



VOLUME 49

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NUMBER 5

HAPPY
Mother's
DAY



NEXT MEETING: Tuesday, May 16, 2023

TIME: 7:00 p.m.
LOCATION: Helen Hall Library
100 W Walker St.
League City, Tx 77573

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MINUTES OF THE April CLGMS GENERAL MEETING

Preliminary Treasury report from the 2023 Annual show – The Club had really good show and all the vendors were happy with their overall results.

We had a quite large expenses prior to the show because mostly are replenishing the supplies, entry tickets, goody bags and refreshments.

We had a spare room that we turned it into the “V Lounge” where the vendors and volunteers can take a quick break. At this lounge, the club provided bottled water, flavored mineral water, Gatorade, chips, cookies and some cold cuts and cheese trays. This “V Lounge” was a hit!

Our April speaker - Sara CrystalFaerie Pomey, owner of Oak Haven Crystals - “Inspired by Nature, Elements of Color and Design” presentation was awesome. Everybody really enjoyed her presentation and all the jewelries she has made. We are looking forward for any future presentations.

MINUTES OF THE May CLGMS BOARD MEETING.

Received the 2023 final vendors report from Sandy. We had 47 vendors for our 48th Annual Show this year. I believed, this is the record number of vendors we ever had, and the most important thing is that the vendors were happy and really appreciated the club’s effort. Thank you to Sandy, Cyndi (social media advertising) and to ALL the volunteers.

The club needs to resupply a few items for next year’s show, such as badge holders, hands-on material and plastic container to reorganize the supplies.

Postcards and fliers will be updated: **\$1 off per adult ticket**

The name of “Dino Rock” on the club’s advertising sites will be changed to something similar (we need some ideas).

The annual scholarship’s deadline date will be updated to June 30th, this date will be the date used for future deadline. The selection will be held on the July BOD meeting and the scholarship recipients shall pick up the checks on our July General meeting, however, if any of the recipient(s) cannot attend, the check(s) will be sent out by mail.

One of the scholarships will be named as James Brittenham Memorial Scholarship. The requirement is the same. One scholarship per recipient.

Community service was done by Monica Duran and family. They ran the Gem Mine during the May 6, 2023 festival at Armand Bayou Montessori School - 16204 Hickory Knoll Drive, Houston.

Our next show will be February 24-25, 2024.

Please check out our Facebook page: **Clear Lake Gem and Mineral Society.**

Field Trips Announcement

Agate field trips to the Alpine, TX area – please contact:

Teri Smith’s rockhunts: agatehunter@sbcglobal.net or teri@terismithrockhunts.com.

Aaron Thomas' rockhunts: texastakeahike@gmail.com

Jean Larremore's rockhunts: jeanlarremore@yahoo.com

If you have a good location for our club field trip – please contact:
annabel.brownfield@gmail.com or call/text: 281-486-1866.

Taken from the Northern VA October 2020 "The Mineral Newsletter":

Rhodochrosite

by Sue Marcus

I had to be reminded that we had not yet explored rhodochrosite as a Mineral of the Month. How could we have ignored such a beautiful mineral for so long!

Rhodochrosite (MnCO_3) forms solid solution series with siderite (FeCO_3) and calcite (CaCO_3). Remember solid solution series? Chemical substitutions can occur incrementally along a spectrum from one mineral species to another, with one element substituting for another.



Rhodochrosite

Sweet Home Mine, Alma District, CO

Source: Wikipedia; photo: Eric Hunt.

