) are the same as those noted by Sjögren (1897) on retzian from the Moss Mine. However, the crystal habit is markedly different inasmuch as retzian-(Nd) is elongated parallel to [100], and retzian is elongated parallel to [001]. In addition to the forms shown in figure 1, very thin faces of [021] and [150] were observed on only one crystal."

"The unit cell parameters were provided by Moore (1967) and the unit cell parameters and space group extinctions determined in our study of the Sterling Hill retzian-(Nd) are in excellent agreement with Moore's data."



Physical and optical properties

"Retzian-(Nd) occurs as pinkish-brown to reddish-brown crystals and aggregates of crystals. Where color zoning is evident, the interior of the crystal has the darker color, but it was not possible to analyze these few zoned crystals to establish compositional correlations. The streak is very light brown. The luster is vitreous to dull on crystal faces and vitreous on fracture surfaces. There is no discernible cleavage, but the crystals tend to break along parallel planes due to parallel growth. The hardness is approximately 3-4 on Mohs' scale. The fracture is uneven. The density, measured using heavy liquid techniques, is greater than 4.2 g/cm^3, but could not be more reliably estimated due to extreme paucity of material and the fact that some crystals contain cavities."

"Optically, retzian-(Nd) is biaxial (+) with refractive indices $\alpha = 1.774$, $\beta = 1.782$, and $\gamma = 1.798$ (all $\pm$ 0.002); $2V_z = 69(1)^\circ$ measured, 71° calculated; dispersion is weak $r < v$. The optical data are in excellent agreement with those previously obtained for retzian from Sweden."

Figure 1 - Crystal drawings of typical retzian-(Nd) crystals from Sterling Hill, Ogdensburg, New Jersey.

Chemistry

"The chemical composition of retzian-(Nd) differs from that of retzian principally in having Nd as the dominant rare-earth element, with Ce, La and Pr as significant substituents. There appears to be little substitution for As, and only minor Mg in substitution for Mn. Ideally, the formula would be $Mn_2Nd[(OH)_4AsO_4]$."

"Little is known of rare-earth distribution in the orebodies at Franklin or Sterling Hill. Allanite is known to occur in microcline at Franklin and Frondel (1964) found Ce, La and Nd as the major rare earths with Ce > La > Nd. Thortveitite has recently been found by the senior author as inclusions within a highly zincian hercynite and contains approximately 4 weight percent Y_2O_3."

Occurrence

"Retzian from the Moss Mine, Nordmark, Varmland, Sweden, was described by Sjogren (1894). The crystals were developed in cavities in fine-grained braunite and dolomite, and were closely associated with jacobsite, all of which formed before retzian."

"Retzian-(Nd) was discovered in 1977 by John Kolic, a miner, in the Sterling Hill mine, Ogdensburg, Sussex County, New Jersey. The occurrence was initially documented by Moore and Ito (1978) as an associated mineral with kraisslite. This occurrence consisted of clove-brown crystals coating and imbedded within light brown rhodochrosite which, in turn, encrusts a moderately rich willemite-franklinite ore. The sample was found on a fracture surface from the 10-10 stope, 700 level. It was chosen as the holotype for retzian-(Nd)(NMNH No. 143762). Retzian-(Nd) from Sterling Hill, like the Swedish occurrence, is extremely rare and very little material was recovered. Only two crystals were visible on the holotype specimen, but others were recovered from dissolution of the overlying calcian rhodochrosite."

"In addition to the holotype, two other occurrences of retzian-(Nd) were subsequently found within the Sterling Hill mine. One of these is in the Spex-Gerstmann collection (SG No. 1428) in Franklin, New Jersey. This retzian-(Nd) is on a vein surface on willemite-franklinite-calcite ore and is associated with secondary willemite, magnesian sonolite, calcite and sphalerite. Semi-quantitative microprobe analysis of one crystal from this occurrence indicates that the material is retzian-(Nd) with Nd $\gg$ Ce $\approx$ La. Y_2O_3 is approximately in the 4-6 weight percent range."

