

WHITTIER

**ROCKHOUNDER**  
GEM & MINERAL  
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**May Program: Three Precious Gems:  
Rubies, Emeralds, Sapphires  
(Part 2)**



Seldom seen desert hazard: dry quicksand! Yep, that's right. Been known to swallow whole cars. Seeing is believing. Trust me.

# ROCKHOUNDER

## THE PREZ SEZ:

May is here and I 'm wondering where the May flowers are?

If you missed the last meeting you missed a great program on gold prospecting. This month we are going to have a fieldtrip down to the Pala area. Most of the mines in the area are fee digs; there is the Stewart, the Ocean View, and the Himalaya to mention a few. If you are planning on going *please*, let me know as soon as possible as many of the mines have minimum group size requirements. The fee amounts vary with the mine. I'll be looking into campgrounds, fees and amenities that each offer and I'll let you know ASAP if you have called with you're intention of going.

There are also other things to do at this time and in the months that follow. Such as building new cases, planning the show (it will be here before you know it), and a yard sale, as well as others to be announced.

*See you at the meeting*  
*Joe Goetz*

### Words to Live By?

When in danger,  
Or in doubt,  
Run in circles,  
Scream and shout.

*Terryism #1, words of wisdom by Bullwinkle J. Moose*

**WGMS General Meeting**

**Thursday, May 22, 2008**

**at 7:30 PM**

**May Program: Three Precious Gems:  
Rubies, Emeralds, Sapphires  
(Part 2)**

**B**ack in March, our program was supposed to be a guest speaker but he called in sick (the dirty dog!). Instead we were treated to a surprisingly well done and interesting video titled, "Three Precious Gems." At that time we only got to see half of the presentation.

So for your edification, the plan for the May program is to enjoy the second half of this excellent program.

As always, there will be coffee and snacks, and our fine and fun raffle.

*Marcia Goetz*

**Rockgabbers**

**T**he April meeting of the Rockgabbers was at the Turner's home on April 12<sup>th</sup>. The theme of the workshop was twisted wire. Members created a variety of different pieces utilizing the twisted wire. Some people took the twisted wire and ran it through the rolling mill to make a decorative bezel wire.

As always, the meeting concluded with a pot luck dinner.

The next meeting of the Rockgabbers, which is yet to be scheduled, will be at the Turner's home, and the project will be silver fusing. This is the technique used to make those beautiful loop in loop chains that Jerry displays at our shows. Because Jerry is the expert at this technique, Jerry will be teaching the class, and the project will be one of the simpler chains that Jerry makes. Of course, the meeting will end with a potluck dinner.

*Sandie and Tony Fender*

**Picnic/Potluck in the Park**

**Thursday, June 19, 2008**

**Michigan Park**

**6:00 PM**

**T**he annual **WGMS June Picnic/Potluck in the Park** is going to be held on **June 19** this year to allow more members to attend this fun social event.

We will commandeer a group of picnic tables at Michigan Avenue Park and meet up at 6:00 PM to enjoy the company and food with our fellow club members and friends.

As always, bring an entrée, salad, dessert or side dish to share, and don't forget that it is BYO (bring your own) plates, silverware and drinks. You should also bring conversation, friendship and perhaps a little attitude to enhance this special alfresco dining experience.

Note: More info will be in the June Bulletin. ED

**News From Around the Club**

**L**es Roy is still recovering from a fall from a couple of months ago and could use some company.

Condolences go out to Tony and Sandie Fender who lost Sitka, their canine companion of 11 years. Sitka, an Alaskan Husky, was one of Susan Butcher's working sled dogs when Tony and Sandie went up to Alaska and adopted her. In the ensuing years Sitka enjoyed many field trips and became a loving and gentle pet. She had been suffering from complications of her digestive system and had to be put down.

It is with sadness that we report that Betty Akin, wife of long-time member, Jim Akin and grandmother of Past-President James LaBorde passed away.

Sylvia Cliffe recently underwent minor surgery and is recovering fine. The thing is, though, her doctor won't let her go on any field trips for a while until she is completely healed (believe me, we feel your pain... no field trips...)

## **How Amethyst Cathedrals Form**

**O**ne of my fondest memories of the Tucson Gem and Mineral Show is coming upon a parking lot full of enormous amethyst geodes ("cathedrals") 6 feet or more high, resting partly in the sawdust of their packing crates. The bulbous to tubular geodes were big enough for an adult to sit in, and lined with deep purple gemmy amethyst, sparking in the Arizona sunlight. All for sale! How do such wonders form?

