FRIENDS OF MINERALOGY MIDWEST

Midwest Chapter Newsletter for
July – August 2020

In this Issue:

Friends of Mineralogy, Inc. Midwest Chapter
Officers' Meeting Notes- June 8, 2020

Secretary's Note: The following information is a brief summary of an informal meeting that was conducted by teleconference, because public meetings restrictions in Ohio and Michigan prevented a public, in person meeting.

The invitations for the meeting were distributed to all current officers, and past Chapter Presidents Kenneth Bladh and Clyde Spencer. The meeting was scheduled for 7:00 PM on June 8, 2020. Technical difficulties prevented at least one person from participating in the call. The meeting was convened at 7:07 PM. Treasurer Jeff Spencer, Liaison Officer Randy Marsh and Secretary Frank Konieczki attended the meeting.

There was no formal agenda for the meeting. The following items/topics were presented and discussed:

• Cessation of our organization's activities because of the pandemic presents challenges. In the short term, it is unclear when field trips may resume because each state has different rules for reopening activities, which impacts not only the trips, but also conducting safety training. Liaison Officer Randy Marsh stated Marblehead still is operating only with essential personnel. Secretary Konieczki observed that Great Lakes Aggregates (South Rockwood, MI) has had a collecting group in the quarry this year, so it is possible that a trip there may still be possible.

• Treasurer Jeff Spencer noted that the current member total is 82. There has only been one addition to the 2020 roster since the pandemic was declared. This constitutes over a 20% decrease from 2019. The group discussed membership dues, because members who paid for 2020 have not had the opportunity to participate in any club activities. All FM Midwest activities scheduled for the first half of 2020 were canceled, and it is unclear when normal activities will resume. All agreed that it would be a good idea to contact National and see if this year's Chapter dues could be applied to 2021. Liaison Randy Marsh indicated he would inquire about the proposal.

• The pandemic also creates another problem. We currently have two elected offices, President and Vice President Programs vacant, which places the former's duties on the Vice President Field Trips, who is trying to arrange this year's trips. Our constitution could be changed to sever these duties from the two current vice president positions and create what is essentially an administrative vice president, with this additional officer lessening the duties of a newly created "field trip chairperson" and "programs chairperson". This could not only attract other potential candidates to fill vacant offices, but it would allow for wider distribution of current duties. However, amendments to our constitution require a formal meeting with discussion, motions, publication of the proposed amendment and a vote at the next meeting, and the possibility of a formal meeting will depend on how soon public activities resume in each state unless there is consensus to do this via email.

• Conducting safety training remotely might be possible by using a video meeting platform, such as a Zoom meeting.

• Jeff Spencer noted that the Denver show was the last of the largest shows to cancel for 2020. Frank Konieczki states as of two weeks ago, the Greater Detroit Show was still scheduled, and if the show takes place, FM Midwest has an educational table reserved.

• Further information will be shared with the members as it becomes available.

Meeting adjourned: 7:32 PM.
Respectfully submitted by Frank Konieczki, Secretary

An overview of Calcite Occurrences in Michigan

By Frank Konieczki

Calcite, $CaCo_3$, is one of the most common minerals on Earth. It has hundreds of crystal forms, and many of them are seen in Michigan. Its colors also vary, as do its associated minerals, depending on the geological environment, so a collector can assemble a varied and interesting collection composed of nothing but Michigan calcite.

Calcite occurs abundantly throughout the Midwest, including Michigan, as a rock forming mineral in the Ordovician, Silurian and Devonian Age limestone and dolostone deposits that were once shallow seabeds. Some of these strata now serve as the host for a suite of minerals, including calcite, that is characteristic of Mississippi Valley Type (MVT) deposits. However, Michigan's geology differs from its neighbors, so calcite also is found extensively in the western portion Upper Peninsula in both igneous and metamorphic rocks, including significant occurrences in major copper and iron deposits.

