

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



October, 2007

First Class

Please send exchange bulletins to:

Doug Olson, Editor
211 Interlachen Way
Stillwater, MN 55082

October 16th – Program
is: ...to be determined



St. Croix Rockhound's

LEAVERITE NEWS

Vol. 32, Issue 8; October, 2007

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	Lin Rawlings	(651) 735-4691
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! - October 16th: St. Croix Rockhounds club meeting will be at Stonebridge Elementary School on W. Elm. St. in Stillwater, MN in the cafeteria. Meeting time will be 7:15 pm. The program is: “???”.

COMING ATTRACTIONS

October 16th: St. Croix Rockhounds annual Silent Auction at Stonebridge Elementary School in Stillwater, Minnesota.

October 20-21st: Minnesota Mineral Club show at the National Guard Training & Community Center, 8180 Belden Blvd, Cottage Grove, MN. For info call Alan Olson 612-729-8331.

October 27-28th: Black Hawk Gem & Mineral club show at Mississippi Value Fairgrounds 4H building, 2815 Locust St., Davenport, IA. Call 309-796-0616 for info.

November 17-18th Dinosaur Daze, 1-4pm, free family dinosaur activities at Kenosha's Public Museum and Dinosaur Discovery Museum in Kenosha, WI.

December 8-9th: Glacial Drifters 3rd annual show in Sheboygan Falls Municipal bldg in Sheboygan Falls, WI. Contact Kevin Ponzio at 920-980-6413 for info.

December 15-16th: Anoka county Gem & Mineral Club show in Faribo West Mall, Faribault, MN

May 17-18th: Wisconsin Geological Society Gem, Mineral and Rock Show at the Muellner Bldg In Hart Park in Wauwatosa, WI. **June 20-22, 2008:** MWF convention in Lincoln, NE.

Minutes of the St Croix Rockhounds September 18th, 2007

Meeting was called to order by president, pro tem Vic Martinsen (Pete Rodewald is ill) at 7:19 pm.

Treasurer's Report-Lin Rawlings treasurer's report was approved as read. We do not have a room reserved for the Nov/Dec meeting nor for March as the school is closed on those days.

Minutes of the May meeting were approved.

Guest tonight: Bob Schumacher

Program Committee: no report

Show Committee: Valley Creek Mall has invited us back for next year's club show which has been tentatively scheduled for March 15, 2008.

Sunshine- Phyllis White is no in Good Samaritan. June Shalander needs surgery on her other hip. Brad Bonse inhaled some nasty ag chemicals at work and is out of action for a while.

Refreshments- Marie Newlander and Joe Moore brought goodies for tonight. Helen Betlach and Sue Dustin have volunteered to bring something for October.

Library: June has nothing to report.

Field Trips-Susan Dustin wants to schedule day trips to gravel pits near member's houses.

Old Business - none

New Business – none

No door prizes tonight

The meeting was adjourned at 7:28 pm for the program "SILENT AUCTION"

Submitted by Doug Olson, secretary.

Celebrate! October's birthstone

is opal: Does wearing Opal if it is not your gemstone will bring bad luck to you? in 1829 ,Sir Walter Scott published *Anne of Gerstein*.

In this book the main character dies and her death is attributed to the wearing of opal. The question is: Was the book inspired by folklore or did the book create the folklore? The multicolored opal is also considered to be a gemstone of good luck, beauty and fascination. Believe as you wish.

Tourmaline was added to the list of October birthstones in more current times.

October birthdays:

LeRoy Betlach – 3rd

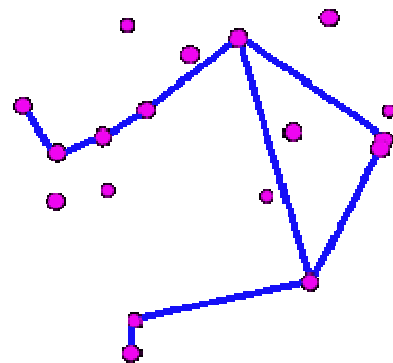
Floyd Kimball – 10th

Vi D'Angelo – 26th

October Anniversaries:

John and Sandy Parsons –

11th



The Scales: Looking like a high flying kite, Libra is easy to find by extending a line westward from Antares. Libra is one of the constellations of the zodiac associated with Themis, the Greek goddess of justice whose attribute was a pair of scales. Originally these stars were thought to be part of the

constellation of Scorpius.

