

St. Croix Rockhounds  
Doug Olson, Editor  
211 Interlachen Way  
Stillwater, MN 55082



December 2008

**First Class**

Please send exchange bulletins to:

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211 Interlachen Way  
Stillwater, MN 55082



December 7th – Party at Larry  
Dorau’s house in Star Prairie, WI



St. Croix Rockhound’s  
**LEAVERITE NEWS**

Vol. 33, Issue 10; December, 2008

Member of:



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# ST.CROIX ROCKHOUNDS

**MEETINGS:** Club meetings are held the third TUESDAY of each month, at Stonebridge Elementary School on W. Elm. St. in Stillwater, MN at 7:15 P.M.. Everyone is welcome.

**MEMBERSHIP:** Full membership for a single person over 16 is \$7.50 per year. Family membership is \$10.50 per year.

## OFFICERS:

President	Pete Rodewald	(715) 425-5561
Vice President	Brad Bonse	(651) 439-6832
Secretary	Doug Olson	(651) 430-9035
Treasurer	Victor Martinsen	(715) 247-3700
Program Committee	Mark Rasmussen	(651) 275-0607
	Bill Cordua	(715) 425-9544
	Victor Martinsen	(715) 247-3700
Show Committee	Bill Cordua	(715) 425-9544
Refreshments	Freya Kask	(651) 777-6371
Librarian	June Young	(651) 429-3887
Historian	John Parsons	(651) 257-2724
Sunshine Committee	Marie Newlander MN	(651) 439-7809
Tour Director	Susan Dustin	(651) 430-3933
Liaison Officer	Freya Kask	(651) 777-6371
Newsletter Editor	Doug Olson	(651) 430-9035

The purpose of our organization is to bring together rock and mineral enthusiasts on a regular basis through membership and through pooling of individual knowledge, talents and skills, to improve the lapidary skills of participating members. Affiliation: American Federation of Mineralogical Societies and Midwest Federation of Mineralogical and Geological Societies.

**COMING UP!** - St. Croix Rockhounds will meeting will meet for a X-mas party at Larry Dorau's house at 31 Highway 65, Star Prairie, WI. It's one mile north of Star Prairie; first driveway on the left (west) on the curve of highway 65. There is a "31" on the mailbox, but it's reportedly hard to see. You may bring prizes and gifts as you wish but keep it under \$5. The party starts at 1pm and it's potluck. See page 4 for the map.

## COMING ATTRACTIONS

**December 7<sup>th</sup>:** St Croix Rockhounds x-mas party at Larry Dorau's house

**December 13-14<sup>th</sup>:** Anoka County Gem & Mineral Club Winter Show at the Eisenhower Community Center, 1001 Highway 7, Hopkins, MN

**January 20<sup>th</sup>:** St Croix Rockhounds club meeting at Stonebridge Elementary School.

**Fed 28-Mar 1:** Anoka County Gem & Mineral Club pre-spring show at the Har Mar Mall

**May 16-17:** Mid West Federation Show in Parma Ohio

**July 18-19<sup>th</sup>:** Agate Days

**July 30-Aug 1:** AFMS/NWFS show in Billings, Montana



## Minutes of the St Croix Rockhounds November 18<sup>th</sup>, 2008

The meeting was called to order by president Pete Rodewald at 7:20 with 30 members present.

**October Minutes** were approved as published in the November Leaverite News.

**Treasurer's report** was approved as presented by treasurer Vic Martinsen.

**Show Report:** Bill Cordua passed on via Pete Rodewald that the club's Spring Show date of April 4<sup>th</sup>, 2009 at the Valley Creek Mall is now "ironclad".

### Old Business

**X-mas party** and December meeting will be at Larry Dorau's house at 31 Highway 65, Star Prairie, WI. It's one mile north of Star Prairie; first driveway on the left (west) on the curve of highway 65. There is a "31" on the mailbox, but it's reportedly hard to see. You may bring prizes and gifts as you wish but keep it under \$5. The party starts at 1pm and it's potluck. See page 4 for the map.

**Pete's offer** of \$9 each for the old club show tables was approved. He is buying 20 of the tables and Cheryl Kopp is buying one table at that price.

**Pete's agate** wasn't iris but he found a sliver of a Lake Superior agate that was. Apparently it is unusual for a Laker to iris.

