

FRIENDS OF MINERALOGY

MIDWEST



Sulphur on Calcite – Maybee, Michigan

***Midwest Chapter Newsletter
for
March – April 2021***

Treasurer's Report

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Treasurer's Report – 2/15/2021

Due to our extension of 2020 member registrations, we currently have 88 active members. Some of those receiving this newsletter may not have paid 2020 dues and have yet to pay 2021 dues.

Membership registrations and \$20.00 dues payments are still due by March 1st for new members or those who did not pay 2020 dues. If you have any questions at all about your status please contact me at Treasurer@fommidwest.org

We ended 2020 with \$8557.77 in the treasury. We have received \$250.00 in donations and our annual web hosting charge of \$107.88 was paid. We currently have \$8699.00 in our account. Our only anticipated significant expense is our insurance premium of \$650.00.

I have completed our 2020 IRS 990-N filing and the Ohio Auditor annual report.

Earlier in 2020, I responded on behalf of the organization to a questionnaire from the Ohio Secretary of State on the COVID-19 impacts to our organization. The original pandemic impacts chart was created and published in the January – February newsletter.

The impacts are broad and deep and will challenge the survival of many organizations. It is critical that we have a plan for restoration of our group's activities and programs. See the updated chart on the next page.



Tidbits – From Liaison Officer Randy Marsh

National had their annual meeting on February 13. None of us were present as none of us received the invite. New National Executive Committee consists of Mark Jacobson - President; Alex Schauss - Vice President; Linda Smith - Secretary; and Bruce Bridenbecker - Treasurer.

We obtained alignment with National that the \$328 in member dues paid by FM Midwest for 87 members in 2020 prior to National waiving 2020 dues will be treated as a credit.

National has not made any decisions yet related to 2021 dues. I will make a formal motion to National that they consider waiving 2021 dues.

Updated FMMWC Covid-19 Pandemic Recovery Plan

| Impacted area | Impact | Goal | Actions |
|---------------------|--|--|---|
| Leadership/Staffing | <ul style="list-style-type: none"> Lack of meetings and contacts has made it difficult to recruit candidates for key leadership positions. | <ul style="list-style-type: none"> Fill all elected and appointed positions. | <ul style="list-style-type: none"> Redefined vice-president and field trip/safety director positions – DONE. Publicize changes and recruit for open positions. |
| Membership | <ul style="list-style-type: none"> Down 10%. Risk of shrinkage and delayed registration in 2021. | <ul style="list-style-type: none"> Maintain/grow membership level. | <ul style="list-style-type: none"> Extended 2020 memberships through 2021- DONE. Publish plan for restoration of programs. |
| Finance | <ul style="list-style-type: none"> Lower revenues for 2021. Reserve funds will be required to offset loss of membership and fund-raising revenues for 2021 revenues. | <ul style="list-style-type: none"> Return to generating surplus funds in 2022. | <ul style="list-style-type: none"> National dues moratorium/credit. (credit will be granted for 2020, waiting on official email. Nothing decided for 2021 yet.) Restore membership and programs. Encourage donations. Fill fund-raising coordinator position. Recruit volunteer for annual financial audit- DONE |
| Programs-Meetings | <ul style="list-style-type: none"> 2020-in-person cancelled. | <ul style="list-style-type: none"> 2021 on-line meetings TBD. In-person potential late 2021. | <ul style="list-style-type: none"> On-line meetings conducted. (Current target for first 2021 meeting is March) |
| Programs-Symposium | <ul style="list-style-type: none"> 2020 cancelled. | <ul style="list-style-type: none"> No plans for 2021. | <ul style="list-style-type: none"> Determine if postponing to 2022. (Symposium is postponed to 2022) |
| Safety Training | <ul style="list-style-type: none"> 2020 cancelled. | <ul style="list-style-type: none"> None planned at this time. In-person potential late 2021. | <ul style="list-style-type: none"> On-line/remote being investigated. (Pending) |
| Field Trips | <ul style="list-style-type: none"> 2020 cancelled. | <ul style="list-style-type: none"> None planned at this time. Potential later in 2021. | <ul style="list-style-type: none"> Monitor situation and report. (Pending) |