Our understanding is that Libra became a separate constellation during the times of the Romans.



When the chips are down, the buffalo is empty!

Sunshine Report

-if you have news - good or bad please call Marie at (651) 439-7809.

ELEVEN WAYS TO BECOME A FOSSIL

1. **FREEZING:** This rare creature has suffered a minimum of change. His arteries may still contain dried blood, his stomach undigested food. Most common is the Ice-Age mammoth of Siberia and Alaska
2. **DRYING OR DESICCATION:** If these organisms were thoroughly dried, they can be of high quality. Best known are the camels and sloths found in our (USA) Southwest caves.
3. **WAX AND ASPHALT:** Natural paraffin makes an excellent preservative, as proved by specimens found in Polish mines. The most famous asphalt fossils are still embedded in the La Brea Tar Pits in California.
4. **SIMPLE BURIAL:** English bogs are famous for their buried forests. Sand dollars, sea urchins and mollusks have been preserved by this method for up to 75 million years.
5. **CARBONIZATION:** Incomplete decay of volatile substances leaves carbon behind, sometimes reducing organisms to paper thin layers of shiny black film that reveal much detail.
6. **PETRIFICATION:** Our common stony fossils got that way by permineralization, the replacement of the structure by dissolved minerals, or secondary replacement, such as when limy fossils are dissolved and replaced by silica.
7. **MOLDS AND CASTS:** Natural molds in sediment remain after organisms decay. Sandstone beds reveal molds of shells and trees and the finest molds are Northern European amber, which has perfectly preserved the forms of insects.
8. **IMPRINTS:** Sandstone, shale and tuff reveal external molds of very thing objects such as leaves. Best known of these are the Illinois Coal-Age plant imprints.
9. **TRACKS, TRAILS, BURROWS:** Dinosaur prints are the most famous of these. But Nebraska's Devil's Corkscrew" once housed a beaver who dug an eight-foot spiral hole.
10. **CASTINGS AND COPROLITES:** Ancient worms swallowed sand to help digest small organism; he regurgitated these castings. Coprolite is a polite word for petrified "dung".
11. **GASTROLITHS:** Many ancient reptiles ground their food with these stones (as do our modern fowl), The stones are rounded, smooth and even polished at times. Also known as Gizzard Stones."

from *Paleo Newsletter* - April 2001

FLUORESCENCE MWFed Newsletter 2/07

Natural sunlight contains ultraviolet light, but our eyes cannot see it. When this ultraviolet light hits some minerals, it makes the atoms of the mineral release energy. We can see the energy as color and we say the mineral *fluoresces*. Such a mineral under ultraviolet light is fluorescing in natural light, but the light is sometimes so bright that we cannot see it. So it is often necessary to be in a dark room before the "colors" can be seen. The different colors that a mineral fluoresces are often caused by the kind of chemical impurity in the mineral.

Ultraviolet light is made of long wave and short wave rays of light. Most minerals do not fluoresce. Of those that do, some minerals will only fluoresce under long wave and others only under short wave. The black light people buy in the store to help plants grow or make posters shine are "long wave." Some minerals will fluoresce with a different color under short wave light than under long wave light.

If a mineral continues to shine in the dark after the ultraviolet light (UV) is turned off, we say it *phosphoresces*. Usually it is only for a few seconds. Some minerals will phosphoresce a different color than they fluoresce.

Common Minerals that may Fluoresce

Name of Mineral: Fluorescing Colors

Calcite: red, pink, orange, yellow, blue

Dolomite: pink, cream

Halite (salt): orange

Chalcedony: yellow-green, green, white

Barite: cream, yellow, white

Fluorite: blue, cream, yellow, yellow-green, purple

Selenite: yellow

Celestite: green-white, cream

Because fluorescence is often caused by impurities, not every piece of one of the possible fluorescent" minerals will fluoresce. But the ones in the above table usually do.

