Pleasant Oaks Gem & Mineral Club of Dallas, TX
Chips and Chatter

Member: South Central Federation of Mineral Societies

Affiliated: American Federation of Mineralogical Societies

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1st Place, 2022 SCFMS Mini-Bulletin
1st Place, 2022 AFMS Mini-Bulletin

Brochantite

Don Shurtz, Pleasant Oaks Gem and Mineral Club of Dallas

The image below is a picture that I took of a Brochantite specimen that was on display several years ago at the Perot Museum of Nature and Science. I was fascinated by the vivid color and the number of sharp needles. Brochantite is one of many copper sulfates and has the chemical formula $Cu_4SO_4(OH)_6$. It is often found in the same areas as Malachite, Azurite, and Chrysocolla. However, probably one of the best examples of Brochantite is the Statue of Liberty. The greenish-blue tint of the statue comes from the reaction of its copper skin with Sulfur Dioxide and Water Vapor. The Brochantite is actually a protective layer that prevents further corrosion of the skin. Brochantite specimens may be beautiful, but can be very helpful in preserving copper.

Picture by Don Shurtz from specimen on display at the Perot Museum of Nature and Science

They Protect Themselves

Don Shurtz, Pleasant Oaks Gem and Mineral Club

Many elements can protect themselves from corrosion, particularly metallic elements. The short article on page 1 mentions that "Brochantite specimens may be beautiful, but can be very helpful in preserving copper." You would think that copper in a humid climate would be highly weathered. However, if the area also contains a small concentration of sulfur, it can form Brochantite, $Cu_4SO_4(OH)_6$. The process is somewhat dependent on temperature: colder temperatures slow it, but in moderate to warm climates the copper forms a thin layer of Brochantite on the surface. After the layer is formed, it will continue to grow, but at a much slower rate. When the Statue of Liberty was extensively refurbished in the 1980s. The Brochantite layer was approximately 5 mils (0.005 inches) thick. More than a century of exposure to the harsh environment in the New York Harbor did little harm. It started with a skin 3/32 inches (0.09375 inches) thick; about 95% of the original copper skin remained intact. I sure wish I could have something that would preserve 95% of me as I aged!

Picture by National Park Service, public domain

How about aluminum? Aluminum does not have to be painted to protect it. It takes care of itself. Upon exposure to our atmosphere, it forms a very thin layer of aluminum oxide. The layer appears transparent – the oxidized aluminum remains bright and shiny. The oxidized layer is Al_2O_3. So what else do we know that is made from Al_2O_3? How about Sapphire and Ruby – they share the same chemical formula. However, the oxidized layer on a bar or sheet of aluminum does not have the same crystalline structure as Sapphire and Ruby.

How about gold and silver? Gold is very stable and does not easily form compounds with other elements. Gold protects itself by just being gold. However, silver is another matter. Silver will form compounds with many different elements. One common compound is called tarnish and has the formula Ag_2S. Like copper, the layer of weathering (tarnish) will slowly cover the silver, then significantly slow its growth. If you have any sterling silver plates, knives, forks, etc., you know that it is almost impossible to keep tarnish from forming. The good news is that it is easily removed.

Picture from Wikimedia, https://commons.wikimedia.org/, photo by dave_7, used in accordance with Creative Commons Attribution-Share Alike 2.0

Even iron will form a protective layer. Iron is oxidized, forming rust with a chemical formula $Fe_3O_2 \cdot_n H_2O$. The subscript n (or sometimes x) designates that it can have differing amounts of water attached to the iron oxide. The number of water molecules will vary with the environment, with fewer in drier climates. As you get into the moister climates, the rate of accumulation of rust will increase. The rust will initially form a protective barrier that slows the formation of additional rust. However, in a moist environment, the rust will eventually replace all the available iron. Touch a really rusty item, and it will disintegrate. The rusty antique car pictured is over 100 years old. It is most likely a 1924 or 1925 Buick, or a Canadian McLaughlin Buick. There is certainly enough of the original metal remaining to restore this vehicle.

