A monthly publication of the Clear Lake Gem & Mineral Society

VOLUME 42 MAY 2016 NUMBER 5

NEXT MEETING: **May 16, 2016**
TIME: **7:30 PM**
LOCATION: CLEAR LAKE PARK BUILDING
5001 NASA PARKWAY
SEABROOK, TEXAS

INSIDE THIS ISSUE

MAY MONTHLY MEETING

What is this rock I just found?

by John Mohr, Adjunct Professor of Geology,
College of the Mainland

John Mohr is an Adjunct Professor of Geology at several local colleges including, more recently, College of the Mainland, where he teaches Environmental Science. In his teaching role at other community colleges, John also teaches Physical Geology.

John has over 30 years of experience in the oil & gas field, holding various positions throughout his career. His work has has included upstream well treatment design and fracing

of wells to increase production. John has also spent many years in the midstream, or pipeline industry, working with operators on protection of the company's' assets through corrosion prevention.

John is passionate about Geology and passing along his enthusiasm about the topic. He has a BS in Geology from West Virginia University and an MS in Petroleum Geology from the University of Houston.

John will present the May program, "What is this rock I just found?" One Geologist's view of how to categorize and identify a rock you pick up. Impress your friends with a new vocabulary that you can apply to countertops, patios and gravel walkways.

MAY BIRTHSTONE

As the birthstone for May, the emerald, a symbol of rebirth, is believed to grant the owner foresight, good fortune, and youth.

Emerald, derived from the word *smaragdus*, meaning *green* in Greek, was mined in Egypt as early as 330 B.C.

Today, most of the world's emeralds are mined in Colombia, Brazil, Afghanistan, and Zambia. The availability of high-quality emerald is limited; consequently, treatments to improve clarity are performed regularly.

See more at: http://www.americangemsociety.org

MINUTES OF THE APRIL 25, 2016, MONTHLY MEETING

The April meeting was called to order on the 25th of April. The meeting had been postponed a week due to rain.

- The minutes from last month were approved.
- Three machines were purchased from the estate of Bill Addis for $150. They are going to Gary's (The Treasure Chest) to be looked at. They appear to be ready to be used. Bill was a former president of the club.

· Business cards seem to be very reasonably priced. A motion was made to spend up to $50 on business cards. Jim and Shannon seconded and this was approved.

· Charlie will draft a plan for a fluorescent box.

· The store room door has been fixed. We would like to replace the store room locks with a matching set.

· We approved buying one vest with two pockets to verify that we want them for our vests.

· Next year, prior to the show, we need to have training on how to use the credit card payment system for tickets.

· Charlie and Bernice will be headed to Denver for their show in September. They will probably spend a few days heading out and come back visiting rock shops on the way back. If anyone wants to tag along let them know.

· The rocks that were donated a few months ago have not been sorted yet. Members at this meeting did not know if they had the know how to sort and identify the items. It was suggested to ask Dick R. if he would go through these items for us.

Respectfully submitted:
Trina Willoughby, Secretary

MINUTES OF THE MAY 2, 2016, BOARD MEETING

The board meeting was called to order at 7:30 on May 2nd.

Raul brought the bases for the show signs. Jim and Jerry will take them and make a dozen new bases.

We determined that business cards should have the following items

- Club Name
- Meeting information
- Web address
- Small logo on one side
- Gem and mineral related picture
    - Sara will make mock up business cards.
    - The SCFMS is this weekend. We are unlikely to have a delegate attending this year.

- Sara volunteered her husband Gary to take a look at computers.
- Gem Mine repair for the show was discussed

- The entrance and exit need to be stronger. They are not secure enough.
- May consider doing something else like a digging mine or sand pit. If current type of gem mine used, need mesh with finer mesh.
- Kelly needs to be included in any decisions
- Kelley also needs to be contacted about the need for new containers. Raul will contact her
  - We will likely auction the new machines that were just obtained. We may do this in June.
  - Two scholarship applications were received. These need to be reviewed. If they are acceptable each will receive a $1000 scholarship. The goal is to award in June. Raul will talk to Kim about this.
  - The constitution committee is called back to continue updates on the constitution.
  - The park building is reserved for October 22nd and Nov 19th. Now we need workshops

Respectfully submitted
Trina Willoughby, Secretary

BRECCIA

Breccia is a rock composed of broken fragments of minerals or rock cemented together by a fine-grained matrix that can be similar to or different from the composition of the fragments. The word has its origins in the Italian language, in which it means either “loose gravel” or “stone made by cemented gravel”. A breccia may have a variety of different origins, as indicated by the named types including sedimentary breccia, tectonic breccia, igneous breccia, impact breccia, and hydrothermal breccia.