Obscure “Ologies” [the study of...]

dendrology - trees
eschatology – death, judgment, afterlife
ethnobiology – life pertaining to certain people
ethnology – cultural heritage
ethology – animal behavior
etiology – causes and reasons
etymology – a word
graphology – handwriting
herpetology – reptiles
hippology – horses
hydrology – water
ichthyology – fish
mammalogy – mammals
meteorology – climate and weather
microbiology – microscopic life
morphology – structure of organisms
musicology – music
mycology – fungi
myrmecology – ants
nephrology – clouds
neurology – brain
ornithology – birds
ophiology – snakes
ophthalmology – eyes
otology – ears
paleoanthropology – ancient human-like creatures
paleobiology – ancient life
paleontology – ancient life studies through fossils
paleozoology – ancient animals
pathology – disease
pedology – children
petrology – rocks
phantomology – supernatural beings
pharmacology – drugs
pharyngology – pharynx (part of the throat)
phenology – periodic biological phenomena
phenomenology – phenomenons
philology – historical language
phonology - speech sounds
phraseology – use of words and phrases
physical anthropology – human characteristics
physiology – characteristics of organisms
phytology – plants (usually called botany)
phytosociology – characteristics of plants
pomology – fruit
pyrology – fire
seismology – earthquakes
somatology – human characteristics
speleology – caves
storiology – stories and legends
topology – characteristics and history of a place
vulcanology - volcanoes

WHAT IS A CONCRETION?

A. concretion is an accumulation of mineral matter that developed by the local deposition of material from a solution around a nucleus, in sedimentary rock. The deposition may begin to form around a pebble, fossil or bone.

Concretions are usually formed when some of the material in the surrounding rock is dissolved by circulating ground water and is redeposited in concentric layers by assimilating or displacing some of the original rock. They have been built gradually from a central nucleus. The main cementing material is calcium carbonate, silica, or iron oxide.

Concretions may vary in size from a fraction of an inch up to 10 feet or more in diameter. They are variously shaped but most of them are ball or disk-shaped. Flattened or log-shaped concretions, which occur in sandstone formations in Texas or Wyoming, may be 30 feet or more in length.

In the Pueblo (Colorado) area, the Pierre Shale Formation contains an abundant number of concretions composed of sandstone, limestone, silt-stone and iron minerals.

Septarian concretions, which resemble a turtle’s shell, are found throughout the Sharon Springs Member of the Pierre Shale in the Eden area and east of Fountain Creek in the Pueblo area, some of them being as large as 12 feet in diameter and 3 feet thick. The ironstone concretions consist of lime carbonate, iron carbonate and some silt and clay. Before the turn of the century they were used in combination with other iron ores in the manufacture of iron and steel at the CF&I plant in Pueblo.

Ironstones can be seen on the flanks of Baculite Mesa, and on the USC campus, west of the dormitory building. Upon exposure to weathering the siderite in the ironstones is altered to limonite, which causes the concretions to break into yellowish and reddish brown fragments. Baculite Mesa received its name from the several kinds of Baculites that are found in the area. When some of the ironstone concretions are broken open, a fossil baculite may be exposed at or near its center. The type locality for *Baculites scotti* is the Baculite Mesa area. (Named for Glenn Scott, a USGS geologist, who mapped and described the bedrock and surficial deposits in and near Pueblo.) The Tepee Zone of the Pierre Shale in the Baculite Mesa area also contains ironstone and limestone concretions, as well as conical tepee-shaped masses of limestone. The limestone concretions are dark gray and extend up to a foot in diameter. Concretions are harder than the rock that encloses them. *by Carl Jurie, Past Chairman, USC Geology Department from Chips via The Rockpile 3/86 via Stoney Statements 02/07*

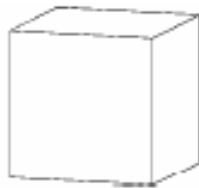
EARNING THEIR STRIPES – What striations can tell us about a mineral

by Julian C. Gray, GMS Member and Mineral Section Chair

Striations are those small parallel lines on some crystal faces of minerals. Mineral identification books often list these as a diagnostic property for either identification or for distinguishing between two similar minerals. For example, plagioclase feldspars are recognized by fine striations on one of its cleavage planes and this is one quick way to tell the difference between microcline (potassium feldspar) and plagioclase (Klein, 2002). But what exactly are striations? How do they form and what can they tell us, besides how to identify a mineral? Ernst Cloos, a famous structural geologist, once said "No structure [or feature] in a rock [or mineral] is insignificant, no matter how small or unimportant it first appears" (quoted in Rodgers, 1970). This is very true of mineral striations. So let's look at a few examples.