"The third occurrence, like the first, was discovered by John Kolic. It was found in the 1220 undercut pillar, 800 level. This is a part of the mine which has produced other rare arsenates (magnussonite, manganese-hoernesite). The matrix is a massive pink manganoan calcite with a druse surface. The druse carbonate is liberally coated with secondary crystals of franklinite, zincite and willemite, together with abundant chlorophoenicite, barite and an unknown phase. Retzian-(Nd) is the least abundant mineral in the assemblage and occurs as light-brown crystals usually in intergrown clusters which are randomly and sparsely distributed. Twins are rare (only three were observed) and occur as trillings or sixlings, with a distinctly spoke-like radial appearance, not unlike cerussite, another orthorhombic mineral which forms six-rayed crystals from orthorhombic units. These twins could not be removed for study; they are few and extremely small. Semi-quantitative analysis of the rare-earth content of these crystals indicates that they are groosly inhomogeneous. However, Nd is consistently dominant over Ce and La in this material and it should be called retzian-(Nd).

Research Reports

Yukonite - $Ca_3Fe^{+3}_7(AsO_4)_6(OH)_9 \cdot 18H_2O$ *(?)*

This mineral was recently added to the list of mineral species presently known to occur at Franklin and Sterling Hill. The describing article entitled "New data for pitticite and a second occurrence of yukonite at Sterling Hill, New Jersey," by Pete J. Dunn of the Department of Mineral Sciences of the Smithsonian Institution, Washington, D.C., appeared in the Mineralogical Magazine, Vol. 46, pp. 261-264, (1982). The following is abstracted fromthat article. The separate communication was furnished by the author, to whom we express our appreciation.

Introduction

The occurrence of a mineral that appeared to be yukonite from the Sterling Hill mine, Ogdensburg, New Jersey, prompted an analytical re-examination of type yukonite and a study of some substances collectively referred to as pitticite.

Discussion

"Yukonite was originally described by Tyrrell and Graham (1913) as a calcium ferric-iron arsenate hydrate from Tagish Lake in Yukon Territory, Canada, but was not found elsewhere. Yukonite similar to type material was subsequently restudied by Jambor (unpub. pers. comm. and 1966), who verified the data of Tyrrell and Graham, but found 17.9 wt. % H_2O instead. Jambor also measured the poor X-ray diffraction pattern of type yukonite."

"A mineral with the same powder pattern was found among the arsenate assemblage discovered in the Sterling Hill mine, Ogdensburg, New Jersey. The samples were reported to have been found in the 960 stope on the 340 level. The Sterling Hill material occurs in two distinct habits. One of these is reddish-brown waxy gel-like material quite undistinguishable from pitticites. The second is markedly different and consists of dark-brown lath-like aggregates, which are pseudomorphous after remnant parasymplesite and köttigite. This second habit occurs in intimate association with ogdensburgite."

"Because both Sterling Hill occurrences yield identical powder patterns in excellent agreement with that of type yukonite, and have very similar compositions, they should be considered yukonite until further occurrences either validate or discredit the species. Although there is little firm evidence for the characterization of yukonite, the second occurrence, together with the nearly consistent composition (the presence of Ca and the absence of S and P), argue for the retention of yukonite as a species name."

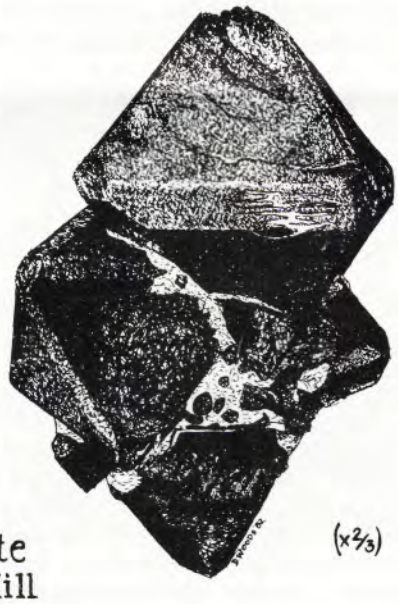
Additional Communication

"The examination of other specimens from Franklin and Sterling Hill, which are not mentioned in the above cited paper, had found no pitticite at either locality. Those pitticite-like, gel-like aggregates you might find (black or brown color) are manganese-silicate gels which might be studied separately in the future."

