

THE MOUNTAIN GEM

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Number 1

Official Bulletin

Of

The Gem & Mineral Society of Franklin, North Carolina, Inc.

The Gem and Mineral Society of Franklin, North Carolina, Inc. is a founding member of the Southeast Federation of Mineralogical Societies. A schedule of our monthly meetings is on the back cover of *The Mountain Gem* as well as on the Society's webpage. Meetings are held at the Macon County Community Facilities Building, Highway 441 South, Franklin, N.C. Visitors are always welcome.

The objectives of this society shall be to effect a close association of those persons who are interested in the study of gems, rocks and minerals and the sciences and arts related to them. We are a working organization that operates and maintains The Franklin Gem and Mineral Museum.

The FRANKLIN GEM AND MINERAL MUSEUM is under the direction of the Board of Directors of The Gem and Mineral Society of Franklin, NC, Inc.

The Society and Museum are self-supporting on a 100% volunteer basis.

The museum is open May 1 through October 31.

Monday through Saturday 12 p.m. - 4 p.m.

November through April: Saturday 12 p.m. - 4 p.m.
FREE ADMISSION.

Membership in the Society is \$15.00 per person with \$10 each additional family member, and \$3.00 for junior (pebble pups).

Membership is from September to September.

Non-member subscription to *The Mountain Gem* is \$15.00 per year. Donations are tax deductible.

The Mountain Gem Staff: Editor, Linda Behr; Assistants: Elizabeth Jones, Sharon and Bob John. Articles written by members of our club may be borrowed provided credit is given to the author and *The Mountain Gem*.



The Franklin Gem and Mineral
Museum

25 Phillips Street
Franklin, NC 28734
Phone: 828-369-7831

In the Old Jail House
FREE ADMISSION

May 1 - October 31

Monday Thru Saturday 12 p.m. - 4 p.m.

November 1 - April 30:

Only Saturdays: 12 p.m. - 4 p.m.

Open Year Round For Tours
And Special Requests

www.fgmm.org

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Secretary	Sharon John	369-0161
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Museum Ass't. Mgr.	Gary Gaetano	369-7697
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American Federation
Bulletin Awards

1994 (7th), 1995 (2nd),
1996 (2nd), 1997 (5th),
1998 (5th), 1999 (3rd),
2000 (5th), 2004 (7th),
2005 (2nd) 2006 (10th)
2008 (5th) 2009 (3rd)

**2010-2011
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Budget & Finance	Marie Tsacrios	369-5791
	Michelle Loewy	349-3483
Constitution/By-Laws	Joe Nicoletti	941-416-550
Door Prizes	Dean Plesner	349-4224
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Field Trips	John Hayes	524-8062
Gemboree	Jack Jungles	369-6664
Gemboree Ass't.	Fred Plesner	349-4224
Historian	Sharon John	369-0161
Librarian	Dean Plesner	349-4224
Membership	Linda Behr	349-0827
**Publications	Linda Behr	349-0827
Publicity	Fred Plesner	349-4224
Programs	Linda Smith	342-8288
Refreshments	Frances Martinelli	349-9182
Scholarships	Jean Emerson	828-293-7784
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Southeast Federation
Bulletin Awards

1976, 77, 78, 79, 92, 94, 95
1996-99 (1st)
2003 2nd New Editor
2004 (2nd), 2005 (2nd)
2006 (1st), 2008 (2nd),
2009 (1st)

American Federation (AFMS): www.amfed.org
Southeast Federation (SFMS): www.amfed.org/sfms
Franklin Gem Museum and Society: www.fgmm.org
Email for the Society is: franklingemsociety@fastmail.fm



General Meeting

Date: January 27, 2011
 Time: 6:30 p.m.
 Day: Thursday
 Where: Community Center
 on 441 South

We will be privileged to have Bruce Siegfried give a humorous talk on stretching our brain with rocks and questionable rock-related “stuff.”

You won’t want to miss this fun filled presentation by our talented Bruce.



Congratulations to Bob and Sharon John on their 50th wedding anniversary .

Member News

Wally Smith suffered a rupture appendix . We hope that he is on the road to a very quick recovery.

Ray and Linda Behr made another cruise trip to the Southern Caribbean...just to relax. Ray’s nephew and his wife accompanied them on the 10-day cruise.



Michelle Loewy has taken over the society’s website. It takes more work than one would expect and **Ray Behr** certainly appreciates her taken this job.