Probably the best known example of striations on crystal faces are those found on some faces of pyrite crystals. These little grooves are surprisingly complex. To understand their meaning, we need to do a little crystallography. The most common crystal forms of pyrite are the cube and the pyritohedron (Figure 1). The pyritohedron is also called a pentagonal dodecahedron – a polyhedron made up of twelve (do = two plus deca = ten) faces with five sides to each face (penta = five). The pentagons are not perfect pentagons, though. Look carefully at the length of edges on each face, four are the same length, but the fifth is longer. If you locate the longer edge on a pyritohedron face, you have located one of the crystal axes. Now rotate the crystal around that axis 180 degrees once, then once more. At each stop the pyritohedron looks the same; it is symmetric. The axes of a cube go right through the center of each of the six square faces. Since the faces are square, you can rotate the cube around one of its axes, stopping four times; once every 90 degrees. Do this with a cubic pyrite, a dice, or child's building block, anything that is a perfect cube. Now which crystal form is more symmetric, the cube or the pyritohedron? The cube, of course, because there are four positions where it looks the same when rotated rather than the two positions as with the pyritohedron. Mineralogists call these four-fold and two-fold axes of symmetry (Klein, 2002).

So what has all that got to do with striations? We know that striations are fine parallel grooves. Striations are caused by a crystal alternating between crystal faces as it grows. Crystals grow by adding tiny molecular building blocks of the chemicals of which it is formed. The final form may be very different from the unit cell building blocks. If the sharp corners of a pyrite cube are replaced by triangular faces then the crystal has grown mostly as a cube, but partially as an octahedron. If the edges of the cube are replaced by rectangular faces, then the cube has been modified by a dodecahedron – most likely a pyritohedron (Figure 1, center drawing). We have no problem understanding that a mineral can exhibit two or more crystal forms. It is also fairly common to see the faces of the cube modified by striations. These striations are produced when the pyrite grows with the cube as the most prominent form, but the cube faces alternate between a cube face and a pyritohedron face (Figure 2). Each striation is a tiny stair step: it alternates back and forth between cube face, pyritohedron face, cube face, over the whole striated face (Hurlbut and Sharp, 1998). I can prove this. If you have a cube with striations, place it on a table so that the striations on the top cube face are lined up left-right. The striations on the front and back face go from top to bottom and those on the left and right side go front to back. If the faces of the cube were smooth, you could rotate the crystal four times to a symmetrical position. The presence of striations reduces the symmetry of the pyrite to the point that you can only rotate the crystal two times to symmetrical positions. Sound familiar? The presence of the microscopic pyritohedron faces reduces the four-fold symmetry of the cube to two-fold symmetry of the pyritohedron. Although pyrite forms cubes, it does not have four-fold symmetry! This lower symmetry of the internal crystalline pyrite structure is revealed by the fact that it can grow into pyritohedrons, which have two-fold symmetry! And this profound observation of its structure is revealed from simple observations about the presence of striations.



Cube



Cube and Pyritohedron



Pyritohedron

Figure 1 - Common crystal habits of pyrite (Drawings by Julian C. Gray using *SHAPE Software v.6.0*).

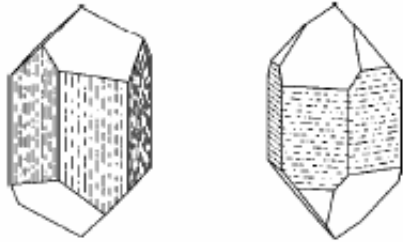


Figure 2 - Pyrite exhibiting combined cube and pyritohedron habit with striations. (Drawing by Julian C. Gray using *SHAPE Software v.6.0*).

