



**Minutes of the Clear Lake Gem and Mineral  
December 21, 2009**

Ed Tindell called the abbreviated Christmas Meeting to Order after a wonderful Christmas Dinner. President Ed Tindell opened the meeting with the Pledge of Allegiance. The minutes of last month's meeting were approved.

Ed told us he had a wonderful time as President and hoped to serve again sometime when job duties allowed.

Al Pennington gave a quick show status and then we moved to the main business, electing the new 2010 Officers.

The slate was:

President – Bob Brock

Vice President – Ed Tindell

Secretary – Annabel Williams

Treasurer – Loyce Pennington

Program Director – Trina Willoughby and Leslie Gary

Board of Directors – Cheryl Tindell – David Tjiok - Trina Willoughby Ben Dugger

Newsletter Editor – Al Pennington

Ed started through each position, but Al Pennington moved we approve the slate by acclamation, Dick Rathjen seconded and all members voted in favor of the new officers.

There was no New Business or Old Business so the meeting was adjourned.

Respectfully submitted

Al Pennington

Substituting for the Secretary

**Gemstones of the Bible**

A summary by J. Michael Howard

The ancients were not versed in the science of mineralogy, they did have names for the many commonly used minerals and stones of their day. A number of these can be directly traced back to the mineral, gem, or type of stone they used. However, some are clouded, now and forever, by the veil of time. Lack of specific information about the characteristics, particularly color, is not available. Therefore, you will find much speculation in the literature. The translation of the original Hebrew and then translation by later writers from the ancient Grecian language has added to the confusion.

It is easier to understand why 12 stones are mentioned in Revelations 12 is an important number in the Bible. The 12 tribes of Israel, the 12 apostles, the 12 stones of the foundation of the New Temple of Jerusalem. Our best knowledge of the characteristics of these 12 stones come by considering the 12 stones of the Breastplate of the High Priest of Israel, each representing a tribe of Israel.

One of the earliest writers to associate with the apostles the symbolism of the gems given in Revelations is by Andreas, bishop of Caesurae. He gives a brief description of the stones, which is recounted in George F. Kunz's book *The Curious Lore of Precious Stones* (1913).

- The Jasper, which like the emerald is of a greenish hue, signifies St. Peter. Jasper: The ancient Hebrew name was Yashpneh. A translucent stone of green hue. Jasper has been known from early times as a fine-grained variety of quartz. It occurs in many different colors and hues, but green was particularly valued. An early variety discovered in India and still mined there today is called bloodstone. It is dark to medium green with small spots of red scattered throughout. It has been said that it originated when Christ's blood fell to the ground and was scattered on the rocks under the Cross, which is a nice story but was used and prized in India long before Christ's birth. However, many early Christians wore it to remind them of Christ's sacrifice.
- The Sapphire is likened to the Heavens (from this stone is made a color popularly called lazur) and signifies St. Paul. Sapphire or Lapis Lazuli: The Hebrew name of Sappir. The sacred character of this stone was attested by the tradition that the Law given to Moses on the Mount was engraved on tablets of sapphire. This is not the blue sapphire we think of as the faceted gemstone, but instead the rich blue stone now relatively popular in jewelry known as lapis or lapis

lazuli. It was well known and often used by the ancients as a blue paint pigment when ground to a powder. Much of what is now sold comes from Afghanistan.