Linda Sterrett made a trip to visit her mother during the Christmas holidays.

Elizabeth (Siegfried) Jones will be the assistant Gift Shop manager.

Dean Plesner just returned from visiting with her mother in Georgia.

Marie Tsacrios is feeling better after returning home and coming down with stomach flu-like symptoms.

Our winter is turning out similar to last year. If we can all keep our electricity and have no roof leaks, we’ll be happy.

We need someone to check into our slides and the slide projector. We have some great pictures from many years ago for a program. If you feel so inclined, please contact **Ray Behr**.

One member had to shovel an area for his dog to do his business during the latest snow

FEBRUARY

BIRTHDAYS

4 – Jack Jungles
 15 – Wendell Kenney
 17 – Rex Larkin
 22 – Tom Sterrett

FEBRUARY

@NNIVERSARIES

6 – Wally & Doris Smith
 24 – Jerry & Marilyn Kolle

**The Gem and Mineral Society of Franklin
Board Meeting of December 7, 2010**

The December Board of Directors Meeting was called to order by President **Tom Sterrett** at 6:35 p.m. in the Museum Meeting Room.

Present were: **Tom Sterrett, Fred Plesner, Arlon Eldridge, Marty Martinez, Michelle Loewy, Linda Smith and Sharon John.**

Absent were: **Marie Tsacrios, Ray Behr and Linda Behr.**

Tom Sterrett reported that the Window Wonderland went very well.

Treasurer's Report: **Michelle Loewy** reported that the total income for November was \$809.71, total expenses were \$4,698.08 with a deficit of \$3,888.37. The deficit is larger than usual due to the painting of the Museum.

The painting of the Museum is finished. The heating system is being worked on.

Gift Shop: **Elizabeth Jones** will be the new assistant Gift Shop Manager.

Publicity: Fred Plesner mailed more brochures out to I-77N.

We are in need of a Staffing Director for monthly staffing of the museum.

Meeting adjourned at 6:50 p.m.

Respectfully submitted,
Sharon John, Secretary



Due to the End of the Year party, there was no official business done at the party. Even though there were only 25 members and eight guests present, fun was had by all.

A great big thank you to **Tom Sterrett** and **Arlon Eldridge** for donating the prizes.

**February deadline for
the newsletter is
FEBRUARY 7TH.
THANK YOU!**



Tom Sterrett

January 2011, President's Letter

The weather is snowy, cold and blustery. The holiday season is behind us. A new year is in front and a great chance at a new start. Why not volunteer at the museum this year? We open May 1st, 6 days a week and only 4 hours a day. Wouldn't you spare 4 hours a month?

A lot of exciting shows, events and speakers are planned this year. How about a seat on the museum's board of directors, or possibly an officer's position?

We are still tinkering with our museum cheat sheets and expect to roll them out by May 1 or earlier.

The waterfall outside is done (and frozen) with fencing to follow soon. Painting outside is finished, the inside is being freshened also. While many projects are going on, why not volunteer? We could use a hand. See **Ray Behr** for museum maintenance or myself for committee/board positions.

Hope this year is better than the last for everyone.
Happy New Year!

As always – Rock On!



Attention Club Members:

The SFMS has a **ROCKHOUND OF THE YEAR**. So if there is someone that you would like to nominate from our club, here is your opportunity. Please put in writing who and why you wish to submit this person.

Send to the board for them to consider.

**Gems Along the Erie Canal
July 6 – 10, 2011**

Syracuse, NY

An extended weekend of fun and
friendship

AFMS Uniform Rules meeting - July 6
AFMS Annual Meeting / Cracker Barrel - July 7
EFMLS Annual Meeting - July 8 (evening)
AFMS/EFMLS Awards Banquet - July 9
Breakfast with the Editors and Webmasters –
July 10





BE SAFE – BE WELL

Don Monroe - Safety Committee



New Traffic Law - "Move Over"

New law: If a patrol car is pulled over to the side of the road, you have to change to the next lane (away from the stopped vehicle) or slow down to at least 20 mph under the posted speed limit. Every state except Hawaii and Maryland and the District of Columbia has this law. In California, the Move-Over law became operative on January 1, 2010.

A friend's son got \$754 ticket for this recently. A police car was on the side of the road giving a ticket to someone else. The boy slowed down to pass but did not move into the other lane. A second police car immediately pulled him over and gave him the ticket. The boy was unaware of this new law.

