GOLDRUSH LEDGER

CHARLOTTE GEM & MINERAL CLUB

DECEMBER 2011

the Prez Sez …

What a great auction it turned out to be! The November 17 event generated a record-breaking $2011 in sales. There were concerns that some of that old machinery might not sell and we would have to return it to the trailer and store it for the next 25 years. Turns out every piece sold and was efficiently removed from the Nature Museum at the conclusion of the auction.

Despite an obvious lack of auctioneering experience, Kim Gwyn and I had a ball selling what turned out to be a large inventory of equipment, rough and specimens. We managed to complete the process in just under 2 hours and I think tag team auctioneering is the way to go for future events. Our thanks to all those who donated items for sale and/or spent their hard-earned dollars to acquire new treasures.

We have a number of things to look forward to in the near future:

There's the annual Christmas party at the Amity Church on December 16 with good food and good fellowship for all. Once again we will be awarding two scholarships to UNCC students as well as rewarding two of our hard working members with scholarships to the SFMS continuing education programs of their choice. Considering how many of you helped out with Mathews Alive, Mint Hill Madness and the auction I wish we could award scholarships to one and all. If you don't win one this year don't fret – there's always next year.

I hope you're all looking forward to the move to the Tyvola Senior Center as much as I am. We will have much more space in more modern, comfortable surroundings with the flexibility to set up our meetings in whatever way we choose. No more jamming people in to an undersized room for the auction, no more dimly lit small parking lot and a significantly lower rent.

To properly inaugurate this new venue let's fill the place for our first 2012 meeting on Thursday evening January 19!!! We've got an unusual and exciting program lined up in honor of the occasion so watch for more details in the January newsletter. Please note – we pay by the hour for this meeting place and have the responsibility for setting up and putting away tables and chairs. On average I would like to limit our time in the building to 3 hours (with an occasional 4 hour event) ending at 9:30. In order to accomplish this yet still allow members enough time to get home from work and have a bite to eat, we will start the business portion of our meetings at 7:15.

We will once again offer cabbing classes by one of the "best in the business", Sarah Lee Boyce starting in January. Those interested should contact her at (704) 827-

Table of Contents

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1431 (please call after 10AM and before 8PM)

Another major upcoming event is the early April guided tour to Diamond Hill Mine in South Carolina. If you can only make it to one dig in 2012, this is the one to go to!!! There was a dealer at the recent gem and mineral show in Columbia who was selling specimens found at Diamond Hill; most were impressive, some were spectacular. Our guide, who teaches gem and mineral ID at William Holland and is quite familiar with the site, assures me that no one will leave this dig disappointed. By the way, he is the speaker scheduled for our February meeting.

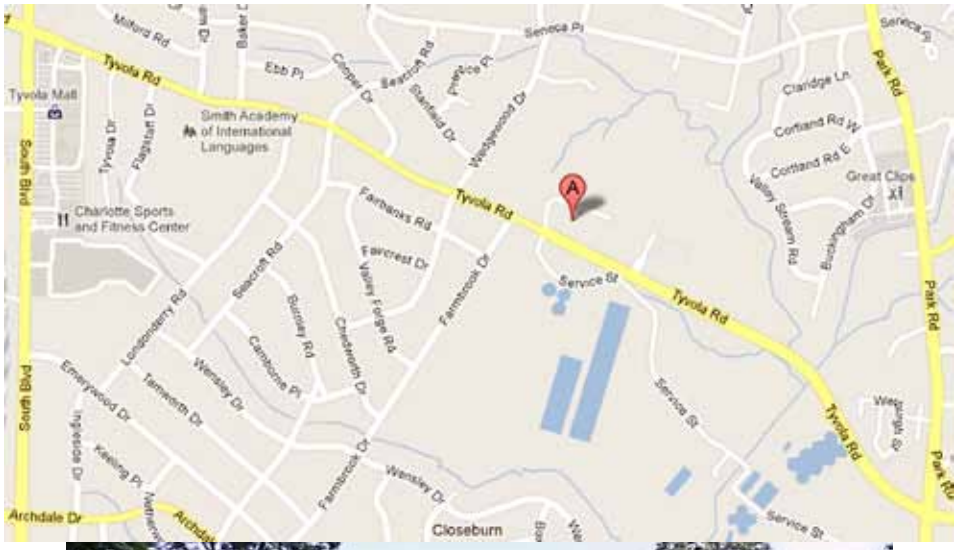
I want to take this opportunity to wish all our members a very merry Christmas and a wonderful new year.

