GOLDRUSH LEDGER

CHARLOTTE GEM & MINERAL CLUB

NOVEMBER 2012

Prez Sez ...

Those of you who were not at the October meeting missed a very special night. Our featured speaker for the evening was Dr. Sarah Carmichael, a professor at Appalachian State University speaking on the origins of North Carolina rocks and minerals. She arrived in Charlotte at about 5:30 and VP Neil Hohmann and I took her out to dinner.

As we were getting ready to leave the restaurant I got a call on my cell phone from my wife Linda. She was at the senior center and wanted to alert me to a meeting-related problem - the building was locked. Neil and I raced over to the senior center (with Dr. Carmichael following in her car) to find a rapidly darkening parking lot with about 40 members standing around wondering why they were standing around in a parking lot and not inside the building. [I found out the next morning that the senior center person who lets us in had forgotten what day it was and had gone home]. The only phone number I had was for the senior center office which, with the building dark and locked, was obviously not going to be of any use in trying to resolve the problem.

The aquatic center at the opposite end of the parking lot was well lit and busy with early voting. We ran over to see if we could use a room but were told only those voting or running the voting process could be in the building. One of the supervisors, however, suggested that we check out the charming outdoor patio area on the side of the building.

We were able to borrow folding chairs, run a long extension cord from one of the outdoor plugs and with the help of Ron Gibb's ever-present projector, our speaker's slides were projected on the wall of the building. It was a lovely evening (except for the occasional low flying airplane and poorly lit snack table), the speaker was quite dynamic with an innovative presentation and the first drops of rain held off until she finished.

Several members suggested we get her back for a future presentation and she seemed to think that was a good idea. Dr. Carmichael has the distinction of having

Table of Contents

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explored the ocean bottom, at a depth of 1.5 miles, on the deep sea submersible Alvin. There is a movie of that trip and she has been looking for an opportunity to show it to a group like ours. We hope to get her back next spring for what will undoubtedly be one of the more unusual CG&MC meetings.

There are less than 2 weeks until the annual auction. We are fortunate this year to be on the receiving end of two donated collections. Our storage trailer is jammed full with rough, slabs, saws, grinders, soldering equipment, mineral specimens, and precious stones just waiting to be taken home by club members who recognize a good deal when they see one.

Pre-auction viewing of these treasures will take place from 6-7PM with the auction starting precisely at 7. With all the merchandise available, I expect the event to probably run as late as 10PM. Please keep in mind that the objective of bidding at the club auction is not to buy things at a steal but to help the club achieve fiscal stability.

So come on out on Thursday night the 15th with a full wallet or checkbook and be ready to leave with some treasures you just can't live without.

Make a note on your calendars to hold open Friday night, December 14 for our annual Christmas party. Details to follow later in the month.

Murray Simon, *Charlotte Gem and Mineral Club President, Regional Interactions Planner, Forward Configuration Executive, and Global Creative Orchestrator.*

Exrterior (left) and polished Interior (right) mammoth teeth. Recovered from rivers in SC.

Charlotte Gem & Mineral Club Monthly Meeting

November 15, 2011 Thursday -- **6:00 pm** --

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

Annual Club Auction

(Yes it shoud be InDoors this time!)

Our annual auction is open to anyone, so bring any friends that might be interested. The auction will sell the materials in the club inventory and those that were donated by external sources friendly to the club. (There is a nice selection this year.) If you have any hobby related materials you would like to add please bring them to the auction and they will be added to the loot. Come out and enjoy some finger foods and bid on your favorite materials and equipment. Payment can be made by cash or check at the end of the auction.

6 -6:30 pm for viewing - auction starts at 7 pm.

Charlotte Junior Rockhounds

Normal Meeting location
Matthews Community Center
100 McDowell St.
Matthews, NC 28105
704-321-7275

Tentative Date and Time
Saturday, November 17
10 am at Mine Owners Store

Field Trip to: Little Pine Garnet Mine

Mary Fisher and the Jr. Rockhounding Group have organized a tentative trip to the Little Pine Garnet Mine (collecting area for LARGE garnets). ***IF enough people sign up the trip is a go!*** Mary Needs to have information back by Nov 13th if you are attending. 1/2 day collecting fee is $10 kids (10 and under) $12.50 adults

The mine is located just north of Asheville, NC and the driving time is about 3 hours. The group will meet at the mine owners store at 10 AM to begin the adventure. The mine is privately owned and not open to the public.