**New Business:** Redesigned club patches are ready, they can be bought from Vic Martinsen for \$5 each. An example can be seen on the cover of this newsletter.

**Field Trip:** Susan Dustin is organizing a field trip to a quarry near River Falls to look for Septarian nodules (and whatever else). Pete Rodewald showed an example he found there which he had broken open to look for a fossil.

**Tonight's program** is a slideshow presented by Pete Rodewald of fluorescing agates, photos which he has taken.

**Meeting adjourned** at 7:52 pm.

**Submitted by** Doug Olson, secretary.

**Celebrate:** December's birthstone is Blue Topaz. As cool and inviting as a blue lake on a blistering summer day, December's birthstone is derived from the Sanskrit word "tapas," meaning fire. This is because Blue Topaz was considered by ancient civilizations to have cooling properties. Not only was it believed to cool boiling water when thrown into the pot, but to calm hot tempers as well! This gemstone was credited with many other healing powers, among them the ability to cure insanity, asthma, weak vision and insomnia. The Blue Topaz was even thought to have magical properties in its ability to make its wearer invisible in a threatening situation. Blue Topaz is the hardest of the silicate minerals.

While pure Topaz is colorless, minor changes of elements within the stone result in a variety of other colors, such as blue, pale green, red, yellow and pink. The blue hue is created when Topaz is heated, whether the heat source is natural or engineered by man. The three shades of Blue Topaz are Sky,

Swiss and London Blue. The latter is the deepest blue and is often used as a less expensive substitute for Sapphire. Topaz is found primarily in Brazil, Nigeria, Sri Lanka, Mexico, Pakistan, China, and the United States. A gift of Blue Topaz is symbolic of love and fidelity.

An **alternate birthstone** for December is the Turquoise. So named because it was initially brought to Europe by way of Turkey, this stone is one of the first gems to be used in jewelry.

Turquoise was considered by ancients to be a sacred stone, protective against all manners of evil and ill health. This beautiful gemstone is mined in Iran and the southwestern United States. A gift of Turquoise represents friendship and luck. *from About Birthstones via Polished Slab 12/06*

### December birthdays:

Eloise Kimball - 1<sup>st</sup>

Robert Olson - 8<sup>th</sup>

Brad Bonse - 31<sup>st</sup>

Sandy Dustin - 31<sup>st</sup>

### December Anniversaries:

Avis & David Klinkhammer - 28<sup>th</sup>

Dave & Wendy Flynn anniversary - 29<sup>th</sup>

## History of Metallic Mining in Wisconsin by Michael J. Keane published in Wisconsin Briefs 00-15

### Lead and Zinc Mines – c. 1820-1979

The practice of mining metallic minerals in the Wisconsin region predated statehood by several centuries. French explorers in the 1600s reported that Native Americans in the area decorated themselves with galena, a mineral associated with lead deposits, and French Canadian Julien Dubuque ran mining and smelting operations on the Iowa bank of the Mississippi River in the late 1700s.

Mining activities began in earnest in the 1820s, when lead miners from Illinois and Missouri came north in search of fresh “diggings.” The crude methods used by these miners, as they excavated shallow pits in search of easily accessible lead and occupied them during the bad winter months, earned Wisconsinites their “Badger” nickname. Lead mining, which was concentrated in the southwest corner of the current Wisconsin boundaries, was the major economic activity of the Wisconsin Territory at the time of its creation in 1836. Lead deposits attracted miners from the