Murray Simon, President Charlotte Gem and Mineral Club, Chief Reindeer Rustler, and

Reminder! ***In JANUARY we begin our monthly meetings at the new locale.***

Tyvola Senior Center
2225 Tyvola Rd.
Charlotte, NC 28210
(704) 522-6222

First meeting
Janaury 19th, 2012
7:15 pm



Charlotte Gem & Mineral Club Monthly Meeting

December 16th, 2011 Friday -- 7:00 pm --

Location: Amity Presbyterian Church
2831 N Sharon Amity Rd,
Charlotte, NC 28205-6699

Annual Christmas Party

The club will provide the meat dishes, deserts and drinks. Please bring a side dish to pass: salad, vegetable, or ??? Paper plates, glasses and eating utensils will also be provided, but do bring a serving spoon with your dishes. If you have not already done so, please RSVP to Pat Walker and let her know how many are coming (704/523-5261). The club will also be presenting the scholarships for the year. Two going to UNC Charlotte Earth Science/Geology students, and two to club volunteers for use at William Holland or Wild Acres retreats. ***(Be certain to get your point sheets turned in to Linda Simon as soon as possible to be included in the drawing for the club scholarships!)***

Jr Rockounds

Next meeting in January

Contact Mary Fisher for further information at: mefisher@att.net

Twenty Years of Making Jewelry part II

By Jim Crowe
Gravel Gazette 1999

photos by ron gibbs 2011

Fig 1. Lost wax modeling often done with heat and dentist type tools.

Fig 2. Lost wax modeling often done with heat After the wax model is created, it is "sprued" which means it is placed on a soft wax pedestal and cylindrical can is placed over the object. The can is filled with"casting material" (usually a high temperature plaster), and allowed to harden. The wax is then burned out of the plaster in an oven, leaving behind a perfect mold of the object. The "sprue" becomes the entrance funnel for pouring the metal.

CAST RING

Digging a hole in metal with a hard tool is often used on very small stones. The edges of the metal are then pushed over part of the stone to hold it down. Another common method is to wrap wire around the stone to hold it into the finding.

This is called wire wrapping in counter-distinction to smithing. It is quite popular and can be very attractive when done well. Combinations of these methods are common as are methods not described here or are being invented every day. For me a strip of transparent tape to hold the stone to the finding works about as well as anything.

The casting of metal is the most entertaining way to make something that will hold a stone for display. That's where you turn metal into a liquid state and the let it cool down into the shape you want it. There are different ways to accomplish getting metal to cool into the desired shape.

As metal changes from liquid to solid it is still too hot to mold by hand so I use the lost wax method and a centrifuge. That is, something is made first from wax. (Figure 1,) That object is then placed in a medium that won't melt when placed in an oven so the wax can melt down and evaporate. After the wax is gone and the medium is hot enough not to explode when being hit by the molten metal, the container is taken from the oven and quickly placed in a centrifuge.

A correct amount of metal is then melted and poured into a hole provided by having added a funnel shaped to the original wax object. (Figure 2.)

The pouring, instead of flowing into the hole be gravity is slung into the cavity by the action of the centrifuge as it spins about in a horizontal plane when turned on. If too much molten metal is used the excess will fly into a big container in which the centrifuge is contained.

Should the centrifuge be placed to spin in a vertical plane I guess excess metal would tend to fly about the room in which the operator is located which could cause some worker damage. If the metal being used is gold and you don't want a gold plated room this could become an expensive proposition. By placing the spinning contraption in a tub, a good deal of the solidified metal can be scraped from the sides of the tub and reused on subsequent casting attempts.

Other methods of getting molten metal into a cavity made by the lost wax process are a straight gravity pour and the vacuum method. The gravity pour is self explanatory but vacuum methodology may need a short description. Therein a vacuum is created in the cavity and the melted metal is just sucked into the space. I have seen this done but don't have all the vacuum creating equipment required.

The lost wax method is by no means the only way to cast metals.

Carving a cavity directly into a material that has a higher melting point than that of the desired material you wish to cast is the obvious answer. Getting the carving tools into the cavity of a single piece mold is obviously difficult for small objects like jewelry.

A two piece mold that can be joined together after carving is satisfactory. The problem with this is that it is likely as easy to carve out a chunk of the metal you want to end up with. This type of mold may be fine if you want to make numerous objects of the same exact design. A mold to make numerous wax impressions will accomplish the same results and is easier.