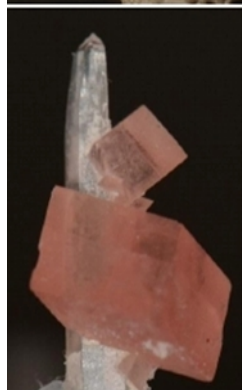
Manganese provides the color for rhodochrosite and rhodonite ($\text{CaMn}_3\text{Mn}(\text{Si}_5\text{O}_{15})$) as well as the inspiration for their names, coming from the Greek words $\rho\acute{o}\delta\omicron\varsigma$ (rhodos) and $\chi\rho\acute{o}\varsigma$ (color). German mineralogist Johann Friedrich Ludwig Hausmann created the name in 1813 based on a specimen from Romania. For about three decades, from 1781 to 1813, there was confusion between rhodochrosite (a manganese carbonate) and rhodonite (a manganese silicate). Quantitative analysis in 1800 led to the final distinction and later naming by Hausmann, though what came to be called rhodochrosite had originally been found perhaps as early as 1781 in Europe—or probably earlier by the Incas in Peru. The European material had been described in 1794.

Chemistry and technology have progressed to allow scientists to identify varieties of rhodochrosite; Mindat recognizes five and Minerals.net adds one more, all of which I have listed in the technical details section. Parakutnohorite, a synonym provided by Webmineral.com, is shown as discredited by Mindat.

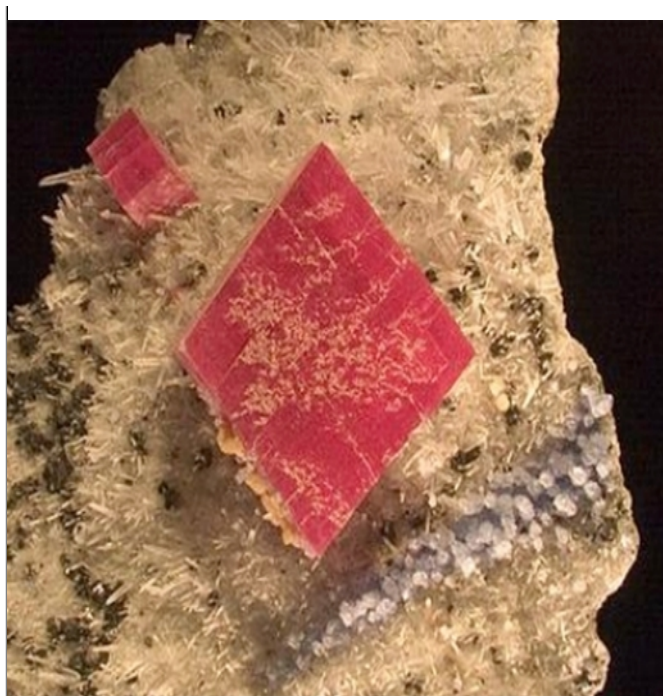
Arguably, the world's best rhodochrosite comes from Colorado, where silver was the major prize for prospectors and rhodochrosite was a colorful associated mineral. Then the silver petered out and collecting minerals became popular. The mines around Silverton, Leadville, and Ouray produced pretty,

light pink, usually rhombohedral rhodochrosite crystals. The Idarado Mine specimens from the Telluride District occur with quartz and may be faintly pink, almost white.

All of these were far surpassed by what has become the world's most productive rhodochrosite specimen producer and the site of the world's best specimens. This is the Sweet Home Mine, opened by Bryan and Kathy Lees, owners of the Collector's Edge mineral business (together with their investors), specifically offering rhodochrosite specimens to collectors. The property is only about 90 miles southwest of Denver, though at 11,300–11,600 feet, so mining is seasonal.



Rhodochrosite specimens from the Sweet Home Mine (top, Hedgehog Pocket; left, on quartz, Robs Pocket), Alma, Park County, CO. Photos: Bob Cooke.



Alma King Rhodochrosite from the Sweet Home Mine, on display at the Denver Museum of Nature and Science. Source: Wikipedia; photo: Kimon Berlin.