It is a fairly new law that states if any emergency vehicle is on the side of the road, if you are able, you are to move into the far lane. Please let everyone you know that drives about this new law.

This law is also enforced in North Carolina.

How to Saw Montana Agate

Author unknown

People not familiar with working with Montana agate have, perhaps, wondered how to set up to saw the first nodule they acquire. Most Montana nodules are found in 2 shapes, flat and slightly curving or round, and elongated. As this material has rolled hundreds of miles down turbulent streams nearly all of it is cracked, so take this into consideration when sawing to get the largest slab free from fractures.



First, look into the rocks with a strong light to determine which way the moss or banding layers lie. Light cuts can be taken of an end or a side, at right angles to the layers that will then reveal whether you should slab from end to end or side to side. Many people who are used to sawing thundereggs get used to sawing each nodule through the center to expose the pattern. While this method works well with nodules it cannot be used to best advantage with Montana material. It will probably ruin the best sprays as the largest and best ones usually lie towards the center. Sawing across them will render them valueless. Only a very few specimens carry fine large sprays so do not be disappointed if the first few do not have them. About the time you are ready to give up one of the poorest looking pieces may have the fine spray you are looking for.

Grindings, et. al; West Seattle *Petroglyphs* 9-05,
Via *Strata Gem* 9-2006 (SCRIBE)

Lapidary not Rapidity

Safety Chairman Don Monroe
AFMS DEC/JAN 2010-11 NEWSLETTER

Whether you do Lapidary Work or purchase items produced by lapidarists, you will often see jewelry that is not well done. This jewelry frequently suffers from a lack of attention and has obviously not received care when being fabricated because the craftsperson was in a hurry and did not concentrate on his task.

A careful evaluation of a piece of jewelry may show soldered joints that do not fit closely together or demonstrate poor soldering technique. Sometimes the piece may show that it has been overheated or too much solder or the wrong solder has been used. At times we may see an item of jewelry that shows that too little solder may have been used but this is not often the case.

Why do crafts persons not do their very best all of the time? I really do not know the answer to this question but will offer the following suggestions.

Some people have not received the proper training. They often think that making jewelry is really not complicated and they have not asked for help or do not know where to go to get training.

This is a sad situation because I believe that in every state in this great nation there is one or more Gem and Mineral Clubs or Lapidary Schools. These clubs and schools have knowledgeable members who can advise where to find instruction or, in many cases, can even provide instruction themselves.

Most of us involved in the hobby of lapidary truly want to see our hobby grow and prosper and will go out of our way to help beginners. In addition to the quality and appearance factors, getting in too big a hurry has a lot of safety ramifications. Just a casual visit to a lapidary class will often show just how careless some people can be. We have seen students and teachers set their work bench on fire. We have seen personnel lose control of their work piece while buffing or polishing which can definitely cause injury to the piece or the operator. There is the potential for cuts, bruises and eye injuries and infrequently a broken finger.

We all need to slow down, concentrate on our work and be safe.

"A smile is a curve that sets everything straight."

---Phyllis Diller





Something to Think About

by Bob Miller, President of the
AFMS
December's AFMS'S newsletter

How often have you noticed at a club meeting that a member will stand up with an idea and mention that "Somebody", should do it?

I would like to share a short story about "Somebody" that I read in *The Rockhounder*, an Eastern Federation club bulletin. I got their permission to use the story.

Once upon a time there were four people. Their names were Everybody, Somebody, Nobody and Anybody. Whenever there was an important job to be done, Everybody was sure that Somebody would do it. Anybody could have done it, but Nobody did it. When Nobody did it, Everybody got angry because it was Everybody's job. Everybody thought that Somebody would do it, but Nobody realized that Nobody would do it. So consequently Everybody blamed Somebody when Nobody did what Anybody could have done in the first place. Sound familiar? Instead how about "I have an idea and I will do it."

December is the end of the calendar year and is also known as the season for giving. A couple of suggestions that "Anybody" could use would be a gift subscription to *Rock and Gem Magazine*, the official magazine of AFMS that contains lots of tips and articles about the hobby, or a membership in ALAA (American Lands Access Association) the organization that is working to keep our collecting rights from disappearing. Other ideas might include subscriptions to *Rocks and Minerals* or *Mineralogical Record* magazines or, for your editor, a membership in S.C.R.I.B.E.

