

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



December 2009

First Class

Please send exchange bulletins to:

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211 Interlachen Way
Stillwater, MN 55082

December 15th – X-mas party
at the Martinsens



St. Croix Rockhound's
LEAVERITE NEWS

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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	Victor Martinsen	(715) 247-3700
Vice President	Ron Lewis	(715) 246-5118
Secretary	Bill & Thomas Fernholz	(651) 430-9039
Treasurer	Carol Jensen	(715) 483-1047
Program Committee	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		
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! - December 15th : St. Croix Rockhounds club x-mas party will be held at Vic and Elaine Martinsen's house at 1938 Co. Rd. I, Somerset, WI starting at 5 pm. It will be a potluck with the Martinsens providing a meat entre. See the map to their house on the back page.

COMING ATTRACTIONS

November 21-22nd: Rosedale, MN - Anoka County Gem & Mineral Club's Sales Show; Har Mar Mall, Snelling & Co. Rd. B; Sat. 10-6, Sun. 12-5; CONTACT: Martha Miss, 8445 Grange Blvd., Cottage Grove, MN 55016, (651) 459-0343, rockbiz8@cs.com.

December 15th: St Croix Rockhounds club annual x-mas party at 5 pm, to be held at Vic and Elaine Martinsen's house.

January 20th: St Croix Rockhounds club meeting at Stonebridge Elementary School in Stillwater, MN at 7:15pm

February 27-28: Roseville, MN - Anoka County Gem & Mineral Club's Pre-Spring Show; Har Mar Mall, Snelling at Co. Rd. B; Sat. 10-6, Sun. 12-5; CONTACT: Martha Miss, 8445 Grange Blvd, Cottage Grove, MN, 55016, (651) 459-0343, rockbiz8@cs.com.

January 20th: St Croix Rockhounds club meeting will be at the University of Wisconsin River Falls campus. We are planning the second "Silent Auction" of the year.

Minutes of the St Croix Rockhounds November 17th, 2009

Meeting called to order 7:21 by President Victor Martinsen.

First order of business was to amend Oct. minutes Dave Rusterholz name was miss-spelled. I apologize Dave.

Treasurers report - Dues collected: \$46.50; Interest on savings: 8 cents; Lunch donations: \$13.50; Silent Auction donations \$19.50. Total ending balance: \$1382.59. Note: Please pay dues before the Christmas party. Mail to Carol Jensen, 1708 River Road, St Croix Falls, WI 54024.

Program Director introduced the Show speaker. Programs upcoming are Christmas Party, Find of the year, elect new officers, March River Falls meeting including second silent auction.

Show date March 27th 2010 Valley Creek Mall.

Tour Director: no news

December meeting at Vic and Elaine's house in Somerset is a potluck and they will provide a meat dish Dec 15th at 5pm until ?

Door Prizes provided by Ron and the winners were: Susan, Freya, Carol J., Bill C., Tommy F., and Joe M. Ron and Tori declined since they provided them.

Meeting adjourned 7:40.

Minutes submitted by Bill and Tom Fernholz, secretary.

Celebrate: December's alternate birthstone is turquoise.

In the language of chemists and geologists, turquoise is known as "copper aluminum phosphate." Turquoise is often found in weathered igneous rock that contains copper minerals, where it crystallizes in veins and nodules. The gemstone usually develops in rock near water tables, located in semiarid and arid environments. The chemicals in turquoise come from adjacent rock, leached out by rain and groundwater.

Turquoise is a relatively soft gemstone, and can be easily scratched and broken. This porous opaque stone is easily discolored by oil and pigments, and changes color when it loses some of its water content. A sky blue shade in turquoise is due to the presence of copper, while iron gives it a greener tone. Ochre and brown-black veins in the stone occur during the formation of turquoise, caused by inclusions from nearby rock fragments or from oxide staining. The most valued variety of turquoise is an intense sky blue color, like the color of a robin's egg. Hard, relatively non-porous compact stones have the best appearance because the stone can be finely polished. Pale and chalky varieties however are sometimes impregnated with oil, paraffin, liquid plastic and glycerin to give it a good polish.