These excellent geodes come from a region along the Brazil-Uruguay border. The genesis of deposits on the Brazil side of the border has recently been extensively researched by an international team of geochemists lead by H. Albert Gilg of Technische University Munchen in Germany (Gilg, et. al., 2003). The geodes are mined from several lava flows belonging to the Parana Continental Flood Basalt Province. This was one of the largest outpourings of basalt lava known. An estimated 800,000 cubic kilometers of lava extruded over an 11 million year time span. For comparison, this would be enough to cover Minnesota with a pile of basalt lava over 2 miles high. The lava outburst occurred as part of the opening of the South Atlantic Ocean during Cretaceous time about 130 million years ago. Of all these flows, however, only a few are known to host amethyst cathedral geodes.

Gilg et. al. proposed a 2-stage model for their formation. In the first stage the large hollows form. This was caused as volcanic gases were released from certain lavas as they cooled. Not every lava has enough dissolved gas to form such big openings. As gas bubbles emerged from the congealing lava (much as bubbles emerge when beer or soda pop is poured) they coalesced as they rose. The lava was cooling fast too, and soon became so thick and sticky that bubbles quit rising and were trapped. The bulbous to tubular shapes thus point towards the top of the flow, a fact easily seen when the geodes are in place in the mines. These cavities, though, were empty of crystals.

The second stage was the formation of the amethyst, plus celadonite, calcite and gypsum fillings. An important clue to this event is the presence of small gas and liquid bubbles (called fluid inclusions) trapped within these minerals. These are samples of the mineral-forming liquids caught as the crystals grew. Fluid inclusions are treasure troves of information when studied with

sophisticated instruments. Analyses of the fluid inclusions in the amethyst, calcite and gypsum show them to be filled with slightly salty water. This water had a temperature of no more than 100 degrees C, and possibly less than 50 degrees C, during mineral formation. These cannot be fluids related to the magma that formed the lavas.

What was the source of these fluids? An amazing story unfolds from the radiometric dating of the minerals. The basalts formed about 130 million years ago, but the green celadonite, which makes up the rinds of the geodes, formed about 70 million years ago. For 60 million years these enormous cavities sat empty of crystals. Trace element data from the fluid inclusions gives another important clue to the source of the mineral-forming fluid. Below the lavas is a large aquifer (the Botucatu aquifer) filled with ground water that closely resembles the fluid inclusion liquids. Uplift and tilting of the area about 70 million years ago would force water out of the aquifer into the porous areas of the overlying lava. In the lava flow these waters would have found volcanic glass. Glass breaks down over geologic time and makes silica and other chemicals available in a form that is readily soluble in water soaking through the rocks. The water carried these chemicals into the cavities, where the amethyst and other minerals grew due to cooling and pressure release.

The special combination of geologic circumstances, unfolding over millions of years, is not often duplicated. Understanding the process gives geologist tools to prospect more efficiently for these wonders.

*Dr. Bill Cordua, U. Wisconsin- River Falls  
2007, Leaverite News, vol 32 #2 p.5*

Reference:

Gilg, H. et. al, 2003, "Genesis of amethyst geodes in basaltic rocks of the Serra Geral Formation (Ametista do Sul, Rio Grande do Sul, Brazil): a fluid inclusion, REE, oxygen, carbon, and Sr isotope study on basalt, quartz and calcite" *Mineralium Deposita* vol. 38, p. 1009-1025.

*ED. Reprinted with permission of the author, Dr. Bill Cordua*

**1-Day Field Trip  
May 24, 2008  
Himalaya or Blue Lady**

**W**e have an opportunity to visit either the Himalaya or Blue Lady Mines (or both) which can be found in the Northern San Diego County area. Your field trip options are as follows:

**Option 1:** The Himalaya Mine operators brings tailings down from the mine and for a fee you can screen the tailings pile for gemstones. The cost for an all day (10 AM -3 PM) screening for tourmaline is \$75. If you also wish to tour an active tourmaline mine, that is an additional \$20. Buckets can be purchased for \$50/bucket, or \$100 for the extra special bucket to go. Tools and screens are available on site. If you want to bring your own tools, you will need a shovel, rubber gloves, muddy shoes, hat, bag for tourmaline, bucket, and a 1/4 inch wire mesh 10"x12" screen.

**Option 2:** Go to Himalaya Mine, buy a bucket(s) then go to Blue Lady Mine. This group will reach the Blue Lady at about 12 PM.

The Option 1 & 2 groups both will meet at: 25439 Highway 76, Santa Ysabel, CA at 10AM on Saturday morning.

