FRIENDS OF MINERALOGY MIDWEST

Midwest Chapter Newsletter for November – December 2020

Treasurer's Report

Treasurer@fommidwest.org

2020 Results

As of 10/15/2020 we have 86 members registered. Our treasury total is $8764.29.

If you are unsure of your current membership status please contact me.

Looking Forward to 2021

Due to COVID-19, the current officers support passing a motion to extend 2020 memberships through 2021. This will be voted on at the upcoming meeting. New members and those who did not register for 2020 would still pay the full 2021 dues amount.

Friends of Mineralogy (National) has eliminated our $4.00 per member dues for 2020 so our already paid dues will be applied to 2021.

http://www.fommidwest.org/registration-forms/ ← follow this link for membership forms

Jeff Spencer – Treasurer
Friends of Mineralogy Midwest Chapter
513-476-2163

Upcoming meeting announcement!

We will be holding a virtual annual meeting on Saturday, November 14, 2020 from 1:00 PM to 2:00 PM. Please plan on joining us as important decisions will be made about officer positions (see the slate of officers on the next page) and dues for next year. This meeting will use a platform called Webex. For those of you who are not computer savvy, no worries. There is no need to use a computer all at. In the invite, you will see a phone number and an access code. All you need to do to participate is dial that number and, when prompted, enter the access code and press the # key. If you get asked for a participant number, just press the # key once more. You will be brought into the meeting. Concerned about too many voices speaking at once? No problem. We have master controls that allow us to mute all lines. We will explain meeting etiquette when we start to ensure it goes smoothly.

If you are familiar with Webex and have the application installed on your computer, you can click the JOIN WEBEX MEETING link shown in the email from "*fom-midwestchapter@googlegroups.com*" on October 15th. The title of the email was "*FM Midwest Chapter Annual Meeting*".

To Join by phone…..
+1-415-655-0045 US Toll
Access code: 173 490 8092

Friends of Mineralogy – Midwest Chapter

Agenda for Business Meeting – November 14, 2020

Virtual meeting

1. Welcome & Introductions
2. Roll Call
3. Declare quorum (5% of current membership)
4. Approval of Minutes of previous meetings: November 2, 2019 Annual Business Meeting, as published in January-February 2020 Newsletter; October 31, 2020 Officers' Meeting
5. Approve agenda for meeting
6. Officer Reports
7. Old Business
    a. None
8. New Business
    a. Nominations & Election of officers for 2021
    b. Dues for 2021 (New members only)
    c. Proposed Constitution Revisions Discussion & Vote
9. Round Table/For the Good of the Order

2021-2022 Slate of Officers (Elected Positions)

President – Open

The President shall preside at all regular, special, and called meetings of the membership and Board. He shall make all special committee appointments and shall designate the membership and chairmanship of all standing committees, subject to the approval of the Board.

Vice President – Open

In the absence of the President, the Vice President shall preside at all regular, special, and called meetings of the membership and Board. In event of death, resignation, incapacity or removal of the President, the Vice President shall automatically assume the title of President. At his/her discretion and alignment of the Board, the Vice President may serve as chairman of a Committee.

Secretary – Frank Konieczki

The Secretary shall keep a full and accurate record of proceedings of all regular, special, and called meetings of the membership and Board. He/she shall prepare and share beforehand the minutes of all previous meetings. The Secretary shall also keep a file of key correspondence of the Chapter and shall attend to necessary correspondence of the Chapter.

Treasurer – Jeff Spencer

The duties of the Treasurer shall include:

(a) Sending out reminders for dues and acknowledging receipt of dues;
(b) Acting as custodian of all monies and securities of the Chapter, and depositing them in one or more banking institutions approved by the Board;
(c) Paying all bills approved by the President or expenditures authorized by the Board;
(d) Keeping a detailed account of all receipts and disbursements;
{e) Making semi-annual written reports to the Chapter on the condition of the treasury;
(f) Submitting the books, accounts and an annual financial statement for an annual audit;
(g) Performing any required federal or state filings for the Chapter.