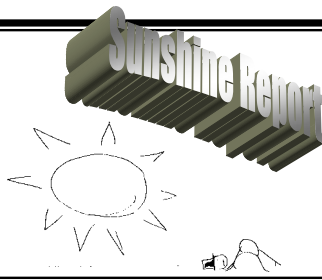
December birthdays:

Eloise Kimball - 1st
Robert Olson - 8th
Brad Bonse - 31st
Sandy Dustin - 31st

December Anniversaries:

Dave & Wendy Flynn anniversary - 29th

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



Thinking of investing in Turquoise? According to Leon Gilmore there are a number of types of this gemstone material around.

Natural Turquoise is any turquoise that has not been altered in any form. The test for this is a touch of ammonia at the back of the piece to be tested. Natural turquoise will turn white.

Enhanced Turquoise is hard turquoise with a poor color. It is electronically treated by being placed in a bath much like a plating solution and then treated. The test of this material is a touch of oxalic acid which will turn the turquoise white.

Stabilized Turquoise makes up ninety percent of the turquoise mined and sold today. It is chalk turquoise that has been stabilized by drying and then placing it in a vacuum chamber and flooding the chamber with epoxy materials, generally clinoepoxide, then pouring the excess and flooding it with setting mordant and pressurizing the chamber to force the mordant into the turquoise to set up the clinoepoxide so the turquoise will not absorb oils or break easily.

Reconstructed Turquoise is a chalk turquoise which has been crushed, has resins and dyes added, and the mixture is then compressed into solid rock.

Baked Turquoise is turquoise which has been set on Devcon or some other substance to make it thicker and to stabilize it to keep it from breaking. Used used on stabilized turquoise and on small pieces of natural turquoise to provide a flat back so it may be easily cut.

Other processes for changing the color of turquoise include:

The Navaho method: Boil turquoise in mutton fat causing the turquoise to turn green. The Navaho consider the blue turquoise as male and the green turquoise as female.

The Hippy method: Take a blue ball point pen and dissolve the ink in alcohol and then dye the turquoise.

The Chemical Process method: Soak the turquoise in potassium ferrocyanide and then soak it in a second solution of ferric ammonium citrate. This is also called the blue print process. *via Rock Lore and others via the Trilobite 5/03*



"Stabilized" Turquoise *by Al Pennington, CLGMS*

Note: There is very little hard, "gem quality" turquoise on the market. Hence, in most cases, some sort of hardening treatment of this ancient, relatively soft mineral is needed especially for nuggets to help prevent breakage during tumbling and drilling.

Turquoise stone is a hydrous basic phosphate of copper and aluminum which is formed as water trickles through a host stone for about 30 million years, gradually leaving a deposit. If the mix has more copper, the turquoise will be colored in the blue range; if more aluminum, in the green to white range. The addition of zinc yields a yellow-green color and hardens the stone even more. Other colors that appear in a turquoise stone come from the host stone that the turquoise formed in, and are called matrix. A black matrix is usually from iron pyrite; a gold-brown matrix from iron oxide, and a yellow to brown matrix from rhyolite. Matrix that is thin and evenly spaced over the surface of the stone is commonly known as spider web matrix. Spider web matrix usually enhances the collectibility and value of turquoise. *... continued on next page...*

Hardness/Density is a critical factor in determining the grade of a turquoise specimen. An inferior, chalk-like turquoise will feel light; it will be porous and stick to your tongue. The harder, denser pieces will have a "good" substantive feel to them. They will not draw the same quantity of moisture from your tongue as lower grades, but you will feel some adhesion to your tongue. As density increases, so too does hardness. Just as turquoise varies from a little over 2 to nearly 6 on the Mohs scale, its specific gravity also varies but typically is 2.8, like quartz. The grades of turquoise are:

NATURAL: turquoise means a stone with no alteration to its composition. Such stones are merely polished and cut into shapes before being mounted in jewelry. Natural turquoise remains porous, as all natural stone is to varying degrees, and may tend to change color over time as it is worn and handled.