- The Chalcedony may well have been considered what we now call the carbuncle and represented St. Andrew. Chalcedony or Emerald: Hebrew name of Bareketh. There is some confusion concerning this stone because chalcedony is a milk-white fine-grained variety of quartz and the non-gem form of emerald (beryl) is typically a sea green to grayish to white hard mineral that forms six sided elongate crystals. All emeralds are relatively uncommon in occurrence, whereas chalcedony is common. Both minerals are relatively resistant to weathering and might be found in river gravels or on the surface of the ground. It is known that there were active emerald mines during this time providing this stone to Egypt.
- The Emerald which is of a green color, is nourished with oil that its transparency and beauty may not change; this stone signifies St. John the Evangelist. Emerald or Garnet: Hebrew name of Nophek. The literal translation of the ancient Hebrew name means glowing coal. So this could not be the green stone we call emerald, but instead is thought to be a bright red variety of garnet: almandine.
- The Sardonyx, which shows a certain transparency and purity of the human nail, represents James. Sardonyx or Onyx: Hebrew name of Yahalom. The traditional interpretation is onyx. Some Greek writers considered it to mean diamond as the translation of the Hebrew word means to smite or cut. However, there is no evidence that the Hebrews knew of diamond. However, onyx was a well-known stone, which was carved into seals and used with wax. Therefore, the term to smite may mean to strike as with a seal on hot wax. Onyx is a common soft stone, composed of calcium carbonate and deposited in caves. Much banded onyx today is cut and polished as inexpensive novelty items.
- The Sardius with its tawny and translucent coloring suggests fire and represents Philip. Sardius or Carnelian: Hebrew name of Odem. Carnelian is a translucent hard fine-grained variety of orangish red quartz that has often been used for ring stones and wax seals.
- The Chrysolite, gleaming with the splendor of gold, symbolizes Bartholomew.
- The Beryl, imitating the colors of the sea and air, and not unlike the jacinth, suggests Thomas.
- The Topaz, (Modern name Peridot) which is of a ruddy color, resembling somewhat the carbuncle, denotes Matthew. Topaz or Peridot: Hebrew name of Pitdah. The Hebrew word appears derived from a Sanscrit word meaning yellow. Some theologians think it could have been serpentine. However, the topazius of ancient writers usually signified the gem variety of olivine called peridot.
- The Chrysoprase, more brightly tinged with a gold hue than gold itself, symbolizes St. Thaddaeus. Chrysoprase or Citrine: Hebrew name of Tarshish. The original stone of the Hebrews came from Phoenician mines in what is now Spain. Black quartz crystal was heated until it turned a pale golden brown color. The Hebrew word literally means golden stone and was given to the region that produced it : Tartessus.
- The Jacinth, which is of a celestial hue, signifies Simon. Jacinth or amber. Others suggest a brown variety of sapphire. However, brown agate is known to have been commonly worn by the Hebrews during their early history and, therefore, would seem to have greater significance as one of the New Temple's foundation stones.
- The Amethyst, which shows to the onlooker a fiery aspect, signifies Matthew. Amethyst: Hebrew name of Ahlamah. The Hebrew word is directly translated as amethyst. Abundant supplies of this violet to purple variety of crystalline quartz were available from both Arabia and Syria.
- Agate: Hebrew name of Shebo. A banded variety of agate, commonly used by Egyptians, had distinctive gray and white alternating bands that would have contrasted well with the other varieties of fine-grained quartz.
- Onyx or Turquoise: Hebrew name of Shoham. The Catholic translation is onyx, whereas the earlier translators considered this stone beryl. However, there is little to guide us. Some theologians have suggested this stone might have been malachite, a green stone well known to the Egyptians. However, the discovery of ancient turquoise mines on the Sinai Peninsula, which were worked by the Egyptians, reveal the distinct possibility this stone was actually pale green or pastel blue turquoise.

The carbuncle is a beautiful gem of a rich red color found in the East Indies. When held up to the sun, it loses its deep tinge and becomes the color of a burning coal. Sometimes, the name is applied to the Ruby, Sapphire, Red Spinel and Garnet. Also called Firestone.

**A January HAPPY BIRTHDAY**

Marvin Holbrook	4
Roy Garms	14
Keith Overton	14
Ed Tindell	17
Al Pennington	31

**Garnet (constancy).**

Garnet is derived from the Latin granatum, meaning "seedlike," because the gem resembles the pomegranate.