An Unexpected Luminescent Response from a Calcite Specimen

by Calvin Harris

Every once in a while, calcite will display effects of ultraviolet light that are not anticipated. Recently, I observed a reaction from one of my specimens that was particularly noteworthy. This specimen from the Mogilta mine, Bulgaria exhibited, a fluorescent response that was limited to a certain part of the specimen, while a phosphorescent effect, colloquially known as *flash* was apparent in a much larger area.



Specimen under daylight conditions



Specimen exhibiting "Flash"

Calcite from the Mogilta mine formed under low temperature (90°C-160°C) conditions, where metasomatism occurred within two suites of metamorphic rock formations. The lower suite consists of marble and gneisses, while the upper suite is mainly marble, amphibolites, schists and gneisses. Lead and zinc ore deposits are also found in these rock formations. Manganese is abundant; this element, as well as, lead function as activators to make fluorescence and *flash* possible in calcite. The crystal habits are generation specific. Tabular, rhombohedron and prism forms develop during early stages, while flattened rhombohedral forms with prism and scalenohedron features are characteristic of the later generation.

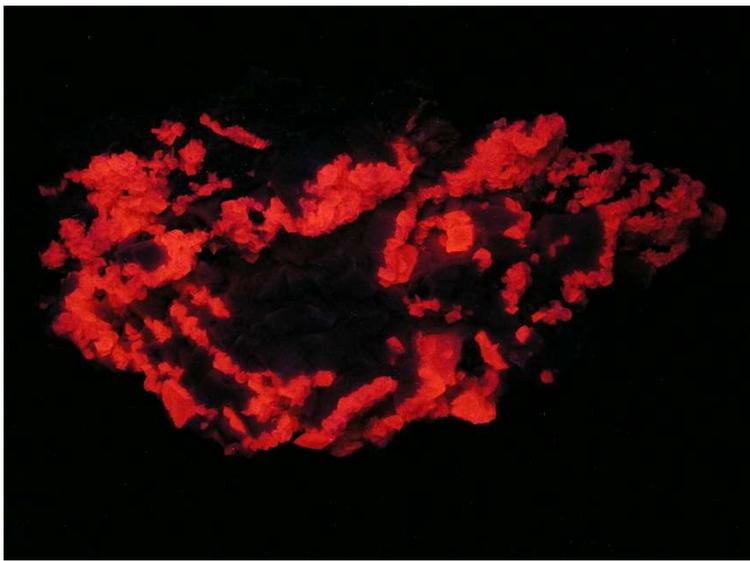
The calcite specimen is a large cabinet sized sample that measures 25cm × 10cm × 8cm and consists of opaque, rhombohedral crystals with slight tan coloration. These crystals measure 0.5cm to 2.3cm on edge. In addition, several small, white translucent platy to scalenohedron crystals accompany the larger crystals generally along the edges of the specimen. These crystals measure up to 0.5cm on edge, but most are considerably smaller. Interestingly, only the smaller crystals display fluorescence and mid-wave ultraviolet radiation provided a greater level of luminance compared to shortwave and longwave wavelengths. A portable, battery-powered ultraviolet lamp was used to provide

this wavelength. All of the crystal forms described exhibited brief, intense phosphorescence or *flash* when they were exposed to ultraviolet radiation produced by a battery-powered photographic flash unit.

While observing fluorescence is a straight forward process, *flash* is more challenging because this phenomenon and the discharge from the photographic flash unit are very short-lived. Coordination must take place to avoid exposure to blinding light and the ability to observe *flash*. Photography provides a good analogy of this process because the fleeting phosphorescence, short duration of the electronic flash and camera shutter are difficult to coordinate for good results. When these factors are not synchronized, either the blinding light from the flash unit is recorded or no image is secured.