Although there was some mining of rhodochrosite in the 1960s—including discovery of the Alma Queen, sporting crystals 10 centimeters across—more consistent mining production under Lees and crew commenced in 1991 and is continuing. The Alma King, coming in at an astounding 15 centimeters across, was found in 1991. It was literally touching both walls of a narrow pocket and is now displayed at the Denver Museum of Nature and Science. That museum also hosts an “artfully reconstructed” depiction of part of the mine called the “Denver Wall of Rhodochrosite” or the “Crystal Wall,” showing hundreds of bright red rhodochrosite crystals. This display is not an exact replica of part of the mine; instead, it exhibits real slabs of rhodochrosite-crystal-studded rock, pieced together as if in a single huge pocket.

Sweet Home is such an amazing place that too many reports have been written about it to include them all. The Mineralogical Record published a special edition dedicated to the mine in 1998 (listed in the sources below).

The Sweet Home Mine now has a sibling, the Detroit City Mine, an adit (an opening that is roughly horizontal, as opposed to a shaft) about 200 feet above the Sweet Home deposits. The Detroit City Mine began producing specimens in 2018. These are somewhat pinker crystals, with less vibrancy than specimens from the Sweet Home Mine—though still beautiful and expensive.

The Sweet Home Mine was closed and sealed in 2004 after the Lees and their associates decided that further exploration was unlikely to find more specimen material of any sort. This mine was truly planned, developed, explored, and managed with the intention of producing mineral specimens. It was highly unusual because it was done very professionally, with modern exploration and safety techniques—usually.

I added that last because, while reading about one of the major discoveries there, I learned that the discovery occurred when a geologist tapped his rock hammer on the ceiling! See the Collector's Edge link in the sources section for more details.

The Alma deposits are hydrothermal, caused by hot fluids probably related to the emplacement of plutonic (granitic) rocks. Mineralization was introduced by these fluids along preexisting faults and other structures.

Another source of stunning (and expensive) rhodochrosite is the Kalahari manganese field in South Africa. Hotazel and the N'Chwaning Mines have produced transparent, gemmy scalenohedral specimens (pointy rather than the lopsided rhombs typical of Colorado). These are usually small clusters or single crystals, with specimens seldom more than 5 centimeters long and individual crystals rarely more than 4 centimeters long. Other crystal forms have also been found there, though less frequently. Colors vary from cherry to deep wine red, pink, and orange-red.



Rhodochrosite, Sweet Home Mine (Corner Pocket), Alma, Park County, CO. Photo: Bob Cooke.



Rhodochrosite, Hotazel Mine, Kalahari manganese field, South Africa. Photo: Bob Cooke.

From (sad) experience, I can confirm that the rhodos are easily cleaved—and two specimens are not worth more than one! Anyone wanting eye candy should look at the Mindat images from the N'Chwaning Mines. The N'Chwaning deposits formed from hydrothermal fluids that metamorphosed the country rock, altering it through concentrations of manganese, calcium, and other minerals.

Peru is another pink source of rhodochrosite. Pasto Bueno has specimens up to about 14 centimeters in size sporting light to dark pink rhombohedrons with quartz crystals. Another noted Peruvian source is the Uchucchacua mine. If you see pink to red, transparent scalenohedral rhodochrosite crystals on matrix for sale from Peru, they are probably from this locality, although it has also produced other crystal forms of rhodochrosite. Other Peruvian localities were or are specimen producers as well.

A relatively new source of rhodochrosite is the Wutong Mine, Guangxi Zhuang Autonomous Region, China. Pink, sometimes bladed rosettes of rhodochrosite are the most aesthetically pleasing to me, though others might prefer slightly darker rhombs. Most of what I have seen is translucent to opaque, and a lot of what is for sale seems to be cleavages.

The Wolf Mine in Herdorf, Germany, is another noted rhodochrosite locality. Mining started in 1870; after interruptions, it finally ended in 1962. The aggregates of small salmon to raspberry-colored crystals are probably

Europe's finest for the species. Since they were never plentiful and the mine is closed, they are sought after. Although other minerals were extracted later, early Celts initially mined the iron in the deposits here. Iron ore, a mix of siderite and limonite, formed from hydrothermal fluids driven from distant basaltic intrusions that coursed through Devonian sedimentary rocks.



