The Gem and Mineral Hunters Inc.

Gem & Mineral Hunters of Virginia Newsletter Publication 16 Issue 2 February 2010

Editor's Corner:

We had a great meeting this last month even though our members were limited. We did get a new member who showed up with her ward, Andrew. During conversations, we found out that Andrew had won a medal in golfing during the Special Olympics. Great going, Andrew. We also found out that he did not like to be called Andy or Drew. Just Andrew, please. Now this young man had minerals he had collected from all over and between Joe Murter, Bob Clemenzi, Sallie and I, we were able to identify almost all of them for him. Joe brought out his material from Framnklin, NJ., along with his black light and we all watched Andrew's eyes light up lime the minerals in the box. Needless to say that Joe's box was a tad lighter when he left and Andrew's collection grew by the same amount. This young man is going to be one great member as long as we can keep him interested. With that job, we may need help from more members.

I've rambled on about Andrew and just mentioned who had brought him. Well, that was Ms. Laura Grainger of Manassas. It seems she was his tutor and other things and decided to take him in as her ward. Thank you, Laura, for introducing this young man to our club, and be sure and bring him back frequently. I'm sure you realize that having him here is good for us elderly citizens.

Bob had brought all of the equipment to show us the rest of the EFMLS program we had to stop at the previous meeting. However we hit a snag and it will, probably, be our program for the next one. Snag? Well, the snag was he forgot the CD that had the program. Could Bob be getting Ol' Timer's Disease? Nah, he's too young for that.

Anyway, see you at the next meeting (you too, Andrew).

Don, de Ed.

AFMS ELECTION/BALLOT RESULTS

With the cancellation of the annual meeting in Houston, it became necessary for the AFMS to conduct business by mail. Ballots were sent to each AFMS Officer and Director listing the items from the agenda and asking that they be returned by a specific date. The ballots have now been received and counted and all items have been approved.

Your newly elected AFMS officers for 2009 are: Joy Bourne, President (EFMLS), Emerson Tucker, President-elect (SCFMS), Bob Miller, 1st Vice President (MWF), Lauren Williams, 2nd Vice President (NFMS), Ann Monroe, 3rd Vice President (SFMS), Richard Jaeger, 4th Vice President (RMFMS), Colleen McGann, 5th Vice President (CFMS), and Pat LaRue, Treasurer (2-year term). Anne Cook, Secretary was not up for election this year.

There will be an increase in AFMS dues from 50¢ to 75¢, a variety of Operational Procedures changes were approved a new Webmaster's Contest was approved on a 3-year trial basis, and adoption of Rock & Gem as our official magazine.

By Steve Weinberger, Central Office Administrator

THE GARNET GROUP

By Mary Fraser

The garnet group is made up of silicate minerals with similar crystal structure. They have a hardness of 6.5 to 7.5, streak white, a luster vitreous, greasy, or resinous, and are transparent to opaque, coming in all colors except blue. They occur in gneiss mica schists, dolomitic metamorphic rocks, and frequently in sands. They are rare in igneous rocks.

The occurrence is worldwide. Garnets are used as grinding and polishing agents and as gemstones.
The garnet groups are divided into two series of minerals: pyralspite series named after its three members pyrope, almandine, spessartite and ugrandite series named after uvarovite, grossularite, and andradite. (They all have the same general chemical formula, [A]3[B]2(SiO4)3, where A can be calcium, magnesium, ferrous iron, or manganese, and B can be aluminum, ferric iron, or chromium, or in rare instances, titanium. Editor.)

Almandine: (iron-aluminum) common garnet. Forms in schist in areas of regional metamorphism. Colors are brown, red-violet, and almost black.

Andradite: (calcium-iron) occurs in metamorphic rocks. Colors are brown-black (melanite), colorless, green (demantoid), and yellow.

Grossularite: (calcium-aluminum) found in metamorphosed impure limestones and limey shales where aluminum is high and iron is low. Colors include colorless, green (tsavorite variety), yellowish, brown, red, and brown-orange (hessonite variety).