VISIT AN AREA CLUB

Arlington Gem & Mineral Club, meets the 1st Tuesday of each month at 7:30 pm, 1408 Gibbins, Arlington, TX
Cowtown Gem, Mineral, & Glass Club, meets the 2nd Tuesday at 7:00 pm, CERA 3300 Bryant Irvin Rd. Fort Worth
Dallas Bead Society, meets 1st Saturday of each month at 10:00 am at The Point at CC Young, 4847 W. Lawther Dr., Dallas, TX
Dallas Gem & Mineral Society meets the 3rd Tuesday of each month at 7 pm, American Legion, 10205 Plano Rd, Dallas (next to their shop)
Dallas Paleontological Society, meets the 2nd Wed. of each month at 7:00 pm, Brookhaven College, Building H, 3939 Valley View Lane,
Fort Worth Gem & Mineral Club, meets the 4th Tuesday of each month at 7:30 pm, 3545 Bryan Avenue, Ft. Worth
Oak Cliff Gem & Min Soc., meets the 4th Tuesday of each month at 7:30 pm, Unitarian Universalist Church, 3839 W. Keist Blvd, Dallas,
Pleasant Oaks Gem & Mineral Club, meets the 1st Monday of each month at 6:00 pm, Knights of Columbus Hall, 3722 Cavalier Dr., Garland
Wild West Bead Society, meets 3rd Tuesday of each month at 6:30 pm, Wild Beads, 1124 S. Bowen Road, Arlington, TX

More Pictures of Metals that Protect Themselves

Silver mineral, picture by Don Shurtz of specimen displayed at the Perot Museum of Nature and Science. Silver tarnish is silver sulfide, Ag_2S.

Bronze roundel, picture from Wikimedia Commons, https://commons.wikimedia.org/. Green bronze patina is Brochantite, $Cu_4SO_4(OH)_6$ and/or Malachite, $Cu_2CO_3(OH)_2$, brown patina is Copper Sulfide, CuS.

Zinc casting molds, picture from Wikimedia Commons, https://commons.wikimedia.org/. Attribution: The copyright holder of this file, Art Hanoi, allows anyone to use it for any purpose, provided that the copyright holder is properly attributed. Redistribution, derivative work, commercial use, and all other use is permitted use, http://art-hanoi.com/. Patina is zinc carbonate, $Zn_5(CO)_3(OH)_6$. Molds were likely used for casting fake coins.

Shows and Activities – Upcoming Show and Activity Dates

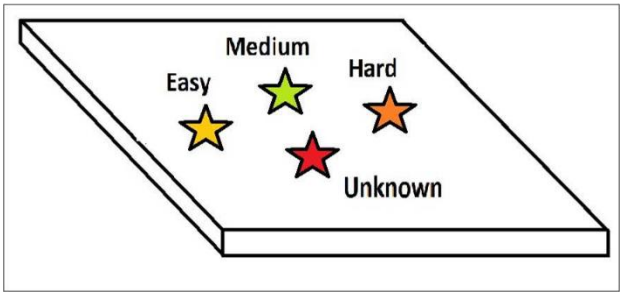
Check with show contact to verify show status

October 2-4, Westwego (New Orleans), LA, G&MS of Louisiana, Alario Center, https://www.gmsofla.org/
October 2-4, Albuquerque, NM, Jay Penn Albuquerque Show, NM Expo State Fairgrounds,
October 2-4, Austin, TX, Austin INTERGEM, Palmer Events Center, https://www.intergem.com/all-upcoming-shows
October 9-11, Grapevine, TX, Dallas INTERGEM, Gaylord Texan Resort, https://www.intergem.com/all-upcoming-shows
October 16-18, Houston, TX, Houston INTERGEM, Reliant Center, https://www.intergem.com/all-upcoming-shows

Bench Tips

By Brad Smith, received by email with permission to reproduce

IDENTIFYING UNMARKED SOLDERS



There are plenty of ways to mark your sheet or wire solders, but suppose you forgot to mark them and have a couple that you can't identify. The answer is to compare the melting temperature of the unknowns with that of a known solder.

What I do is take a thick scrap of copper or nickel and arrange several solders on it. Ideally, I would have a sample of easy, medium and hard known solders surrounding the unknown piece. Then I heat the plate from the bottom and watch the order in which the solders melt.