Checks may also be written by the President in the absence or sickness of the Treasurer.

Liaison Officer – Randy Marsh

The Liaison Officer will maintain connectivity with the National organization and represent the Chapter and its interests to National and at meetings conducted by National. The Liaison officer will also ensure that information coming from National is shared with Chapter members.

2021-2022 Chairman Positions (Appointed Positions)

Program Chairman - Open

The Program chairman is responsible for coordinating events for the Chapter, such as the annual symposium, visits to museums/universities, and social events. The chairman may recruit other members to his/her committee as desired to assist.

Field Trip Chairman – Reggie Rose

The Field Trip chairman is responsible for coordinating all field trips for the Chapter, announcing these field trips to the Chapter, and appointing a leader for the field trip. The chairman may recruit other members to his/her committee as desired to assist.

Fundraising Chairman – Open

The Fundraising chairman is responsible for coordinating events that help generate revenue for the Chapter, such as the swap table at GeoFair. The chairman may recruit other members to his/her committee as desired to assist.

Newsletter Chairman – Tom Bolka

The Newsletter chairman is responsible for soliciting information on activities and events associated with the Chapter, for soliciting articles, and for assembling this information into a Chapter newsletter that is published bi-monthly. The chairman may recruit other members to his/her committee as desired to assist.

A Comparison of Luminescent Properties between Certain Terlingua Calcite Specimens from Little 38 Mine

by, Calvin Harris

Introduction

The intent of this essay is to highlight the luminescent properties of a Terlingua calcite specimen from the Little 38 mine that is different from other specimens I acquired from this location. These acquired specimens have a distinct pink coloration under daylight conditions and exhibit the familiar, but unusual multi-color responses to ultraviolet radiation. The responses include blue fluorescence and pink phosphorescence under shortwave ultraviolet radiation. Additionally, pink fluorescent and a blue or bluish-white phosphorescent reaction is produced by longwave ultraviolet radiation. However, the fluorescence and phosphorescence of the principal specimen is more varied and unanticipated.

Geological Setting

The Little 38 mine is located in the Terlingua District, Texas. This district is situated within Cretaceous and Tertiary age marine sedimentary rock that was intruded by Tertiary age lavas and bypabyssal rocks. The sedimentary rocks consist of limestone and clay. Intrusive rocks are in the form of dikes, sills, laccoliths and plugs. These forms range in composition from rhyolites to basalt. Calcite deposition is found within fracture openings in all deposits and as amygdules in volcanic and intrusive rocks.

The Terlingua District is the type location for calcite exhibiting the unusual multi-color responses to ultraviolet light.