**January Anniversary includes:**

Joyce Parker	9
Helen & Ron Kosler	14
William Cox	27



**2010 DUES ARE DUE**

**GOODIE GETTERS...For January**



Main Goodies provided by club.

**Lapidary Corner** (Special request from a new member)

**WARNING ABOUT SOYBEAN OIL FOR CUTTING...**

A year and a half or so ago, someone in one of the Midwestern states wrote an article about using soybean oil for cutting rocks as it was clean and odorless and no environmental effects. So I decided to give it a try.

It worked very well at first when the weather was warm in summer, but when cooler weather came in the fall, I noticed it started to thicken up. I figured this was only natural, but as time went on, I found the carriage was getting harder to move back and forth and the cross feed difficult to operate. During last winter I didn't do any sawing and when I was ready to resume last spring, I found I could not move anything in the saw. Everything was coated with a very tough film about 2 mm thick and semi-hardened. When I proceeded to clean it up, I found nothing would touch it. After trying various solvents, cleaners, and even gasoline, I finally tried paint and varnish remover and that worked. After a lot of hard work and expletives, I got the box and lid fairly well cleaned up but had no way to get the threads of the cross feed underneath. So I loaded the whole thing up and took it to a steam cleaner. They worked on it for an hour or more, using different agents and finally got enough so the cross feed could be cranked again.

So the bottom line is, **DO NOT USE SOYBEAN OIL IN YOUR ROCK SAWS.** I hope none of you have tried it as I did. From Rock Roller Club 6/96 via Southwest Gems 7/97 via The Stone Chipper 7/97 via The RoadRunner 8/97.

**Table of Diamond Powder Sizes**

In the table given below, Column 1 is micron number as sold. Column 2 is range of micron sizes in that micron number. Column 3 is approximate mesh or grit size of particles. Column 4 is usual use of that micron sized diamond. Diamond powders are sold by micron sizes. A micron is one thousandth of a millimeter (1/1000-mm) or 0.00254 inches. A mesh size is the number of wires per inch in a screen mesh. Thus a mesh or grit of 100 will pass through a screen with 100 wires to the inch (or 10,000 openings per square inch), but cannot pass through the next smaller screen.

Col 1	Col 2	Col 3	Column 4
1/4	0-1/2	100,000	Superfine Polishing
1/2	0-1	50,000	"
1	0-2	14,000	Fine Polishing
3	1-5	8,000	"
6	4-8	3,000	Lapping & Sanding
9	6-12	2,000	"
15	8-22	1,200	" ,Rapid Sanding
30	30-40	600	" "
45	30-60	400	Coarse Lapping, Sand
60	40-80	325	Very Coarse Lap, Grind

Lapidary Digest Nov 97

**GOLD CLOTH OF LONG AGO**

Until the Middle Ages, underwater divers near the Mediterranean coastline, collected golden strands from the pen shell, which used the strands to hold itself in place. Called "bypssus" the strands were woven into a luxury textile, a "cloth of gold", and made into ladies gloves so fine that a pair could be packed into an empty walnut shell. Examples of this lost art exist today in some museums, and the cloth retains its color and softness.

(From the Son Diego Pegmatite via The Rocky Ledger and MWF Newsletter)

**Field Trips (2010)** by Ed Tindell

**Pow Wow Field Trips - During  
the QIA Pow Wow 2010  
Hosted by Quartzsite Roadrunners  
Gem & Mineral Club**

\* High Clearance vehicles only, please.  
\*\* Trips are subject to change. Mileage  
figures are approximate and one-way.

