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1st Place, 2019 SCFMS Mini-Bulletin

1st Place, 2017 AFMS Mini-Bulletin

Copper

Don Shurtz, Pleasant Oaks Gem and Mineral Club of Dallas

Copper is one of the oldest metals known by humans; it is one of the seven metals of antiquity – those metals known and used by humans in prehistoric times. Copper is sometimes found as a native element, but is more often found as a sulfide (chalcopyrite, covellite, etc.), copper sulfosalts (complex sulfides such as tetrahedrite-tennantite), an oxide (cuprite or tenorite, or as a carbonate (azurite and malachite). Copper probably was not the first metal used by ancient cultures (gold and meteoric iron were likely used first), but copper was the first metal that was smelted from ore to metallic form. The earliest known copper tools and jewelry (a pendant) date back to about 9000 BC. Smelting of copper from chrysocolla and malachite may have originated in southern Israel around 4000 BC. It is likely that lungpower through a pipe was initially used to increase the temperature for forming the alloys, but was soon replaced by crude and then more efficient bellows. Other cultures independently developed smelting techniques for copper. It evolved in China before 2800 BC, in Central America around 600 AD, and in Africa around 900 AD.

Copper has a Mohs hardness of 3.0. Its streak, surprisingly, is uncolored. Unlike most metals that are gray or silver in color, copper is a reddish-orange or pinkish-orange metal when free of oxidation, but changes to a reddish-dark brown color when exposed to air over an extended period. The oxide layer actually protects the copper from further corrosion. However, if the oxide layer is exposed to seawater or seawater mist over a period of many years, it forms a green layer of copper carbonate called verdigris; witness the color of the Statue of Liberty.

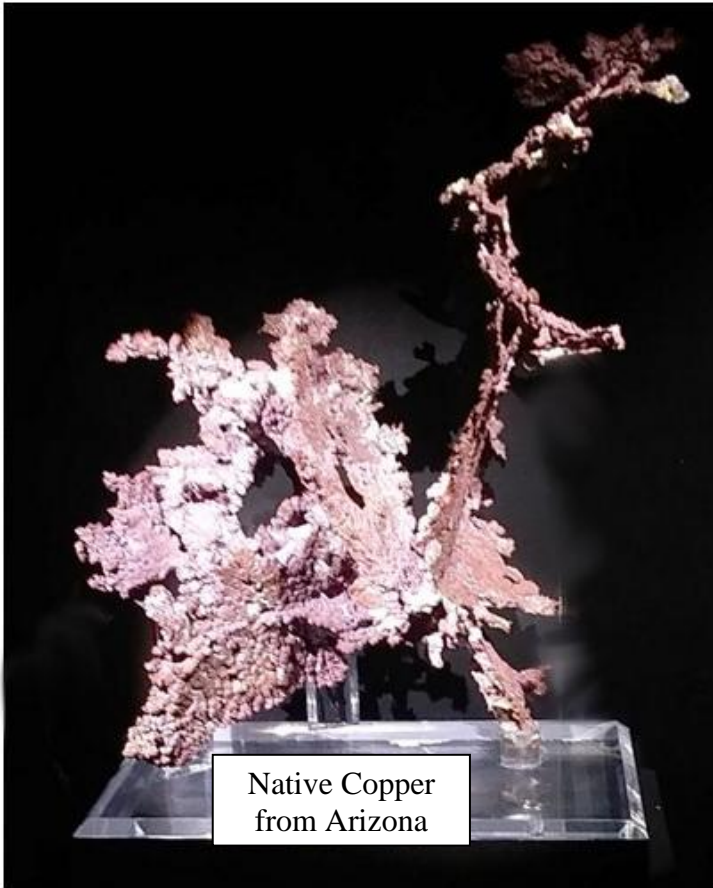
Copper was good for many uses, but at a Mohs hardness of 3.0 it was too soft for such things as arrowheads, knives, axes, and other hunting and war implements (spears, etc.). Some of the copper that was smelted was a bit harder and stronger than other batches – hard enough for use in making knives, war; these were contaminated with zinc and tin. It was



Native Copper
from Michigan

eventually found that the addition of small quantities zinc (to form brass) and tin (to form bronze) to the liquefied copper were the reason some of the smelted copper was stronger. The first recorded instance of adding zinc and tin to form the stronger metals was about 3500 BC. The use of the copper/tin alloy of bronze ushered in the Bronze Age.