The luminescent characteristics of the calcite specimen featured in this article are quite interesting and possibly unique.

Perhaps crystal structure and specific characteristics of the activators play a role in the responses, but this is unclear. However, it seems possible that the responses depend on how the different ultraviolet sources affect results. This possibility is the impetus for reevaluating specimens that are part of an existing collection and assessing specimens acquired in the future.



Specimen exhibiting fluorescence

Selected References

Petrussenko, Svetoslav. 1991. "Minerals of the Madan Orefield, Bulgaria" *Mineralogical Record* 22, no. 6 (Nov/Dev 1991): 439-445.

Boyer, Mark. 2011. "Flash and BIP." *The Picking Table* 52, no. 1 (Spring 2011): 16.



Calcite / Quartz – Great Lakes Aggregates, Michigan
Frank Konieczki specimen

Observations on How Minerals Should Not be Named

by

Clyde Spencer

(Once again, I should dispel any thoughts that what I'm saying is endorsed by FM National or this chapter. These are my own opinions, albeit shared by some friends.)

Re-printed from July - August 2014 Newsletter

Historically, mineral names have been assigned to naturally occurring, inorganic substances with limited chemical variations, a limited range of characteristic physical properties, and crystallizing in a single crystal system. Anything less would cease to be a functional classification. Common impurities have been used to modify the root name, such as "argentiferous galena."

When minor-elements are present in the crystal lattice in sufficient abundance to warrant modifying the root name, such as nickeloan pyrite or manganoan tantalite, the range of abundance of the particular element and competitors (*e.g.* iron and manganese) should be defined explicitly. That is, there should be no ambiguity about whether to call something a manganoan or ferroan columbite when both manganese and iron are present in the columbite. Currently, the recommended nomenclature is something like "tantalite-(Mn)." This is inconsistent with the nomenclature of the former bravoite now being recommended as being called nickeloan pyrite. These inconsistencies should be eliminated.

A "mixture" is something where there are two or more constituents that are physically intimate, but not chemically bound. That is, 'limonite' is commonly composed of various phyllosilicates and hydrous goethite; it is not a single mineral. It would be appropriate to describe a rock as being a mixture of minerals. But, it is careless to describe a mineral (solid-solution series) as a mixture of minerals. Therefore, the 'plagioclase' feldspar solid-solution series should not be spoken of as being a mixture (See andesine; <http://rruff.info/ima/>). The traditional plagioclase (which is more concise than albite-anorthite series) is,

rather, composed of isostructural (triclinic) minerals with different chemical compositions (and different properties), and characterized by completely miscible substitution of calcium and sodium for each other. When there is a continuum of essential cations, with infinite combinations possible, it probably makes more sense to have name(s) for at least the most abundant combination(s), along with acknowledgement of the hypothetical end-members even though they may be rare or non-existent. After all, the definition of a mineral is a material that is naturally occurring, not something that is theoretically possible.

While I have previously complained about the wholesale re-naming of minerals, part of the problem is that the practice of 'grandfathering' names nullifies any attempt at uniformity and predictability. There is, therefore, little logical reason to have any kind of preferred names for minerals. Another problem with slavishly bowing to the practice of 'grandfathering' is that archaic spellings are substituted for modern spellings. An example is "baryte" replacing the, until recently, more common "barite." What is the justification for calling one end-member of a series "baryte" and the other "celestine?" If the naming committee is going to revert to archaic spellings then, to be logically consistent, we should probably call gold and silver by their ancient Latin names of aurum and argentum, respectively.

It is grammatically illogical to have mineral names such as ferrohornblende and magnesiohornblende and not have a recognized hornblende name for the prefixes to modify! That is, there is no need for a modifier to a basic name if the root-name mineral is not recognized; one might as well

invent totally new names, such as the name of the person who first characterized the composition. Why is there a ferrotschermakite and a tschermakite (amphiboles) instead of a magnesiotschermakite?