STABILIZED: turquoise means that the natural mineral has been chemically altered to harden the stone, usually by infusing epoxy or polystyrene into the porous surface of the stone. The stabilization process serves to freeze the color of the stone so it will not change.

COLOR-TREATED: color-enhanced, or color-infused turquoise means that the natural mineral, usually too soft and pale to finish for use in jewelry, has been chemically altered to change the color of the stone (and often the hardness also). Dye is mixed with a stabilizing epoxy or polystyrene liquid and infused into the stone under pressure.

RECONSTITUTED: turquoise is the name used for turquoise dust and chips that are mixed with plastic resins and compressed into a solid form so as to resemble natural turquoise.

IMITATION or SIMULATED: turquoise is any synthetic compound (usually dyed plastic) which is manufactured to resemble turquoise, but which contains no actual gemstone

Why stabilize? Seen many an awesome turquoise gem that was full of cracks, pits and the like? To some, as long as it will polish, and it's turquoise, it's a gem. Problem is, most material on the market is too soft to cut, and thereby it won't take a polish. One of the beauties of turquoise, no one cares if it's calibrated, or if there's rough spots in the stone, or if one can't comb their hair in the reflection of the polish.

The term Resin Stabilized is most often used when referring to the process of hardening Turquoise and like materials which are too crumbly or soft to cut and polish by baking hot resin into the stone to help its hardness. The process is done in an autoclave where resins are injected under heat and pressure. There are many formulas and techniques for stabilizing, many of them considered a trade secret to individual processors. Stabilized turquoise leaves a slightly waxy surface.

A similar process is used with the dust of these types of materials to press it into a cuttable block. The best test is to touch the material with a hot pin. You can smell the plastic on a treated piece.

More interesting to the small lapidary is the process called fracture filler. This is actually an integral part of the lapidary process when working with Emerald or certain Opals.

Epoxyes are very useful as fillers of small pits or cracks, and most effective to use as a backing to stabilize a fragile piece thought the sawing and grinding process. Best for this is that gray plumbers epoxy applied across the back of the slab.

Water glass is a good penetrant and sealer. This is very good to hide internal flaws. It is just as effective as oil to show color and hide the flaws, except more stable as it actually sets up like glue.

Canadian Balsam is very useful as a fracture filler. Pure Balsam is a little complicated in the application, as one needs a vacuum/pressure & heating unit to apply. This can be homemade with parts under \$100 (excluding compressor).

There is a lot more of these types of "mother nature" fixers. But these above are the easiest to obtain, are non-toxic and quite effective. *Sources: from many articles including one by Mark Liccini via Stoney Statements 3/05*

Mass extinctions

I am become Death, destroyer of worlds

From *The Economist* print edition

The story of how the dinosaurs disappeared is getting more and more complicated

Science Photo Library-NASA

EVERYONE knows that the dinosaurs were exterminated when an asteroid hit what is now Mexico about 65m years ago. The crater is there.

It is 180km (110 miles) in diameter. It was formed in a 100m-megatonne explosion by an object about 10km across. The ejecta from the impact are found all over the world. The potassium-argon radioactive dating method shows the crater was created within a gnat's whisker of the extinction. Calculations suggest that the "nuclear winter" from the impact would have lasted years. Plants would have stopped photosynthesising. Animals would have starved to death. Case closed.

Well, it now seems possible that everyone was wrong. The Chicxulub crater, as it is known, may have been a mere aperitif. According to Sankar Chatterjee of Texas Tech University, the main course was served later. Dr Chatterjee has found a bigger crater—much bigger—in India. His is 500km across. The explosion that caused it may have been 100 times the size of the one that created Chicxulub. He calls it Shiva, after the Indian deity of destruction.