Copper derives its name from the Middle English word *coper*, from Old English *coper* or *copor*, from Late Latin *cuprum*, and finally from Ancient Greek *kupros*, which means Cyprus due to the large quantities of the metal, found on the island. The chemical formula for copper, Cu, is derived from the Late Latin *cuprum*.



Copper has widespread uses in modern life. Most house and vehicle wiring is copper. Most electrical motors and generators use copper as their main windings. Copper is still extensively used in modern air conditioning systems as heat exchangers. About 60 percent of the copper currently being produced is used for wires and about 20 percent for plumbing and roofing. Other uses for copper include copper paint to protect ship's hulls to control plant and shellfish growth, industrial machines, as a fungicide in agriculture, and as nutritional supplements.

Lest we forget, some small portion of the produced copper also ends up in jewelry, often alloyed with gold, silver, nickel and other metals as findings and chains. Also, rocks with native copper form interesting pieces for cabochon rings and pendants.

As mentioned earlier, the first copper jewelry was a pendant that dates back to 8700 BC. Copper beads dating back to the same time have also been found. The earliest jewelers to use smelted copper and to cast it were the Egyptians. By 2500 BC, the Egyptian jewelers were making copper crowns and headdresses. They were also making pendants, rings, and just about any other jewelry item you can think of. The Egyptian jewelers were so well respected that pictures of them making jewelry were painted on tomb walls. In the Americas,

early copper jewelry was made from native copper. The earliest jewelry were beads and earrings dating back to about 2500 BC. By the time the Aztec empire was flourishing, copper and gold were being cold hammered and cast using the lost wax technique. To heat the copper for casting, the fire was made hot enough by blowing air through a pipe; bellows were not developed by the Aztec or even the later Native American jewelers. The emigrants coming to the New World introduced Bellows.

References

- The Ancient History of Copper, <https://www.thebalance.com>
- Aztecs at Mexicolore, <https://mexicolore.co.uk>
- Copper and Its Uses in Jewelry, Alari Design, <https://alaridesign.com>
- Copper, Desert USA, <https://www.desertusa.com>
- Wikipedia, <https://en.wikipedia.org/wiki/>

Pictures by Don Shurtz of mineral specimens on display at the Perot Museum of Nature and Science

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 2nd Wed. of each month at 7:00 pm, Brookhaven College, Building H, 3939 Valley View Lane, 75244

[Fort Worth Gem & Mineral Club](#), meets 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 Thur. of each month at 7:30 pm, Garland Women's Activities Bldg., 713 Austin, Garland

[Wild West Bead Society](#), meets 3rd Tuesdav of each month at 6:30. Wild Beads. 2833 Galleria Dr.. Arlington. TX