Pyrope: (magnesium-aluminum) also known as carbuncle, bohemian garnet, and cape ruby. Pyrope occurs in silica poor rocks such as kimberlites. Colors are red, brown-red, and the rose-red (rhodolite variety).

Spessartite: (manganese-aluminum) associated with manganese ores of metamorphic origins. Colors are yellow, orange, and red-brown.

Uvarovite: (calcium-chromium) origin is metamorphic. Its color is emerald green from chromium.

Garnets are among the commonest minerals. They crystallize in the cubic system as 12- sided dodecahedrons or 24-sided trapezohedrons or a combination of both. In ancient times garnets were called carbuncles. Ancient Egyptians valued them as ornamental stones and they were considered to be the bearers of well being and family harmony.

Greek and Roman citizens believed the bearer to be favored with inheritance. Garnets are found on the Breastplate of Aaron. It is said these "stones of health" extract negative energy from the chakras and transmit it to the beneficial state. Also known as the "stone of commitment" garnets monitor and adjust the flow of energy around the physical body and align the emotional and intellectual bodies.

Garnet is also reported to enhance the assimilation of iodine, calcium, magnesium, and vitamins A, D, and E into the body. from Rockin' Around, March 05 via The Tidewater Prospector and Jan. 2010 Rockhounder.

This could happen to all of us.

. SAFETY
BE "PATIENT" OR "A PATIENT"

It was about 1:30 a.m. when the Doctor finally came in to look at my smashed finger. It had been almost five hours since I had checked in --- after all --- it was Saturday night and things were pretty hectic in the Emergency Room. "What happened?," the pleasant young doctor asked. "Well … I guess I was in too much of a hurry. We were on a field trip to collect rocks and minerals in a rock quarry and I decided to turn over a 300 pound rock to get some nice crystals. I could have used my six foot steel pry bar to turn the rock over, but it seemed like a waste of time to walk the 50 yards to get it. So I just rolled the big rock over with my hands. I was wearing the right safety stuff --- steel toed shoes, long jeans and heavy work gloves --- but it rolled right onto my finger! It really hurt, but I didn't make a big deal. I took my glove off and my finger was bleeding, so I wrapped it up with several Band-Aids and put my glove back on. No one knew that I was hurt --- in fact, I used a big sledge hammer to get out some more crystals. About 8 hours later after the drive home, my wife took one look at my swollen, blue-black finger and sent me straight to the Emergency Room."

"When was your last tetanus immunization?," he questioned. "About 10 years ago," I replied --- knowing that the nurse would soon be giving me another shot. Doc then said, "I will check your Xrays and if nothing is broken, we will dress your finger and get you out of here. We will also give you an antibiotic, because we can't take chances with infection." I recalled that infection in bones can be deadly. Later, some good news from the doctor --- no broken bones. But my earlier decision to not get the pry bar had been a costly mistake --- 5 hours at the Emergency Room, another hour at the drugstore, more hours of follow-up at my regular doctor and the orthopedic doctor --- not to mention pain, money, and the inconvenience of having my

hand in a bandage. Lesson learned --- be patient and take the extra time and effort to get and use the proper tools.

By Dave Lines, ROCK TALK, Southern MD R&M Club, Oct 2008 and Jan 2009 Rockhounder

Australia's Mystery Lake

by Roy E. Sharp, Geolap

Lake George in the Cullerin Range in Australia's Great Divide is a real will-o-the-wisp. Sometimes a stormy inland sea, other times a stretch of dry grazing land. It has mystified settlers and scientists for nearly a century.It covers an area about sixteen miles long and six miles wide, with an average depth of 25 feet. When the lake vanishes, the rich pasture of its bed covers 35,800 acres.

The information comes from "Along the Great Divide" by Bill Beatty. In 1843 the lake was quite dry and remained so until 1852 when it filled again. It is on record that there were thousands of black swans on the lake and the waters teemed with fish, yet by 1970 it was dry again. A rather extensive report on Lake George was made in 1887, when it was disclosed that it was situated at the summit of the Great Dividing Range, 2230 feet above sea level. It was further described as the largest and most important freshwater lake in the colony.

