



# Smoke Signals



Gem & Mineral Club

June, July, Aug 2015

## Upcoming Events:

**September 12: ROCKFORD, IL** Rock River Valley Gem & Mineral Society Rock Swap. 10 am - 4 pm, Odd Fellows Hall, 6219 Forest Hills Rd., Rockford.  
Contact: John Wood, [gotwood63@gmail.com](mailto:gotwood63@gmail.com)

**September 19-20: CEDAR RAPIDS, IA** Cedar Valley Rocks & Mineral Society Rock Auction. Sat 9 am - 7 pm; Sun 10 am - 4 pm. Amana RV Park & Event Center, 39 - 38th Ave, Amana  
Contact: Marvin Houg, (319) 364-2868; [m-houg@yahoo.com](mailto:m-houg@yahoo.com); [www.cedarvalleyrockclub.org](http://www.cedarvalleyrockclub.org)

**September 25-27: HAMILTON, IL** Worthen Earth Searchers Geode Fest Changing Boat Access, Highway 96 North, Hamilton.  
Contact: Mike Shumate, (217) 491-1075

**October 3-4: SPRINGFIELD, IL** Lincoln Orbit Earth Science Society (LOESS) Annual Show. Sat. 10-6, Sun. 10-5. Illinois Building, Illinois State Fairgrounds, 801 Sangamon Ave, Springfield, IL 62702. Contact: Ed Wagner (309) 838-7782, [LOESSeditor@gmail.com](mailto:LOESSeditor@gmail.com)

**October 10-11: FAIRFIELD, IA** Sac & Fox Lapidary Club Annual Show. Sat 9 am - 6 pm; Sun 9 am - 5 pm. Fairfield Arts & Convention Center, 200 N. Main St., Fairfield. Contact: Betty Morris, (641) 233-0366;  
[elizabethmorris51974@outlook.com](mailto:elizabethmorris51974@outlook.com);  
[www.sacandfoxlapidary.com](http://www.sacandfoxlapidary.com)

**17-18: DES MOINES, IA** Des Moines Lapidary Society Annual Show, Iowa State Fair Grounds, Knapp Animal Learning Center. Contact: Karen Leibold, (515) 205-8875; [kcleibold@aol.com](mailto:kcleibold@aol.com)

**OCT 31-NOV 1: DAVENPORT, IA** Black Hawk Gem & Mineral Club Semi Annual Show. Sat 10-6; Sun 10-3:30 Mississippi Valley Fairgrounds, 2815 W. Locust St., Davenport. Contact Kellie & Craig Moore, (563) 445-3034;  
[kalsinean@gmail.com](mailto:kalsinean@gmail.com)

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## Bench Tips by Brad Smith

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### SOLDERING PRONGS

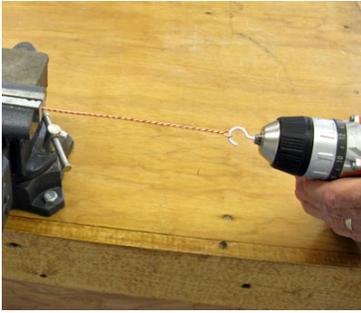
I often use prongs to hold an irregular cab or other object on rings and pendants. But prongs can be a little tricky to solder. You have to find some way to hold them all upright while soldering, and the simple butt joint that looks strong sometimes breaks when you start to bend the prong over the stone. There's nothing worse than having a prong break off when you're setting the stone \*#~\*!

I solved both problems with one little trick. It holds the prongs in position while soldering and it gives you a stronger joint at the same time.

Locate and center punch the position for each prong. Then drill holes a little smaller than your prong wire. Sand a small taper on the ends of your prong wires and stand them up in the holes. The wires support themselves, soldering is easy, and the joint is stronger because of the increased soldering area.

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## TWISTING WIRE



Twisting wire can be done with an old hand drill but goes much faster with a power tool. My preference is to use a screw gun, although a Foredom should do well.

Just make a little hook out of coat hanger wire (or use a screw-in cup hook) and chuck it up in your screw gun. Grip the free ends of the wire in a vice and slip the looped end onto your hook. Keep a little tension on the wires as you twist.

Note that a power drill is too fast a tool for this unless you have one with variable speed.