Wire wrapping (Figure 3.) is an excellent method for setting any stone. In addition to holding the stone or stones in place, wire is available in a variety of thickness, surface patterns, luster, alloys, coatings, and lengths (cut it to any length). It can be round, flat, square, triangular, or oblong in cross section. It can twisted, bent to any angle, doubled with other wires, or wrapped around material other than stones.

And wire can cost about any price you wish to pay. By recycling old wiring from various sources such as household appliances you can get it for free. The insulation can be stripped off with little effort and you can have perfectly good copper wire.

Gold wire can be purchased at exorbitant cost or you can draw out your own for only slightly less. Gold coated wire, either plated or filled is not expensive at all and looks as good and is corrosion resistant to boot. Most wire wrapping is done without using solder. (Figure 4.) Thus one need not be concerned about removing the layer of gold from the surface by melting it off with the heat.

Wire wrapping is easy to get into because there are so many ways it can be done. Simply wrap a wire around a stone and add as many sections of wire to the piece as you wish wrapping them around each other to join them, and continue until finished. Although it is simple to do, wire wrapping is very difficult to do well. That's why I can't do it. It takes us handicapped people to long to perfect the art.

These methods of setting gems are not all inclusive. Drilling holes in rocks and dangling them from strings, chains, or wires makes rather common jewelry. My problem is getting the holes drilled into the stones despite having a moderate supply of small diamond drill bits laying about. Fortunately stones or other beads (Figure 5.) can be purchased at reasonable cost so they can be beaded.

Faceting is fascinating. When one thinks of jewelry the idea of a multi-faceted diamond, set into are ring comes to mind rather quickly. Any stone that can be made into a cabochon can be faceted Most aren't though.

Fig 3. Wirewrap Intarsia

Fig 4 Wirewrap
Faceted stone

Fig 5 Beading

Fig 6 Faceting Machine

fig 7 Diamond lapping a facet

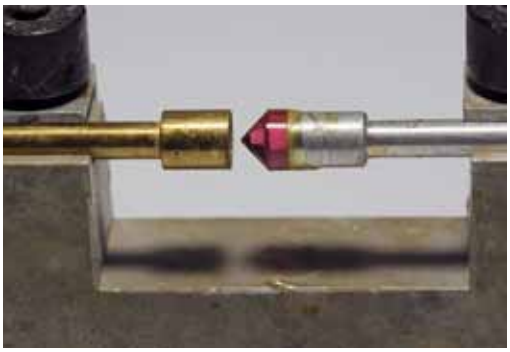


fig 8 Diamond lapping a facet

FACETED STONE

Good faceting grade stone is usually that which a great deal of light can penetrate.

A facet is a flat surface that creates rather precise angles with other flat surfaces. These angles let the light penetrate through the stone and be reflected to other facets several times and then back out after the resultant magnification of the light.

Knowing what the best angles are to maximize the effect is important. Different minerals possess different properties. One of the properties of a mineral is its refractivity, that is the angle at which light is bent as it enters the surface and reflects from a second surface.

So to become a good faceter it is important to know the properties of the mineral. Me? I hardly know one mineral from another let alone what their properties are. But that isn't the only reason everyone can't be a good faceter. Grinding a stone to a fairly flat surface can be done on a grinding wheel. Grinding an adjacent flat surface next to it at the proper angle is all but impossible.

Therefore another tool came into being. It is called of all things called, a faceting machine. (Figure 6.) They aren't cheap. Unless like mine, they are old machines that somebody chose to get rid of Unlike most regular grinders, a faceting machine has a built in holding device for the stone and lot's of little notches, verniers, knobs, slides, and bolts to set and hold the stone at particular chosen angles. Like any grinding machine a wheel goes around and around so it will rub against the stone and wear it away. (Figure 7.)

Like grinding a cabochon, the coarseness of the wheel must be decreased after the shape has been established so the stone will attain a polish.

When one whole side, top or bottom, has been cut and polished to the prescribed number of facets determined to be proper, the tricky part comes. That is, the stone must be transferred to another dop stick on the other end of the stone very precisely. (Figure 8) A really good dop wax or glue is used in faceting because the stone must not fall off the stick during either half of the procedure.

Good faceters can remount a fallen stone but I am not one of those. After both halves of the stone are faceted and polished the finished gem can be mounted in an appropriate finding such as a ring, broach, or belly button. Or it can be thrown into a box full of other jewelry unsuitable for display.