Date	Destination	Material	Meet **
Wednesday, Jan 20	Plamosa Rd	Red/Yellow Jasper, Agate	North
	Quartzsite	Alunite	East
Thursday, Jan 21	Plamosa Rd	Red Jasper, Hematite	North
	Stone Cabin	Birdseye Rhyolite	South
Friday, Jan 22	Quinn Pass	Green-Banded Rhyolite	North
	Salome *	Marble	East
Saturday, Jan 23	Earp	Purple Jasper, Agate	North
	Wiley Wells	Banded Agate	West
Sunday, Jan 24	Plamosa Rd	Barite	North
	Hwy 10 MM45	Desert Roses	East

**All trips depart at 9 a.m. sharp.  
Come early and check in with the  
Wagon Master.**

Wear comfortable walking shoes.  
Bring a hat, sack lunch and plenty of  
drinking water.

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Thanks,  
Ed Tindell  
2010 CLGMS Field Trip Coordinator  
a.k.a. "The Official Cat Herder"

**A LITTLE IRON GOES A LONG WAY**

People are always searching for ways to counteract the effects of the rusting of iron and of iron rust stains. However, it was not always that way. Ancient peoples often used iron rust, or ocher, in their decorations.

Iron rust is very common in nature and the iron oxide (of which rusts consists) or sometimes iron atoms themselves, are often responsible for the coloration of some of our most important gemstones. Some minerals that are used for jewelry have iron as a principle constituent. Hematite is 70% iron, and pyrite (marcasite) is 40% iron. Most of the gate and jasper that contains yellow, brown, and red colored zones are colored by the iron that is included in them.

In some gemstones, however, very small traces of iron within the crystal structure of the mineral can produce dramatic changes in color. A few tenths of a percent of iron within the crystal can turn an ordinary looking mineral into a beautiful gem that has both esthetic and monetary value.

A few tenths of a percent of iron in the lattice structure of quartz produces both the citrine and amethyst. If citrine is irradiated, it becomes amethyst, and if amethyst is heated it is altered to citrine. This process is reversible.

Beryl is another gemstone in which traces of iron can influence the color. In aquamarine, a few percent of iron causes both the green and the blue color that can be found in the gemstone, depending upon where the iron atoms are located within the crystal lattice. The green color can be removed by heat, leaving only the blue color. This is more pleasing by present day standards. The green color can be replaced by irradiation if desired.

The color of golden beryl also is caused by a small percentage of iron atoms, in fact, the same atoms that sometimes make aquamarine look green. It can be bleached to a colorless beryl (goshenite) by heat and then returned to its golden hue by irradiation.

When on tenth to three tenths of a percent of the mineral corundum is iron atoms, it produces a yellow gemstone known as yellow sapphire. If a like amount of the metal titanium is also present, we have the more desirable and better known blue sapphire.

There are many other gemstones and minerals that owe their color to traces of iron, sometimes by itself and sometimes in combinations with other elements.

Credits; THE ROADRUNNER AUGUST 2006, Richard Knox in Tumble Rumble, others via Glacial Drifter 3/96

## Marcasite -Pyrite's Evil Twin

by Dr. Bill Cordua,

University of Wisconsin-River Falls

Reprinted from Dec 2009 LOESS Bulletin Vol XXIII, No. 12

Marcasite and pyrite are two common minerals. Both are  $\text{FeS}_2$  chemically, making them polymorphs. Polymorphs are minerals with the same chemical composition but different crystal structures. Diamond and graphite are polymorphs, both minerals being pure carbon. In diamond and graphite the different arrangement of carbon atoms gives these two minerals very different physical properties.

Pyrite and marcasite, on the other hand, have almost identical physical properties, making them tough to tell from each other. Let's go through their properties. Both are metallic and pale yellow to brassy yellow. Both can tarnish and be iridescent. Both are 6-6.5 on the Mohs' hardness scale. Neither has a particularly prominent cleavage, although marcasite does have one that occasionally shows up. Both have densities of about 5 grams per cubic centimeter (pyrite is a bit denser, but not enough to be detectable without delicate measurements). They can even be found together in the same rock



Fortunately these minerals often show good outer crystal shapes that are quite different. Pyrite crystals are generally equant, and dominated by cubes, octahedrons and 12-sided pyritohedrons. Marcasite crystals are usually rectangular (tabular) with wedge-shaped ends and tend to form in star shaped, radiating or cockscomb groups. Marcasite is also much more restricted in occurrence than pyrite, forming only in low temperature, near surface, very acidic environments. It is found in some ore deposits, in sediments formed under somewhat stagnant conditions and as ground water precipitates in rocks such as in limestone and shale. Although pyrite can also be found in many of these same environments, the crystal shapes are diagnostic.