*Rhodochrosite with quartz, Pasto Bueno, Peru.
Photo: Bob Cooke.*



*Rhodochrosite, Wolf Mine, Herdorf, Germany.
Photo: Bob Cooke.*

Rhodochrosite is composed of common elements, so it is a relatively common mineral, although beautiful crystals are unusual. Along with the localities already described, rhodochrosite is found elsewhere, though not as abundantly or in as exquisite crystals.

In Mexico, specimen localities include Santa Eulalia (which also produces crystals of numerous other minerals); Cananea, Sonora; and the Los Remedios Mine, Guerrero. Triangular and twinned triangular crystals were found in the 1980s at the famous Poudrette quarry in Mont Saint-Hilaire, Quebec. These and other forms of rhodochrosite, including pseudomorphs after serandite, were uncommon; but fine, unusual specimens make this location worth mentioning.

Gabon, though a major source of manganese, has not been a significant source of rhodochrosite specimens. Lovely transparent scalenohedral crystals reminiscent of the South African ones from the Kalahari fields, though usually smaller, came from the Moanda Mine from the 1960s into the 1980s, though never in great numbers.

A unique type of rhodochrosite formation occurs in the Argentinian Capillitas mining district, where water coursing through manganese-rich host rocks became chemically infused and formed stalactites and stalagmites. The slow building of the layers of rhodochrosite, with slight variability in the water chemistry, resulted in the lovely banding we see today when the formations are cut, slabbed, and used for jewelry and decorative items. These ancient deposits, probably initially worked by the Incas for silver nearby, led Argentina to name rhodochrosite as its national gemstone.

Another unique form of rhodochrosite occurs in Archean stromatolite fossils in Western Australia. Manganese in a reducing (anaerobic) environment contributed to the precipitation of rhodochrosite particles as an unusual biomineral. It's probably not what most collectors dream of, but it's important scientifically because its origin helps explain part of Earth's early history.

Collectors beware—well, sort of. Certain species of fungi can dissolve and break down rhodochrosite. I don't think most of us need be too concerned, but I found a paper on Ascomycete, a phylum of fungi that I did not trace any further. I also found that other fungi can cause the precipitation of rhodochrosite in leaf litter (forest debris) north of Rome. It isn't stellar rhodochrosite but rather another biomineral novelty.



*Rhodochrosite, Mont Saint-Hilaire, Quebec, Canada.
Photo: Bob Cooke.*



*Rhodochrosite on display at the Museum of Natural Sciences, La Plata, Argentina.
Source: Wikipedia; photo: Javier Conles.*

Banded Argentinian rhodochrosite is the form most often seen in cabochons. It is also carved into animals and other small statutes or as part of the lovely Peruvian bird figurines. Transparent rhodochrosite may be faceted, but considering the hardness (3.5 to 4) and excellent cleavage, it is difficult to cut and not durable to wear. Faceted rhodochrosite is best suited to showing off as a novelty rather than as a wearable gemstone.

Rhodochrosite is available to collectors at less than \$10 (without shipping)—or, if you have the funds, at seven-figure prices. At the higher end, you have to ask the price—and I haven't. I did see a South African specimen offered online in September 2020 for \$35,000.

Manganese is used in steel production to remove sulfur from iron ore and as an alloy in the final products. The United States does not produce any manganese. Our primary import sources are Gabon and South Africa. Rhodochrosite is a primary manganese ore; unlike the pink manganese silicate (rhodonite), rhodochrosite is much simpler to process since it is carbonate and breaks down easily—and cheaply.



*Rhodochrosite, Mont Saint-Hilaire, Quebec, Canada.
Photo: Bob Cooke.*



Rhodochrosite, Moanda Mine, Gabon. Photo: Bob Cooke.