Shows and Activities – Upcoming Show and Activity Dates

- Oct 4-6, Albuquerque, NM, Jay Pen Expo, NM State Fairgrounds, <http://abqfallsow.wixsite.com/abq-fall-show>
- Oct 5, Rusk, Keith Harmon Yard and Rock Sale, 9116 US Highway 84 WEST, RUSK, TEXAS 75785
- **Oct 5-6, Fort Worth, TX, Rock Fest, Cowtown Gem, Mineral & Glass club, 3300 Bryant Irving Rd, steve.l.shearin@lmco.com**
- Oct 18-20, Houston, TX, International Gem and Jewelry Show, NRG Center, <https://www.intergem.com>
- Oct 11-12, Mt. Ida, AR, 32nd Annual World Championship Quartz Digging Contest, Mt. Ida area Chamber of Commerce, Montgomery County Fairgrounds, www.mtidachamber.com
- Oct 11-13, New Orleans, LA, Louisiana G&MS,
- Oct 11-13, Dallas, TX, International Gem and Jewelry Show, Market Hall, <https://www.intergem.com>
- Oct 12-13, Temple, TX, Tri-City G&MS, Mayborn Civic and Commerce Center, <http://drarhie.wixsite.com/tcgme>
- Oct 18-20, Austin, TX, Austin G&MS, Palmer Events Center, www.agms-tx.org
- Oct 18-20, Houston, TX, International Gem and Jewelry Show, NRG Center, <https://www.intergem.com>
- Oct 26-27, Oklahoma City, OK, Oklahoma M&GS, State Fair Park, omgs-minerals.org
- Nov 8-10, Humble, TX, Houston G&MS, Humble Civic Center, <https://hgms.org>
- **Nov 23-24, Mesquite, TX, Dallas G&MS, Mesquite Rodeo Center Exhibition Hall, dallasgemandmineral.org**

Ref:

- July - August SCFMS News
- SCFMS Local Shows, www.scfms.net
- Rock & Gem Show Dates, <https://www.rockngem.com/ShowDatesFiles/ShowDatesDisplayAll.php?ShowState=ALL>

Bench Tips from Brad Smith

Reprinted by permission of the author, Brad Smith. Received as email from Brad Smith

FOREDOM STAND

A quick and easy way to suspend a flexshaft over your jewelry bench is to use some steel pipe components from the hardware store. You can buy it today, attaches with a couple screws, and only costs about \$10.



I use 1/2 inch galvanized pipe and fittings. To build a stand that attaches to the top of your bench, all you'll need is a flange and a thirty inch

length of the pipe. If you prefer a stand that attaches to the side of your bench, you'll need a little longer pipe, three foot, a flange, and a 90 degree "street elle".



Finally, make a hook that goes into the top of the pipe to hang the motor from. You can use heavy coat hanger wire or 1/8 steel rod from the hardware store.

BROKEN DRILLS

Have you ever broken a drill bit off in a hole? Sometimes you can grab it with pliers, but other times the steel piece is below the surface in the hole. If this happens, a quick fix is to dissolve the steel in a solution of alum or fresh pickle. The solution will not affect your silver or gold piece.

Alum is typically available from a food store. It's used to preserve some foods. Use about a tablespoon per cup of warm water. Submerge your piece so that the partially drilled hole is facing up to let the bubbles float free and not block the hole.

Work Smarter & Be More Productive With Brad's "How To" Jewelry Books

[Amazon.com/author/bradfordsmith](https://www.amazon.com/author/bradfordsmith)



The 32nd Annual Mount Ida World's Championship Quartz Crystal Digging Contest and Gem and Mineral Show

From the September Hot Spring Bulletin, Newsletter of the Hot Springs Geology Club



Arkansas's State Mineral is Quartz Crystal. The Ouachita Mountains are renowned for their abundant high-quality quartz crystal deposits. Mount Ida, the county seat of Montgomery County, Arkansas is known as the "Quartz Crystal Capital of the World"

The 2019 World's Championship Quartz Crystal Digging Contest, in conjunction with the 31st ANNUAL QUARTZ, QUILTZ 'n' CRAFTZ FESTIVAL is Friday, Saturday and Sunday October 11-12, 2019 at the Montgomery County Fairgrounds, Fairgrounds Road, Mt. Ida, Arkansas 71957.