Breccia forms where broken, angular fragments of rock or mineral debris accumulate. One possible location for breccia formation is at the base of an outcrop where mechanical weathering debris accumulates. Another would be in stream deposits near the outcrop such as an alluvial fan. Some breccias form as debris flow deposits. The angular particle shape reveals that they have not been transported very far (transport wears the sharp points and edges of angular particles into rounded

shapes). After deposition the fragments are bound together by a mineral cement or by a matrix of smaller particles that fills the spaces between the fragments.

Breccia and conglomerate are very similar rocks. They are both clastic sedimentary rocks composed of particles larger than two millimeters in diameter. The difference is in the shape of the large particles. In breccia the large particles are angular in shape but in conglomerate the particles are rounded. This reveals a difference in how far the particles were transported. Near the outcrop where the fragments were produced by mechanical weathering the shape is angular. However, during transport by water away from the outcrop the sharp points and edges of those angular fragments are rounded. The rounded particles would form a conglomerate.

Sources: *Wikipedia, Geology.com. Article submitted by Angela Brown. Photo by Angela Brown of jasper & quartz breccia from Ventura beach.*

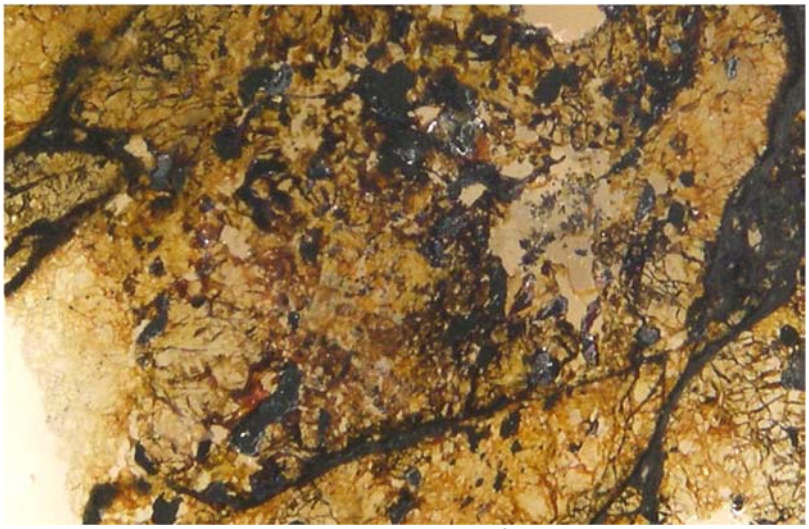
From *Rockhound Rambling* February 2016 via The Quarry, 4/16 via The Rock Collector, 4/16

AUCTION – JUNE MONTHLY MEETING

A set of machines was purchased from the estate of a former club president. The lapidary machines and benches will be auctioned at the June Monthly Meeting. See links below for pictures of the equipment. There are three machines and two benches to mount them on.

http://www.mflan.com/clgms2/covington_polisher.htm
http://www.mflan.com/clgms2/emerson_grinder.htm
http://www.mflan.com/clgms2/great_western_grinder.htm

EARTH'S (REALLY) MOST ABUNDANT MINERAL



Quick: What is earth's most abundant mineral? Do you think it's calcite (i.e., limestone)? Maybe quartz? Perhaps something in the feldspar group? Hmmm…surely, it must be some sort of silicate. Wait a minute! I read my January Conglomerate! It's ice! Well…ice may be the most abundant mineral on the surface of the earth, but what about the earth itself? There's a lot more to the earth than just its surface (crust). Give up yet?

It's bridgmanite! Huh? Never heard of that mineral? Don't have a specimen of it in your collection? Haven't seen it on eBay, at a mineral show, on a mineral dealer's website, or even in a museum? Can't find it in the latest edition of Fleischer's Glossary? Well…don't feel too bad. Until a couple of years ago, no one else had seen it, either, at least not as a natural sample. But (you ask) if it's the most abundant mineral, how could it have remained unseen for so long?