The theoretical end-members of a solid-solution series typically have been given preference, in the revised naming, over the intermediate compositions, which are probably more abundant than the end-members. However, why has the intermediate actinolite been retained in the ferroactinolite-tremolite series when most other solid-solution series intermediate member names have been invalidated?

Similarly, why is there a magnesiochromite $[\text{MgO}\cdot\text{Cr}_2\text{O}_3]$ and chromite $[\text{FeO}\cdot\text{Cr}_2\text{O}_3]$ instead of ferrochromite? Magnetite appears to be an end-member of the chrome-bearing spinels. 'Chrommagnetite' $[\text{FeO}\cdot(\text{Fe,Cr})_2\text{O}_3]$ becomes chromite $[\text{FeO}\cdot\text{Cr}_2\text{O}_3]$ as the chromium content increases. Although a naturally-occurring cubic chromium oxide that is analogous to magnetite $[\text{FeO}\cdot\text{Fe}_2\text{O}_3]$ has not been reported, synthetic spinel-structure $\text{CrO}\cdot\text{Cr}_2\text{O}_3$ is well known. Perhaps pure natural $\text{CrO}\cdot\text{Cr}_2\text{O}_3$ is unknown because this end-member, like many, is rare. With the current naming scheme, should a naturally occurring $\text{CrO}\cdot\text{Cr}_2\text{O}_3$ be found, then all the current intermediate member names would have to be abandoned in favor of the pure end-members! A good naming protocol – robust and flexible – would not need major revisions just because a new mineral was discovered. It could be accommodated with little impact. In my judgment, solid-solution series should have more recognized mineral species than just the hypothetical end-members; at least the most common composition(s) should be a species as well. Sometimes that is actually the case, as is done with carbonates.

If there is evidence for immiscibility gaps in the composition of minerals exhibiting solid-solution substitutions, then the immiscibility gaps should be recognized as natural boundaries between species. In all cases, what occurs naturally and commonly should take precedence over hypothetical boundaries. For example, the now discredited andesine should be recognized as a mineral, rather than being generally "Albite-Anorthite Series" and specifically, albite

$[\text{Ab}_{70}\text{An}_{30}\text{--Ab}_{50}\text{An}_{50}]$, because of its common association with the volcanic rock andesite.

The rock name, dunite, refers to the color of weathered outcrops of the type locality, Dun Mountain (NZ). The dunite is composed almost exclusively of an orthorhombic nesosilicate whose unweathered color is similar to that of olives. It is only fitting that it should be called olivine. As a common constituent of mafic and ultramafic rocks, it deserves to have its name recognized because it has utility in petrography (*e.g.* olivine gabbro). Whereas, the names of the rarer (almost non-existent) end-members (fayalite and forsterite) of the solid-solution series tells one little other than the fact that either magnesium or iron are the predominant cation. Mid-range, a less than one-percent difference would completely change the name. The name alone doesn't provide a clue about the relative proportion of Fe/Mg. One has to add that information to the name. On the other hand, using a separate name for intermediate compositions does tell one that they aren't dealing with something that is a nearly pure end-member. It seems that there is an unfortunate trend towards ambiguity in mineral names. It appears that what is currently called the "Olivine Group" is largely a ternary solid-solution series given token acknowledgement through the name "calcio-olivine," despite the original olivine root name having been invalidated. Most importantly, the name "olivine" (at least as a series) is firmly entrenched in the petrology literature and is still widely used today, despite any pronouncements by mineralogists.

If the way that naming platinum group minerals has been handled were applied to industrial alloys, we wouldn't recognize the alloys of brass or bronze (and numerous others), but only the dominant end-members of copper, zinc, and tin. Why have mineralogists felt a need to deviate so strongly from what has been the historical practice of naming intermetallic compounds that have properties different from their constituents, such as the eutectic melting point? Apparently electrum has been invalidated as a species, but there seems to be no acknowledgement that gold is an end-member of at least a ternary solid-solution series of all the members of the copper group (which probably

should be called a series), and usually has minor quantities of other elements present. The color, hardness, and melting point of this solid-solution series varies substantially with the relative percentages, and probably warrants additional names besides just the end-members. Again, probably the commonly occurring compositions deserve names, because the pure (24 Kt) end-member gold is unknown in nature.