(Article continued on next page)

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Another familiar example is quartz. Quartz crystals are made of a combination of two triangular prisms and two rhombic pyramids, which form the triangular faces of the terminations. The c axis of the crystal is vertical, going from point to point on a doubly-terminated crystal. Striations are common on the prism (side) faces of quartz (Figure 3). The striations are at a right angle to the edges of the prism faces (right angles to the c-axis of the crystal). This is a diagnostic property of quartz (Klein, 2002).



Phenakite with vertical striations

Quartz with horizontal striations

Figure 3 - Comparison of phenakite and quartz crystals (Drawings by Julian C. Gray using SHAPE Software v.6.0).

Phenakite is a rare and very valuable beryllium silicate found in pegmatites. The name for phenakite comes from the Greek words for deceiver for its similarity to quartz (Blackburn and Dennen, 1997). Phenakite occurs in crystals comprised of two triangular prisms and two triangular pyramids. It has a hardness of 7.5 to 8, is white or colorless, and has a vitreous luster; all of which sounds like quartz (Klein, 2002). So you are collecting in a pegmatite-rich area one day. How would you know if you are finding common (but cute) quartz crystals or the rare and valuable phenakite? Phenakite also has striations, but the striations are parallel to the edges of the prism faces or parallel to the c-axis (Jacobson, 1993)! Ah hah! So striations can be used to distinguish between quartz and phenakite. If the striations are vertical it is phenakite, if they are horizontal the mineral is quartz (Figure 3). No longer shall ye be deceived.

While we are discussing phenakite, I should also mention that it has one of the most fascinating twins. Phenakite forms a penetration twin that occurs when the second crystal is rotated 60 degrees around the c-axis (Figure 4). The end of the resulting twin looks like the point of a steel star drill bit. Therefore these crystals have been nicknamed drill-bit twins (Jacobson, 1993). Bet you won't confuse them with quartz!

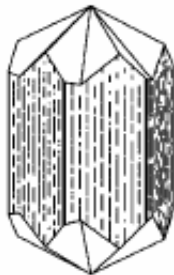


Figure 4 - Phenakite drill-bit twin with vertical striations (Drawing by Julian C. Gray using SHAPE Software v.6.0).

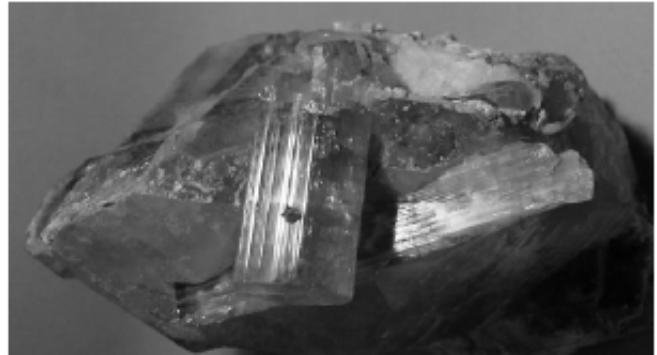


Figure 5 - Elbaite variety of Tourmaline (Himalaya Mine, CA) on Quartz. Light reflections on the two crystals in the center show the typical striation patterns exhibited by tourmaline (photo by Doug Daniels; specimen owned by Doug and Carolyn Daniels.)

Another common example of striations occurs in tourmaline (Figure 5). Alternating prism faces on tourmaline crystals that give it those distinctive and interesting vertical striations. Commonly the alternating forms distort the flat triangular cross section into the well-known curved triangular shape familiar to all (Hurlbut and Sharp, 1998).

Other examples of striations caused by alternating crystal forms abound. They add beauty to minerals, tell us about the crystal symmetry of minerals, and help distinguish between sometimes confusing similar species.

References:

Blackburn, W.H., and Dennen, W.H., 1997, *Encyclopedia of Mineral Names, The Canadian Mineralogist Special Publication 1*: Mineralogical Association of Canada, 360 pp.

Hurlbut, C.S., Jr., and Sharp, W.E., 1998, *Dana's Minerals and How to Study Them*, Fourth edition: John Wiley & Sons, Inc., New York, 328 pp.

Klein, C.S., 2002, *The 22nd Edition of the Manual of Mineral Science* (after J.D. Dana): John Wiley & Sons, Inc., New York, 641 pp. with Mineralogy Tutorial v.2.1 CD-ROM.