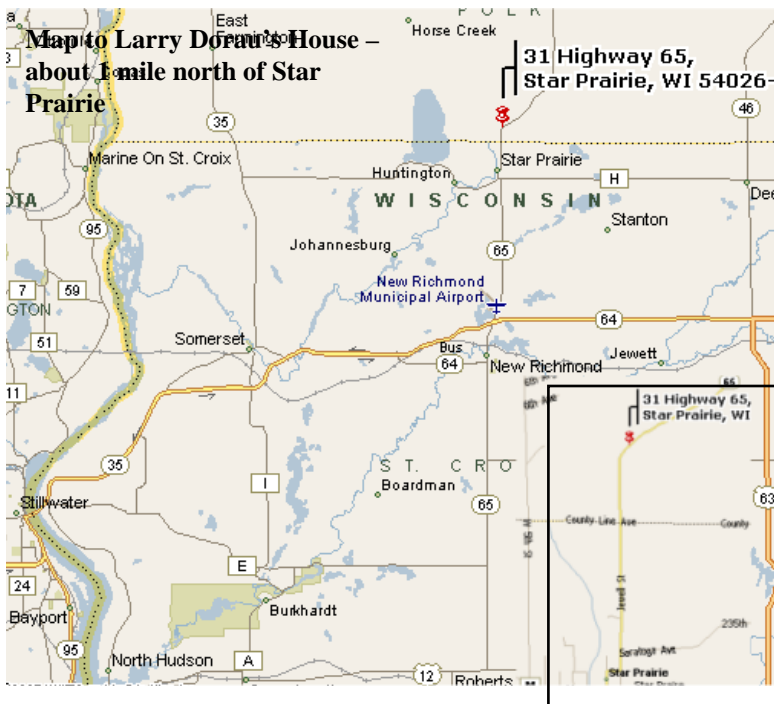
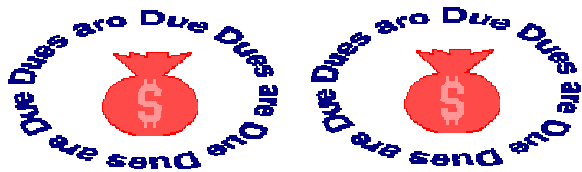
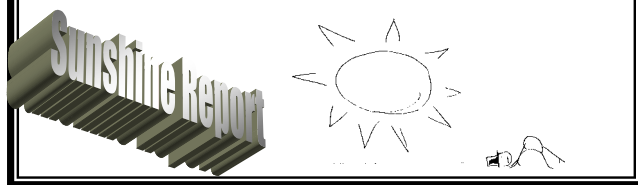
Eastern states and Great Britain to the territory during the 1830s and 1840s. When Wisconsin became a state in 1848, the image of a miner was included in the state seal in recognition of the important role the industry played in the new state. However, just months before Wisconsin’s admission to the Union, gold was discovered in California. Gold’s lure was irresistible to Wisconsin’s miners, and their departure for the West gradually caused the eclipse of lead mining in the 1850s. It would never regain its premier place in Wisconsin’s economy.

Zinc had been a less desirable by-product of lead mining in Wisconsin’s early days but, beginning in the late 1850s, it became the state’s leading metal product. Like lead, zinc was concentrated in the southwestern part of the state, and its fortunes waxed and waned with the economy and its market price. The peak year for zinc mining in Wisconsin was 1917, when over 59,000 tons were mined. Wisconsin remained one of the leading zinc producing states until the 1970s. Wisconsin’s last zinc mine closed at Shullsburg in 1979 due to low prices.

### Iron Ore Mining – c. 1880-1965

Iron ore was identified in Wisconsin as early as the 1840s. Deposits were found at various sites, including the Baraboo Range, Ironton, Mayville, Florence, and Black River Falls, but the majority of Wisconsin’s iron ore was mined in the Gogebic Range, near the Michigan border and Lake Superior.

For those who wish to send a note of sympathy, Dave Klinkhammer’s address is: 2085 E. Hawthorne, St Paul, MN 55119



**History of Metallic Mining in Wisconsin continued...** Many of the mines were concentrated in Iron County. The Gogebic Range began to produce ore in the 1880s and remained active for 80 years. The surrounding areas soon became economically tied to iron. Ashland, for example, was the port from which much of Wisconsin's ore departed for steel mills in other Great Lakes cities. Production peaked in 1906 when over 2 million tons of iron ore was mined in Wisconsin. Output dwindled during the Great Depression, but defense needs and post-war demands drove the industry in the 1940s and 1950s. Beginning in 1939, Wisconsin produced at least 1 million tons of iron ore for 19 consecutive years. Toward the end of that period, an economic recession and the exhaustion of high-grade ore deposits caused a gradual decline. The last iron ore was taken from the Gogebic Range in 1965.

### **Taconite, 1968-1983**

Taconite is a low-grade iron product found in the vicinity of purer ores. As the high-grade iron ore in Minnesota, Michigan, and Wisconsin was exhausted, mining companies began to devise ways to refine taconite into a salable product. Typically, it is refined near the point of extraction into pellets containing around 60% pure iron and then shipped to processing facilities some distance away. Wisconsin's only taconite mine was opened in Black River Falls in 1969, shortly after the state's last traditional iron mine closed. The mine produced around 300,000 tons of ore per year for shipment by rail to mills in Chicago. Declining prices and a depressed economy led to the closing of the Jackson County mine in 1983, several years earlier than scheduled. This marked the end of iron production in Wisconsin for the foreseeable future.