PJD

Willemite
Franklin
Hauck Coll.

(x2/3)



(x2/3)

Franklinite
Sterling Hill
Hauck Coll.

The sinking of the Parker Shaft

by John L. Baum

The temporary head-frame for sinking the Parker Shaft, on the right, with the engine house and machine shop to the left. This is 1891 or 1892, before flooding delayed the operation over a year. *(FMM Archives photograph.)*

The story of the Parker Shaft at Franklin, N.J. begins with Col. Samuel Fowler who in 1848 started to parcel out mining rights to zinc and to franklinite, thus starting legal troubles which were not to end until 1897 when all the interests were consolidated in The New Jersey Zinc Company. One of the interested observers of the legal battles was Richard Wayne Parker. He was born in Morristown, N.J. on August 6, 1848, graduated from Princeton in the class of '67 at the age of 18 and from the Columbia law school two years later. He practiced in Newark and was in the State assembly in 1885 and 1886. Following the period of interest to us, he served in Congress, being elected eleven times and appointed once. He died in Paris at 75 in 1923. Some of the Franklin legal hearings were held before the Honorable Richard Wayne Parker who absorbed the testimony and exhibits. It became evident to him, if not to anyone else, that the ore body probably continued its plunge to the northeast passingoff the properties under litigation and that it would be smart to acquire the mining lease on the adjacent Rutherford farm. In 1887 Parker got his lease, and in 1889 he convinced the Lehigh Zinc and Iron Company that they needed it. His agreement with them called for payment not only for all ore removed from the lease but for ore transported through his area as well. Of Judge Parker it can be said that he was a thinking man, and the shaft was named after him.

The Lehigh Zinc and Iron Company wasted no time in proving up its new mining lease. The art of diamond drilling was a scant ten years old when it was determined to use this new method to investigate at depth. From November 1889 until April 1891 the drilling was carried out under the supervision of J.A. Van Mater. There were eight holes varying in depth from 900 to 1300 feet. Details of their locations and drill logs can be summarized. The eight holes can be plotted in a rectangle 200 by 1000 feet oriented parallel to Buckwheat Road and just west of it. Number 1, 5, 6 and 8 were ore penetrations, and their intercepts varied from 22 to 136 feet. We can imagine the jubilation on the part of Judge Parker and the Lehigh Zinc and Iron Company.

Experience is a great teacher. We know now that vertical drill holes at Franklin tend to drift to the south and west, and we learned to incline our holes to the east in order to avoid hitting the gneiss footwall to the west at too shallow a depth, because of this drift. Van Mater learned this the hard way, and assuming his drill holes were truly vertical he located his shaft too far east, and he missed the ore by several hundred feet. He knew how to find it, however, and his shaft was a success.

Success comes hard, and Van Mater overcame trouble that would defeat a lesser man. Shaft sinking started in June of 1891, and the soil was stripped from the ledge by hand, about 10 feet down. This opening was then cribbed with round timber 3 feet outside of the face of the permanent timber, following which the plant was set up. The equipment consisted of a double cylinder reversible hoisting engine, an air compressor, a 110 horsepower steam boiler to drive the other machines, a 7 kilowatt dynamo, a blacksmith shop, and carpenter shop. All being in readiness by July 1, sinking in rock was started. The formation throughout was Franklin crystalline white limestone with in places inclusions of feldspathic rock. For the first 125 feet, a split revolving derrick was used, to avoid erecting a headframe over a shallow excavation where blasting could ruin the structure.