Information and maps will be available at the meeting but if you want to go to the Himalaya Mine you need to contact either Joe Goetz or Jay Valle as soon as possible for a head count. More info can be found on-line at:

[http://www.highdesertgemsandminerals.com/html/himalaya\\_mine\\_digs.html](http://www.highdesertgemsandminerals.com/html/himalaya_mine_digs.html).

**Option 3:** Meet the field trip leader at the Glider Port in Warner Springs at 9 AM and he will lead the group to the Blue Lady Mine. This location requires a certain amount of climbing, though the main diggings can be reached via a dirt road by most people (no wheelchairs). The famous blue "pencils" and other pegmatite minerals can be collected here. An interesting tourmalinated quartz (black tourmaline in quartz) can also be collected but a moderate hike is needed to get to the collecting area.

Depending on how dirty you want to get, bring a rock hammer, shovel, screens, collecting buckets/bags, spray bottles, water and lunch.

Regular cars are suitable for both of the places we will be going. Please contact **Joe Goetz at (626) 914-5030** or **Jay Valle at (626) 934-9764** if you wish to join us for our Himalaya/Blue Lady adventure.

## **Field Trip Report Castle Butte**

**T**he April field trip was the weekend of 26th and 27th to Castle Butte. Thirty three people were there at one time or another with about 25 camping for the entire weekend, representing six different clubs (Monterey Park, North Orange County, Palmdale, Pasadena, Whittier, Woodland Hills).

The weather was hot, though it was still cooler than Pasadena and there was a bit of a breeze which kept it more comfortable.

On Friday evening there were enough people that we had an impromptu pot luck dinner. The wind was up a bit, so most dined in the shelter of the RVs. After dusk, the wind died down and there was a campfire that night as we planned the following morning trips.

Saturday morning several more people arrived and we left on our morning trip to the bloodstone, the petrified wood and the purple agate. The collecting at the bloodstone found everyone finding enough to make them happy. At the petrified wood site, there had been considerable digging with pits going down to the ash layer. Some wood was found, but it was starting to get rather hot so we decided to move on to the purple agate area which was a less strenuous digging activity. Most people found some purple agate and from there we returned to camp for lunch.

In the afternoon we went out to the honey onyx where one of the field trippers opened up a large seam and pulled out some beautiful honey onyx. From there we went to the travertine mine. We then returned to camp to prepare for the Saturday evening pot luck which, following tradition, was deliciously wonderful with various foods for every taste. As usual there was more food at the pot luck than could be eaten but everybody seemed to enjoy the meal. Again there was a campfire that night.

Sunday saw more day-trippers arriving and we went to the blue agate and looked for the peach agate. By noon we returned to camp for lunch, after which many people left for home, with a few staying over till Monday.

Sandie & Tony Fender

## Pegmatology 101

### What is a pegmatite?

How do you define a rock with diverse mineralogy, variable textural features, complex structural units, and exotic geochemistry? In part, because of these qualities, pegmatites are difficult to define briefly and accurately. They have been described as unique, striking, bizarre, erratic, confusing, puzzling, unusual, to name just a few. So why do scientist study pegmatites? **Because they are unique, striking, bizarre, erratic, confusing, puzzling, and unusual.**

The word *pegmatite* was first used in print (1813) by A. Brogniart who ascribed the term (apparently a classroom usage) to L'Abbe Hauy. The term was used to describe a rock composed of “feldspar lamellae and quartz” otherwise known as the synonym, graphic granite.

In 1845, W. Haidinger was apparently the first to use the word pegmatite to describe “coarse-grained, feldspar-rich granites”. However, in 1849, A. Delesse used the word *pegmatite* to also include rocks of *very* large grains which consisted of orthoclase, quartz and silvery mica, and which occur so commonly in the form of dikes, small stocks and nests in other rocks. Our present-day use of the word follows the basic idea of Delesse, but also include the caveat that they be of igneous origin. In most cases, the igneous rocks are of granitic composition, although other compositions (e.g., granodioritic, gabbroic) may exist. Many others include as part of the definition, aspects about the mineralogy, texture, structure, chemistry and mode of occurrence. Taking this approach, we can define pegmatites as such: **Pegmatite**, in the strictest sense, is a textural term used to describe exceptionally coarse- to gigantic-grained igneous rocks. They occur as tabular dikes, sill, lenses or veins near the margins of plutons. They tend to have zoned or layered structures, extremely variable texture of mineral aggregates and some of them are enriched in rare elements. The shape and size of pegmatites vary greatly from linear, tabular bodies with straight edges to bulbous and irregular masses to turnip-shaped bodies. Pegmatites may be several meters long and less than 1 meter thick or as much as 3000 meters long to 700 meters wide.