Attention all Rockhounds!!! Come and dig in actual working crystal mines in the heart of the Ouachita Mountains for the two-day dig October 11-12. Entrants may dig at their choice of *Twin Creek Crystal Mine, Upper and Lower Mines*. Meet other miners, learn more about crystals and improve your digging skills. And, who knows, maybe you'll find that crystal you always dreamed about! Register early for the 2019 World's Championship Quartz Crystal Dig.



The winners will share prize money (Prize Money divided between the top winners in each division - Crystal Points and Crystal Clusters) and crystal trophies to First and Second place winners in each division, and they keep all the crystal they dig. The preregistration fee is \$86.25 – \$125. Drawings will be held every day for prizes. We have some nice crystals in the drawings. For info on the World Championship Quartz Crystal Dig, Mineral Show at www.fb.com/MtIdaCrystalDig. Free Admission. Door Prizes.

Safety Matters – Is Safety Enough?

By Ellery Borow, AFMS Safety Chair

A question if I may. Do you think just wearing eyeglasses is enough to protect your eyes? The answer is well, maybe, maybe not.

There is a discussion going around – does wearing seat belts while driving one's car make one feel safer or perhaps more confident about driving? And, if one is feeling safer, more confident, is it possible that with such feelings, one might drive faster or perhaps not as cautiously because of using the aforementioned seat belts? There is a discussion in safety circles as to whether or not the potential of additional risk-taking might mitigate a portion of the safety from use of the belts. Again, this is not a discussion as to whether or not to wear seat belts. Seat belts are well documented as to their benefits in saving lives and reducing injury in motor vehicle accidents. This is, instead, a discussion as to the idea that, in addition to the belts, we should consider how we feel about relying on them to get one out of trouble if it should happen upon us. In other words, seat belts are not the whole answer; they are a complement to all of our good driving practices.

Oh, and of course there are folks who will not change their driving habits one single iota while wearing their seat belts. They will remain as cautious and risk

averse as is their usual nature. They will, as usual, mind the speed limit, will drive just as carefully in the snow even though they have snow tires, and will be just as cautious in every respect.



So where do safety glasses enter this discussion? When one is wearing their safety glasses, are one's hammering actions more dramatic on the chisel? Is one as careful as usual about other people in the area while chisel chips are flying? Might one be as fussy about large flying shards while striking a rock directly with the hammer?

Safety shoes: might wearing safety shoes cause one to be less careful of their footing? One may still lose their footing even while wearing the best of boots. Gloves: gloves should not be counted on to fully protect one's hand during a hammer's mis-strike. One's fingers may still suffer a hurtful pinch right through a heavy glove.

The take away is to remain mindful even though one is wearing or utilizing every item of safety gear available. Try not to let using safety gear override good safety practices; you can do this.

PRESIDENT'S MESSAGE

Ling Shurtz, POGMC President

October is the month we elect officers for 2019-2020. IGEM will be on Friday, Saturday, and Sunday, October 11 – 13 at Market Hall. Set up will be Wednesday, October 9 starting about noon. IGEM tickets have been received and will be available at the October 3, 2019 meeting.

CLUB OFFICERS FOR 2019

President: Ling Shurtz
1st VP, Programs: Carolyn Grady
2nd VP, Field Trips: Open
Secretary: Lee Elms
Treasurer: Del Grady
Editor: Don Shurtz
E-mail: don.shurtz@gmail.com,
L.SHURTZ@gmail.com

MEETING MINTUES

September 5, 2019

POGMC President Ling Shurtz called the September 5, 2019 club meeting to order at 7:30pm.

All of us led the Pledge of Allegiance to the Flag.

Quorum: We have a quorum

Sunshine Report:

- Butch had a skin cancer surgery on his right wrist.
- Patti's status is the same.
- Don has a back problem and will be going for an MRI.

Visitors: We didn't have any visitors at tonight's meeting.

Minutes: We discussed the minutes of the August 2019 meeting as printed in the July 2019 Chips and Chatter. Carol made a motion to accept the minutes. Ling seconded the motion. We voted on the motion and it passed.