Sedimentary Deposits

Calcite occurs in sedimentary deposits through the Lower Peninsula and the eastern half of the Upper Peninsula. It is found as massive material, and it also forms crystals in vugs contained in dolostone and limestone in many areas of the region. The crystals vary in size, from surfaces coated with tiny crystals (druzy), to scalenohedral ones that exceed 10 cm, and colors vary from almost transparent to white, yellow, orange and brown. Of the deposits in the Lower Peninsula, arguably the most attractive crystals come from the quarries in Monroe and southern Wayne County. France Stone Quarry (Fig. 1), Newport Quarry, Maybee Quarry, and Holloway Quarry have produced many splendid specimens, some alongside fine celestine and, more seldom, fluorite crystals. Other associated minerals in the aforementioned quarries include quartz, sulfur, strontianite and gypsum.

Figure 1. Calcite, France Stone Quarry, Monroe Co. Michigan. A.E. Seaman Museum Mineral Collection. Specimen is 5 cm on longest axis. Photo courtesy of A.E. Seaman Mineral Museum

Some of the calcite in southern Michigan exhibits interesting characteristics. Calcite found at the Wallace Stone Quarry in Bayport (Huron County), often is markedly iridescent. Much of the calcite that is found in the southeastern Lower Peninsula is fluorescent, and some of it also is quite phosphorescent. Specimens from the Great Lakes Aggregates/Sylvania Minerals Quarry in South Rockwood (Monroe Co.) show intense white fluorescence and prolonged phosphorescence under long wave ultraviolet light (Fig. 2), as does calcite from the Maybee Quarry. Interestingly, fluorescence in most calcite specimens from the former is largely restricted to the edges of the crystals, with the central portions showing little to none. Some calcite from local quarries that is used as breakwater barriers above the Lake Erie shoreline glows warm pink under LW light.

Figure 2. Calcite, 7.6 x 5.4 x 3.2 cm, shown under LW ultraviolet light, Great Lakes Aggregates/Sylvania Minerals, South Rockwood, Monroe Co. MI. Collected and photographed by author.

Calcite is also a major component of many fossils found in many of the sedimentary deposits in Michigan, including the state fossil, Petoskey Stone, which is a fossilized colony coral, *Hexagonaria percarinata.* Petoskey stone is found along much of the shoreline in the northern Lower Peninsula, and in gravel pits and quarries. Additional marine fossils found in Michigan include other colony corals, rugose corals, chain corals, brachiopods, echinoderms, blastoids, bryozoans, gastropods, cephalopods, trilobites and stromatolites.

Metamorphic Deposits

Much of the western portion of the Upper Peninsula has large areas of metamorphic rock, and the iron formations in this rock are of particular interest to mineralogists, and in past years, to the mining industry. Heinrich and Robinson (2004) noted that "Unquestionably the most significant group of metamorphic rocks in the state is its Precambrian iron formations."[1] There are three major iron formations, known as ranges, in Michigan. East to west, they are the Marquette Range, the Menominee Range, and the Gogebic Range, which extends into Wisconsin. [2] Mines in these areas were in productions from the 1840s until 2016, when the Empire Mine in the Marquette Range closed. Many of the iron mines yielded calcite specimens occurring in a variety of habits, including scalenohedral, prismatic, rhombohedral, and sometimes in botryoidal masses. Clear, colorless crystals occur, as do white, gray, yellow and pink ones. Not surprisingly, many of the crystals were iron stained, or contained red hematite inclusions. According to Heinrich and Robinson, the principal sources of crystals in the Marquette Range were the Jackson, Princeton, Negaunee, Lucy Mine, and in Iron County and Dickinson County (Menominee Range), quality calcite specimens were found in Vulcan, West Vulcan, and Hiawatha Mines. Gogebic Range sources included the Penokee, Plymouth and Norrie mines, all producing botryoidal coatings on brecciated hematite ore. There are a host of associated minerals in these metamorphic occurrences.