Dr Chatterjee presented his latest findings on Shiva to the annual meeting of the Geological Society of America in Portland, Oregon, on October 18th. He makes a compelling case, identifying an underwater mountain called Bombay High, off the coast of Mumbai, that formed right at the time of the dinosaur extinction. This mountain measures five kilometres from sea bed to peak, and is surrounded by Shiva's crater rim. Dr Chatterjee's analysis shows that it formed from a sudden upwelling of magma that destroyed the Earth's crust in the area and pushed the mountain upwards in a hurry. He argues that no force other than the rebound from an impact could have produced this kind of vertical uplift so quickly. And the blow that caused it would surely have been powerful enough to smash ecosystems around the world.

Double whammy

In truth, agreement on the cause of the mass extinction at the end of the Cretaceous (when not only the dinosaurs, but also a host of other species died) has never been as cut and dried among palaeontologists as it may have appeared to the public. One confounding factor is that the late Cretaceous was also a period of great volcanic activity. In India, which was then an island continent like Australia is today (it did not collide with Asia until 50m years ago), huge eruptions created fields of basalt called the Deccan Traps. Before the discovery of Chicxulub, the climate-changing effects of these eruptions had been put forward as an explanation for the death of the dinosaurs. After its discovery, some argued that even if the eruptions did not cause the extinction, they weakened the biosphere and made it particularly vulnerable to the Chicxulub hammer-blow.

There are also puzzling anomalies in the pattern of extinction. The greatest of these is that, as fiery and horrible as the impact would have been, the survivors included many seemingly sensitive animals like birds, frogs and turtles. Moreover, close inspection of the fossil record shows that many "Cretaceous" species disappear both well before, and well after, the signs of the impact that are found in the rocks.

...continued on next page...



Ironically, it was while he was investigating the Deccan Traps that Dr Chatterjee came across the evidence for Shiva. First, he found dinosaur nests that had been built between lava flows 10-15 metres thick—evidence that the animals were coping well with the volcanic activity rather than being weakened by it. Then, quite suddenly, 65m years ago, a layer of lava nearly 2km thick appears. This led him to wonder what could possibly have caused such a sudden volcanic surge.

He knew that the west coast of India had been the site of an ancient impact of unknown age and size. It was not until he was reading through a paper published by an oil company that had collected geological information in the area that he realised the volcanic surge he had seen might be related to a cosmic collision.

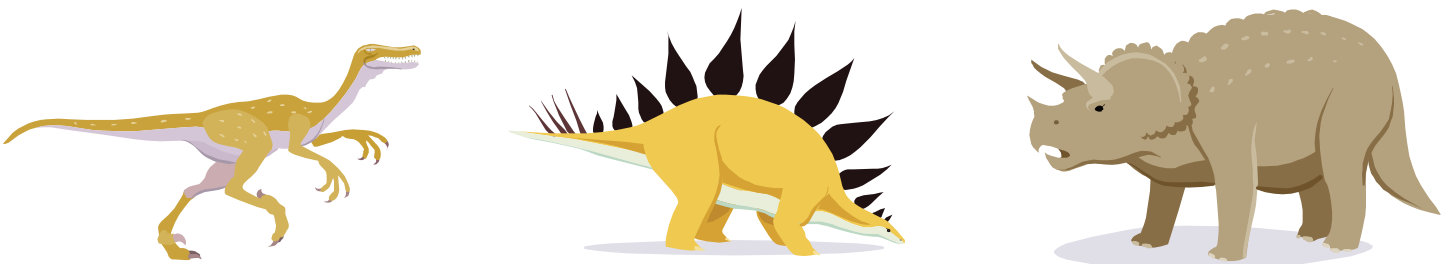
Further examination revealed a crater rich in shocked quartz and iridium, minerals that are commonly found at impact sites. (These are also the telltales in distant layers of ejecta that the rock in question has come from an impact.) Most important, the rocks above and below Shiva date it to 65m years ago. Dr Chatterjee therefore suggests that an object 40km in diameter hit the Earth off the coast of India and forced vast quantities of lava out of the Deccan Traps. As well as killing the dinosaurs the impact was, he proposes, responsible for breaking the Seychelles away from India. These islands and their surrounding seabed have long looked anomalous. They are made of continental rather than oceanic rock, and seem to be a small part of the jigsaw puzzle of continental drift rather than genuine oceanic islands.