The area of the shaft was 10 by 20 feet. Four air drills operating from two horizontal bars handled the drilling from positions near the ends of the shaft rectangle. The first rows of holes was inclined downward toward the center of the shaft, bottoming on a line across the center of the shaft at a depth of 6 feet. When fired later, this pattern fractured a V-shaped prism of rock across the shaft and made a place for successive lines of holes to break to. The next line of holes deepened the V a further five feet, for a total 11 foot cut, and the remaining of the 40 holes were in successively steeper full length holes until the end walls were outlined. As may be imagined, it was necessary to move the drills and their supporting drill bars during the drilling of a cut, but for its time, the system was advanced.

Blasting was done in stages following removal of the tools, bars and pumps. After the center cut was fired, the broken rock was removed and refired if not fully broken. The first and second side rounds were then cleared of water and rock fragments by compressed air, loaded, and fired, the first side rounds closely followed by the second. Again the area was cleaned, and by increments, the shaft bottom was cleared, and so well done that no hand work was necessary for squaring corners or trimming sides.

The shaft was timbered square set, like the girders in a sky-scraper, using 12 by 10 inch timber along the walls and 12 by 12 inch square timber across the ends. Sets were 5 feet apart, and 3 inch planks lined the outside. All wood was chestnut. There were three compartments, two for hoisting 5 by 7 feet in the clear, and the third for ladderway and the pipes for air, steam and water. The utility compartment was separated from the others by a plank wall and was extended upward into the air like a chimney for 40 feet, creating an updraft and pulling fresh air down the other two compartments. As sections of timbering were added, from 25 to 100 feet at a time, the construction was done upward on timbers securely fastened in notches in the rock wall and running across the narrow dimension of the shaft. Accurate surveying was used to keep the timber plumb and assure the 5 foot sets coming out right as they met the timbering previously placed above. Yellow pine guides 5 by 5 inches and 31 feet long were placed for eventual control of the hoisting cages, and during shaft sinking, the bucket was guided by a travelling yoke which likewise used the guides and in decending stopped at the base of the timbering, letting the bucket then swing freely in the open below. The 10 foot deep area at the top of the shaft, above the ledge and between the shaft timbering and round timber cribbing was filled with concrete for a tight seal and shut out all surface water. Three shifts of eight men each, besides the foreman, made up the underground force.

In general, water flow into the shaft during early sinking was about 50 gallons a minute. On August 12, 1892, the drillers struck a dry open seam just as the 10 foot drill steel was about to run out, at a depth of 560 feet. The center cut was fired and cleared and the other holes were being cleared when the corner hole in the back round blew out and a stream of water, sand, clay, and stones shot up the shaft over 150 feet high. Before the men could get out, they were up to their waists in water. It was 2 o'clock in the morning, and by 7 o'clock there were 125 feet of water in the shaft, and more coming in at the rate of a foot every 3 minutes. In 24 hours there were 400 feet of water in the shaft, and it didn't stop rising until within 45 feet of the surface. By this time every well and spring in the basin, nearly a square mile in area, went dry.

As can be imagined, the citizens were unhappy about their dry wells, and a number visited the shaft head to complain. Superintendent Van Mater professed to be glad to find out where all the water was coming from, and is quoted as saying "So that's your water that is flooding our shaft." All efforts with equipment on hand to lower the water level were unavailing, and heavier equipment was obtained, along with larger pipes. In 10 days three large shaft sinking pumps were in operation, powered from a 7 inch steam line attached to two additional boilers. Condensers prevented the exhaust steam from filling the shaft, and the pumps, connected to their steam pipes by flexible hoses, could be lowered one after the other as the water receeded. Progress was great at first, but soon nature caught up and progress slowed, despite a combined discharge of 1200 to 1500 gallons a minute. Three pumps could keep ahead but two lost ground, so that changing the position of the steam line to each pump was done a quickly as possible. The pumps themselves hung from block and tackle arrangements, and each weighed several tons.