Igneous Deposits

Without doubt, the best known and highly prized calcite crystals from Michigan are those from Copper Country in the Keweenaw Peninsula, the world's most prolific native copper deposit. The variety of habits, colors, and associated minerals in calcite specimens from this area is amazing. Heinrich and Robinson observed that Palanche (1944) found 138 different crystal forms in a sample of just under 200 crystals. Common associates include the chlorite group, epidote, pumpellyite, quartz, microcline feldspar, datolite, and sometimes spectacularly, copper.

Figure 3. Calcite with copper inclusions, 4.5 cm, Quincy Mine, Houghton Co., MI. A.E. Seaman Mineral Museum, T. Reeder Collection. Photo by J. Jaszczak

The list of Michigan copper mines that yielded calcite is immense, since the mineral commonly occurs in all three types of copper deposits- fissure, amygdaloid, and conglomerate. Some of the best quality crystals in Ontonagon County were extracted from the Caledonia, Ridge, and Minesota (correct spelling) mines. Some contained copper inclusions. The White Pine Mine, which is in the west part of the county, exploited a different type of deposit, and it produced scalenohedral crystals containing hematite spherules that tinted them reddish-brown.

The crown jewels of Michigan calcite specimens are those from several mines in Houghton County, including Quincy (Figure 3), Franklin (Figure 4), Isle Royale and Pewabic. Many contain copper inclusions, which tint the crystals delicate shades of pink and orange.

Figure 4. Calcite with copper inclusions, 8.5 cm on longest axis. Quincy Mine, Houghton Co., MI. A.E. Seaman Mineral Museum, T. Reeder Collection. Photo by J. Scovil, courtesy of A.E. Seaman Mineral Museum

Several specimens from these mines are considered to be among the finest calcite crystals in the world.

Fine calcite specimens also have been found in Keweenaw County, the northernmost in Michigan. Calcite from the Allouez Mine sometimes contains significant cuprite inclusions, which result in red crystals, and many fine calcites have come from the Phoenix Mine. Keweenaw County also contains an unusual calcite occurrence near Copper Harbor. Limestone layers in Copper Harbor Conglomerate contain Precambrian stromatolites that occur over a long stretch. Some of the best examples occur near Horseshoe Harbor. Note- Horseshoe Harbor is a Michigan Nature Association (MNA) preserve, and collecting at MNA sites is strictly prohibited, so please take only photographs. Several excellent photographs can be found at mindat.org.

There are abundant opportunities for collectors to obtain representative samples of calcite from Michigan. Several active quarries are open to collecting by organized student groups or rock clubs, and specimens still routinely appear at local rock and mineral shows. One can also obtain them from both online and brick and mortar vendors. Fossil hunters can find calcite on Great Lakes and inland beaches, and in limestone outcrops.

Happy hunting!

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Fluorite / Barite / Marcasite / Calcite – Mundy's Landing Kentucky – 2" x 4" x 2" - Editor collected

A Personal Favorite among Fluorescent Minerals

Calvin Harris

Introduction

In this article, I thought it would be fun to write about a favorite specimen from my fluorescent mineral collection. After some consideration, I selected a calcite specimen from Peregrina mine, Guanajuato, Mexico. Inspiration to write about this sample is attributed to the fluorescent and phosphorescent features displayed when exposed to various ultraviolet wavelengths. These effects exhibited by its upper and lower sections were numerous and marked by variety. Also, the vein or the interface between these sections also has its unique luminescent attributes.

The notion of "favorite mineral specimen" is subject to change as new ideals and discoveries of old specimens occur and when new specimens are acquired. Re-examining minerals that I've had for a while is particularly gratifying because their value as study specimens is often enhanced beyond the reason they were obtained initially. This is because of the availability of lamps that emit mid-wave ultraviolet wavelength and various longwave sources. Re-exanimation is also a hedge against overlooking or forgetting about parts of the collection relegated to cabinets, shelves or other places used for safe-keeping. This practice also helps to avert the acquisition of duplicate specimens unintentionally.

Although re-examination is gratifying, there is another factor to appreciate. While examining the effects of ultraviolet radiation, it was determined that this specimen provides a greater number of luminescent effects than anticipated. The knowledge gained serves to supplement mineralogical publications that provide general knowledge and by necessity limits the scope of information. Therefore, this and similar papers are valuable to collectors of fluorescent minerals because they provide updated and comprehensive information on a continuing basis as improvements in ultraviolet sources are made and effective testing methods are developed.