This story, though, raises the question of why there is but a single ejecta layer of iridium and shocked quartz in late Cretaceous rocks around the world. One answer might be that the two impacts were, in effect, simultaneous—that the objects which created Shiva and Chicxulub were the daughters of a comet that had broken up in space and hit the Earth a few hours apart, as the pieces of comet Shoemaker-Levy 9 hit Jupiter in 1994. Other, smaller craters in the North Sea and Ukraine have been prayed in aid of this theory. Recent research suggests that there was, in fact, no impact in the North Sea at all, but the Ukrainian site does appear to be the result of a genuine collision that took place at the time of the dinosaur extinction and could therefore be connected with Shiva. But even if it is, it is so much smaller that its environmental effect would have been both minor and local.

Extensive dating research at Chicxulub, however, now suggests that the object which created that crater actually struck 300,000 years earlier than the dinosaur extinction, meaning there really should be two ejecta layers. That there are not could be explained by the fact that the accumulation of sediment in most rocks is so slow that the two layers are, in effect, superimposed. Alternatively, it could be that no one has been looking for two layers, so they have not seen the double signature or have ignored its significance. Indeed, two iridium layers have been found in some places. Anjar, an Indian town north of the impact site, is one. That is leading Dr Chatterjee to suggest that the two big impacts did take place at different times.

The picture that is emerging, then, is of a strange set of coincidences. First, two of the biggest impacts in history happened within 300,000 years of each other—a geological eyeblink. Second, they coincided with one of the largest periods of vulcanicity in the past billion years. Third, one of them just happened to strike where these volcanoes were active. Or, to put it another way, what really killed the dinosaurs was a string of the most atrocious bad luck.

(from http://www.economist.com/sciencetechnology/displaystory.cfm?story_id=14698363)



Stolen Gems *St Croix Rockhounds Leaverite News*

Ripple Marks on Your Slabs? There are several reasons for this problem: the carriage or arbor may be out of alignment; the blade may be dished, the bearing may be faulty; the blade may not fit the shaft properly; the feed speed may be too fast.