Jacobson, M.I., 1993, *Antero Aquamarines*: L.R. Ream Publishing, Coeur d'Alene, Idaho, 126 pp.

Rodgers, J., 1970, *The Tectonics of the Appalachians*: Wiley Interscience, New York, 271 pp.

from Georgia Mineral Society Trips and Tips 09/03

Stolen Gems *St Croix Rockhounds Leaverite News*

Picnic Safety Warning - Never use a limb from a tree whose fruit has a pit (stone) in it such as choke cherry, peach, apricot, or cherry to roast a hot dog or marshmallow. Apricot & choke cherry release cyanide when heated thus poisoning your food and you. Use a metal coat hanger or willow limb. It's much safer. *from Psuedomorph & Breccia via Moroks 8-01 via Rockhound Ramblings 08/01*

Shield That Slab Saw - A good shield for a large slab saw is a bicycle fender. It is just the right size and shape to keep lubricant flying off the blade from spraying all over the shop. *from The Rockcollector via Rocky Review June/July 1999. via Rockhound Ramblings 08/01*

Clean gold jewelry without stones: Here's a recipe from an article written by Barbara A. Ritch of the Winnipeg Rock & Mineral Club, Canada. In her travels to Libya, she noticed every goldsmith shop contained a single-plate burner, fired from a small butane tank, a jug of water, a battered and chipped enamel basin, and a box of Tide. The pan was filled with 1 part Tide and 2 parts water, producing a slimy mixture. It was then placed on the gas burner and into this heating mixture the merchants and smiths dropped gold chains, pendants, charms and whatever else they felt needed to be cleaned. So dear rockhounds, here is the recipe:

In a STAINLESS STEEL pan or an enameled pan, mix half a cup of Tide with one cup of water. Drop your gold chains into this solution and after reaching a boil, lower the heat and simmer for five minutes. Set aside to cool. Scrub with a soft toothbrush, rinse under running water, and dry and buff. *from Southwest Gem Oct 2002 via The Glacial Drifter 4/83 via SCFMS News 5-6/94 via Stoney Statements 10/03*

Zeolite Goes to War! (Summarized from the Wall Street Journal 4/22/03 by Breccia)

A granulated powder made of the mineral zeolite, Quick Clot, acts like a sponge and absorbs water and plasma, leaving behind the materials that can clot blood quickly. Quick Clot was first used in Afghanistan and is now in marine first aid kits in Iraq.

A consumer version should start showing up on drugstore shelves by August. Emergency Personnel in the United States already have access to it.

The National Audubon Society Field Guide to North American Rocks and Minerals (1975) has this to say about zeolites:

Zeolites are a group of hydrated aluminosilicates of potassium, sodium and calcium that can lose part or all of their water (reversibly) without changing crystal structure. This open structure allows the zeolite to absorb other compounds, making them commercially valuable as purifiers and water softeners. *via T-Town Rockhound, 7/03 via Rockwood Rockhound 09/03*

A new dop glue – While Jim and I were at the Tucson Gem Show we visited the Rio Grande Catalog in Motion Show. Jim was talking to one of the guys doing demos and asked about using something besides “dop” when doing cabochons. Jim was told about a wonderful glue called Zap-A-Gap, and the accelerant called Zip Kicker. It's awesome stuff and really works. Jim's been using it like crazy making cabs. How it works is you spray the Zip Kicker on the back of the stone and then put a little drop of the Zap-A-Gap on the dop stick. Stick the dop stick on the rock and hold for a few seconds and voila they are stuck together. What's nice about this is you don't have to work with a hot dop and it doesn't get all over the piece you're working on so you can work on very small cabs without a mess around the edges. What's also nice is all you need to do to separate the rock from the dop stick is pop it off with a finger nail. If interested: zap.supergluecorp.com/pt04.html. *from The Voice 3/07 via quarry Quips 3/07 via Agate Explorer 5/07.*

At the turn of the century, tin was added to silk when weaving fabric for ladies' skirts – up to 25% tin. This produces the luxurious swish in the era of elaborate clothes. *from Roadrunner New 2/07 via Agate Explorer 5/07*