Characteristics

Chemical formula MnCO_3 , with Fe, Mg, and Ca able to substitute for Mn in part of the crystal lattice

Crystal form Trigonal

Hardness 3.5–4

Density 3.45–3.70 g/cm³ (measured)

Color	Red, pink, sometimes banded pink and white; color can be more brown or gray if more Fe or less MN are present
Streak	White
Cleavage	Three perfect cleavages; cleaves easily
Fracture	Irregular, conchoidal
Luster	Vitreous, sometimes pearly on cleavages
Varieties	Capillitite, cobalt-bearing

Sources

AJS Gems. N.d. (no date). Rhodochrosite gems from Colorado.
 Collector's Edge. N.d. Detroit City: Another chapter in the story of Sweet Home rhodochrosite!
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 Hagedorn, J. Personal communication, Denver Museum of Nature and Science. October 2.
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 Mindat. N.d. Moanda Mine, Gabon.
 Mindat. N.d. N'Chwaning Mines.
 Mindat. N.d. Poudrette Quarry, Mont Saint-Hilaire, Quebec.
 Mindat. N.d. Sweet Home Mine.
 Mindat. N.d. Uchucchacua Mine, Peru.
 Mindat. N.d. Wolf Mine, Herdorf, Germany.
 Minerals.net. N.d. The mineral rhodochrosite.
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 Rincón, T.B.; Mühlen, D.; Hoppert, M.; Reitner, J. 2015. Biomineral formation as a biosignature for microbial activities Precambrian cherts; EGU General Assembly; 12–17 April; Vienna, Austria.
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 Treasure Mountain Mining. N.d. Rhodochrosite from the Capillitas Mine, Argentina.
 USGS. 2020. Manganese. Mineral commodity summaries: 104–05.
 Webmineral.com. N.d. Rhodochrosite mineral data.
 Wikipedia. N.d. Rhodochrosite.

Question of the Month - Glass

Don Shurtz, Pleasant Oaks Gem and Mineral Club of Dallas

What is GLASS?

Now this ought to be easy. Glass is the stuff we buy from a glass company or a hardware store to install in our automobiles and homes. Glass form the things that let us see outside when we are inside. But obviously it can't be that simple or it would not be worthy of a question of the month.

To start with, glass is primarily Silicon Dioxide (SiO₂) with trace elements for various reasons. But then, quartz is SiO₂, agate is SiO₂, jasper is SiO₂, flint is SiO₂, sand is SiO₂, opal is SiO₂, obsidian is SiO₂ - all with some trace elements for various reasons. So why don't we use quartz

or agate or flint for windows? Obviously, not all of these mineral forms of SiO_2 are transparent and would be hard to see through. A major exception would be clear quartz - but it is rather costly. Further, have you ever heard of glass as being a mineral? There must be some fundamental difference between these items, and the definition of a mineral may yield a clue. A mineral is “A naturally occurring, homogeneous inorganic solid substance having a definite chemical composition and characteristic crystalline structure, color, and hardness”. Let’s examine these in further detail:

CRITERIA	COMMENT	Pass/ Fail
Naturally occurring	Generally manufactured by man, obsidian is a natural glass	Neither
Homogeneous	Glass is homogeneous	Pass
Inorganic	No organic (carbon) compounds	Pass
Definite chemical composition	Silicon Dioxide with trace elements	Pass
Crystalline	No regular structure or grouping	Fail
Characteristic color	Clear or tinted	Pass
Hardness	Mo’s hardness 6	Pass