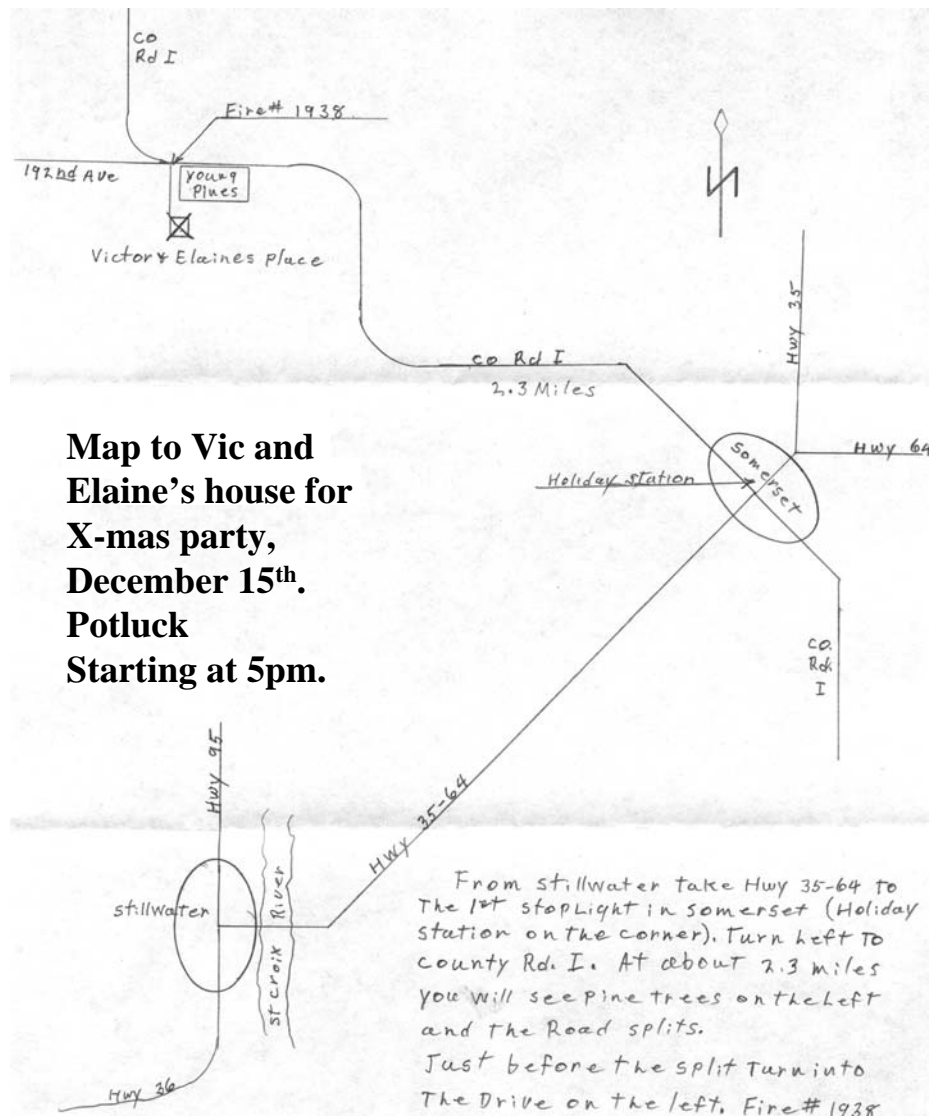
To find a remedy, slow the feed speed. At the same time, make sure the blade is sharp. If it is not sharp, dress by running a piece of brick or grinding stone through several times. If this doesn't help, check the alignment. Check the bearings by trying to wiggle the shaft. If it wobbles, the bearings are faulty. Be sure there isn't any dirt under the shaft collars. If your check indicates misalignment, and you don't have the experience to re-align the carriage, contact your supplier or manufacturer.

Don't let the blade slow down during cutting. Variations in rpm destroy accuracy, reduce cutting efficiency, and dulls the cutting edges of the blade. Use ample motor power. When running the piece through by hand, use only light, firm pressure.

Tighten vise clamps after every few cuts for a smoother cut when successive slabs are sawed from one piece of rough. To cushion rocks in a vise, use rubber composition such as stair treads, boot soles, etc. If blocks must be used, line with the composition for a snug fit. from Breccia 1999, others, via Pineywoods Rooter 2/09, The Roadrunner 3/09 via Stone Chipper 08/09

The secret of hiding fractures in a cab with epoxy is to shape your stone and semi-polish it. Heat the stone to 200 degrees in an oven. Mix epoxy and apply to one end of the crack and work towards the outside of the cab so that the air in the fracture is driven out and the resin replaces it. You will note the epoxy becomes very fluid when it touches the hot stone and flows right into the crack. Put the stone back in the oven for 20 minutes for the epoxy to harden. Scrape off the surplus and proceed with your final polish. *from assorted newsletters, via The Calgary Lapidary Journal 10/08 via Stone Chipper 10/09*

Here is a suggestion to make the wet grinding procedure more comfortable. Place water pipe foam insulation over the edge of the water trough for an easy wrist rest while polishing the stone. Cut to the length needed and slip it over the edge of the pan. *from Chips & Chatter 2/01 via The Rock Prattle 2/02 via Rock Rattler 06/02*



Map to Vic and Elaine's house for X-mas party, December 15th. Potluck Starting at 5pm.