In about 1900 the lake began to disappear again, and there was no water at all by 1902. Wonderful crops were grown on the former lakebed, but by 1925 the lake was again a big sheet of water with yachtsmen, swimmers, etc. enjoying it to the full. The same cycle was repeated in the 1930s and completed 20 years later with again a full lake. Geologists state the evaporation could not possibly account for the water loss, but are not in agreement on any other explanation put forward. Possibly artesian bores in central Australia drain the water away in dry seasons, or perhaps earth tremors, which are often felt in the district, open up fissures in the bed of this ancient volcano crater.

All theories fail to account for the large fish that have appeared in the lake almost immediately after it fills. It seems that the mystery is a difficult problem to solve, and that this lake is possibly the only place in the world where sculling and motorcar races have taken place over the same course.

from Rockpile, 02/2000 via RockCollector. 06/2008 and Hounds Howl 06/2008

Mineral Facts

Did you know that if you can't grow it, it has to be mined or recycled? Did you know that in Pre-Columbian times, indigenous people in North America mined turquoise, jet, opal, copper, silver, coal, obsidian and other igneous rocks, asbestos, salt, and sodium sulfate, as well as other minerals? Turquoise, jet, opal, copper, and silver were mined mostly for decorative use. Coal was mined for fuel. Obsidian and other igneous rocks were mined to make projectile points, mortars and pestles, grinding stones, stone axes, and other tools. Clay and asbestos were mined to make pottery; salt was used as a preservative and for flavoring; and sodium sulfate was used as a purgative.

Did you know that many of the clear juices, such as apple juice, and the wines that you may drink are filtered through skeletons? The skeletons of diatoms, microscopic single-celled plants that five in fresh or sea water, are extremely intricate and are made of silica. When large numbers of these skeletons are gathered, cleaned and packed together to form a filter, their intricate geometry will trap the very small particles that make juices or wines look cloudy.

Of the 193,000 metric tons of gold discovered to date, 62% is found in just four countries on earth. All the gold discovered thus far would fit in a cube 55 meters on a side.

Over 50% of all the zinc and lead discovered to date has been found in just four countries on earth. In the average 3,000-pound car there are 139 pounds of aluminum, 28 pounds of copper, and 20 pounds of zinc. Catalytic converters for cars used 660,000 troy ounces of platinum in 1986. Platinum is also used in the synthesis of MTBE, a gasoline additive to replace lead and reduce automobile carbon monoxide emissions.

The mineral barite is used to add weight to oil well drilling mud to keep oil in the drill hole and prevent oil from gushing out of the hole.

Diatoms, microscopic single-celled plants that live in fresh or seawater, have extremely intricate shells made of silica. When large numbers of these shells are deposited, diatomite is formed. When diatomite is cleaned and packed to form a filter, the intricate geometry of the shells will remove impurities as small as 0.1 micron from the water without the use of chemicals. Diatomite can also be used as a non-chemical insecticide, the sharp silica shells cut and

shred the insects.

from OreCutts 4/00-via-Chips 5/00 and The Tidewater Prospector 1/10

Great Crystal Hunting

Several years ago Earth magazine re ported that scientists were hypoth-esizing that the Earth's core is a single crystal of iron. Geo-physicists at Harvard University have used earthquake seismic waves to deduce that the mass at the center of the

Earth has many properties of a single crystal. Scientists had previously theorized that the core material was solid iron because of the presence of the Earth's magnetic field, among other things. The particulars of the crystal caused them to theorize that the crystal is epsilon iron, which, it turns out, only exists at tremendous pressures and temperatures such as those found at the center of the Earth.