More Bench Tips by Brad Smith are at  
[facebook.com/BenchTips/](https://www.facebook.com/BenchTips/)  
or see

Get all 101 of Brad's bench tips in "Bench Tips for Jewelry Making" on Amazon  
<http://amazon.com/dp/0988285800/>

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## Silver Discoloration

by Brad Smith

December, 2014

Working with jewelry involves an ever increasing number of skills. Chemistry is one of them that comes into play when dealing with a discoloration on the metal caused by a chemical reaction between it and the environment.

In the case of Sterling silver there are three discolorations we typically encounter: a tarnish, a firescale, and a firestain. Each is different in its cause, in its cure and in its prevention. All three have to do with the metals in the Sterling alloy (92.5% silver and 7.5% copper) and how they react with oxygen and the heat of soldering or with pollutants in the air over the long term.

Tarnish is a grayish coating that builds up slowly on the surface as a result of a reaction of the silver with sulfur-based compounds in the air. Typically these are pollutants from the burning of petroleum fuels, but they can come from other sources as well. I once tarnished all the silver in my display case by putting a pretty specimen of iron pyrite in with the jewelry. Turns out pyrite has sulfur in it! Sulfur combines with the silver to form a grayish silver sulfide film the surface.

Preventing tarnish involves keeping sulfur away from the metal. Plastic bags will help, and anti-tarnish strips are available from jewelry supply companies to pack near your items. Tarnish is easily removed by hand polishing with a jeweler's cloth or with one of the products sold for cleaning the good silverware for holiday dinner.

Another way is to remove it chemically. Put a piece of aluminum in the bottom of a dish large enough to contain your piece. Heat enough water to cover the silver. Mix in 2 tablespoons of sodium carbonate per cup of water and pour into the dish. Be sure the silver touches the aluminum. Sodium carbonate is the main ingredient in washing soda. Read the labels in grocery and hardware stores.

The second type of tarnish is called firescale. It is the dark gray to charcoal colored film that forms on Sterling or other copper alloy like copper or bronze when we heat it with a torch. The copper in the alloy reacts with oxygen in the air to form a dark cupric oxide coating on the surface. Luckily, the oxide is easily removed by dissolving it in a mild acid - generally called a pickle. It's important that we not let firescale form on a solder joint because it will block the flow of solder over the joint.

Prevention can be done two ways. Most common is to use a flux, a borax-based solution applied to the metal before soldering. When melted, borax forms a thin glassy layer that keeps oxygen away from the metal.

# GEOLOGY 101

## Rhyolite

In November I started my Geology 101 article with "New Mexico is blessed with a wide variety of interesting rock types". Then I wrote about limburgite.

This month I want to write about rhyolite which is more of a main-line type of rock. An easy definition for rhyolite is that it is the fine-grained equivalent of granite. Fine-grained means the individual grains are less than 1 mm and often much less. Mineralogically, rhyolites consist mainly of K-spar (K = potassium) with lesser albite, quartz, glass, and a sprinkling of biotite +/- amphibole.

Because the rock cooled quickly, the K-spar in it probably isn't microcline like in granites but rather orthoclase or sanidine. Many rhyolites have a few phenocrysts (larger crystals) of the K-spar. If these are abundant (let's say about 10%), the rock is called a porphyritic rhyolite. Much over 10% and it becomes a rhyolite porphyry. In NM we have a number of rhyolites with sanidine phenocrysts that display schiller (the moonstone effect). This is true for many of the units in the Jemez Mountains but is also found elsewhere.

Rhyolite magmas are very very viscous (sticky, resistant to flow). They also have a relatively high water content. The combination makes for some spectacular eruptions. Yellowstone and Jemez rhyolites did not flow out of the ground ; they erupted catastrophically forming a variety of rock type called ignimbrite.

Imagine, if you will, vast fissures opening in the ground and the hot, molten magma billowing out in massive clouds. Hundreds to thousands of cubic miles of material are expelled in a matter of hours to days! (Sounds like a candidate for a terror movie.) Yellowstone has erupted this way three times now and is overdue for another. When it goes off it will devastate most of the USA's breadbasket and millions of animals and people will perish.