On a local note, small marcasite and pyrite crystal groups occur in the dolostone bedrock up and down in the Mississippi River in Wisconsin and Minnesota. These minerals, however, have been replaced by goethite (iron hydroxide) so are brown, not bright and brassy.

Why do I say marcasite is "pyrite's evil twin"? First, jewelry sold as "marcasite" is really polished pyrite. From a marketing sense, pyrite is often associated with the term "fool's gold" and who wants jewelry made out of that? "Marcasite" sounds much more glitzy, even though it too is a type of fool's gold. The second reason is marcasite's propensity to break down fast when exposed to the air. Over time marcasite specimens, if unprotected (and sometimes even if protected) will break down to a crumbling mass of white to yellow iron sulfates, leaving a stain on your shelf caused by weak sulfuric acid. I've heard various explanations for this. It may be due to inorganic reactions involving oxygen and moisture in the air. Some contend that marcasite is great food for certain bacteria that metabolize the sulfide rapidly and cause its breakdown.

The marcasite from Wisconsin's lead - zinc mining district is notorious for this. You can get a faint whiff of sulfur rich fumes when you examine samples from this region. I was afraid to move a sample on display in the Geology Museum at U.W. - Madison that I wanted photographed by Pete Rodewald because I was sure it would crumble to a million pieces. This is one reason why specimens from this region are not as widely collected as from, for example, the Viburnum Trend or the Tristate district of Oklahoma- Kansas and Missouri. Some pyrite is susceptible to this decay; in fact the condition is sometimes referred to as "pyrite disease".



On the other hand, some marcasite stays stable in collections for decades. I personally wonder if a lot of stable “marcasite” may actually be pyrite pseudomorphs (replacements). I’ve tried several preservation modes. I’ve sprayed samples with clear Krylon, but the sample’s appearance is compromised and eventually the decay comes through, so the samples just fall apart slower. I’ve also tried soaking the samples in ammonia to neutralize the acid and kill off bacteria, then rinsing and drying them thoroughly and keeping them in a very dry environment.

On the web you can read about other strategies, such as storing marcasite specimens permanently immersed in water to keep out oxygen. As for “marcasite” jewelry, you can see why you don’t really want to wear true marcasite beads! Your skin moisture would speed the decay process. The yellow powdery stains on your skin would be definitely embarrassing, but the stings of sulfuric acid burns could be downright painful.

From CentrILL Gems, 12/09

### Labradorite

By Dave Jacobson

This month our mineral is Labradorite, calcium sodium aluminum silicate,  $Ca(50-70\%)Na(30-50\%)(Al,Si)Al_2Si_2O_8$ . Labradorite is in the Silicate class of minerals, subclass Tectosilicates, Feldspar group, and Plagioclase series.

Labradorite is notable because of the colorful labradorescence or “shiller” which can be observed when light is reflected at the correct angle across the surface of the mineral. The shiller can range from the blues and violets through greens, yellows and oranges. Labradorite is found in metamorphic rock in Norway, Labrador and the Scandinavian Peninsula. Minerals associated with Labradorite are biotite, pyroxene and hornblend. Labradorite is in the triclinic crystal system but is rarely found as individual crystals. The crystal habits include blocky crystals that are rarely free of the host rock which inhibits viewing the full crystal form. Twinning of the crystals is common. Its color is gray to smoky black. It has a dull to vitreous luster. The crystals are transparent to translucent. It has a conchoidal fracture. When cleaved it forms nearly right angle prisms as the cleavage is good in one direction and perfect in another direction.