For further driving information, reserving a spot, and instructions contact Mary Fisher at mefisher@att.net

Garnets

USGS report
www.usgs.gov

Garnet, the January birthstone, derived its name from the Latin word granatus, meaning like a grain, which refers to the mode of occurrence wherein crystals resemble grains or seeds embedded in the matrix. Garnet is a family of minerals having similar physical and crystalline properties. They all have the same general chemical formula, where A can be calcium, magnesium, ferrous iron, or manganese, and B can be aluminum, ferric iron, or chromium, or in rare instances, titanium.

There are a number of trade and variety names for garnet, most of these names are for particular colors of specie. Hessonite is the variety name for a fine orange, cinnamon brown or pinkish variety of grossularite, while tsavorite is the trade name for fine dark green grossularite. Melanite is a black titanium bearing variety of andradite and demantoid is a rich green variety. Malaya is a trade name for a pyrope- spessartite that varies in color from red, through shades of orange and brownish orange to peach and pink. Rhodolite is a purplish red pyrope-almandite solid solution garnet. Fine-quality pyrope garnets from Czechoslovakia are often called Bohemian garnets. Almandite and almandite-pyrope solid solution garnets are the best abrasive types, but andradite, grossularite, and pyrope also are used. All species of garnet have been used as gemstones.

Garnet displays the greatest variety of color of any mineral, occurring in every color except blue. For example, grossularite can be colorless, white, gray, yellow, yellowish green, various shades of green, brown, pink, reddish, or black. Andradite garnet can be yellow-green, green, greenish brown, orangey yellow, brown, grayish black or black. Pyrope is commonly purplish red, purplish red, orangey red, crimson, or dark red; and almandite is deep red, brownish red, brownish black or violet-red. Spessartitegarnet can be red, reddish orange, orange, yellow-brown, reddish

The formulas and names of common garnet species are:

Uvarovite: $Ca_3Cr_2Si_3O_{12}$

Pyrope: $M_3Al_2Si_3O_{12}$

Gossularite: $Ca_3Al_2Si_3O_{12}$

Almandite: $Fe_3Al_2Si_3O_{12}$

Andradite: $Ca_3Fe_2Si_3O_{12}$

Spessartitie: $Mn_3Al_2Si_3O_{12}$

Some rare species of garnet are known that illustrate the wide range of substitution that the garnet crystal structure can accommodate. They include:

Hydrogrossular: Ca3Al2(SiO4)3-x (Oh)4

Henritermierite: Ca3(Mn, Al)(SiO4)2(OH)4

Goldmanite: CaV2Si3O12

Kimzeyite: Ca3(Zr, ti)2(Al, Si)3O12

Knprringtonite:Mg3Cr2Si3O12

Majorite: Mg3(Fe, Al, Si)Si3O12

Schorlomite: Ca3(Fe,Ti)2((Si,Ti0O4)3

Yamatoite: Mn3V2Si3o12

brown or blackish brown. A few garnets exhibit a color-change phenomenon. They are one color when viewed in natural light and another color when viewed in incandescent light.

The use of garnets as a gem or gemstone can be traced to prehistoric times. However, the first industrial use of garnet appears to have been as coated sandpaper manufactured in the United States by Henry Hudson Barton (founder of Barton Mines Corp.) in 1878. Its use has grown from that single sample of garnet coated sandpaper, to world industrial uses of more than 110,000 tons per year. In 1994, United States production of industrial garnet was valued at about $14 million, while gem garnet production was valued at only about $233,000. Many deposits within the United States produce fine gem-quality garnets and three deposits are mined for industrial garnet. A State-by-State review is presented below.

Alaska.--Garnets from deposits along the Stikine River, often called "Wrangell garnet" after the nearest town, which is located on Wrangell Island, are famous as mineral specimens because of their near perfect crystalline form. The garnets have limited use as gemstones because of their deep red color; however, some cabochons are cut from them.

Arizona.--Arizona is one of five States that has commercial production of gem garnets. Arizona's gem garnet is red pyrope from two locations in the extreme northern portion of Apache County on the Navajo Indian Reservation. One location is at Garnet Ridge which is about 8 km west of the town of Mexican Water, and the other location is in Buell Park on the Arizona and New Mexico border, about 16 km north of Fort Defiance. Faceted stones cut from materials from these locations average 1/2 to 1-1/2 carats in size, but stones as large as 5 carats are known from these locations. Additionally, fine-quality andradite specimens, some suitable for cutting, are available from an area near Stanley in Graham Co.


andradite

California.--Gem- and specimen-quality white to pale green grossularite garnet occurs on Indian Creek in Siskiyou County and along Traverse Creek near Georgetown in Eldorado County. Other locations for these types of grossularites are the south side of Watts Valley in Fresno County, near Selma in Tulare County, near Big Bar in Butte County and near El Toro in Orange County. Some of the finest quality spessartite garnet known come from pegmatites in San Diego County. Spessartites have been found on Gem Hill near Mesa Grande and in mines in the Rincon and Pala Districts. The most productive area with the finest quality garnets is on the western side of Hatfield Creek Valley near Romona. Near Indian Head Hill in San Diego County is a deposit of fine-quality hessonite garnet, and another deposit is near Dos Cabezas.