A second way is to do your soldering on a charcoal block. Together with the flame, charcoal greatly reduces the amount of oxygen in the area being soldered. In either case oxygen is prevented from reaching the metal, so no cupric oxide firescale is formed. A second oxide can also be formed when soldering copper or a high copper content alloy like bronze or brass. It's called cuprous oxide and is reddish in color. That's why a black looking piece you put in the pickle sometimes comes out red. Problem is that while the black cupric oxide is dissolved by a pickle, the red cuprous oxide is not. The discoloration can be sanded or polished off, but an easier way is to use a "super pickle". This is a mixture of fresh pickle with a healthy shot of hydrogen peroxide from the local store.

I've saved the worst form of discoloration, firestain, for last. Think of firescale (above) as like getting dirt on your shirt that you have to wash off. Firestain is like getting ink on it. The discoloration is not just on the surface, it seeps down and stains the material. Firestain happens when we heat a piece of silver too hot, too long, and/or too many times.

Firestain occurs when the oxides start to build up below the surface of the metal. You generally don't notice it until after polishing. It appears as a darker area of the surface and is easy to spot when viewed under light bounced off a piece of white paper. Because firestain is below the surface, there's no easy bench tip solution. Depletion gilding may work for some pieces. Otherwise, removing it calls for sandpaper and aggressive polishing.

A much better approach for a piece that will require a large number of solderings is to protect the metal from developing firestain by applying liberal coats of a firecoat. Regular soldering flux will provide some protection but will not be as effective as preparations made specifically for the task.

More Bench Tips by Brad Smith are at  
[facebook.com/BenchTips/](https://www.facebook.com/BenchTips/)  
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Via January 2015, Volume XXIX, No. 1 LOESS Bulletin

Other things the water in the rhyolites can cause are vesicles (bubble holes). And, as the rock cools, vapors escaping from below can deposit minerals in these cavities. Sometimes the crystals in the vesicles are zeolites like those in the Gila area of NM. Other times the vesicles can be partially filled with chalcedony like the desert roses in SW NM. If the hole is coated with layers of agate a geode is formed and many of these contain various kinds of crystals inside the agate layers. And, finally, the holes can be completely filled with agate formed thunder eggs like those of the Baker Ranch area where the AGMC January field trip is going to be held.

**Paul Hlava**



Topaz crystals in rhyolite from Utah.

Via News Nuggets January 2015 VOLUME 62, NUMBER 1

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## (Trying not to be) Bad to the Bone

by **Steve Morse**, LOESS Vice President

40000 years ago or so, a bison died in a cave in Missouri, a sinkhole actually. The Illinois State Museum excavated some sample fossils from that cave several years ago, parts of that bison among them. About a month ago, a horn from that bison lay on the work table in front of me. The horn slumped on a large sandbag with the remains of the plaster jacket in which it had been wrapped for

transport. It was covered with a thin veneer of mud. A plastic bag with clots of mud and bone fragments lay nearby.



Finished Bison horn in the sandbox

I had just started working as a volunteer at the Illinois State Museum Research and Collections Center (RCC) at the beginning of the year. Chris Widga, PhD, and Associate Curator of Geology, directs my work there. Chris is also a paleontologist with a keen interest in Pleistocene mammals, especially those found in the Midwest. After having me work for a few days on updating catalog information and “filing” fossils that had not been put in proper storage, he thought I might be interested in doing some fossil preparation. The bison horn would be my first close encounter with some of the ancient animals that careened about North America during the last few million years.

Chris showed me the tools I would be using to clean the bone: a thin broken dowel rod, a squirt bottle of water, a small paintbrush, and a toothbrush. Primitive tools for primitive bones, I thought. I began the cleaning process by putting a small squirt of water onto an area of dried mud to loosen it, I picked gently with the pointy end of the broken dowel and watched little chunks of dirt flick off the horn. Using this technique on the inside of the horn was especially painstaking. The interior of the horn is filled with sinuses that are separated by thin, and now particularly fragile, walls of bone. Not much pressure is needed to break a piece of these walls, so some do not get as clean in order to save their integrity.

The bag with the other debris from the excavation of this horn contained various fragments of the horn that had broken off sometime long ago. They too were covered in lumps of dried mud. Actually, a few clumps held nothing but mud, but I didn't know that until carefully breaking apart each one.