This mineral is believed to make up about 38% of the earth's total volume, representing about 93% of the mantle of the earth. That's right—the mantle, the layer between the crust and the core, which has never been directly sampled or observed. In 1962, it was hypothesized that the lower mantle at depths of 400-1800 miles consisted primarily of a high-density form of magnesium-iron silicate with the chemical formula (Mg,Fe)SiO3 crystallizing in the perovskite structure. (It would be dimorphous with akimotoite, another high-pressure mineral.) Knowing the properties of this "silicate perovskite" would add to our understanding of material and heat transfer within the earth. Its properties were studied indirectly by measuring changes in earthquake waves as they travel through the earth, and high-pressure studies had been performed on synthetic samples. However, since a natural (i.e., non-synthetic) sample of the material had never been observed or studied, it could not be submitted to the IMA Nomenclature Committee to give the mineral an "official" name.

Enter a team scientists headed by Oliver Tschauner from the University of Nevada at Las Vegas and Chi Ma at CalTech. They reasoned that if this mineral phase was only stable under conditions of high pressure and temperature (it's believed that the pressure in the mantle is about 240,000 times the pressure at the surface of the earth, at a temperature of about 2000ºC (3700ºF)), then it could have formed at the earth's surface as a result of the high temperatures and pressures created by a me-teorite impact and then "frozen" when the meteorite cooled suddenly. In 1969, a high-pressure form of olivine (the mineral

ringwoodite) was discovered in the Tenham meteorite (an L6 chondrite which was the first meteorite fall confirmed in Australia (Queensland, 1879), and this meteorite is also the "type locality" for akimotoite (1997), so they reasoned that might be a good place to search for "silicate perovskite" as well. Previous studies on other meteorites had used high-energy electron beams, but these were powerful enough that any of this substance which might have been present would have been decomposed. Therefore, to do their search, they used X-ray crystallography (which is less energetic than electron beams) to determine the structure, and electron microprobe analysis to determine the composition. Since the grains of "silicate perovskite" they found ended up being smaller than 1 micrometre (.00004 in), and are very sparsely scattered throughout the sample, a special micro-focusing apparatus had to be used. It took about five years of painstaking collection of data using these techniques to convince them that they had indeed confirmed the presence of this high-pressure mineral.

Once they were convinced, they submitted their evidence to the IMA Nomenclature Committee, which approved the name bridgmanite on June 2, 2014 (it's IMA 2014-017; type specimen is USNM 7703 in the Smithsonian collection), and their results were published in the November 28, 2014 issue of the journal Science. The name was chosen in honor of Percy Williams Bridgman, who received the Nobel Prize in Physics in 1946 for his pioneering studies of materials (especially minerals) under extremely high pressures. The natural sample had a slightly different composition than the synthetic ones (more iron in its +3 state, along with some sodium), giving them a better "model" to use in studies of the properties of the mantle. Some scientists believe that some inclusions in/on diamonds are marks left on them when bridgmanite from deep in the mantle changed to its low-pressure form during the diamond's trip from the mantle through the crust.

So…the earth's most abundant mineral now has an "official" name. (Unfortunately for Micromounter's Hall of Fame member John Ebner, who collects mounts of minerals prepared by the person for whom the mineral is named, he won't be able to add this one to his collection, since Bridgman passed away in 1961.)

(Note: even though you can't buy a specimen of bridgmanite per se on eBay, it is possible to purchase small bits of the Tenham meteorite from sellers there. Might one of these fragments contain some bridgmanite grains? Guess you'd just have to study them the same way Tschauner, et al. did to find out!)

Via The Conglomerate, 02/15, Via the Rock-N-Rose, 04/16

BENCH TIPS BY BRAD SMITH

DRILLING SMALL ITEMS

Small pieces need to be held securely while drilling to prevent them from spinning if the drill catches. Having sliced my fingers occasionally in my younger days, I avoid band-aids now by using flat-jaw pliers or a ring clamp. Pliers also save you if the piece gets hot. Put a little tape over the jaws of the pliers if needed to avoid scratches.

DRILLING A STONE

One of the things my students often ask to do is drill a hole through a piece of gemstone. The usual thought is to get a diamond drill, but I've been disappointed with them. I think the reason is that the tip of the drill is just pivoting in the hole and does not cut well. When it looks like the drill isn't cutting, the tendency is to push with more force. The drill gets hot, and the diamond grit falls off.

A much better approach is to use a core drill. This is a small hollow tube with a coating of diamond grit at the business end. The diamonds easily carve out a circular arc without undue pressure or heat buildup.

Core drills are readily available from lapidary and jewelry supply companies. They come in sizes as small as 1mm and are very reasonable in price. For instance, a 2mm diameter drill is about $6.

