



Mita Mita

# SHALE MAIL

**Our next meeting is on Friday Feb 14, 2020 at 6:30 pm**

**At 81 Laroe Rd Chester, NY (Town of Chester Recreation Senior Center)**

**(From KINGS HWY, Turn left on Laroe Rd by UPS office building)**

**Orange County Mineral Society, Inc**

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## Directory of Rock Shops and Geology Attractions

<http://www.virtualmuseumofgeology.com/>

**OCMS members are covered by Society-sponsored insurance.**

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[http://www.amfed.org/afms\\_news.htm](http://www.amfed.org/afms_news.htm)

## President's Message & Program

Please all members come with your Valentine and other guests to our OCMSNY Valentines Day meeting at the Chester Senior Center this Friday. We shall hold a silent auction with some attractive minerals for you to select for your Valentine.... Our members are welcome to bring along specimens for sale or trade and set up a table of their own. (I am thinking of some of those exquisite, hand made Herkimer diamond earrings.)

We will also begin organizing committees for our June 6-7 Mineral Show at Museum Village. Suggestions from last year's show included having a committee and team to set up ticket sales and membership drive right there at the show, setting up a map and list of vendors for show attendees, membership info pamphlet... and more.

I had a couple of conversations with the DEC Ranger who covers the Wurtzboro mine area and trails there. I am inspired to revisit that location with more members to keep our club heritage intact. We are

needing to have our members pooling our knowledge of local sites again. This is in preparation for more field trips this year and the future.....

Thanks to Howard Heitner who presented colors of minerals at our February meeting. Some key aspects of colors of key minerals, due often to some extra elements included in their crystal structure were presented and are summarized in the detailed minutes by Mark Kucera. Thank you Howard and Mark.

We will hear updates on our facebook and website statistics. Any one who doesn't get this Shale Mail, please email yours truly to let me know.

Doc Bayne will be our speaker on a new topic for us, something along the lines of "seeing the trees". (Please bring a few trees of your own to show and tell. LOL.) He was a Ranger at Sterling Forest and key member of the Friends of Sterling Forest and has presented such topics of iron mines, mining, the secret forge, the chain across the Hudson, Iona Island, and iron industry.

Hoping to see you at your club's Valentine's Day OCMSNY meeting Friday. Yours truly, Michael G Tedford, MD, MS, MBA

## Minutes, Speaker and Rock & Mineral Shows

The January meeting was held at the Senior Center in Chester, NY. Attendance reached around twenty-nine. Mike Tedford welcomed everyone. Introductions were made. See John Wheeler if you did not get a copy of the Shale Mail. Mike also talked about the benefits of membership.

**Minutes:** Minutes for the December 13th meeting had been sent out with the Shale Mail. The minutes were accepted.

**Treasurer's Report:** The treasurer's report was read by Ron Nelson and accepted.

### **Committee Reports:**

**Show:** Ron has five vendors signed up for the show already.

**Webmaster:** John has heard that the NY Times has expressed interest in writing an article somehow related to OCMS or some members. Mike is aware of it. Alison Pacut has offered to help with Shale Mail. Heather continues to work on the OCMS and EFMLS websites and Facebook pages. Everyone is encouraged to help the message traffic level.

**Field trips/digs/misc:** Nothing planned near term. Someone mentioned the Albany show in February. Mark mentioned the Eastern Federation Trip Alliance (EFTA) again. Heather brought in information on the EFMLS Convention, 27-30 March, in Hickory, NC. We're also waiting to hear what the plan is for the Big Brook dig with Derek. Frank V. was not at the meeting to share what he knows. Gary mentioned that the folks at the last NoJMS (North Jersey Mineralogical Society) meeting tossed out the idea of trying to get a group together to visit the Poland Mining Camp in Maine. They are currently just trying to get a feel for the interest level and whether they can come up with enough folks to take over the Camp for a week.