With that in mind I would like to wish all a Merry Christmas, Happy Chanukah and a happy, healthy and a prosperous new year.

Cheerz, Bob



A cannibal entered the meat market to buy something nice for dinner. The owner greeted him and told him to look around. The cannibal began to inspect the meat case and noticed the market specialized in brains.

Upon further inspection he noticed a marked disparity between the costs of brain meats.

A carpenter's brain sells for \$1.50 per pound. A plumber's brain sells for \$2.25 per pound. He noticed with alarm that a mineral collector's brain sells for \$375.00 a pound. With not a little curiosity he asked the owner why the huge difference in price between the similar meats. The owner responded with a deadpan look on his face, "Do you realize how many mineral Collectors it takes to get a pound of brains?"

It is really
cold in
Franklin with
more snow
than last winter...but it is
soooooo
beautiful.



SNACKS IN MUSEUM ARE FUNDED BY MONEY LEFT IN BLUE CUP.

ONLY WHEN THERE IS ENOUGH MONEY, CAN THE SNACKS BE REPLENISHED.

Tentative List of Courses for Federation Workshop at William Holland, June 12-18, 2011

OPALS with Sarah Lee Boyce
CABOCHONS with Richard Shackleton
FACETING with Bill Roberts
FUSED GLASS with Renee Kelley
SILVER I with Don Roberts
WIRE I with Velima Lawson

CHAIN with Dee & Bill Conybear
ENAMELING with Bob Mattingly
LAMPWORK with Ann Royer
SEED BEADING with Barbara Green
SILVER II with Vicky Prillaman
SILVER FILIGREE with Shannon Stafford
& Paige Worrick



Turquoise

By John Zentz for *Star-O-Lite* December 2010

*If cold December gave you birth,
The month of snow and ice and mirth.
Place on your hand a turquoise blue;
Success will bless whate'er you do. [Author unknown]*

The traditional birthstones for December are zircon and ruby. The modern birthstones are turquoise and blue topaz. This series has already covered sapphires and topaz so this final article will cover zircon and turquoise. I also wish to offer my gratitude to our unknown author for composing the verses I have used the past twelve months, and to Tiffany & Co. for publishing the poem in 1870. In the hustle and bustle of everyday life, we may not remember that some of our actions or contributions may live well beyond our three score and ten.

When many of us see turquoise we think of the southwest United States and Native Americans, or perhaps the Aztec culture. Actually, the use of turquoise as a gemstone began much earlier, at least 6,000 years earlier. Egyptians were mining turquoise in the Sinai as early as 5,500 BC. Early mining in Persia (modern day Iran) continues to this day producing some of the most sought after specimens, pure turquoise without the limonite veining seen in most modern stones. Thousands of years ago the eastern Mediterranean area, or Levant, was a vital trade hub for the Orient, northeast Africa and Western Europe. The Levantine traders, known as Turks, introduced the stone to Europeans. This probably accounts for the name turquoise.

Turquoise is an opaque hydrous phosphate of copper and aluminum. Its color varies from blue to green with the copper, along with iron and zinc impurities, controlling the exact shade. Turquoise is nearly always cryptocrystalline and massive. Crystals are extremely rare, even at the microscopic level. Compared to most other gemstones, turquoise is a little softer, less dense and more porous. Even so, it takes a good polish and its beautiful color makes it appropriate for jewelry as long as it is gently cleaned and cared for.

Several states in the Southwest United States have produced significant quantities of turquoise with Arizona and Nevada currently being the most productive. Most American turquoise is relatively low quality and shouldn't be used in jewelry until it is treated by waxing, oiling or stabilization. Waxing and oiling are generally accepted by tradition. Another acceptable treatment of gem quality American turquoise is the backing of thin cuts to prevent cracking. Other enhancements should be disclosed to buyers but, as always, a buyer must beware. Untreated gem quality American turquoise is available, but will sell at a premium.



Turquoise is said to attract money, success and love, provide protection, healing, courage, friendship and luck. It is sacred to many Native Americans. Turquoise carvings of animals were placed in tombs to attract beneficial spirits and guard the dead. Warriors also fixed turquoise to the ends of their bows to increase accuracy.

A long held belief is that turquoise will change colors when the wearer is near death. We do know that the porosity of turquoise makes it very susceptible to contamination by skin oils, solvents, perfumes, cosmetics and cleaning fluids. Prolonged exposure to sunlight can also discolor turquoise. These characteristics make it easy to see how this belief originated.