Chuck up the core drill in a drill press, Dremel or Foredom and be sure to keep the drilling zone wet to cool the tool and to flush out debris. Also, if you're drilling a through hole, go very easy on the pressure as the drill is about to cut through. Otherwise you will usually chip off some of the stone surface around the hole.

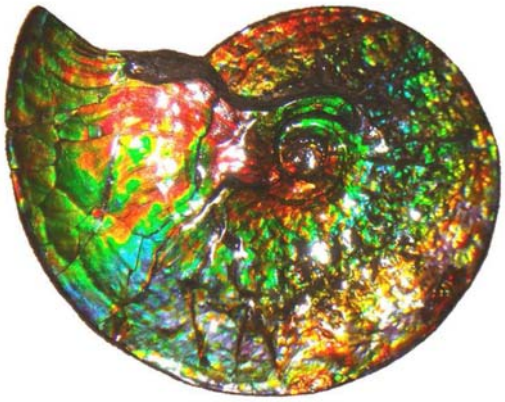
==========

"Bench Tips for Jewelry Making" and "Broom Casting for Creative Jewelry" are available on Amazon.

IT'S A FOSSIL – IT'S A MINERAL IT'S AMMOLITE!

By Shannon Phillips

Ammolite is my current obsession. I first learned about it less than a year ago and since then, I have been fascinated with the gorgeous iridescence and the textured surface of this fossil turned gemstone. Although ammolite is classified as a mineral by the province of Alberta to prevent export complications, it is not a mineral. It belongs to a family of materials called mineraloids, naturally formed or transformed substances that resemble minerals, but lack crystal structure. Some of the world's most beautiful and prized gems, including opal, amber, jet, pearl, obsidian and, of course, ammolite, fall into this category. Each has an interesting story, but let's focus on the lively colors and unusual origins of ammolite. Ammolite was welcomed into the gemstone family in 1981 by the World Jewelery Confederation and is one of only three stones given this designation in the past 50 years.



Commercial mining of ammolite began in Canada that same year and continues to this day. Ammolite was formed in marine shale on the eastern side of the Rocky Mountains. As ammonites inhabiting the shallow sea that covered the region died, their shells settled at the bottom of the seaway where they were covered with sediment, mostly layers of ash from the volcanic activity in the area.

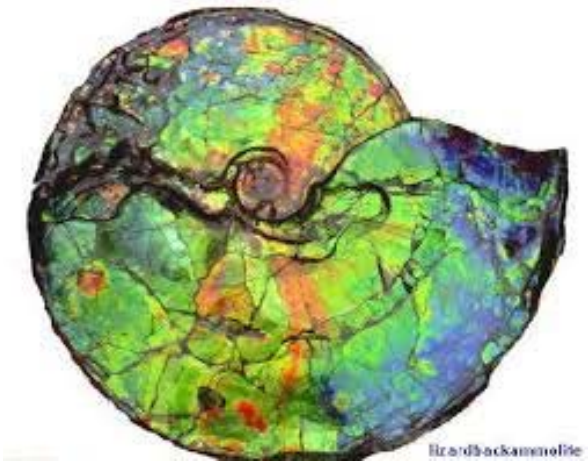
The primary distinction between these ammonite shells and others found worldwide is that the iridescent surface of the preserved Canadian varieties is thick enough to be cut and polished. While iridescent ammonite shells can be found at multiple locales, the fossilized shell commercially mined and marketed as ammolite is restricted to Calgary, Alberta, Canada. In this location and only a handful of others on a smaller scale, the ammonite shells were sealed in mineral rich sediment, which prevented the outer layer (nacre) of the ammonite shell, composed primarily of aragonite, from converting to calcite. Gem quality ammolite is found in two stratigraphic zones, one thirty meters deep and the other 65 meters deep, which makes pit mining the most viable large scale mining method. One company, Korite, produces most of the ammolite on the market (around 90%). A handful of other claims exist in the area and are worked on a small scale. There are no commercial occurrences outside of Alberta.

Ammolite's value is based on several factors. One is its iridescence, which is caused by the diffraction of light from tightly packed plates of aragonite crystals. This diffraction means that every color of the spectrum is possible in ammolite, although the most

common colors are red, green, and, to a lesser extent, gold. The most desirable pieces have vibrant colors that display changing colors as the angle of light changes. Chromatic shift and rotational range are the other two factors when considering the quality of a piece. Chromatic shift is the change from one color to another depending on the angle of light and the viewer's position. Dramatic changes of color are the most desirable. Rotational range indicates that strong colors can be seen throughout a 360 degree range of motion, which is not the case with many pieces of ammolite.