A sump had been cut at the 145 foot level to handle the surface water, and this was enlarged and a piston pump was installed to boost the water. This refinement helped get the water down to 420 feet where another early pump station had been cut. Unfortunately, up until this time the water for the boilers had been taken from the shaft itself, but the pumping had introduced so much mud that the sediment in one of the boilers coated the metal over the fire box, the metal was scorched, and it was necessary to draw the fire, even though the boilers had been flushed several times each day. The loss of steam slowed the pumps, and with disaster in view, it was attempted to raise the pumps, all three of them. Within 12 hours, they were under 185 feet of water. Again, the dauntless Van Mater sent for more pumps, and with a spare stored on surface, within 36 hours of the boiler failure the rescue began. In three or four days more the three drowned pumps were recovered and were soon chugging away.

It was a month later that a gasket blew out on the steam line, shutting down all the pumps. Having learned from experience Van Mater had two pumps pulled and allowed one to drown. Meanwhile, the gasket was changed, and after a delay of only a few hours, by addition of one of the spares from the surface, the three pumps started again to lower the water which had risen 120 feet. In two or three days the submerged pump was again rescued.

When the pump station was reached at a depth of 420 feet, which is where the water level was when the boiler failed due to mud, the station was enlarged and a new pump installed. Then the hard working pump from the 145 foot station was brought down to keep it company and the two of them pushed 1200 gallons of water a minute to the surface. It was necessary to protect the three sinking pumps from mud, sand and gravel with 30 mesh screen boxes around the intakes. Men with long-handled scrub brushes worked constantly scrubbing the screens to let the water through. The scene can hardly be imagined, with the noise of the steam pumps, the poor light, the cold and draft, the dripping timbers, and the slippery footing above water of awesome depth.

There was no way to keep the suspended clay out of the water at the screens, but it settled out readily enough in the sumps at the 420 foot level station above, and every week or so these had to be cleaned out. The three hanging pumps were pulled up to the station, the two stationary pumps empied the water from the sumps, and with six hours before the shaft filled to the 420 foot level, the crew passed buckets of mud in a mud sloppy frenzy to clear the sumps. Once or twice the water was a foot or more over the tops of the sinking pumps before the men could get them started. Finally, the bottom of the shaft excavation was sighted, or close to it, because there was a self renewing cover of 20 feet of sand that still lay on the bottom. This was removed, largely by pumping it into the shaft bucket and letting the water overflow until the bucket was filled with sand, when it was hoisted.

After six months of pumping in this manner, slowly gaining on what seemed to be an inexhaustible supply of water, the crew was amazed to note the pumps suck air. The inflow had stopped. Additional men were immediately called in and the sand, no longer self renewing, was shovelled and hoisted, over a thousand cubic yards in all. A long wooden plug was then driven in the offending drill hole and the other end of the shaft was deepened to form a 10-foot deep sump. At this time it was noted that fine hair-like streams of water were hissing across the shaft, indicating rising water pressure within the rock. To relieve this in advance of disaster, an effort was made to withdraw the plug from the drill hole. The plug broke off at the surface, and despite the use of 30 pound sledges, it could only be forced down an inch or so, with water spurting out around the sides. Dynamite in a pipe bomb was secured over the hole and everyone went to surface. The following explosion caused complete disappearance of the bomb and the wooden plug, the hole was open, and no water was flowing from it.

In the face of this small miracle at 8 o'clock on a Saturday evening, a party of six picked men descended to tame the monster once and for all by putting a threaded pipe in the hole. Two men stayed on the timbers 125 feet up the shaft with a lantern to assist in the rescue if necessary and to signal the engineer above. Down below, pails were available to turn over the lanterns to protect them if the water were to spray, and the pipe, its threads protected by a plank, was driven down with heavy sledges. As the last blow was struck, the monster awoke. Water, clay and stones shot up out of the pipe, knocking over the men who were holding the piece of plank and driving with the sledges, and also striking the men 125 feet up the shaft, putting out their light and lifting one man from the timber upon which he was sitting, throwing him across the shaft and leaving him draped over another timber.

The crew on the bottom attempted to reach the bucket which hung over the sump 10 feet out by holding hands in single file and inching their way along a pole in pitch darkness. Just as the lead man reached the bucket, the rain of stones and everything else stopped. Quickly, the men installed a valve on the threaded pipe and anchored it securely. The process released the flow again but now the valve could be closed even though the light was again extinguished by water, sand and stones. A connection was then added for a pressure gauge and another valve at the end, and the pressure read 173 pounds. No one believed this, and eventually three gauges were tried, all with about the same results. This calculates to a head of water clear to the surface.