With proper care this ancient gemstone, with the color so striking and distinctive its name is used to describe all other objects of that color, can give our eyes a welcome treat during a month when nature rests and provides so few colors of her own.

Picture via <http://en.wikipedia.org/wiki/Turquoise>



A couple had two young boys who were excessively mischievous. Their parents knew that if any mischief occurred in their town, their sons were probably involved.

The boys' mother heard that a clergyman in town had been successful in disciplining children, so she asked if he would speak with her boys. The clergyman agreed, but asked to see them individually. The mother agreed and sent the youngest in first.

The clergyman, a huge man with a booming voice, sat the younger boy down and asked him sternly, "Where is God?" The boy's mouth dropped open, but he made no response. He sat there with his mouth hanging open, wide eyed. So the clergyman repeated the question in an even sterner tone, "Where is God?" Again the boy made no attempt to answer. So the clergyman raised his voice even more and shook his finger in the boy's face and bellowed, "WHERE IS GOD?"

The boy screamed and bolted from the room, ran directly home and dove into his closet, slamming the door behind him. When his older brother found him in the closet, he asked, "What happened?"

Gasping for breath, the younger brother replied, "We are in BIG trouble this time, dude. God is missing—and they think WE did it!"

<http://www.ncfbmagazine.org/2010/05/on-the-lighter-side-mayjune-2010/>



Fake Hematite Jewelry

By Dave Millis, ROCK DOC

It has come to my attention through a friend's disappointment that there is a new variety of fake hematite jewelry on sale. As a reminder, here are a couple of old techniques.

Most common fake uses of magnetite which is magnetic and easily detected. The process is to grind up the minerals, mix them with some kind of plastic or epoxy binder, and extrude them into finished shapes. The shapes quickly harden; beads already have holes and no drilling is required! If molds are used you can sometimes spot beads with incomplete areas where the mold did not fill completely. In general, the finished jewelry looks great and is often less than a dollar per necklace; sadly some dealers buy them for 50 cents and resell for over \$10 with the implication that they are not fake. It is virtually impossible to find true hematite necklaces nowadays. The first test should be the magnet test; hematite is not magnetic.

The earlier fakes used hematite without magnetite, so in a sense, it was real hematite jewelry, but the hematite was never cut to shape and/or drilled to make beads. You can check this with a 10X magnifier. Drilled beads will always have small imperfections around the edge of the hole.

The new fake uses no hematite at all! The bead in question is actually molded copper. The surface is some kind of anodized coating which looks like the steel-gray hematite color. The coating is however quite thin and can wear away. My friend and I also suspect that salt in ocean breezes speeds up the process.

From *Shin Skinner* May 2010.

Halite

Halite is the mineral form of sodium chloride, NaCl, commonly known as rock salt. Halite occurs as cubic crystals that are typically colorless to white, but may also be light blue, dark blue or pink. Halite typically forms in sedimentary rocks of evaporative association and may form immense beds, in cave deposits, dried up playas and enclosed lakes, and in salt domes. Its crystallization comes from oversaturated brines in open vugs formed by pressurized gas.

Halite's crystal structure is predominantly cubes but is also found in granular, fibrous or compact forms. It has a vitreous luster and a hardness of 2 to 2.5 on the Mohs scale.

Halite occurs all over the world but the most notable deposits are in Germany, Poland, Sicily, and India. Rose to pink colored cubes are formed in the salinas such as the Salton Sea and Searles Lake in California.

Halite is found in extensive underground beds in the Michigan Basin, underlying Ohio, Michigan and New York, as numerous salt domes along the Gulf Coast, and in the Permian Basin of Texas and New Mexico.

Rare large "golden" halite cubes were found in the PCA mine, in the Carlsbad potash district, of Eddy County, New Mexico. The large crystals, measuring more than 1 m in size, were discovered in April of 1962, and a second cave was discovered several months later with even larger crystals.

The remarkable "golden" color of the crystals came from finely dispersed iron oxides, which are quite common in these deposits. Smaller crystals were recovered by miners but the fate of these crystals is unknown. At the moment there are plans under way to flood the entire mine and convert it into a salt brine production facility which will mean the loss of any remaining crystals.

Information for this article came from: www.newworldencyclopedia.org/; <http://giantcrystals.strahlen.org/America/Carlsbad.htm> and www.cochise.edu.