Colorado.--Faceting-grade spessartite garnets can be found in the gas cavities in the rhyolite flow on Ruby Mountain near Nathrop, Chaffee County. Large specimen-grade garnets are available at the abandoned Salida Copper Mine.

Connecticut.--Garnet in mica schist near Roxbury and Roxbury Falls in Litchfield County was once mined, although not recently, for use in abrasive applications and for mineral specimens. The andradite

garnet was found as well-formed dodecahedral crystals that separate easily from the host schist.

Idaho.--Alluvial deposits of almandite garnet were discovered in the early 1880's near Fernwood in Benewah County, but commercial gem and industrial mining did not start until the early 1940's. The deposits are on Emerald, Carpenter, and Meadow Creeks about 6.4 km from a mica-garnet schist formation. The garnet-bearing gravels are about 1 m to about 1.2 m thick and contain 8% to 15% garnet. These deposits are the basis of the largest industrial garnet mine in the nation and also produce gem garnet. Additionally, star garnets are produced from the placers of Purdue Creek in Latah County. Idaho's deposits also are the only ones in the world, besides India, that produces significant amounts of star garnets. These almandite garnets are translucent, purplish-red stones that show four- or six-ray stars when cabochon cut, or are transparent, deep red stones that can be faceted. The asterism is the result of silky rutile inclusions. Gem-quality garnets also are produced commercially from an area of the Little North Fork and North Fork of the Clearwater River in Clearwater County. They range from purplish rose-red to a highly prized "special pink." Gem-quality garnets occur at a number of other locations in Idaho and are periodically mined by hobbyists or professional collectors for the gemstone market.

Montana. -- Several alluvial deposits of almandite-pyrope garnet are located on the drainages of the Ruby River in Madison County. One such deposit, the Alder Gulch deposit, is in the alluvial fan formed where Alder Gulch joins the Ruby River Valley. The deposit contains about 40 million tons of old placer gold tailings that grade 4.5% almandite-pyrope garnet. The alluvium consists of high-energy, fluvial, well-rounded material, approximately 50% of which is +9 mm in size. The source of garnet along the Ruby River is highly metamorphosed Archean rocks in the Tobacco Root and Greenhom Mountain Ranges to the east. The garnets are present mostly as broken fragments of crystals, which were originally as much as several centimeters in diameter. Some of the garnets from this industrial garnet deposit are of gem quality. Bright red and orange red, to reddish-pink pyrope-almandite garnets are found associated with sapphires in the gravels of the Missouri River near Helena in Lewis and Clark County.

Nevada.--An alluvial deposit of almandite garnet is found along Hampton Creek Canyon in White Pine County about 3 km from the mouth of the canyon. No production history is available for the deposit. The source of the garnet is quartz-garnet-mica-staurolite schist that forms a portion of the walls of the canyon. Spessartine garnets can be found at several locations in White Pine County. Most of the dark brown crystals are of interest only as specimen, but a few will cut very small clear stones.

New Hampshire.--A garnet deposit is located near North Wilmont in Merrimack County, where small alrnandite crystals are found in a biotite, quartz, and albite feldspar matrix. The crystals range up to about 19 mm in diameter but average only 6 to 10 mm in diameter.

New York.--Deposits of industrial garnet are found at two locations in New York. In the Gore Mountain area, industrial garnet is mined as the primary product; and near the town of Willsboro, byproduct of it is recovered as wollastonite mining. The deposit near Gore Mountain is an almandite-bearing diorite of uncertain, igneous or metamorphic origin. The garnet is present as imperfectly devel-

oped crystals surrounded by a rim of coarsely crystalline hornblende. The crystals range from about 1 millimeter to almost 1 meter in diameter but average about 100 millimeters in diameter. The garnet has a pronounced laminated structure, which enables it to naturally break into thin plates from about 2 to 6 millimeters in thickness. Garnet fragments maintain this platy particle shape even as they are crushed smaller and smaller. These same deposits in Warren County contain good to fine quality facet-grade garnets. The garnet is a solid solution of pyrope-almandite-grossularite that


grossular

results in a pleasant deep brownish-red material, which often has an orange cast. Beautiful small stones can be cut, but larger stones are too dark to be attractive.