The next step was to consolidate the bone, make it more stable for handling and preservation. The consolidation process involves a powdered resin that is mixed with a solvent to make a clear, low viscosity liquid. The consolidant is applied with either a brush or a baster. It seeps into the pores and cracks where the solvent evaporates and the clear resin helps bind the material. The fossils needed several coats, as did the fragments, to stabilize them and prevent further deterioration.

Once the horn was stabilized, I fitted together some smaller bone fragments, like working a jigsaw puzzle. These I glued together with an adhesive that is compatible with the consolidant. After that, these were glued back on the main body of the horn where they fit on the basal end, the end that attaches to the skull. Chris was pleased because re-attaching the fragments will give the museum more accurate measurements. I also found the very tip of the horn, but it was too weathered to reattach. All the dirt that came with the horn is bagged and labeled for future study, possibly ancient pollen, to help add further knowledge about the ecology and environment at the time. I must admit, that I took some pride and felt some ownership in the finished preparation.

Altogether, my part of the project took about 30 hours. It was time well spent, as anyone who has done this sort of work can tell you. The horn itself

will be cataloged with its pertinent data, and may eventually become part of a new exhibit at the museum.

Since then, I have been able to work on several different kinds of animal parts: moose jaw, early horse bones, proboscidean bones, all of which were donated by collectors. There are parts of



Cleaning the horn while it is supported by bags of sand



Hand with stick in it. Cleaning the smaller pieces three tusks that I am cleaning and stabilizing. These came from a quarry near LaSalle-Peru and were actually discovered in the overburden as it was being removed to reach the rock. A mastodon jaw is having some bits of tooth and bone re-attached and is nearly finished. Eventually, Chris would like to get an air scribe station set up, so the museum can work on more detail with fossils set in rock.

Through all this, working with Chris Widga has been extremely educational, and pleasurable. I am learning every day about a distant past when these bones carried live, wild, and now extinct, animals all over this continent. I am learning skills from Chris that fit right in with my rockhound mentality. Frankly, every person I have encountered in the volunteer process at the museum has given me a reason to smile. The

experience is fulfilling. And there is a lot to be done in all museum areas. The pictures accompanying this article are ones that I took during the preparation process of the bison horn. Also, there are a couple pictures of the mastodon fossils. Big teeth!

LOESS Bulletin 2015, Volume XXIX, No. 2



Mastodon tooth from LaSalle- Peru area quarry

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## Meaning & Powers of Gemstones

by Eydee Schultz

Everyone wears a bracelet sometime - whether a baby name bracelet stating if you are a girl or boy; a good luck colored rubber band (in style now) naming various charities or sayings; a friendship beaded or leather/ colored thread bracelet or a major piece of jewelry or fun beads. I thought I would start a new column concentrating on the origins/ meanings/ healing properties of bracelets (could also be other jewelry or your collections of beads, gems or rocks). Thanks to Ed who OK'd this, the focus of the column will be FUN! He always looks for material for the newsletter so I thought I would help out. A couple gemstones will be featured each month.

Sometimes, for a change, I will add in an obscure nut, seed or type of wood. Each month you will read about 1-3 gemstones-- depending on how long the explanations are.

I will begin by taking my writing from a paper I received from a wonderful woman I met, who makes her own lovely bracelets, each with its own special meaning/power. I thank her for giving me her knowledge and research. The listings in LOESS Bulletin were going to go in alphabetical order, but its more interesting if you never know what is coming next! By the way, I do realize that there are multiple healing properties and meanings for the same stone, so don't call to tell me I am wrong. This is all in fun and I invite you (in the subsequent newsletter) to write in your own meaning or experience with the previous month's selections. So here we go...

**Hematite:** (In honor of our fearless leader Ed, as he nears his nuptials this summer) Hematite is a mineral that has excellent cooling and calming energy, as well as being a powerful aid to stimulate the mind and enhance memory. This stone is also known to create a protective environment and promote relationships of love, balance and peace. (We all wish Ed and Beth, his bride to be, lots of hematite....)

**Rose Quartz:** With its gentle pink essence, Rose Quartz is a stone of the heart. It is the crystal of unconditional love. It carries a soft feminine energy of compassion and peace, tenderness and healing, nourishment and comfort. (Again, we wish Ed and his fiancé lots of Rose Quartz.)