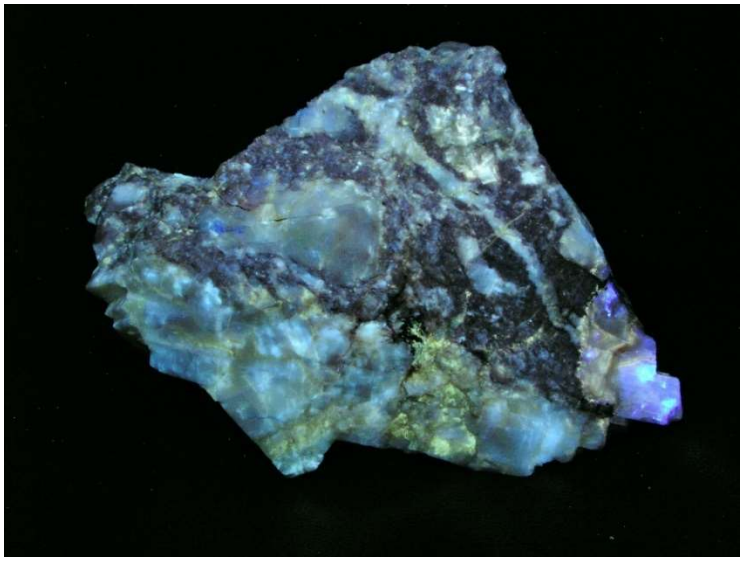
Principal Specimen - Daylight

Description of Specimens

The principal sample is a wedged shaped, large cabinet specimen measuring 14.3cm x 8cm x 10.2cm. Under daylight conditions, it consists of light brown massive calcite and pale, butter-yellow rhombohedral cleavage forms that are well developed. The daylight coloration is attributed to bituminous or petroleum - based compounds in various concentrations.

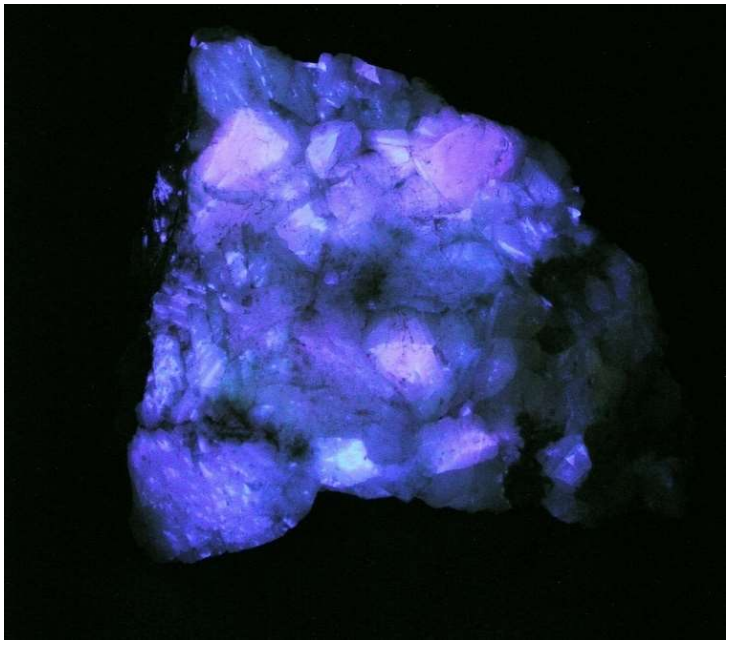
Three samples were used as models to compare luminescent characteristics. They are hand-sized specimens and measure between 10cm x 7.5 cm x 4.7 cm to 11 cm x 10cm x 7.2cm.

They have similar pink coloration with cleaved rhombohedra surfaces that are moderately developed. The pink coloration is likely due to certain manganese compounds.



Principal Specimen - SWUV

Model Specimen - Daylight



Model Specimen - SWUV

Methods and Procedures

Although mineralogical references describe the reactions to shortwave and longwave radiation, this essay will expand this information by including emissions from recently developed sources that emit mid-wave and longwave wavelength radiation. Also, the information gained from a method used to produce *flash* or intense phosphorescence of brief duration, will be offered.

Fluorescence, phosphorescence and *flash* were evaluated using include four sources of ultraviolet radiation. Among these sources are three, SuperBright II lamps. These lamps emit wavelengths 254nm (shortwave), 312nm (mid-wave) and 351nm (longwave). Additionally, a SuperBright III lamp that emits a longwave wavelength of 370nm was also used. A lead-acid battery was used to operate these lamps. This equipment was manufactured by UV SYSTEMS, INC., which is based in Renton, Washington. The distance between each specimen and radiation source was approximately 3-4 inches. Exposure and response times regarding fluorescence and phosphorescence were estimated. *Flash* was determined by quickly passing each light source across the specimen.