Current solid-solution series naming is logically inconsistent. Why is it that sometimes a space is used between the root name and the modifying prefix, other times it is not, sometimes a hyphen is used, and other times a parenthetical suffix is used, *e.g.* "(Mg)?" How is one supposed to know what rule, if any, to follow?

Mineral groups should not be named after member mineral species (after all, they might change in the future), and especially not end-members such as pyrite when the only thing they share in common is the crystal system and simplified formula template; the name should reflect the characteristic(s) that the group members share in common, such as "tetragonal orthosilicates." The common anion, *e.g.* sulfide, oxide,

etc., should be recognized as a differentiator between species and groups even when minerals are isostructural. Perhaps a super-group should be used for all isostructural minerals, and a group for isostructural minerals with the same anion. However, I think that the best plan would be to use super-group, group, and sub-group names for minerals; *e.g.* "ferromagnesian chain silicates" as the super-group, pyroxene as the group, and further subdivided into monoclinic (clinopyroxene) and orthorhombic (orthopyroxene) sub-groups. Apparently, against all reason, the 'modern' classification has abandoned the traditional sub-groups in favor of just noting the crystal system.

Much of the work done by great mineralogists of the past has been undone by modern mineralogists, with apparently no over-arching rationalization other than to accommodate modern instrumental analysis.

Field Trip Report "Auglaize Quarry"

(Reggie Rose)

Auglaize Plays Hard to Get but Bears a King

Re-printed from July - August 2014 Newsletter

Do you remember ever having a crush on someone in junior high school? Maybe you asked her to the school dance, or if it was a Sadie Hawkins affair, you asked him to the dance. Then, do you remember not going to the dance because she/he artfully declined your invitation? That is Auglaize. Auglaize can be as elusive in yielding its specimens as that dance partner you never had. If twenty people go to Auglaize (we had 19), 2 or 3 will have a slow day, and 2 or 3 people will have a great day. The others will be somewhere in between.

I can only report on specimens that I see on the trip and on the collectors that collected them. Therefore, the report below reflects what I saw on the trip. With regards to specimens, I saw calcite (white rhombohedral and clear scalenohedral) and iridescent,



glassy fluorite (both purple and amber-brown). Though sphalerite is found in this quarry, I saw none this year.

Remember what I just said about 2 or 3 people out of 20 having a good day? One has a good day at Auglaize if one finds the ever-elusive iridescent fluorite. Prize-holding boulders were concentrated in a ten meter line along the edge of the blast pile. There were in fact three who found fluorite in numbers or in a high-quality specimen. Our president, Clyde Spencer, found a boulder about the size of a small watermelon with a hint of a pocket in it. Splitting the boulder revealed multiple purple and amber-brown fluorite pockets - nicely done. Also finding fluorite was Michigan's John Lindsay. He found multiple hand sized specimens and a couple of larger boulders with fluorite including a real beauty with both purple and amber-brown. However,

the fluorite pocket of the day was found by Indiana's Alan Dewitt. Last year Alan and Amy Bach discovered a multiple specimen fluorite pocket. This year he outdid last year's find discovering a boulder with a museum quality two-color fluorite pocket in it. One glassy purple cube approached the 3/16" mark. Alan says that he had been to Auglaize approximately nine times before 2013 and had only discovered fluorite the last two years. Since Alan has struck it big the last two years at Auglaize, he holds the title of "King of Auglaize" until he is deposed.

To reflect on the above report, you should not be tepid when considering your attendance on a future trip. If you choose not to attend, you will miss out on one of the truly beautiful specimens we collect in our region, the ever-elusive iridescent fluorite.

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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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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.