Both articles via *Flint Flashes* June 2010



Funny Ad Campaign Blunders

And Slogan Mistranslations from American Advertising Campaigns in Other Countries

In Taiwan, the translation of the Pepsi @slogan:
Come alive with the Pepsi® Generation

came out in Chinese as Pepsi® will bring your ancestors back from the grave.



When Parker Pen® marketed a ballpoint pen in Mexico, its ads were supposed to say *it won't leak in your pocket and embarrass you*.

However, the company mistakenly thought the Spanish word *embarazar* meant *embarrass*.

Instead the ads said:

It won't leak in your pocket and make you pregnant.

Via the Internet



THE GEOLOGY AND GLOBAL POLITICS OF RARE EARTHS: WHY OUR HIGH TECH LIFESTYLE IS UNDER PRESSURE

By Andy Weinzapfel

Remember that old periodic table from high school? Rare earth elements (REEs) include the entire lanthanide group plus yttrium. Scandium is sometimes included. These elements have similar chemical properties and therefore tend to occur together in nature. They have one other thing in common: difficult-to-pronounce names!

The term “rare earth” is a misnomer, because most REEs are not that rare. The estimated average concentration in the Earth’s crust ranges from about 150 to 220 parts per million, exceeding that of many commonly mined metals, like copper (55 parts per million) and zinc (70 parts per million). The problem is there are few geologic processes that concentrate REEs, unlike most other elements. This has major economic consequences, addressed later.

REE ores are characterized as either “light”, dominated by cerium, or “heavy”, dominated by yttrium. Some well-known minerals that contain cerium and other light REEs include bastnaesite (pictured), monazite, allanite, lanthanite, cerite, and fluocerite.



Well known minerals that contain yttrium and other heavy REEs include gadolinite, xenotime, samarskite, euxenite, fergusonite, and yttrifluorite. The smaller ionic size of the yttrium-group elements allows greater solubility in rock-forming minerals, and thus yttrium and the heavy REEs show less enrichment in the Earth’s crust than do cerium and the light REEs. This has economic implications: large ore bodies of the cerium (light) REEs are more common, while those of yttrium (heavy) REEs tend to be rarer, smaller, and less common.

REE Applications Geology and Geographic Distributions of Rare Earths

While a few uses for REEs are mundane, most are exotic. Modern research into the diverse nuclear, metallurgical, electrical, magnetic, optical, and catalytic properties of REEs has opened up new cutting edge applications.

The lapidary world has used cerium oxide as a polishing agent for many decades. Perhaps the most notable use of rare earth oxides for polishing is on the Hubble Space Telescope mirror. YAG, synthetic yttrium aluminum garnet, was once common in jewelry, replaced for the most part today by cubic zirconia.

The earliest color TV sets had poor quality red, until europium was introduced as a phosphor dopant. REEs mixed with tungsten improve high temperature properties for welding. Various REEs are used in high refractive index lenses, catalysts for oil refineries and self-cleaning ovens, positron-emission tomography (PET scan), and wind turbines. Virtually everything in the kitchen—including your microwave oven and coffeemaker—uses REEs. REEs are critical to iPhones, MP3 players, high temperature superconductors, lasers, hybrid-car components (especially batteries and motors), and optical-fiber communication systems. Many defense-related products use REEs, including night-vision goggles, rangefinders, and smart-bomb guidance systems. A motor made with neodymium-iron-boron magnets is far more powerful than one made with iron magnets. One of the more interesting inventions is magnetic refrigeration and heating. Air conditioners that use REE magnets consume 1/10th the electricity of standard systems, with the added benefit of fewer moving parts.

Geology and Geographic Distributions of Rare Earths

Even after 4.5 billion years of Earth history, natural geologic separation of REEs has been extremely poor relative to almost all other elements we consume. Although REEs disseminated in Earth’s crust are not uncommon, *economic* concentrations of rare earth elements are indeed rare. The illustration below, from the USGS, shows the historic production of REEs over a 50-year period (chart on page 11):