The evaluation of *flash* was also affected by using an unusual, but effective source of ultraviolet radiation, namely a Vivitar 283 photographic flash unit. Best results occur when this device is used at its maximum output setting. Once the specimen is placed in a fixed position, the flash unit is held steadily 3-4 inches from the specimen then discharged. One's eyes must be closed during the bright emission and then *flash* can be observed once visible light has dissipated. Possible damage to the flash unit and specimen are avoided by the fixed placement of these items. Alkaline batteries were used to operate this device.

Effects of Ultraviolet Radiation on the Principal Specimen

Shortwave (254nm): The light brown section displayed brown and tan fluorescent coloration with moderate intensity. The butter-yellow section displayed blue and bluish-tan fluorescent colors with bright and moderate intensity, respectfully.

The phosphorescent responses were numerous. A chocolate brown color with moderate intensity was viewed in the light brown section and brown, tan and blue colors were observed in the butter-yellow section.

The duration of phosphoresce was not evenly dispersed and lasted between 7 and 10 seconds. The blue response was located on one small section of the specimen and lasted 10 seconds. The areas further from this section displayed progressively shorter duration times. The intensity of phosphorescence was moderate.

No *flash* was apparent.

Mid-wave (312nm): The light tan area effected by the radiation displayed a chocolate-brown, bright intensity, fluorescent response. The butter-yellow area displayed a brown, tan, cream with greenish tint and blue coloration; overall, the intensity was bright.

A 10-second exposure produced phosphorescent responses similar to the fluorescent results regarding the light tan and butter-yellow areas, except the intensity was moderate. In both sections of the specimen, a moderately low intensity, blue response developed as the phosphorescence dissipated; the phosphorescence lasted 13 seconds.

No *flash* was discernable.

Longwave (351nm): This wavelength produced a chocolate-brown fluorescent effect with medium intensity in the tan area of the specimen. The phosphorescent effect had a similar color to fluorescence except a medium-low intensity. In both sections of the specimen, a bluish-cast was observed as phosphorescence diminished.

The butter-yellow area displayed fluorescence characterized by brown, cream and pink coloration with medium intensity.

The phosphorescent coloration was similar to fluorescence, except for medium-low intensity and a bluish cast followed as phosphorescence diminished. In addition, no pink coloration was observed. Overall, a 10-second exposure yielded a duration of 7 seconds.

No *flash* was evident.

Longwave (370nm): The fluorescence produced in the tan section was a chocolate-brown color with moderate intensity. The phosphorescence appeared to have similar coloration compared to fluorescence, but the intensity of this response was low. A 10-second exposure time generated a 4-second duration.

This wavelength produced a tan, brown, cream and pink fluorescent response in the butter-yellow section; the intensity of the response was moderate. The phosphorescent color was similar to fluorescence, except no pink coloration was present. The intensity of the phosphorescence was low; 10 seconds of exposure gave a 4 second response time.

No *flash* was discernable during testing.

Flash **(using photographic flash unit):** A red-orange *flash* response was observed in the butter-yellow section. This effect was followed by a weak phosphorescent response that lasted about 3 seconds. No *flash* was observed in the brown section, but a low intensity phosphorescent response was observed. The colors displayed by these sections were reminiscent of phosphorescence generated by the conventional ultraviolet source.

Effects of Ultraviolet Radiation on Model Specimens

Shortwave (254nm): This wavelength produced a bright, blue with pink undertone fluorescent response. This wavelength produced a bright, brilliant-blue phosphorescent response. This response lasted 7 seconds with a 5-second exposure time. No *flash* was visible; the bright intensity of phosphorescence produced inhibited assessment of this effect.

Mid-wave (312nm): A bright pink with blue undertone fluorescent response occurred. A bright, blue phosphorescent response was observed. This phenomenon lasted 8 seconds with 5-seconds of exposure. No *flash* was detectable; the intensity of phosphorescence produced inhibited assessment of this effect.

Longwave (351nm): A fluorescent response was featured by bright pink coloration. Some areas displayed a moderate-bright, yellow-gray reaction. This wavelength generated a very dim, blue gray phosphorescent response that lasted 4 seconds with a 5 second exposure time. No *flash* was apparent.