With the water under control although supplying all the pumps could handle, boxes and screens were installed to control the sand and gravel. Within a week, the flow was sufficiently reduced that additional holes could be drilled and fitted with valves. In time, the flow deminished to a point where the shaft could be sunk another 15 feet, revealing an inclined seam which crossed the shaft diagonally fromone corner to another. Water flow was heavy, because while the underground reservoir was empty, the source was still flowing. A pump station was installed below the seam with sumps of adequate capacity, and from here the shaft was sunk to its bottom of 975 feet without necessity for pumping at the bottom, all the water being caught above.

The shaft was started on July 1, 1891. The water was struck August 12, 1892, and it was September 1893 before this was under control so that sinking could be resumed. The shaft was completed to 975 feet and timbered in April 1894. Total cost was $150,400.00 of which half was due to the unwatering.

Our respects to J.A. Van Mater and his dedicated and courageous crew.

References

J.A. Van Mater, *Mines and Minerals*, Vol. 20, pp. 481-484

The PICKING TABLE is published semi-annually by the Franklin-Ogdensburg Mineralogical Society, Inc., P. O. Box 146, Franklin, NJ 07416; a non-profit educational organization. Editor Emeritus - Frank Z. Edwards; Editor - Bernard T. Kozykowski, 305 Avenue L, Matamoras, PA 18336

Subscription: $7.00 per year which includes membership in the Society. Contributed articles and news items are welcome. Acceptance is subject to the approval of the editor.

Fall

FRANKLIN-OGDENSBURG MINERALOGICAL SOCIETY, INC.

1982

Regular Society activities consist of field trips, micro-mineralogy study sessions and lecture programs. Field Trips vary as to time and location according to schedule. Morning micro-mineralogy study sessions take place from 9:30 A.M. to Noon in Kraissl Hall at the Franklin Mineral Museum. Afternoon lecture programs begin at 2:00 P.M. at the Hardyston Twsp. School, Rt. 23, Franklin, N.J. - Pre-meeting activities begin at 1:00 P.M.

Saturday
September 18, 1982

FIELD TRIP: *Trotter Mineral Dump* - Main Street, Franklin, NJ - 9:00 a.m. to noon.

MICRO-GROUP: *Kraissl Hall* - Franklin Mineral Museum, Franklin, NJ - 9:30 a.m. to noon.

LECTURE: *Richard C. Hauck* - Bloomfield, NJ - Past-President F.O.M.S. *"A Midsummer Journey to Langban, Sweden"* and *"A Review of Recent Mineral Occurrences at Franklin and Sterling Hill."*

Saturday
October 2, 1982

ANNUAL DINNER of the *Franklin-Ogdensburg Mineralogical Society, Inc.* - Perona Farms Restaurant, Rt. 517, Andover, NJ. Social Hour begins at 6:30 p.m. - See F.O.M.S. Notes.

Saturday and Sunday
October 2 & 3, 1982

26th ANNUAL FRANKLIN-STERLING HILL MINERAL SHOW - sponsored by the *Kiwanis Club of Franklin* - Franklin, NJ - 9:00 a.m. to 7:00 p.m., Saturday; 10:00 a.m. to 5:00 p.m., Sunday - Admission: Adults - $2.00, Children - $1.00 (one day); Adults - $3.00, Children - $2.00 (two days). See F.O.M.S. Notes.