ADJUSTABLE CHUCK FOR DREMELS

Many of us have a Dremel motor tool to use at home or when out to a class or workshop. The one thing that makes this tool much more productive is the addition of one inexpensive option, an adjustable chuck.

The basic motor tool as sold typically comes with a collet chuck. This means you have to use a wrench to change every tool bit, you have to switch collets to use different shaft sizes (3/32 or 1/8 inch bits), and you can't use ordinary drills at all - only the special ones that have a 3/32 shaft.

A simple and inexpensive ($12) adjustable chuck solves all of this. It's available in most large local hardware stores or modelmaking outlets. Tightening the chuck is done easily by hand to any size shaft. No key is required.

See More of my Smart Solutions for Jewelry Making at
http://amazon.com/dp/B0BQ8YVLTJ

OFFICERS FOR 2025 – 2026

President:	Joe Vulk
1st VP, Programs:	Amy Vulk
2nd VP, Field Trips:	Julie Wilson
Secretary:	Johnny Rhodes
Treasurer	Ling Shurtz
Editor	Don Shurtz

Contact us by email: don.shurtz@gmail.com

Minutes of the August 3 Meeting

Call to Order: President Joe Vulk called the meeting to order at 6:45

Pledge of Allegiance: We recited the Pledge of Allegiance

Quorum: A quorum was present.

Visitors: There were no visitors.

Minutes:
There were no minutes for the July meeting as it was our annual Spring Creek BBQ dinner. We talked a lot and presented a nice door prize, but no official business was conducted.

The Minutes of the June 1, 2026 meeting were reviewed and approved.

Treasurer's Report: Ling, with the help of Don, presented the July Treasurer's report. The Treasurer's report is actually a running summary of the club finances from January through July 2026. The plan is to continue to add monthly information to the list.

Old Business: There was no old business

New Business:

1. Julie announced that the next IGEM show will be in October and will be at the Gaylord Texan Resort and Convention Center in Grapevine, Texas on October 9 – 11, 2026. Julie and Warner do not plan to attend the show due to their participation in their State Fair show (September 25 – October 18, 2026). No one else has expressed interest in participating in the show. There could be a $25.00 parking charge to attend the show.

2. Don reported that DGMS plans to continue their last Saturday Rock Swaps at their shop throughout the summer. Don also stated that he would not be sitting in the hot summer sun for 4 to 6 hours selling club items at these Rock Swaps. He would, however, be willing to help anyone who wanted to sell club items at these shows by providing logistical help in obtaining and loading the club materials and cash box.

3. Don also discussed our donation to the AFMS Scholarship Fund. Our total sales at the spring and summer shows were $1,712.00. 50% of that amount, $856.00, will be donated to the AFMS Scholarship Foundation. This was intended as an item for the Executive Board, but a general motion was made and passed to approve the donation of $856.00

Presentation: We watched a DVD

Raffle: We held the raffle.

Our Next Meeting

Our next meeting will be Monday, September 3, 2026, at the Knights of Columbus Hall, 3722 Cavalier Drive, Garland, TX. We will start at 6:00 PM. The business meeting will start about 6:30, and the presentation will start about 7:00

PLEASANT OAKS GEM and MINERAL CLUB of DALLAS

Meetings
We meet the first Monday of each month at 6:00 PM. We meet at the Knights of Columbus Council 6401 Hall, 3722 Cavalier Drive, Garland, TX 75402

Membership
Single Adult: $16.50,
Junior: $5.00, Family: $27.50
(Plus badge fee for new members)

PURPOSE

The Pleasant Oaks Gem and Mineral Club of Dallas is organized for charitable and educational purposes to promote interest in the various earth sciences, particularly those hobbies dealing with the art of cutting and polishing gemstones, the science of gems, minerals, and metal crafts, as well as their related fields. Pleasant Oaks Gem and Mineral Club of Dallas is a not-for-profit organization

CHIPS AND CHATTER
Pleasant Oaks Gem & Mineral Club
c/o 4004 Dublin Rd.
Allen, TX 75002-6526

To

VISITORS ARE ALWAYS WELCOME

Our next meeting will be Monday, September 7, starting at 6:00. We will meet at the Knights of Columbus Hall, 3712 Cavalier Drive, Garland, TX
The Presentation will be ??????

Features

Monthly Columns

Notices