Look for more next month and remember, write in your own belief or experience with these 2 minerals in the July newsletter. Let's make this interesting and interactive. After this month, this column will be short and allow for your input (hint, hint...)!

Have a great time with Gems,  
Eydee Schultz

VIA LOESS Bulletin June 2015, Volume XXIX, No. 6

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## 2015 Officers and Directors

|                   |                 |                |
|-------------------|-----------------|----------------|
| President         | Craig Moore     | (563) 445-3034 |
| Vice President    | Brett Henderson | (309) 626-0107 |
| Treasurer         | Kellie Moore    | (563) 445-3034 |
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| Youth Group        | Vacant             |                |
| Rock Show Chair    | Kellie Moore       | (563) 445-3034 |
| Rock Show Co-Chair | Craig Moore        | (563) 445-3034 |
| Scholarship        | Board of Directors | (563) 445-3034 |
| Bulletin Editor    | Kellie Moore       | (563) 445-3034 |
| MWF Liaison        | Vacant             |                |

The purpose of this non-profit organization is to promote interest in collecting, studying and working with gems and minerals and fossils. Organized in 1955, the Black Hawk Club joined the Midwest Federation of Mineralogical & Geological Societies in 1959. It is also a member of the American Federation of Mineralogical Societies. Meetings are held on the third Wednesday of every month, September through May at 6:00P.M. in the Hauberg Civic Center, 1300 24th Street, Rock Island, IL. Picnics are held at various locations during June, July, and August. Annual Dues: Individual Membership: \$15.00, Senior Couples: \$12.00, Senior Individual: \$10.00, Family: \$20.00.

### Newsletter Submissions:

Please send submissions for publication (announcements, photographs, notes, letters, articles, etc.) in the Smoke Signals newsletter to the Editor no later than the first day of the previous month. For example, August 1 for the September issue. Advance items are appreciated. Material may be e-mailed to Kellie Moore at kalsinean1@aol.com, or submitted via the U.S. Mail:

**Kellie Moore**  
**718 Franklin Ave**  
**Davenport, IA 52806**

If e-mailing an article, it may be included within the body of the e-mail message or sent as an attachment.

Copyrighted material submitted for publication must be accompanied by a written release from the copyright holder. All material submitted is subject to editing. No anonymous submissions will be considered; however, the submitter's name will be withheld or a pseudonym may be used at the submitter's request. The deadline for all submitted work is the 20th of the month before it is to be published. Late and/or unused entries may be published in later issue.

**Looking forward to receiving an article from you!**

**Editor:** Kellie Moore 718 Franklin Ave, Davenport, IA 52806.

**Disclaimer:** The conclusions and opinions expressed in Smoke Signals are those of the authors and do not necessarily represent those of the Officers, Editor, or members of the club.

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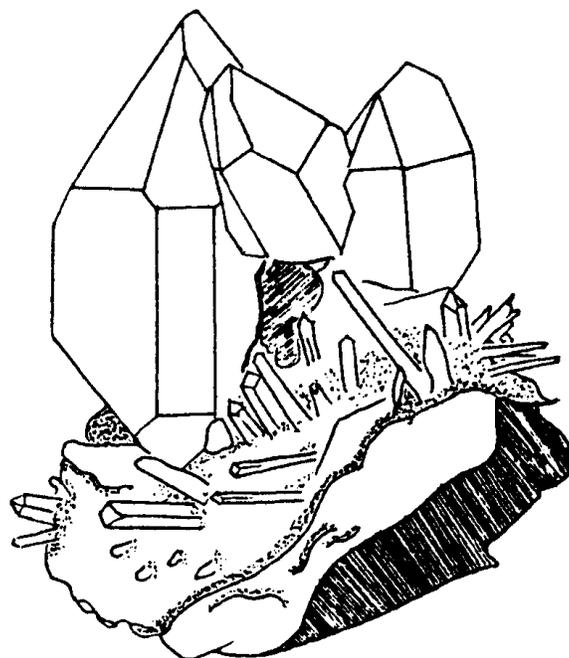
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# *Smoke Signals*



**Black Hawk  
Gem and Mineral  
Club, Inc.**

## **Summer 2015**

**Volume 60    Number 5**

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