Saturday and Sunday
October 2 & 3, 1982

THE POND - *The Legendary Mineralogical Meet at Franklin* - sponsored by the F.O.M.S. in cooperation with the Kiwanis Club of Franklin to benefit the Franklin Mineral Museum - 9:00 a.m. to 6:00 p.m., Saturday; 10:00 a.m. to 4:00 p.m., Sunday. For Further Information contact: Mrs. Elna Hauck, 8 Rowe Pl., Bloomfield, NJ - (201) 743-1030. **NOTE: Due to the Sussex County Fireman's Weekend Activities being held this weekend at Franklin Pond, the tailgaiting activities will be moved to the Hardyston Township School - Opposite the Armory.**

Saturday
October 16, 1982

FIELD TRIP: *Rudeville Quarry (formerly Bodnar)* - Quarry Rd. (off Rt. 517), Franklin, NJ 9:00 a.m. to noon

MICRO-GROUP: *Kraissl Hall* - Franklin Mineral Museum, Franklin, NJ - 9:30 a.m. to noon.

LECTURE: *William W. Pinch* - Pinch Museum, Rochester, NY - *"Classic Minerals of the World."*

Sunday
October 17, 1982

FIELD TRIP: *Limecrest Quarry* - Limestone Products Corp. of America, Limecrest Rd., Sparta, NJ - 9:00 a.m. to 3:00 p.m. - Interclub Outing.

Saturday
November 20, 1982

FIELD TRIP: *Franklin Quarry (formerly Farber)* - Limestone Products Corp. of America, Cork Hill Rd., Franklin, NJ - 9:00 a.m. to noon.

MICRO-GROUP: *Kraissl Hall* - Franklin Mineral Museum, Franklin, NJ - 9:30 a.m. to noon.

LECTURE: *Carl Anderson* - Rancocas Nature Center, Mt. Holly, NJ - *"The Edison Mine."*

RENEW YOUR 1983 MEMBERSHIP NOW!

MEMBERSHIP FORM

New Membership or Renewal

I would like to (apply for / renew my) membership in the Franklin-Ogdensburg Mineralogical Society, Inc. Individual membership payment in the amount of $7.00 is enclosed or Family membership payment in the amount of $10.00 is enclosed in lieu of individual membership. It is understood that family membership permits participation in all Society Activities. Receipt of the Picking Table will be limited to one per family.

Name (Mr.,Mrs., Miss, Ms.) - (Individual / Family) _____

_____

_____

Address _____

Tel. No. _____ ZipCode _____

PLEASE PRINT or TYPE YOUR NAME AND ADDRESS EXACTLY AS YOU WISH IT TO APPEAR

NOTE : Please add 50 cents per item for handling and postage - New Jersey sales tax of 5% is included below.

Frondel-Baum	The Structure and Mineralogy of the Franklin Zinc-Iron-Manganese Deposit, New Jersey *(reprint).*	___ $1.84	_____
Palache	**Professional Paper 180** - The Minerals of Franklin and Sterling Hill, Sussex County, New Jersey *(reprint).*	___ $5.25	_____
FOMS	*The Picking Table* - Back issues by number - *Please note alternate choice.*	___ $1.50	_____
FOMS	Lapel Pin or Lapel Button *(specify)* _____	___ $5.00	_____
FOMS	Shoulder Patch	___ $1.50	_____

Sub-Total _____

Postage _____

Make Checks Payable to: The Franklin-Ogdensburg Mineralogical Society, Inc. - FOMS
Mail to: Treasurer - F.O.M.S., P.O. Box 146, Franklin, NJ 07416