### **Sulfide Ore Bodies, 1969 – Present**

During the 1960s, geologists realized that ancient sulfide formations often contained large amounts of copper, zinc, and other valuable minerals. Through magnetic readings from the air and on the ground, it was determined that formations of this type are common in the northern third of Wisconsin. Test drilling in the 1970s revealed numerous deposits of copper in sulfide deposits throughout the northern part of the state.

Extracting valuable minerals from sulfide formations presents environmental challenges not associated with other types of mining. When exposed to air, the sulfur that is extracted with the valuable ore releases acid that can contaminate local waters. It is this danger that makes sulfide mining more controversial. Despite the promising ore deposits in Wisconsin, volatile mineral prices and public opposition have combined to limit the extraction of minerals from sulfide ore bodies. Only one such mine, the Flambeau Mine near Ladysmith in Rusk County, has been opened. This mine, which was opened in 1993 and operated until 1997, produced over \$500 million worth of copper, zinc, gold, and silver.

Much of the controversy about sulfide ore mining has focused recently on a proposed mine in the Town of Nashville near Crandon in Forest County. This site has been described as one of the richest copper deposits in North America, but its location near the Wolf River has raised the fears of mining opponents that acid leaking from tailings (waste rock) will contaminate the river, which is noted for its pristine character and scenic beauty.

Although the Crandon mine has received the lion's share of the attention from environmentalists, legislators and state regulators, numerous sulfide ore bodies in Wisconsin may be suitable for mining, and exploration by mining companies is ongoing. Modern mining is a capital-intensive endeavor, so the viability of each site depends on the richness of the deposit, the difficulty in extracting the ore, and the price of the metals in question.

Geology: where subduction always leads to orogeny!

We Dig Mother Earth



## LAPIDARY POLISHING COMPOUNDS

by Hale Sweeny from *Stoney Statements* 11/08

A complete group of polishes for lapidary applications from inexpensive tumbler to the best quality gemstone polishes that bring up a bright, high shine of gems. For economy, dedicate a buff, lap pan or barrel to a particular polish and simply recharge with fresh polish as required to maintain effectiveness.

**Cerium Oxide**—the best gemstone polishing compound for most uses, a mixture of rare earth oxides rich in cerium oxide. Best with opal, agate, quartz, obsidian, etc and not as effective with very soft material or stones that tend to undercut. For lap or tumbler mix with water and apply the paste to your buff.

**Micron Alumina**—a 5 micron polishing powder developed for computer disks. It is the best polish for sea shells, pretty good for soft stones such as Malachite and Onyx and excellent as a pre-polish in vibrator tumblers and laps but not rotary tumblers.

**Aluminum Oxide, MAP**—preferred by many to Linde A, this is a slightly faster and more economical rare earth polish that we call Miracle Atomic Polish.

**Zirconium Oxide**—a rare earth polish that is especially good for tumblers and laps. The most economical effective polishing media. White and will not discolor gemstones.

**Linde 'A'**—tremendous favorite with gem cutters whether faceting or polishing cabs. Relatively expensive, you should consider polishing the stone then giving it a quick hit with Linde A to attain a super polish. Available as powder to mix with water or an emulsified cream with the consistency of hand lotion that does not separate in solution.

**Oxalic Acid**—used for polishing carbonate type onyx when mixed with another polish such as Tin Oxide. In a strong solution with water, it is used to clean iron stains from specimens, i.e. Quartz. Mix with hot tap water by stirring in oxalic crystals until the water is supersaturated and will not dissolve any more. Crystals forming along the sides of the container indicate a saturated solution and should they disappear, you need to add more. Warning: While this is a relatively mild acid all precautions must be taken to keep it out of the eyes, mouth, etc.

## Marcasite - Pyrite's Evil Twin

by Dr. Bill Cordua, U. Wisconsin- River Falls

Marcasite and pyrite are two common minerals. Both FeS<sub>2</sub> chemically, making them polymorphs. Polymorphs are minerals with the same chemical composition but different crystal structures. Diamond and graphite are polymorphs, both minerals being pure carbon. In diamond and graphite the different arrangement of carbon atoms gives these two minerals of very different physical properties. Pyrite and marcasite, on the other hand, have almost identical physical properties, making them tough to tell from each other.