Hardness is 6 to 6.5 with a specific gravity of 2.70 to 2.74. It has a white streak when tested on the streak plate. One of the best field indicators for labradorite is its labradorescence (shiller). Labradorite is collected as a mineral specimen and in jewelry making. Industrial uses are in ceramics, glazes and basic refractory’s. Labradorite is sometimes used as a free stone in building.

Labradorite takes its from Labrador, one of the locations where it is found. I used the following reference materials in preparing this article.

Field Guide To Rocks And Minerals by Frederick H. Pough. Mineralogy For Amateurs by John Sinkankus. Simon & Schuster’s Guide to Rocks and Minerals. The Audubon Society Field Guide To Rocks and Minerals. Amethyst Galleries Mineral Gallery on the internet (address <http://mineral.galleries.com>)

From Canaveral Moonstone January 2010

SCFMS and MEMBER CLUB GEM SHOWS			
January 16-17 Fredericksburg, TX Fredericksburg Rockhounds Lady Bird Johnson Municipal Park	January 22-24 Tyler, TX East Texas G&MS Rose Garden Center	February 20-21 Georgetown, TX Williamson Co. G&MS San Gabriel Park	February 20-21 Plainview, TX Hi-Plains G&MS Ollie Liner Center
February 27-28 Pasadena, TX Clear Lake G&MS Pasadena Convention Center	March 6-7 Big Spring, TX Big Spring Prospectors Club Howard Co. Fair Barn	March 6-7 Robstown, TX Gulf Coast G&MS Regional Fairground	March 20-21 Live Oak, TX (San Antonio) Southwest G&MS Live Oak Civic Center 8101 Pat Booker Rd.

STONEY STATEMENTS  
 Clear Lake Gem and Mineral Society, Inc  
 PO BOX 891533  
 Houston, Texas 77289

(Postage)

Meeting 3rd Monday of the Month – 7:30 P.M.  
 January 18, 2010, Clear Lake Park Building  
 5001 NASA Road One, Seabrook, Texas



Member of:

**Next Annual Show**  
 February 27 & 28, 2010  
 Pasadena Convention Center



CLGMS is on the Web: (new location)  
<http://www.clgms.org>

**Clear Lake Gem and Mineral Society, Inc**

MEMBER: American Federation of Mineralogical Societies and South Central Federation of Mineral Societies

PURPOSE: To promote education and popular interest in the various earth sciences; in particular in those hobbies dealing with the art of lapidaries and the earth sciences of minerals, fossils and their associated fields

2010 OFFICERS:	President	Bob Brock	281-338-2252
	Vice President	Ed Tindell	281-930-0698
	Secretary	Annabel Williams	
	Treasurer	Loyce Pennington	281 481-1591
	Program Director	Trina Willoughby	
	Board of Directors:	Trina Willoughby	Ben Dugger
		Cheryl Tindell	David Tjiok
	Newsletter Editor	Al Pennington	281 481-1591

Annual Show 2010.....	Al Pennington	Library.....	Lester Gary
Const & bylaws.....	Dick Rathjen	Membership.....	Mike Flannigan
Community Benefits.....	Nancy Dugger	Publisher.....	Mike Flannigan
Historian.....	David Tjiok	Refreshments.....	David Tjiok

Membership Dues Jan. to Dec. 2010: Adult \$10:00, \$5.00 per additional adult at same address, Junior \$5.00, \$2.50 per member with adult at same address, Family Dues \$20.00 (4+) at same address. Send Dues to CLGMS, PO BOX 891533, Houston, TX, 77289

**Granvil A. "Al" Pennington, Editor 2010 – 11326 Sagetrail Houston, TX 77089-4418**  
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**Deadline for February Issue is January 28, 2010**