### **Upcoming shows:**

Rutgers	25-Jan
Albany	22-23 Feb

NYC	7-8 Mar
Meriden, CT	7-8 Mar
Buffalo	22-23 Mar
New Haven, CT	3-4 Apr
Midland Park - NoJMS	4-5 Apr
Southern Tier NY - Johnson City	4-5 Apr
Edison	15-19 Apr
Franklin	25-26 Apr
Freeport – Long Island	25-26 Apr
Sterling Hill Swap - NoJMS	16-17 May

**Old Business:**

We raised the speaker fees to stay attractive for quality programs. Travel consideration is added also. Mike will send around to the officers some guidance for considering whether we can continue the college scholarships.

We talked again about subsidizing the travel for our delegates to the EFMLS Convention.

After a discussion, the motion was made and passed to offer a subsidy to the delegates. It is assumed that Heather and Tony will represent us.

**New Business:** Nothing offered.

**Program:** Howard Heitner presented **The Causes of Color in Minerals**. For many of us that had been away from the classroom a few decades it was an excellent chance to clear some cobwebs. Howard pointed out that our ancestors were initially attracted to and learned to value things like gold, lead and ochre because they looked different. Their color set them apart from the rest of the surface.

The color of a mineral is a result of the wavelength(s) of light absorbed. The remainder is transmitted or reflected. He gave a brief review of the electromagnetic spectrum, the history and then some physics. The electrons can only have certain energy levels. Light with just the right wavelength has just the right corresponding energy to excite an electron to jump up a higher energy level. The first row of the transition elements on the Periodic Table of Elements (falling between scandium and zinc) have just the right energy in the “d” level electrons to correspond to the energy level of visible light. Copper present in a mineral usually results in green or blue. Manganese usually imparts a reddish color. This principle is the crystal field effect. Another cause of color is charge transfer. Electrons are swapped between different elements. Band theory is yet another cause for color. The energy levels can merge into bands called the valence and conduction bands. Depending of the distance between the bands, none, some or all the light may be absorbed. Black minerals have a narrow gap between the bands and absorb all the light. Colorless minerals have a very wide gap and can absorb no light. A lesser width gap can absorb short wavelength light allowing the red or yellow range to be transmitted. Color centers is another principle causing color. Radiation exposure has ejected electrons resulting in a vacancy.

Howard explained some of the common mineral color changes such as amethyst vs citrine, the dichroic nature of alexandrite and the heat treatment of tanzanite. Blue topaz is typically irradiated. Trace nitrogen in diamonds makes them absorb the violet end of light making them look yellow. Trace boron in diamonds absorbs the longer end (yellow and red) light, making them look blue. He also explained that the rainbow coloration of some opal is not the result of absorption. Microscopic layers of spheres in opal produce a diffraction grating effect yielding the rainbow of color.

Tossed into the lecture was the general background on color perception. Color for humans is the result of the trichroic bands of sensitivity in the cones of the eye. We have sensitivity to three overlapping bands of light. For simplicity these are typically called red, green and blue. The relative quantity of each in any emission is translated into a color by the brain. Howard touched on the numerous reasons there are limits or at least aggravations to photographic, visual display on monitors and reprinted materials in terms of color fidelity. Howard cited Kurt Nassau's paper on The Origin of Color in Minerals as his primary reference.

Howard also cranked up an internet connection to Mindat to show us a quartz photo from a recent field trip he made to a construction site in Fairfield County, CT. The contractor invited him to see if he had a significant find worth working on versus staying on schedule with construction. The site got backfilled.

We appreciate Howard coming to share some of the heavier aspects of mineral collecting. Whether or not we understood a majority of it, it still contributes to our background for understanding minerals.

**Raffle:** A raffle was held for about a dozen pieces.

**Next Meeting:** The February 14th meeting will be Doc Bayne. We haven't pinned down a topic yet.

MK

For John Pacut  
Secretary