### Where are pegmatites found?

Pegmatites are widely distributed in the earth’s crust and are found on all

continents (yes...even Antarctica.). They are most abundant in mountain chains and on stable shield areas (like the Canadian Shield). They are typically associated with large granite bodies often distributed along their margins, but are also found within them.

### **How old are pegmatites?**

Pegmatites are almost as old as the earth's crust. Pegmatites of Precambrian age (2.8 to 1.0 billion years) are the most abundant and widespread. These are generally found in the stable shields of Canada, Greenland, Russia and similar geologic environments. In contrast, some of the youngest pegmatites (roughly 20 to 5 million years) are found in the Himalaya mountains of Pakistan and Nepal.

### **Why are pegmatites important?**

Granitic pegmatites are important sources of rare-elements, such as beryllium, niobium, tantalum, tin, lithium, rubidium, cesium and gallium; industrial minerals; gems and mineral specimens. When present in economic quantities, these rare-elements may be extracted for use in a wide range of technological applications, such as lightweight alloys, nuclear engineering and electronics (beryllium); ceramics, pharmaceutical products, lubricants, smelting of aluminum ore and lithium-batteries (lithium); electronic capacitors, jet engines and prosthetic devices (tantalum); magnetohydrodynamic electric generators, biological and medical research (cesium); and integrated circuits and light-emitting laser diodes (gallium).

The industrial minerals, feldspar and quartz, are extracted from pegmatite deposits for use by the glass and ceramic industries, while mica is used in construction materials and insulation.

Some of the world's best-known gem material is obtained from pegmatite deposits. Varieties of beryl (aquamarine, golden, morganite), spodumene (kunzite, hiddenite) and tourmaline (pink, green and multi-colored elbaite), as well as garnet and topaz are all valued precious stones originating from pegmatites.

Although alternative geologic sources are available, pegmatites remain a primary source of some rare-metals, and for this reason, our understanding of

(Continued on page 13)

## **Summary of Life**

**T**he following lists have been floating around the Internet for years. They are reprinted here for your enjoyment. ED

### **GREAT TRUTHS THAT LITTLE CHILDREN HAVE LEARNED:**

1. No matter how hard you try, you can't baptize cats.
2. When your mom is mad at your dad, don't let her brush your hair.
3. If your sister hits you, don't hit her back. They always catch the second
4. person
5. Never ask your 3-year old brother to hold a tomato.
6. You can't trust dogs to watch your food.
7. Don't sneeze when someone is cutting your hair.
8. Never hold a dust-buster and a cat at the same time.
9. You can't hide a piece of broccoli in a glass of milk.
10. Don't wear polka-dot underwear under white shorts.
11. The best place to be when you're sad is Grandpa's lap.

### **GREAT TRUTHS THAT ADULTS HAVE LEARNED:**

1. Raising teenagers is like nailing jelly to a tree.
2. Wrinkles don't hurt.
3. Families are like fudge...mostly sweet, with a few nuts
4. Today's mighty oak is just yesterday's nut that held its ground.
5. Laughing is good exercise. It's like jogging on the inside.
6. Middle age is when you choose your cereal for the fiber, not the toy.

### **GREAT TRUTHS ABOUT GROWING OLD:**

1. Growing old is mandatory; growing up is optional.
2. Forget the health food. I need all the preservatives I can get..
3. When you fall down, you wonder what else you can do while you're down there.
4. You're getting old when you get the same sensation from a rocking chair
5. that you once got from a roller coaster.
6. It's frustrating when you know all the answers but nobody bothers to ask
7. you the questions.
8. Time may be a great healer, but it's a lousy beautician.
9. Wisdom comes with age, but sometimes age comes alone.

**THE FOUR STAGES OF LIFE:**

1. You believe in Santa Claus.
2. You don't believe in Santa Claus.
3. You are Santa Claus.
4. You look like Santa Claus.

**SUCCESS:**

At age 4 success is .....not peeing in your pants.  
At age 12 success is .....having friends.  
At age 17 success is .....having a driver's license.  
At age 35 success is .....having money.  
At age 50 success is .....having money.  
At age 70 success is .....having a drivers license.  
At age 75 success is .....having friends.  
At age 80 success is .....not peeing in your pants.

*Received from Nancy Bird, via the Internet*

**Pegmatology 101**  
(Continued from page 11)

the economic potential and pegmatite-generating process must be constantly upgraded.