From 1950-65, monazite, derived from veins and placers in South Africa, India, Madagascar, and Brazil, was the primary rare earth ore. The chief REE in monazite is cerium. Monazite is radioactive because of the presence of thorium. In 1949, the most important REE discovery in the USA was made by accident, when two prospectors in the Mojave Desert of California, using a borrowed Geiger counter, located a radioactive outcrop they thought contained uranium. Samples sent to the USGS contained, instead, a “worthless” rare earth fluorocarbonate mineral called *bastnaesite*. Intrigued, the USGS conducted field investigations, which uncovered a 1.4-billion-year-old carbonatite intrusion containing light REEs. Carbonatites are unusual alkaline intrusive rocks composed predominately of calcite and dolomite. Globally, they often have higher levels of REEs and other unusual elements than average rocks. *Continued to next page.*



Continued from page 9

From 1965 through the mid-1980s, the USA was virtually self-sufficient in REEs because of output from the Mountain Pass mine. However, there were environmental problems with ruptures of a wastewater pipeline that spilled thorium – laced radioactive water, derived from bastnaesite. The mine was closed in the 1990s in response to both environmental restrictions and lower global prices for REEs, although processing of previously mined ore continued at the site. There are bold new plans for this deposit, discussed below.

The green area on the chart addresses the production of REEs from Inner Mongolia, China, which began around 1985 and surged afterwards. China, a low cost producer, literally shut down REE mines elsewhere by exporting cheap product. Today, China produces about 95 to 97% of all REEs consumed, from a poorly understood geologic ore type known as lateritic iron-absorption clays. In tropical environments, rocks are deeply weathered to form iron-aluminum rich soil profiles as much as many tens of meters thick. These soils commonly concentrate heavy minerals, leached from previously exposed rock, as residual deposits. In China, REEs are concentrated sufficiently in laterites to produce economic deposits of significant size and grade. *Samarskite, Jefferson Co., CO (webmineral.com)*

These deposits contain both light and heavy REEs. Granitic pegmatites, very coarse grained rocks solidifying late in the history of an intrusion, may also contain anomalous concentrations of REEs, both light and heavy. Often, these bodies are zoned, having a quartz core, with REEs concentrated outward. While many diverse REE minerals occur in pegmatites, reserves tend to be small, and pegmatitic deposits have therefore been of interest primarily to mineral collectors.

Ongoing exploration and development efforts include work in Canada, Vietnam, Greenland, Australia, and Alaska. Geopolitics and the Future Today, global demand for REEs is straining supply. The current Chinese near monopoly, at a time when our high tech society is demanding more rare earths, is a big strategic concern, having national and global consequences. Furthermore, China has been gradually reducing export quotas, with the plan to continue this trend. China is thought to sell REEs to internal manufacturers for much less than export prices, in order to stimulate internal growth. They have also cracked down on smuggling of REEs. In December, 2010, they introduced new export taxes, essentially telling the rest of the world to “go find your own REEs”. Japan’s supply from China is especially threatened because of souring relations, and Japanese industry is scrambling to find rare earths elsewhere.

The Mountain Pass carbonatite deposit in California, discussed earlier, is the largest known economic occurrence of light REEs in the western hemisphere, and possibly the world. This property, owned by Molycorp, has been the source of several recent developments that will impact global supply. In December, 2010, all necessary permits were secured to ramp up production from 3,000 metric tons/year rare earth oxides to 20,000 metric tons/year by 2012. Joint ventures with Sumitomo Corp and Hitachi Metals will supply capital and expertise to meet the company’s “mine to magnets” stated goal. A new production facility will be built on site to manufacture neodymium-iron-boron alloys and magnets.

Another recent development is extraction of REEs from electronic waste. New advances in recycling technology have made extraction more feasible. Mining and refining of REE ores have significant environmental consequences if not properly managed, due to the common association of radioactive thorium and uranium. Continued possible price escalation, coupled with growing environmental initiatives worldwide, will make recycling of REEs an important part of future supply. Nevertheless, it appears that global demand will significantly outstrip total REE supply in a few years without major new discoveries.

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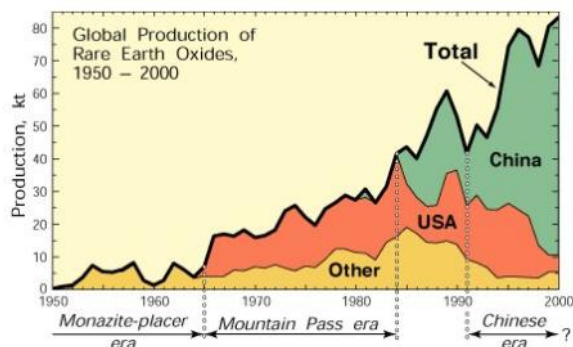
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Mountain Pass Mining District, California

Reprinted from Lake George Gem and Mineral Club Newsletter January, 2011

Bastnaesite crystal (Khyberminerals.com)

<http://geology.csupomona.edu/drjessey/fieldtrips/mtp/mtnpass.htm> (From *Mountain Gem* editor: other pictures from this article were excluded due to space limitations.)