Site Description

The Peregrina mine is situated on the Villalpando vein system within the Guanajuato District, Guanajuato, Mexico. The geological setting of this mining district is described as a low sulfidation epithermal system, meaning a hot springs environment that developed at shallow depth (< 1km); the temperature of this environment ranges from 50°- 200° C. This district has continuously supplied silver and gold ore since the mid-16th century. Since the late 19th century, the Peregrina mine has produced manganese-rich calcite specimens that are often fluorescent, providing a brilliant red-orange response to ultraviolet radiation.

Specimen Description

This specimen is a large cabinet size sample measuring 25cm×11cm×4cm. The upper section consists of rhombohedral crystal forms of different sizes. The dimension of the large crystals range from 1cm to 3cm, while the small crystals measure 2mm-5mm. The crystals have a light tan coloration with a glassy, clear to translucent appearance. The vein or interface between the upper and lower sections is a white crystalline bandwith a thickness of 0.5cm. This segment is situated along the upper section of the specimen.

Peregrina Mine Calcite upper section

The lower section consists of small crystals similar to the upper section crystals. Additionally, this section largely consists of numerous, white, box-like or honeycomb forms that have light gray coloration in their open areas.

Peregrina Mine Calcite lower section

Procedures for Evaluation

The equipment used for evaluating luminosity include three, SuperBright II lamps that emit wavelengths 254nm (shortwave), 312nm (mid-wave) and 351nm (longwave). A SuperBright III lamp that emits a 370nm (longwave) wavelength was also used. An adequately charged lead-acid battery supplied electricity for the lamps. These products are manufactured by UV SYSTEMS, INC., which is based in Renton, Washington. Additionally, a Vivitar 283 photographic flash unit was also employed to determine *flash*, or phosphorescence that is intense and lasts for a brief period of time.

Evaluation was made in a darkened environment suitable for meaningful observation. Assessing phosphorescence was conducted before fluorescence to eliminate the need for eye sensitivity adjustment due to the higher brightness produced by fluorescence. The ultraviolet lamps were positioned 3-4 inches from the specimen when observing fluorescence and placed approximately 1-2 inches from the specimen to view phosphorescence. A 10-second exposure time proved adequate to assess phosphorescence; exposure and durations times were approximate. The chromatic value of the phosphorescence was determined at its peak. As phosphorescence dissipates toward completion, the color and its intensity wanes significantly.

The Vivitar 283 photographic flash unit was held approximately 2 inches from the sample to determine *flash* quality. This unit was used at its maximum output setting. Observation was conducted by discharging the unit while avoiding the intense outburst of visible light, then immediately view any response once the discharge was completed.

Results from Exposure to Ultraviolet Radiation

Upper Section

Shortwave (254nm)

Fluorescence	Color	Intensity
Large crystals	Pink	Moderate-bright
Small crystals	White with pink undertone	Moderate-bright
Vein	White	Bright

Phosphorescence	Color	Intensity	Duration
Large, small crystals	Cream	Moderate-bright	17 seconds
Vein	Cream	Moderate-bright	17 seconds

Mid-wave (312nm)

Fluorescence	Color	Intensity
Large crystals	Pink with cream undertone	Moderate-bright
Small crystals	Pink with cream undertone	Bright
Vein	White	Bright

Phosphorescence	Color	Intensity	Duration
Large, small crystals	Red-orange *flash* followed by cream	Both features, moderate-bright	17 seconds (phosphorescence)
Vein	Cream	Bright	17 seconds

Longwave (351nm)

Fluorescence	Color	Intensity
Large crystals	Cream appearance with slight pink undertone	Moderate-bright
Small crystals	Cream	Bright
Vein	Cream	Brilliant-bright

Phosphorescence	Color	Intensity	Duration
Large, small crystals	Pinkish-gray	Low	9 seconds
Vein	Red-orange *flash* followed by cream	Moderate, moderate-low, respectfully	8 seconds

Longwave (370nm)

Fluorescence	Color	Intensity
Large crystals	Cream with very slight pink undertone	Bright
Small crystals	Cream	Bright
Vein	Cream	Brilliant

Phosphorescence	Color	Intensity	Duration
Large, small crystals	Cream	Moderate-bright	15 seconds
Vein	Cream	Moderate-bright	15 seconds

Flash: Bright red-orange followed by weak intensity gray phosphorescence, 4 second duration.