The geophysicists also found that the axis of the supposed crystal is aligned exactly with the Earth's magnetic field, giving rise to speculation that its growth orientation nwas (and is still being) caused by the field. And we thought that good, large crystal specimens were getting hard to find!

from Chips and Chatter 8/94, taken from THE MOUNTAIN GEM 7/97 and The Tidewater Prospector 1/10

More on Diamonds

By Shellie Newell, AGMFS

Mineralogy

Diamonds are an allotrope of carbon formed in the lithospheric mantle, located from 90 to 120 miles deep in the earth, under high pressures (45–60 kilobars) and temperatures (1652–2372°F). Because the rates of temperature and pressure vary at these depths, the precise conditions for diamond formation are only in specific, thick, stable, and ancient parts of the continental plates called cratons. The length of time they remain in the lithosphere in cratons determines how large the diamond crystals can grow. Lamproite and kimberlite volcanic pipes percolate the diamonds up to the earth's surface. Natural diamonds also can be found at the sites of meteor impacts. Nearly half of all diamonds are mined in central and southern Africa, but they are also found in Australia, Brazil, Canada, India, Russia, and South America. Only one site is open to the public: Crater of Diamonds State Park, Arkansas, USA.

Carbon atoms of a diamond are a tetrahedral shape of transparent crystal, where the face is centered on a cubic diamond lattice structure. Diamonds are the hardest natural material (10 on the Mohs scale) and are ideal for grinding and cutting tools. Most stones show several growth stages that produce flaws, inclusions, and broken planes in the crystal lattice that affect their color and toughness. They are known also for their thermal conductivity and are used in industrial applications such as semiconductors.

But it is their durability and brilliance that make diamonds so attractive for daily wear. Diamonds are prized for their refractive dispersion of light. Their colors can range the spectrum according to the structural defects and impurities in each stone, but yellow (nitrogen impurity) and brown diamonds (plastic deformation during crystal growth) are the most common. Some brown diamonds have been successfully marketed as "cognac" or "champagne" diamonds.

Value

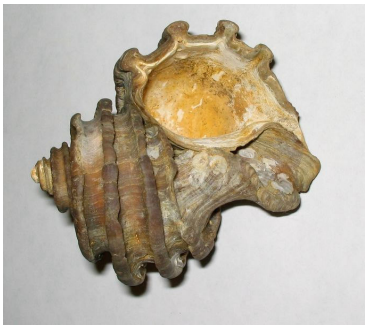
The value of each stone is determined by the "4Cs": Carat (1 carat = 1/5 gram = 100 points); Clarity (according to Gemological Institute of America [GIA] the grading scale is based on the inclusions and blemishes seen under a 10× loupe magnification); Color (the whiter the diamond, the higher its value); and Cut (entirely manipulated by the diamond cutter, the quality of the cuts that brings out the fire and beauty of the stone that determines its value). A recent additional C is Certification (a grading report determined by a diamond-grading laboratory).

From the Hounds Howl 5/08

I hate to say it, but the DUES ARE DUE FOR 2010. PLEASE REMIT CAUSE I NEED A VACATION.

DON

"Stately Fossils"



How well I remember finding my first Ecphora at the Martin Marietta Berkeley Quarry at Cross, S.C. This was in the mid '90s and I was just starting out in the hobby. The shell was fortunately in excellent condition and managed to survive the trip home.

So when Maryland became the next state in the fossil series, and Ecphora gardnerae gardnerae was designated as its representative, though not the same species as my find, this was definitely special. This gastropod of the Miocene Epoch, 5-12 million years ago, enjoyed a favorable environment in the warm, shallow ocean along the continental shelf. It was a predator and preyed on other marine invertebrates that were in abundance.

It differed from other snails with a russet color, the four "protruding ribs," and a moderately wide umbilicus. Though the genus originated during the Oligocene epoch, 30 millions years ago, this particular species evolved during the Miocene. All Ecphora fossils became extinct toward the end of the Pliocene when there was a long period of extreme cooling on the planet. The genus was officially named in the early 1700s and the species found in Maryland in 1987. Soon after, several subspecies were designated and the second "gardnerae" applied; it became the state fossil in 1994.