Total $ _____

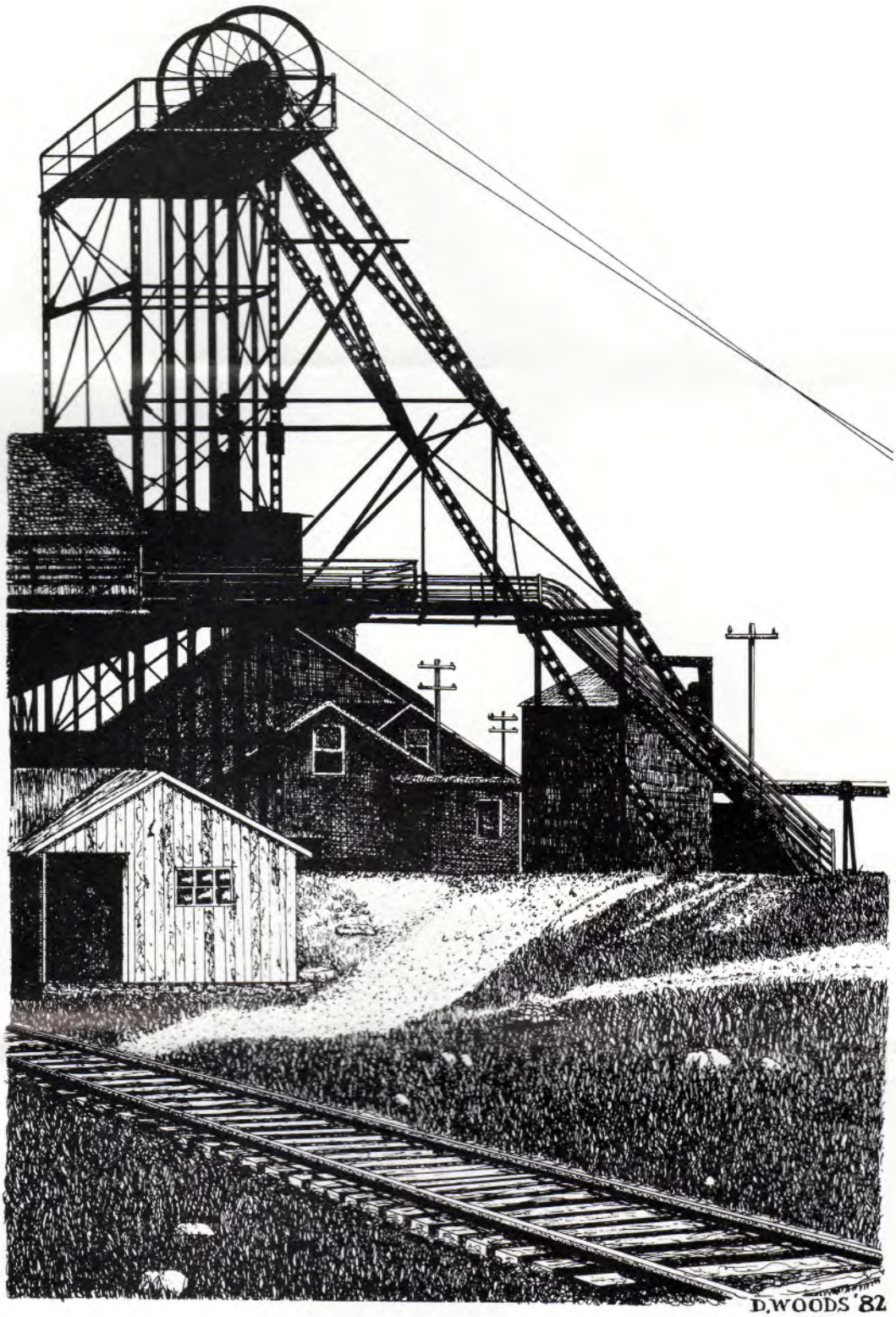
DAILY FRANKLIN ATTRACTIONS

Buckwheat MINERAL DUMP - Entrance thru the Franklin Mineral Museum, Evans Street, Franklin, N.J. - Open April thru November - Admission $1.50 adult; $.75 student - Hours coincide with museum.

Franklin MINERAL MUSEUM - Evans Street, Franklin, N.J. - Open April thru November - Admission $1.50 adult; $.75 student - Closed Monday. Open Tuesday and Wednesday by group reservation only. Open Thursday thru Sunday with daily schedule, except Sunday morning.

Gerstmann FRANKLIN MINERAL MUSEUM - 14 Walsh Rd., Franklin, N.J. - Open year round DAILY. No admission fee - Donations accepted - Mr. Ewald Gerstmann, Curator, in daily attendance.

Trotter MINERAL DUMP - Main Street (behind Boro Hall), Franklin, N.J. - Open year round except during inclement weather - Admission $2.00 - Mr. Nick Zipco on call.



PARKER SHAFT ca. 1899