Lower Section

There are three distinct areas of luminosity. (1) An area located in the upper-left section of the specimen. (2) The central section of the specimen occupying the largest area. (3) An area located on the right side of the sample. These areas are only distinguished under ultraviolet radiation.

Shortwave (254nm)

Fluorescence	Color	Intensity
(1) upper-left area	Pale-pink	Moderate-bright
(2) central area	White with pink undertone	Moderate-bright
(3) right area	Gray	Moderate-bright

Phosphorescence	Color	Intensity	Duration
Overall	Gray	Moderate-dim	15 seconds

Mid-wave (312nm)

Fluorescence	Color	Intensity
All luminescent aspects similar to shortwave results.		

Phosphorescence	Color	Intensity	Duration
(1) upper-left area	White	Moderate-bright	14 seconds
(2) central area	Pink	Moderate-bright	11 seconds
(3) right area	Gray	Moderate-bright	11 seconds
Note: Low intensity, red-orange *flash* was noted overall.			

Longwave (351nm)

Fluorescence	Color	Intensity
(1) upper-left area	Cream	Moderate-bright
(2) central area	Cream with slight pink undertone	Moderate-bright
(3) right area	Blue-gray	Moderate

Phosphorescence	Color	Intensity	Duration
(1) upper-left area	White	Moderate-low	6 seconds
(2) central area	Pale-pink	Moderate-low	6 seconds
(3) right area	Gray	Low	6 seconds

Longwave (370nm)

Fluorescence	Color	Intensity
(1) upper-left area	Whitish-cream	Moderate-bright
(2) central area	Cream with slight pink undertone	Moderate-bright
(3) right area	Bluish-gray	Moderate-bright

Phosphorescence	Color	Intensity	Duration
(1) upper-left area	Gray	Low	6 seconds
(2) central area	Gray	Moderate-low	6 seconds
(3) right area	Gray	Low	5 seconds

***Flash*:** Bright red-orange response.

Summary

Upper Section

The **fluorescent response** was a color shift from a pink coloration toward pink with a cream undertone regarding the large crystals. This feature was apparent with the progression of longer ultraviolet wavelengths. The intensity of the responses were consistent among the ultraviolet wavelengths applied.

The color of the small crystals shifted from a white coloration with pink undertone toward cream characterized by the progression of longer ultraviolet wavelengths. The intensity of response was fairly consistent with the applied wavelengths.

The color response of the vein shifted from white to cream as wavelengths lengthen. The various ultraviolet wavelengths induced similar results regarding intensity. In general, this component provided the brightest intensity among the sections tested.

Peregrina Mine Calcite upper section shortwave

The **phosphorescent response** regarding the large and small crystals was indistinguishable. A cream chromatic response was observed with shortwave, mid-wave and longwave (370nm) wavelengths, while longwave (351nm) was pinkish-gray. However, a *flash* effect with moderate-bright intensity was noted prior to phosphorescence related to the large and small crystals upon exposure to mid-wave radiation. The intensity was fairly constant among the three aforementioned wavelengths, while the longwave (351nm) intensity was notably lower. Also, the time of duration also followed this pattern. Similar to fluorescence, the vein generally provided the brightest intensity compared to other sections of the specimen.

The phosphorescent response regarding color, intensity and duration of the vein was fairly consistent among all applied ultraviolet wavelengths. Additionally, *flash* with moderate-low intensity was noted in the vein area when exposed to longwave (351nm) radiation.