Carving rocks can be called jewelry making. Especially if the rocks are small enough to displayed on the body. I have several blocks of stone ready to carve into beautiful objects of art. The problem I have with these is I don't know where to start. I even have some tools like chisels, mallets, and hand grinders and polishers. It has been

said that one should make a model first from clay or other inexpensive material to determine dimensions before ruining a perfectly good rock. So first I guess I should learn to model in clay. Finally I might be able to decide what to make.

I once signed up for a class in carving but when I found it to be about carving silhouettes I took metal casting over again instead. That was dumb because cameos make perfectly good jewelry. Even better than large sculptures.

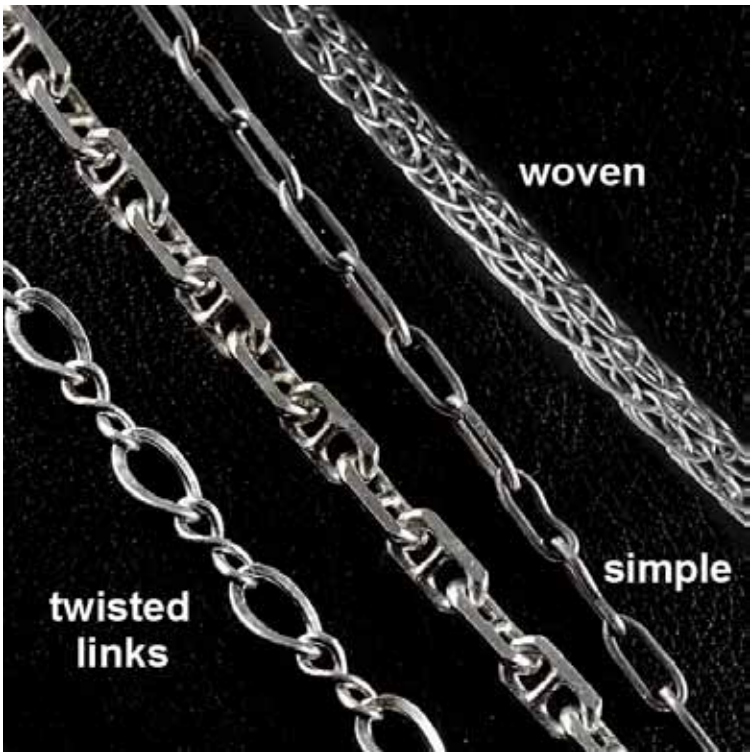
Another jewelry skill is chain making. (Figure 9) It is similar to wire wrapping. Wire is spiraled around a dowel of the size you want your links and then cut lengthwise along the dowel to provide a bunch of rings. The rings are then interwoven into intricate patterns to form a chain.

Wire sizes can vary up to whatever you can work by hand. Gold filled or plated wire is common in chain making because of price considerations and it does not need to be soldered because many designs are of multiple links tying them together. I have a box full of chains of different designs that I have started. None have been finished.

Sometimes people aren't happy with the material from which their jewelry is made. The appearance can be changed by gold, silver, or chromium plating other metals. Gold plating was once considered too dangerous to be done in the home shop because it involves the use of cyanide to dissolve gold into solution where it is given off into the air in the electroplating process. And ingesting cyanide is said to be bad for health. I have never used it although I often don't believe everything people say.

This short dissertation by no means covers all methods of making jewelry. Today much of it is stamped out of sheet metal with huge presses and coated with paint. Plastic makes jewelry and I have used that medium. One just glues pieces of plastic together. If a pin or clasp is desired they can be glued or melted on. Someday, perhaps in another twenty years, I shall maybe finish one of the pieces of jewelry I have begun.

fig 9 Chain making



Serpentine

by Don Huber,
McPherson Gem & Mineral Club
From: The Post Rock, 8/2010

July was an anniversary of sorts for two rocks I took to our club's July meeting. For it was exactly 60 years ago that I picked the two rocks up at South Pass, Wyoming, while on a field trip. Both rocks are serpentine, but two different varieties. One is the massive dark green variety, the other a light yellow variety called retinalite with traces of fibrous chrysotile.

The name comes from the Latin – serpentines "resembling a serpent" from the mottled shades of green it often has, or perhaps its name comes from the fact it often has wavy streaks in it that might resemble a serpent, Green may be the most common color, but it can be white, brownish yellow, red, or black.