Longwave (370nm): This wavelength generated a fluorescent response exhibiting bright pink coloration was observed. Some areas displayed a moderate-bright, blue-gray reaction. A low intensity blue-gray phosphorescent response occurred; this effect lasted 2 seconds with 5 seconds of exposure. No *flash* was noticeable.

Flash**: (using photographic flash unit)** a bright, red-orange response was noted.

Discussion

The luminosity displayed by the model specimens were in agreement with descriptions in mineralogical reference books, except an undertone layering effect that was noted. Each of these specimens displayed fluorescence and phosphorescence in a homogeneous fashion, as expected. The responses were impressive in terms of colors and brightness. Trace quantities of Rare Earth Elements including Europium and Samarium have been identified as inorganic activators that cause the luminosity. However, the role of organic activators may play has not been excluded.

The fluorescence and phosphorescence regarding the principal sample are distinctive in regard to their daylight coloration. The light brown section produced essentially the same luminescent reaction to the known ultraviolet wavelengths aside from some differences in response intensity. However, the butter-yellow section displayed luminosity that was significantly different from the light brown section. Each ultraviolet wavelength produced a different fluorescent and phosphorescent response.

The luminosity displayed by the principal sample is more complicated compared to the model samples and appears to be dominated by organic activators. These compounds generate fluorescence and phosphorescence in calcite and other carbonate minerals, while inorganic activators tend to produce fluorescence exclusively. The concentration of organic compounds in the form of bituminous or petroleum - based matter contributes to the daylight appearance, but any relationship to luminosity appears less certain considering the different luminescent responses.

In all cases, *flash* has been attributed to trace quantities of manganese and lead with certainty.

There is much to be learned about the effects displayed by the principal sample. Hopefully, the information presented in this essay helps to expand our knowledge of mineral luminosity, as well as, provide added interest and appreciation for Terlingua calcite from the Little 38 mine.

Selected References

Origlieri, Marcus. “Famous Mineral Localities: Terlingua, Texas.” Mineralogical Record Vol. 21, No. 3 (May/June 1990): 221-234.

Robbins, Manuel. Fluorescence: Gems and Minerals under Ultraviolet Light. Phoenix, Arizona: Geoscience Press, Inc., 1994.

Yates, Robert G. and George A. Thompson. “Geology and Quicksilver Deposits of the Terlingua District, Texas.” Geological Survey Professional Paper 312 United States Government Printing Office, Washington: 1959.

2020 Officers

President – Vacant

Vice President Programs – Vacant

Vice President Field Trips - Reggie Rose, 4287 Parkmead Dr.
Grove City, Ohio 43123
(614)875-2675 vpfieldtrips@fommidwest.org

Secretary – Frank Konieczki, 50355 W. Huron River Dr.
Belleville, Michigan 48111
(734)-699-3321 secretary@fommidwest.org

Treasurer - **Jeff Spencer**, 4948 Beechwood Road
Cincinnati, Ohio 45244
(513)248-0533 treasurer@fommidwest.org

Liaison Officer Randy Marsh, 6152 Old Stone Ct.
Hamilton, Ohio 45011
(513)515-7890 liaisonofficer@fommidwest.org

Fund Raising (Committee Chair) - Vacant

Newsletter (Committee Chair) Tom Bolka, 2275 Capestrano Dr.
Xenia, Ohio 45385
(937)760-6864 newsletter@fommidwest.org

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.

Chapter Website:

www.fommidwest.org

National Website:

www.friendsofmineralogy.org

Affiliations:

THE MINERALOGICAL RECORD
THE MINERALOGICAL SOCIETY OF AMERICA
AMERICAN GEOSCIENCES INSTITUTE
MINERALOGICAL ASSOCIATION OF CANADA
ROCKS & MINERALS MAGAZINE
MINERAL NEWS
MINDAT

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.