The ***flash*** of the upper section was a bright red-orange response followed by a low-intensity gray response.

Lower Section

The **fluorescence** of the lower section provided three distinct responses to shortwave ultraviolet light. These include an area of pale-pink luminosity denoted as (1); area (2) consists of white coloration with pink undertone and area (3) has a gray coloration. Overall, the intensity was moderately-bright.

The mid-wave radiation provided similar results compared to shortwave radiation.

Longwave (351nm) generated a cream chromatic value with moderate-bright intensity in area (1). Area (2) yielded a cream with slight pink undertone color and displayed moderately-bright intensity; area (3) displayed a bluish-gray response with moderate intensity.

Longwave (370nm) produced a whitish-cream hue in area (1); area (2) yielded a cream coloration with slight pink undertone and in area (3), a bluish-gray response was noted. Overall, the intensity was moderately-bright, except longwave (351nm) wavelength produced moderate intensity in area (3).

There were also unique displays of **phosphorescence.** Shortwave and longwave (370nm) wavelengths yielded similar results in terms of gray coloration in the three areas, but the intensity of the longwave was diminished and duration was considerably shorter.

Peregrina Mine Calcite lower section shortwave

The mid-wave and longwave (351nm) wavelengths provided similar colors in the three areas, namely white in Area (1); pink and pale-pink, respectfully in Area (2) and gray in Area (3). However, the intensity of the longwave wavelength was lower and the duration time was much shorter.

The ***flash*** was a bright, red-orange effect.

In closing, this calcite specimen from the Peregrina mine is one of my favorites because it offers a multitude of luminescent responses to ultraviolet radiation. The methods used for this paper produced results that were unexpected and engaging. The luminescent effects appeared to be caused by different activators acting concurrently, in tandem and independently. These activators or trace quantities of certain organic or inorganic substances are known to cause fluorescence and phosphorescence in calcite and other carbonate minerals.

The results outlined in this paper not only supplement descriptions of mineral luminosity in existing literature, but hopefully encourages pursuits to fully understand the causes of the effects displayed.

A favorite fluorescent mineral (or any mineral) specimen is subject to change, which is appropriate and desirable. Change is realized by constantly exploring different aspects of a mineral, which can foster enthusiasm and deter stagnation and lethargy. Continual exploration can also inspire collectors to seize opportunities to better understand any aspect of mineral collecting.

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Fluorite / Calcite – Mundy's Landing Kentucky – 4" x 3" x 4" - Editor collected

Keweenaw Mineral days

07/15/2020 - 07/18/2020
Information

Keweenaw Mineral Days provides legal surface prepared mineral collecting on rock piles of former native copper mines in the Keweenaw Peninsula. Hosted by the A. E. Seaman Mineral Museum in collaboration with Keweenaw Gem and Gift, Inc.

We plan to open registration for Keweenaw Mineral Days 2020, which will consist only of the rock pile collecting events, at noon on Tuesday May 26, 2020. If you are a current regular attendee and on our email list you will get notification before registration opens.

Due to the COVID19 pandemic, the A. E. Seaman Mineral Museum is currently closed and participants should not plan on the museum being open. There will not be a surplus mineral sale as part of this event. The museum anticipates re-opening mid-August, but as the situation changes, we will keep you posted. The Museum could reopen earlier, as early as late June in time for Keweenaw Mineral Days.

There will be No general registration fee this year since the museum may not be open during this event and we will not hold a surplus mineral sale. *If the museum is open, admission fee will be waived and there will be a 15 % discount on all gift shop merchandise for registered participants.* Participants will be admitted to the museum as per COVID19 protocol. **A minimum number of registrations for the collecting events is required else the entire Keweenaw Mineral Days 2020 will be cancelled on June 26 at 5 pm.** We will keep you informed on the status of the total number of registrations.

The maximum number of participants per collecting event has been reduced to facilitate social distancing. As a result, compared to last year the cost per collecting event has increased, but we have extended the time allocated to collecting by one hour.