Treasurer's Report: Del Grady gave The Treasurer's Report. Lee made a motion to accept the Treasurer's Report. Carol seconded the motion. We voted and the motion passed.

Old Business: IGEM show October 11-13. Plan for set-up at noon on Wednesday, October 9th.

New Business: No new business.

Area shows:

- Oct.4th-6th Albuquerque, NM, Jay Pen State Fairgrounds.
- **Oct.5-6, Ft. Worth, TX, Rock Fest, Cowtown Gem, Mineral &Glass, 3300 Bryant Irving Rd**

Chips and Chatter

Pleasant Oaks Gem and Mineral Club of Dallas, TX

- Oct.11-12, Mt. Ida, AR, 32nd Annual World Championship Quartz Digging Contest, Mt. Ida area Chamber of Commerce, Montgomery County Fairgrounds
- Oct. 11-13, New Orleans, LA, Louisiana G&MS
- **Oct.11-13, Dallas, TX, International Gem and Jewelry Show, Market Hall**
- Oct 12-13, Temple, TX, Tri-City G&MS, Mayborn Civic and Commerce Center
- Oct. 18-20, Austin, TX, Austin G&MS, Palmer Events Center
- Oct. 18-20, Houston, TX, International Gem and Jewelry Show, NRG Center
- Oct. 26-27, Oklahoma City, OK, Oklahoma M&GS, State Fair Park
- Nov 8-10, Humble, TX, Houston G&MS, Humble Civic Center
- **Nov 23-24, Mesquite, TX, Dallas G&MS, Mesquite Rodeo Center Exhibition Hall.**

Note: Contact information at www.pogmc.org

Break

Presentation: Ling Shurtz lead us on an exercise in fabricating a stretchy beaded bracelet with beads that Del brought from home. The beads were all black and of various shapes, sizes, and each one of us had a different looking bracelet by the time we were finished. It was a fun evening.

Ling adjourned the meeting at 8:45pm.

MEETING

Our meetings are the first Thursday of each month starting at 7:30 at the Garland Activities Building. Our October meeting will be on Thursday the 3rd. Our presentation will be a DVD about Metalsmithing.

VISITORS ARE ALWAYS WELCOME

SHOW AND TELL

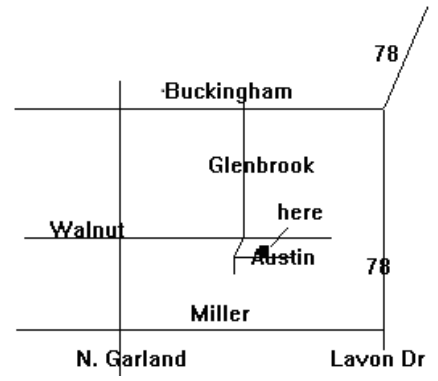
Bring a copper containing mineral or October birthstones, opal or tourmaline.

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Meetings
 First Thursday of each month, 7:30 PM
 Garland Women’s Activities Building
 713 Austin St., Garland, TX
 (Northeast corner of Austin & Glenbrook)

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 Section 501(c)(3) not-for-profit organization

CHIPS AND CHATTER

Pleasant Oaks Gem & Mineral Club
 PO Box 831934
 Richardson, TX 75083-1934

To:

VISITORS ARE ALWAYS WELCOME

Meetings: First Thursday of each month at 7:30 PM, Garland Activities Building, Garland TX
Next Meeting: October 3, 2019- Presentation will be a DVD about Metalsmithing

Features

- Bench Tips from Brad Smith..... 3
- Copper 1, 2
- World Championship Quartz Digging Contest 4

Monthly Columns

- Club and Meeting Information 1, 5, 6
- Minutes 5
- President’s Message 5

Federation Information

- Safety Matters – Is Safety Enough 4

Notices

- Shows and Activities 3
- Visit an Area Club 2
- Copyright Notice 5