Let's go through their properties. Both are metallic and pale yellow to brassy yellow. Both can tarnish and be iridescent. Both are 6-6.5 on the Mohs' hardness scale. Neither have a particularly prominent cleavage, although marcasite does have one that occasionally shows up. Both have densities of about 5 grams per cubic centimeter (pyrite is a bit denser, but not enough to be detectable without delicate measurements). They can even be found together in the same rock.

Fortunately these minerals often show good outer crystal shapes that are quite different. Pyrite crystals are generally equant, and dominated by cubes, octahedrons and 12-sided pyritohedrons. Marcasite crystals are usually rectangular (tabular) with wedge-shaped ends and tend to form in star shaped, radiating or cockscomb groups. Marcasite is also much more restricted in occurrence than pyrite, forming only in low temperature, near surface, very acidic environments. It is found in some ore deposits, in sediments formed under somewhat stagnant conditions and as ground water precipitates in rocks such as in limestone and shale. Although pyrite can also be found in many of these same environments, the crystal shapes are diagnostic. On a local note, small marcasite

*Continued on the next page...*

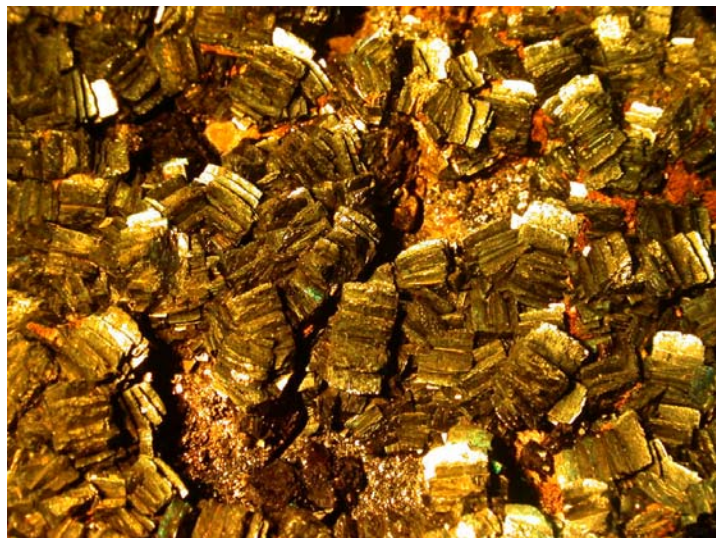
Continued from previous page.... and pyrite crystal groups occur in the dolostone bedrock up and down in the Mississippi River in Wisconsin and Minnesota. These minerals, however, have been replaced by goethite (iron hydroxide) so are brown, not bright and brassy.

Why do I say marcasite is "pyrite's evil twin"? First, jewelry sold as "marcasite" is really polished pyrite. From a marketing sense, pyrite is often associated with the term "fool's gold" and who wants jewelry made out of that? "Marcasite" sounds much more glitzy, even though it too is a type of fool's gold. The second reason is marcasite's propensity to break down fast when exposed to the air. Over time marcasite specimens, if unprotected (and sometimes even if protected) will break down to a crumbling mass of white to yellow iron sulfates, leaving a stain on your shelf caused by weak sulfuric acid. I've heard various explanations for this. It may be due to inorganic reactions involving oxygen and moisture in the air. Some contend that marcasite is great food for certain bacteria that metabolize the sulfide rapidly and cause its breakdown. The marcasite from Wisconsin's lead-zinc mining district is notorious for this. You can get a faint whiff of sulfur rich fumes when you examine samples from this region. I was afraid to move a sample on display in the Geology Museum at U.W. - Madison that I wanted photographed by Pete Rodewald (see photo below) because I was sure it would crumble to a million pieces. This is one reason why specimens from this region are not as widely collected as from, for example the Viburnum Trend or the Tristate district of Oklahoma-Kansas and Missouri. Some pyrite is susceptible to this decay; in fact the condition is sometimes referred to as "pyrite disease". On the other hand, some marcasite stays stable in collections for decades. I personally wonder if a lot of stable "marcasite" may actually be pyrite pseudomorphs (replacements).

I've tried several preservation modes. I've sprayed samples with clear Krylon, but the sample's appearance is compromised and eventually the decay comes through so the

samples just fall apart slower. I've also tried soaking the samples in ammonia to neutralize the acid and kill off bacteria, then rinsing and drying them thoroughly and keeping them in a very dry environment. On the web you can read about other strategies, such as storing marcasite specimens permanently immersed in water to keep out oxygen.