Serpentine is actually the name for a group of minerals, and for the group the hardness varies from about 2 to 5. The specific gravity varies from 2.2 to 2.6. Any rock we might find that has a green or greenish-gray color with a waxy or greasy feel might be serpentine or might have some serpentine in it. It's harder than talc and softer than jade. Most serpentine has a composition close to the ideal formula of Mg3Si205(OH)4, a basic magnesium silicate, but the magnesium can be replaced by other elements, giving us a number of varieties. Some are rich in iron, others in aluminum, manganese, lithium, nickel or zinc. One of the world's most important sources of nickel is in New Caledonia where the nickel occurs in a serpentine.

There are three main serpentine minerals that have the above formula. They are antigorite, chrysotile and lizardite. Chrysotile we also know as asbestos. Because these three all share about the same chemical formula, they are called polymorphs. Polymorphs are minerals with the same chemical composition but different crystal structure. Other polymorphs we're familiar with are diamond and graphite - both composed of carbon -- and pyrite and marcasite -- both iron sulfide. The reason the different varieties of serpentine differ in form is complicated, but is thought to be due to minor impurities, variations in temperature and pressure, differences in water content, or the kinds of minerals present during formation. Any or all may be involved.

Great serpentine exposures occur in California's Coast Ranges and are identified by the shiny, greenish, slick-sided surfaces in roadcuts. In 1965 California's legislature designated serpentine as the "Official State Rock." This was at a time when much asbestos was being mined there. But in October 2009 the Asbestos Disease Awareness Organization began a campaign called "Drop the Rock" to remove this designation. (See Los Angeles Times article of July 2,2010). They were not wanting a rock that can cause disease to be their state rock. This past May a bill was passed by a committee that would strip serpentine of its state-rock title. The bill is now being debated by California's governing bodies.

We're all familiar with asbestos and how getting rid of it in our homes, schools and other buildings has been a major undertaking in the past several years. William Nesse in his textbook, Introduction to Mineralogy-2000, argues that much of this has been a waste of time and money. He doesn't dispute the health risks associated with chronic occupational exposure to asbestos fibers, but he doesn't think this risk can be carried in linear fashion to the low level exposure that might be found in homes, schools, and other buildings where asbestos fibers are part of ceiling tiles, electrical fixtures or insulation. He says, in fact, that we are continuously exposed to low levels of natural mineral fibers in the air and water as the result of normal weathering processes of rocks.

He also thinks that it's extremely unlikely that human biological defenses would not have developed some level of protection in the last millions of years. Actually it's the serpentine variety crocidolite that poses the greater health risk and not chrysotile, and it's chrysotile that is used in the large majority of products containing asbestos in North America.

Serpentine is considered a beautiful rock by many. It is fairly soft, takes a nice polish, and has been used for thousands of years to fashion vases, vessels and other carvings. It's also used for building facing. Chrysotile has many industrial applications.

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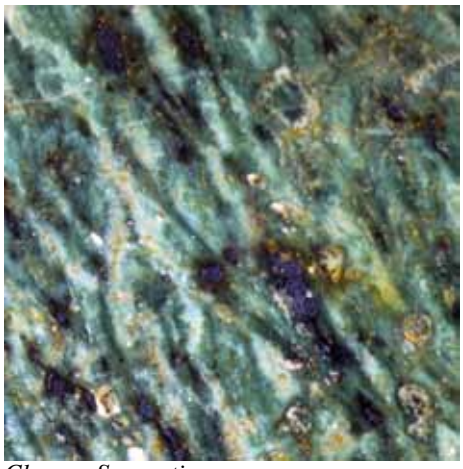
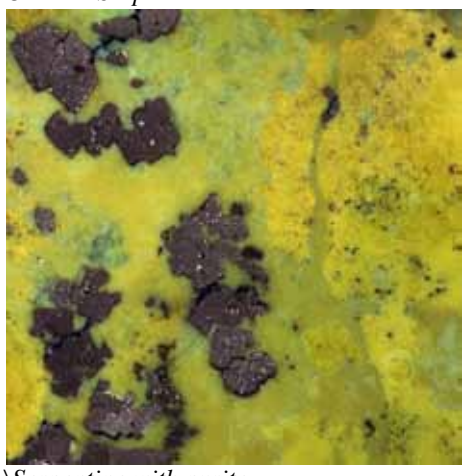
- *John Sinkankas, Mineralogy*
- *William D. Nesse, Introduction to Mineralogy*
- *AGI, Dictionary of Geological Terms*
- *Wikipedia*
- *Charles Sorrcll, Golden Book of Rocks and Minerals*
- *Edward Dana, Textbook of Mineralogy, 4* Ed.*
- *Answers.com/serpentine*
- *Mayo Clinic.com*



Chrome Serpentine



\Serpentine with pyrite