The best collecting site is the St. Mary's Formations in the sediments at Calvert Cliffs, north of Little Cove Point; there is a section of beach at Calvert Cliffs State Park where small-scale collecting is permitted

From 4/08 Hounds Howl

What is Dichroic Glass?

By Steve Weinberger

Most of us have seen the fabulous jewelry objects made with dichroic glass, and some of us have worked with it. Like many of the synthetic materials we've used in lapidary and jewelry, dichroic (Dye-Cro-Ick) glass was developed for another use other than jewelry. The word dichroic comes from two Greek roots - "di" for two and "chroma" for color. Thus, dichroic literally means "two colored".

First developed by NASA in the 1950's for use in satellite mirrors and optical filters, the glass is made by evaporated onto glass in a vacuum chamber. That golden sheenyou see on the face mask of our astronauts as they do their space walks is really a dichroic coating meant to protect against the glare of natural and obviously unfiltered sunlight.

The various ultra-thin coatings are metallic oxides. Gold, silver, titanium, chromium, aluminum, zirconium, magnesium, and silicon are the metals used. As the oxides are exposed to high temperatures and a high voltage electron beam, they are vaporized and deposited onto the surface of the glass. Each metal oxide produces different colors on the glass. Often several different oxides are deposited on the glass to produce varying effects.

These thin layers have a total thickness of three to five millionths of an inch! The dichroic coating itself has no color. The colors are created by light striking the coatings on the glass. Each piece has three colors associated with it - a reflected color, a transmitted color and a third reflective color that can be viewed at a 45-degree angle. This Is what causes the glass to change color when you turn the piece.

The resulting plates of glass can then be fused with other glass in a kiln. Certain wavelengths of light will either pass through or be reflected, causing an array of color to be visible. Colors vary, even with using glass from the same larger piece because of variations in the firing process and thus, each piece of fused dichroic glass becomes unique.

Although dichro is an expensive material due to the high cost of manufacture (a 4" x 4" clear piece can cost about $14 while some patterned or textured sheets of the same size can run as much as $65 each), the resulting jewelry can be very striking. Dichro is available from many sources.

References: - Becky Edmundson, instructor at Wildacres = -from Chippers Chatter, 01/2008 & Hounds How 04/08

Other Groups in the Washington, D.C. Area:

>	**Mineralogical Society of Washington, D.C.**		**301-273-1468**
	Smithsonian Natural History Museum Learning Center	**1st Wednesday**	
>	**Gem, Lapidary & Mineral Society of Montgomery Co., MD**		**301-428-3149**
	Rockville Senior Center, 1150 Carnation Dr., Rockville, MD	**2nd Monday**	
>	**Northern Virginia Mineral Club,**		**703-273-1468**
	Long Branch Nature Center, Arlington, VA	**4th Monday (Except May, July, August and December.)**	
>	**Micromineralogists of the National Capitol Area**		**703-273-1468**
	Long Branch Nature Center, Arlington, VA	**4th Wednesday**	

G&MH Meetings are held the 3rd Wednesday of each month

Time: **7:30 P.M.**

Location: **MEETING LOCATION:**

The club meets at the P.W. County Bldg. on P.W. Parkway , or as announced.

Purpose: **To promote interest and education in the areas of geology, fossils, lapidary arts, mineralogy and earth sciences.**

Dues: **$10 for an individual and $15 for a family. VISITORS ARE ALWAYS WELCOME.**

CURRENT OFFICERS:

President	**Vacant**		
Vice President	**Vacant**		
Secretary	**Vacant**		
Treasurer and Newsletter Editor	**Don Garrett**	**540-545-4629**	**dgarr84288@aol.com**

Visit our Web Page at http://www.gmhonline.org

Affiliations: **American Lands Access Association, Eastern Federation Mineralogy and Lapidary Society and the American Federation of Mineralogy Societies**

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Meeting February 17th
McCoart Building on P,W.C. Parkway