The nacreous layer is so thin, usually between .5 and .8 mm, that ammolite is often sold as a doublet, attached to a backing of shale, or as a triplet with a backing and a dome of quartz or synthetic spinel. The material is so fragile that in all but the most remarkable pieces, it must be stabilized with epoxy resin or another treatment in order to be worked. The gem is especially popular in Japan and with tourists to the Alberta province.

Ammolite is fossil, mineral, and gemstone all in one which makes it special, a rare natural occurrence. With its range of rainbow colors and spectacular patterning, ammolite makes an interesting collector specimen and an alluring set stone. While it is widely available now, the supply won't last forever, which, for me, is as good a reason as any to stock up on as much ammolite as I can.



Sources:
Dryden, T., & Brown, L. A. (n.d.). Ammolite Value, Price, and Jewelry Information. Retrieved February 29, 2016. https://www.gemsociety.org/article/ammolites-jewelryand-gemstone-information/
King, H. (n.d.). Ammolite: The Gemstone with Spectacular Color Properties. Retrieved February 28, 2016. http://geology.com/stories/13/ammolite/Mychaluk, K. A., Levinson, A. A., & Hall, R. L. (spring 2001). Ammolite: Iridescent Fossilized Ammonite from Southern Alberta, Canada. Gems & Gemology, 4-25. http:/www.gia.edu/gems-gemology/spring-2001-fossilized-ammonite-canada-mychaluk
Image from:http://www.canadianammolite.com/AmmoliteFacts.html

From the *Crack 'N Cab, Volume 46, Issue 3 March 2016*, Gem & Mineral Society of Syracuse via Delvings May 2016, via The Rock Collector, May 2016

SCFMS and MEMBER CLUB GEM SHOWS			
May 7 – 8, Lubbock, TX, Lubbock G&MS and the SCFMS Show and Convention, http://www.lubbockgemandmineral.org/57th-annual-show	May 21-22, 2016 DeRidder, LA DeRidder G&MS Beaugard Parish Fairgrounds 506 West Drive	May 28-29, 2016 Fort Worth, TX Fort Worth G&MS Will Rogers Mem. Center	Aug 13-14 2016 Baton Rouge, LA Baton Rouge GMS Marriot Hotel
August 20-21, 2016 Bossier City, LA Ark-La-Tex G&MS Bossier City Civic Center	**August 27-28, 2016 Gem & Mineral Show Jasper, TX Pine Country G&MS Events Center**	September 17-18, 2016 Dallas, TX Dallas G&MS Restiol Expo Cen. Mesquite, TX	October 8-9, 2016 Temple, TX Tri-City G&MS Mayborn Civic Cen.
Fort Worth, TX Cowtown Gem, Min. & Glass Society	October 29-30, 2016 Glen Rose, TX Paleo. Soc. Of Austin Somervell Expo Center Hwy 67	November 5-6, 2016 Amarillo, TX Golden Spread G&MS Amarillo Civic Center Exhibition Hall	November 11-13,2016 Humble, TX Houston G&MS Humble Civic Center 8233 Will Clayton Pkwy
SCFMS November 10-12, 2017 Humble, TX Houston G&MS Humble Civic Center 8233 Will Clayton Pkwy			

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.
Clear Lake Park Building
5001 NASA Parkway, Seabrook, Texas

Next Annual Show
February 27-28, 2016
Pasadena Convention Center

CLGMS is on the Web:
http://www.clgms.org

Member of:

American Federation of Mineral Societies

South Central Federation of Mineral Societies

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.

2015 OFFICERS:	President	Raul Montelongo	
	Vice President	David Tjiok	
	Secretary	Trina Willoughby	
	Treasurer	Mike Flannigan	
	Program Director	vacant	
	Board of Directors:	Shannon Oliver	Sara Chelette
		Bob Brock	Jim Edwards
		Sandra Christiansen	vacant
	Newsletter Editor	Annabel Brownfield	

Annual Show 2016 ……...Sara Chelette	Library……Vacant
Constitution & Bylaws……..Sara Chelette	Membership……Victoria Faulkner
Community Benefits……..Vacant	WWW System Admin.. ……Mike Flannigan
Historian……David Tjiok	Refreshments……..David Tjiok
Publicity……Eddie Dove	Education/Field Trips……Annabel Brownfield

Membership Dues Jan. to Dec. 2016: Adult $15:00, $5.00 per additional adult at same address, Junior $5.00, $5.00 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