Based on having no regular crystalline structure, glass is not a mineral. So what is it? Again, a definition may help. Glass is “Any of a large class of materials with highly variable mechanical and optical properties that solidify from the molten state without crystallization, are typically made by silicates fusing with boric oxide, aluminum oxide, or phosphorus pentoxide, are generally hard, brittle, and transparent or translucent, and are considered to be **supercooled liquids** rather than true solids.” So glass is a liquid! Liquids flow freely, right? So glass flows, and that is why many panes of glass from medieval times are thicker at the bottom, right? For many years this was a prevalent “Urban Myth”, but not true! Tests with panes of glass in a centrifuge to accelerate any “flow” have all proved negative. Also, if glass “flowed”, it would be apparent in a matter of days in some of the very large, high magnification telescopes. But it is a fact that many panes of mediaeval glass are thicker at the bottom. Much of the glass from those times was formed by pouring the molten glass onto a spinning table, and a little physics will show that this results in thickening with increasing radius. The panes were then cut and mounted heavy (thick) side down for stability. Today that is not a problem; 90% of glass is formed by the “float glass” processes of pouring molten glass onto a molten tin surface. Gravity causes the glass to assume almost perfectly parallel faces as it cools. Further, when it is extracted from the molten tin surface, it comes out almost perfectly polished.

Ref:

Dictionary.com, <http://dictionary.reference.com/search?q=mineral>

Is It Liquid or Solid, <http://math.ucr.edu/home/baez/physics/General/Glass/glass.html>

Glass, <http://www.reference.com/browse/wiki/Glass>

SCFMS and MEMBER CLUB GEM SHOWS			
Texas Mineral and Fossil Dallas/Plano Start Date: 05/19/2023 End Date: 05/21/2023 Venue: Plano Event Center 2000 E Spring Creek Pkwy Plano , TX 75074 https://www.rmgmpromotions.com	The Franklin Gem & Mineral Show Start Date: 05/19/2023 End Date: 05/21/2023 Venue: The Robert C. Carpenter Community Building Address: 1288 Georgia Rd. Franklin, NC 28734 http://www.visitfranklinnc.com	June 17-18 – Grapevine, TX – Arlington GMS	Tulsa Rock Gem Mineral & Jewelry Show Start Date: 07/15/2023 End Date: 07/16/2023 Hours: Sat 9:00-6:00 Sun 10:00-5:00 Exchange Center at Expo Square Address: 4145 E. 21st St. Tulsa, OK 74114 http://www.tulsarockandmineralsociety.org
51st Annual Gem & Mineral Show. – Hosted by the Gem and Mineral Society of Louisiana. October 21- 23, 2023 Alario Center 2000 Segnette Blvd. Westwego, LA 70094. www.gmsola.org			
STONEY STATEMENTS Clear Lake Gem and Mineral Society, Inc PO BOX 891533 Houston, Texas 77289			
Meeting 3rd Tuesday of the Month 7:00 P.M. League City Library 100 W Walker St, League City, Tx 77573			
			

		Member of		
Next Annual Show February 24-25, 2024 Pasadena Convention Center			 American Federation of Mineral Societies	 South Central Federation of Mineral Societies
CLGMS is on the Web: http://www.clgms.org FACEBOOK: CLEAR LAKE GEM AND MINERAL SOCIETY.				
Clear Lake Gem and Mineral Society, Inc				
MEMBER: American Federation of Mineralogical Societies and South Central Federation of Mineral Societies				
PURPOSE: To promote education and popular interest in the various earth sciences; in particular in those hobbies dealing with the art of lapidaries and the earth sciences of minerals, fossils and their associated fields.				
2023 OFFICERS:	President Vice President Secretary Treasurer Program Director Board of Directors: Newsletter Editor	Cynthia McGowan David Tjiok Christina Rankin Morgan Davies VACANT Sandra Christiansen Jim Edwards Donna Nelson David Tjiok	281-546-2662 832-423-4802 281-723-5408 281-224-2444 Jim Hawkins John Caldyne	
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Membership Dues Jan. to Dec. 2023: Adult \$15:00, Family Dues \$20.00 (4+) at same address. Send Dues to CLGMS, PO BOX 891533, Houston, TX, 77289				