As for "marcasite" jewelry, you can see why you don't really want to wear true marcasite beads! Your skin moisture would speed the decay process. The yellow powdery stains on your skin would be definitely embarrassing, but the stings of sulfuric acid burns could be downright painful.



**It's that time again folks. Time to step forward and claim your place as one of the 2009 Officers. The Selection committee will be calling around to get some ideas but please come forward to place your own name into the list.**



## Stolen Gems *St Croix Rockhounds Leaverite News*

**The best thread for beads** depends on what the beads are. Use strong, not-abrasive resistant silk on nonabrasive beads such as pearls, turquoise, mother-of pearl, and lapis. Use abrasive-resistant nylon on beads such as onyx, metals, and quartzes. Before using nylon, pre-stretch overnight with a weight. *from Backbender's Gazette 12/08*

**Renovate brittle dop wax** by adding a piece of bees wax the size of a pea to 1/4 pound of dop wax. Try cementing three pieces of tiger eye together so that the grain of one piece is perpendicular to the next. Cabochons and other stones can then be cut with interesting chatoyancy effects. *from Backbender's Gazette 12/08*

**Wire Wrapping Tip—Using Braided Wire** by *Frankie Mayo* - Several of you have seen some of the wire wrapped cabochons I've done with wire that looks as if it were braided. It's a simple technique to get that particular effect; the only thing that one has to be careful of is when bending it. *Slow and easy* keeps the braid from breaking.

Twist 2, 3, or 4 strands of wire together. Using a small hammer and anvil, place the twisted wire on the anvil, then gently flatten with the hammer.

Now use it as the center of a bail or as a replacement for the two strands of wire around the edge of a cabochon when wire wrapping. With a little creativity, it could be used in silversmithing. *Midland Gem & Mineral Society Newsletter 9/07 via Backbender's Gazette 11/08*

**Removing Lacquer:** Ever want to remove a lacquer coating from an otherwise nice piece of lapidary material? Want to avoid using harsh chemicals? Here is a tip for you. Obtain some apple cider vinegar, the brown colored kind. Submerge the lacquered object in it, leave for a week, then remove and scrape off the lacquer with your thumbnail or other appropriate blunt tool. Repeat if necessary. *by Mary Jane Dunn, via the Breccia 4/2008, Arrowhead News 4/2008 via Backbender's Gazette 12/08*

**To get a good polish on gypsum spheres**, use an old pair of nylon pantyhose doubled up and stretched over the sphere cutter heads. Hold it in place with rubber bands. Polish with cerium oxide. Use the nylons to hand-polish sculptures after sanding with 1000 grit sandpaper. It also works for talc (soapstone) sculptures. *from Chats and Chips, 4/2007 and The Rockpile 7/2007 via Backbender's Gazette 10/08*

**Rubbing alcohol** removes most ink marks from slabs, cab blanks, or gem material. If that doesn't work, try denatured alcohol (alcohol lamp fuel). Clean up well afterwards so you and your materials don't catch on fire. *from Chats and Chips, 4/2007 and The Rockpile 7/2007 via Backbender's Gazette 10/08*

**Freshen pyrite and marcasite** by soaking them overnight in a solution of oxalic acid. Use two ounces of dry acid to a quart of water. *from News & Views 12/1998 via Gem Cutters News 6/2008 via Backbender's Gazette 08/08*

**Plain steel blades** or blades that have had the diamonds worn off can be used to saw softer materials such as malachite, turquoise, azurite and others. *from News & Views 12/1998 via Gem Cutters News 6/2008 via Backbender's Gazette 08/08*

**To remove stain** from quartz and agate, try this: dissolve 2 teaspoon potassium permanganate in a pint of water. Strain the mixture through cheesecloth. Let the specimen soak in the solution overnight. The purple color that forms on the specimen will be removed by the cleaning solution. *from News & Views 12/1998 via Gem Cutters News 6/2008 via Backbender's Gazette 08/08*

**Get more out of your tumbling** by adding specially shaped stones to your regular stones. Hearts, crosses, and elongated triangles made by cutting a rectangular slab across the diagonal are some of the possibilities. *from Owyhee Gem via Backbender's Gazette 07/08*