**How large can minerals grow?**

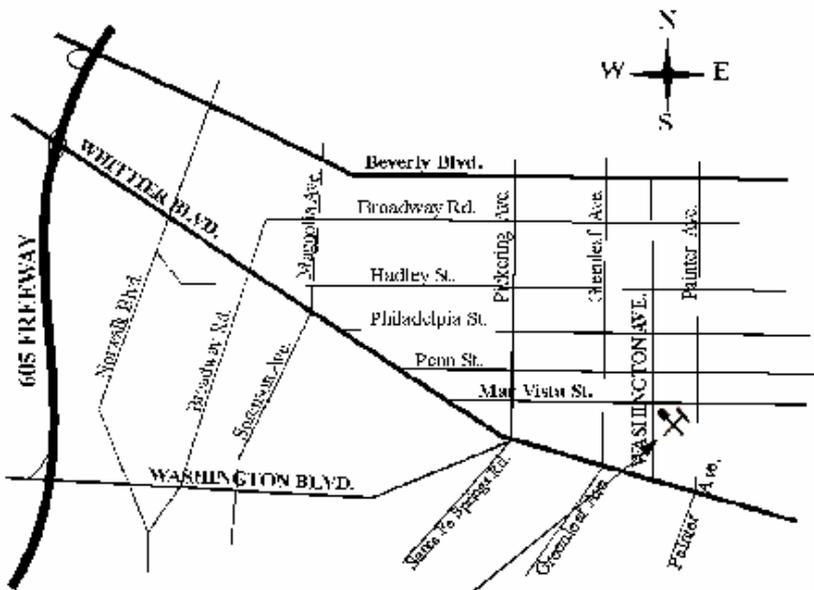
One of the features which attract many people to pegmatites, for the first time, are the abundance of minerals that are found in them. There have been about 550 different minerals found in pegmatites. Pegmatite minerals are typically much larger than most minerals in other rocks. For example, the minerals in granites are typically on the order of a few millimeters across whereas similar minerals in pegmatites may be several centimeters or meters across. The purple tourmaline on the right, "The Rocket", illustrates how large some minerals can grow. The largest known crystal in a pegmatite, a spodumene from South Dakota, measured almost 13 meters (42 feet) long.

[http://www.pegmatology.com/basic\\_info.htm#What](http://www.pegmatology.com/basic_info.htm#What)

**Upcoming CFMS Gem Shows**

- May 17-18 Yucaipa, CA.** Yucaipa Valley Gem & Mineral Society  
Yucaipa Community Center, 34900 Oak Glen Road  
Hours: Sat. 9 - 5; Sun. 10 - 4
- May 31 - Glendora, CA.** Glendora Gems  
**June 1** 859 E. Sierra Madre  
Hours: Sat. 10 - 5; Sun. 10 - 4
- May 31 - Woodland Hills, CA.** Rockatomics Gem & Mineral Society  
**June 1** Pierce College, Victory and Mason  
Hours: 10 - 5 both days
- June 7-8 La Habra, CA.** North Orange County Gem & Mineral Society  
La Habra Community Center, 101 W. La Habra Blvd.  
Hours: 9 - 5 both days
- June 27-29 Ventura, CA.** California Federation of Mineralogical Societies  
Ventura County Fairgrounds  
Hours: 10-5 Daily
- July 12-13 Culver City, CA.** Culver City Rock & Mineral Club  
Culver City Veteran's Memorial Auditorium  
4117 Overland Avenue  
Hours: Sat. 10 - 6; Sun. 10 - 5
- Oct 18-19 Whittier, CA.** Whittier Gem & Mineral Society  
Whittier Community Center, 7630 Washington Avenue  
Hours: 10 - 5 both days
- Aug 1-3 Nipomo, CA.** Orcutt Mineral Society  
St. Joseph Church, 298 S. Thompson Ave.  
Hours: 10-5 daily
- Sept 13-14 Downey, CA.** Delvers Gem & Mineral Society  
Woman's Club of Downey, 9813 Paramount Blvd  
Hours: Sat. 10 - 6; Sun. 10 - 4
- Sept 25-28 San Bernardino CA,** Orange Belt Mineral Society, Inc.  
Western Region Little League Ball Park  
6707 Little League Dr.  
Hours: 9 a.m. - Dusk each day

WGMS MEETING LOCATION!  
Whittier Community Center  
7630 Washington Ave. Whittier



MAR VISTA & WASHINGTON AVE.  WHITTIER COMMUNITY CENTER

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Affiliations



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**Meeting Date: May 22, 2008 at 7:30 PM**  
**Location: Whittier Community Center**  
**(see pages 4 & 15 for map & information)**