Dear Club Members,

The article on pages 9 and 10 are quite long but I know that you will recognize some of the minerals named in the article.

Several editors have been talking about our country's future with what is happening with these resources.

Although this is not a political article, some of you might want to be aware of the repercussions of what is happening with China.

These are excuse notes that school secretaries have actually received. Some of these were in an article in the Detroit News back in the 1970s.



"Please excuse John for being absent Jan. 28, 29, 30, 31, 32, and 33."



Pictured is Al Sapin with his wife (both Franklin residents) who is now wearing the club's 2010 raffle ruby ring.

The smiles on their faces says it all.

Picture taken by Ray Behr, museum manager,

Dixie Mineral Council Field Trips
The Southeast Federation of Mineralogical Societies,
Inc
The Friendly Federation - Founded in 1976 to serve.
DMC Program of the SFMS Field
Trip Committee - Copyright © All rights
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An Official Field Trip of Jacksonville
Gem and Mineral Society (Jacksonville,
FL) (HOST)
An Official Field Trip of the Gem & Mineral Society of
Franklin, NC

Saturday, January 29, 2011; 8 am to 5 pm
Fort Drum Crystal Mine/ Rucks Pit, Fort Drum, FL
Cost per person: \$20 for DMC members/\$30 for others
(bring a copy of flier).

It is reported that this is the only location in the world where calcified marine clam shells can be found. There have also been reports of fossils at this location. The main pit has been closed to public collecting, but we have been advised that Eddie will bring in freshly excavated material the day prior to our arrival.

Contact: JGMS Field Trip Coordinator: Lucy Miller
email LucyAnn323@aol.com or 904-838-5026
Fort Drum Crystal Mine/Rucks Pit-863-634-4579

Coming Shows

Jan.15-16—Nashville, TENN: Retail show; Intergalactic Bead & Jewelry Shows; Al Menah Shrine Temple, 1354 Brick Church Pike; Sat. 10-5, Sun. 10-5; \$5 adults Sat., \$4 Sun., children under 12 free; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass, vintage beads, crystals, delicas; contact Angela Couch, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

Feb. 5-6—Duluth, GA: Retail show; Intergalactic Bead & Jewelry Shows; Gwinnett Center-Hall C, 6400 Sugarloaf Pkwy.; Sat. 10-5, Sun. 10-5; adults \$5 Sat., \$4 Sun., children under 12 free; dealers, precious and semiprecious gemstone beads, sterling silver, findings, freshwater pearls, hand-blown glass, vintage beads, crystals, delicas; contact Angela Couch, (888) 729-6904; e-mail: angela.couch@beadshows.com; Web site: www.beadshows.com

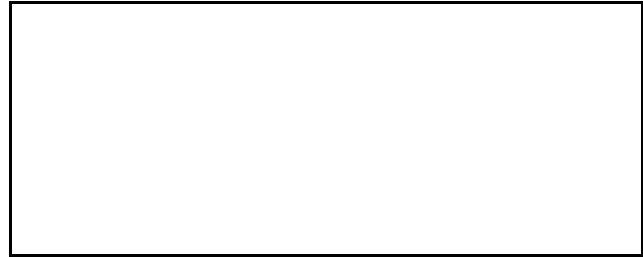


THE MOUNTAIN GEM

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Save Stamps for SFMS Scholarship

July Gemboree
July 28-31, 2011
Saturday 10 a.m.-6 p.m.
Sunday noon-5.p.m.

MONTH	BOARD	GENERAL
JANUARY	25	27
FEBRUARY	22	24
MARCH	29	31
APRIL	26	28
MAY	24	26
JUNE	28	30
JULY	19	21

General Meetings: 6:30 p.m. the last Thursday of the month (note changes)
West Large Meeting Room of the Macon County Community Facilities Building
HWY 441 S

Meeting changes will be posted in the monthly newsletter.

Board Meetings: 6:30 p.m.
At the Franklin Gem & Mineral Museum
All Board Meetings are open to the members.

If you want to submit something before the Board, contact the President prior to meeting.