Keweenaw Mineral Days consists of four opportunities to collect minerals at prepared surface rock piles in the Keweenaw Peninsula. We recommend you read the Additional Information provided below.

Adults 18 years and older can participate but must read and acknowledge the Liability Waiver. Minors between ages 12 and 17 can participate when accompanied by an adult or guardian but a Liability Waiver must be completed. All Minors must be registered for collecting events.

SCHEDULE OF EVENTS (As a result of the COVID 19 pandemic there will be changes to past practices to help participants stay safe)

Government and University Restrictions as a result of COVID-19 will apply to Keweenaw Mineral Days. All participants will be required to adhere to wearing a facial covering/mask (medical or nonmedical grade) and social distancing when possible. If you refuse to adhere to social distancing and wearing a facial covering your further participation in Keweenaw Mineral Days will be terminated and there will be no refund!

If Open ….. Wednesday July 15 through Saturday July 18: *Free admission* for Keweenaw Mineral Days paid participants in the collecting events to the A.E. Seaman Mineral Museum and *15% discount on gift shop merchandise*.

Wednesday July 15: 10 am to 4 pm Seneca Mine prepared surface mineral collecting (separate registration required)

Thursday July 16: 10 am to 4 pm Wolverine Mine prepared surface mineral collecting (separate registration required)

Friday July 17: 10 am to 4 pm Seneca Mine prepared surface mineral collecting (separate registration required)

Saturday July 18: 10 am to 4 pm Central Mine prepared surface mineral collecting (separate registration required)

REGISTRATION

After noon Tuesday May 26, 2020 follow this link to: Register for Keweenaw Mineral Days here

To Register click the link above and you will be redirected to our online store.

There are two steps to registering:

1) **General Registration (zero cost)**.

Completing the General registration **indicates your agreement to the Liability Release** and that you will adhere to social distancing and wearing a facial covering/mask (medical or nonmedical grade). If you refuse to adhere to wearing a facial covering and social distancing when possible, your further participation in Keweenaw Mineral Days will be terminated and there will be no refund!

2) **Collecting Registration.** You must separately register for participation in a particular mineral collecting event. Each different mineral collecting site and day requires separate registration. As a result of the COVID-19 pandemic, we are limiting the number of participants collecting at each site so participants can readily maintain social distancing. Consequently, the collecting site registration fee compared to last year but we have lengthened the collecting time. The cost will be $75 per collecting event.

All registrants must read and agree to the Liability Release. By registering you agree to the Liability Release.

KMD Registration and Adult Liability Waiver 2020.pdf

Parents or guardians must complete a Parental Consent for Liability Release for all participants age 12 to 17. Ages 11 and under are not allowed on the rock pile.

KMD Liability Release for Minors 2020.pdf

Parents or guardians should scan and email completed form to Ginger Sleeman, glsleema@mtu.edu and in lieu of the form an email indicating your agreement and bring the completed form with you to the event.

ADDITIONAL INFORMATION

We have compiled a list, KMD Participant Recommendations 2020.pdf to help make your Keweenaw Mineral Days an enjoyable experience

We have put together some thoughts here KMD Mineral Collecting 2020.pdf to help with your Keweenaw Mineral Days collecting experience.

Please don't wait too long before making your reservations for lodging. If you book early, you can avoid disappointment of long drives. Keweenaw Convention & Visitors Bureau provides an excellent web site to begin your lodging search.

CONTACT PERSON

Your contact person for Keweenaw Mineral Days is Ted Bornhorst (tjb@mtu.edu).

KEWEENAW MINERAL DAYS BENEFITS THE A. E. SEAMAN MINERAL MUSEUM

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Newsletter published bi-monthly in January, March, May, July, September and November. Please submit all information for publication in the newsletter by the 15th of the previous month.

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www.fommidwest.org

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Affiliations:

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Our purpose is to organize and promote interest in and knowledge of mineralogy; to advance mineralogical education; to protect and preserve mineral specimens and promote conservation of mineral localities; to further cooperation between amateur and professional and encourage collection of minerals for educational value; and to support publications about mineralogy and about the programs of kindred organizations.