North Carolina.--Large deposits of almandite and rhodolite garnet of gem and abrasive quality are known in Clay, Jackson, Macon, Madison, and Burke Counties. Abrasive-grade garnet was produced from some of these deposits from 1900 to about 1926, but no production has been recorded recently. The deposit of almandite garnet in Clay County is in a hornblende gneiss at Penland Bald on Buck Creek. Fine red colored, gem-quality pyrope garnets have been found in the wastes from placer gold operations in Burke, McDowell, and Alexander Counties. Rose-pink rhodolite garnets are recovered from gravels in Cowee Creek near Franklin, and Mason's Branch near Iotla, both in Macon County. Rhodolite can be found in situ on Mason Mountain.

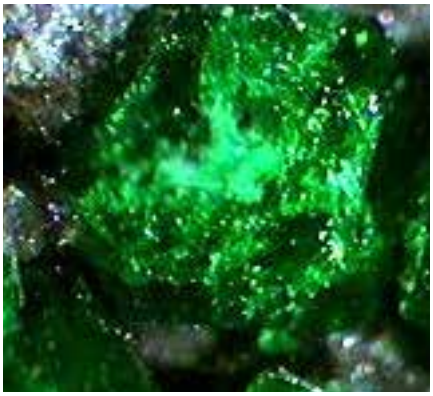
Pennsylvania.--Almandite garnet crystals are found in a quartzose mica schist about 1.6 km west of Chelsea in Delaware County. Near the surface, the schist is badly weathered and the garnets, which comprise as much as 75% of the rock locally but average much less, are easily recovered. Abrasive-grade garnet was produced from this deposit prior to 1900, but no production has been recorded since the turn of the century. Small trapezohedral crystals of almandite garnet are scattered throughout a badly decomposed gneiss near Chester Heights, also in Delaware County. An attempt was made to mine this deposit years ago by means of a shaft and underground workings.

Utah.--Large specimen-grade, apple-green grossularite garnets have been found in western Beaver County. Two locations southeast of Mexican Hat, San Juan County produce pyrope garnets similar to the bright red pyropes from Arizona and New Mexico.

Virginia.--A deposit of garnet is located on a steep bluff on the northeast side of the Tyle River about 6.5 km south of Arrington in Nelson County. The small, dull-red garnets are found in a sericitic schist. Attempts were made to mine the deposit in the past, but there is no record of commercial production. Two mines in Amelia County account for the majority of the production of gem-quality garnet, they are the Morefield and Rutherford. The spessartine from these mines, primarily the Rutherford, are etched- crystal masses and fragments, not individual perfect crystals. The pieces range from pea size to as large as a grapefruit. In 1991, a single piece, dubbed the Rutherford Lady, was found that weighed more than 2,800 carats. Color varies from a fantastic light pure orange, almost yellow to shades of red-orange, red, and brownish-red, but the or-

ange overtone always is present.

U.S. production of gem-grade garnet will continue to increase and additional deposits will be brought into production in the coming years.



uvarovite garnet is a chrome containing green garnet, but the green gemstone, tsavorite, is actually a grossular garnet with chrome impurities

Holiday - Christmas Party

When: Friday , December 14th, 2012
Location: Amity Presbyterian Church
2831 N Sharon Amity Rd,
Charlotte, NC 28205-6699

The club is providing the usual meat dishes and drinks. Also the paper plates and glasses, members should provide salads, vegetables, and any other home-made specialties for the season. As our current president has reminded me to tell you, the event has always provided a "festive", "raucous", "gourmet-like", and "interesting" evening of relaxation.

We often proclaim the "winners" of the next years slate of club officers! Don't miss this exciting announcement!

Remember to get your point sheets (*see below for more information*) turned in this month at the auction or mail them to Linda Simon before the end of the month. (Point sheets are available from the club Web site.) These are used in a random drawing to determine who the club will sponsor for scholarships to William Holland or Wild Acres SFMS classes next year.

The UNC scholarship winners will also be announced at the party. Please RSVP with the number of people attending to Linda Simon at msimonnc@gmail.com or 704-543-6651)

A quick set-up of tables and chairs will be done at about 1:30 pm the day of the party, volunteers are always welcome. The process typically takes about 30-45 minutes.

Club Point Sheet

It's also time to download a copy of the "club point sheet" from the WEB site. Members earn points throughout the year by donating their time for various events (Matthews Live, Mint Hill Madness), or for providing food for a meeting, giving a presentation to the club, serving on the board, or heading a committee, or for just showing up at monthly meetings.

Those who accumulate sufficient points are placed in an end of year drawing for a couple of week-long scholarships to Wild Acres or William Holland Lapidary School.

The totalled points should be submitted by the end of the November meeting. The winners will be announced at the holiday party.

There have been enough people at this years club events to create a record number of points, please take the opportunity to win a nice week-long trip to one of the venues. You will have fun and enjoy the new company, you might even learn a skill that could come in handy in this economy!