A monthly publication of the Clear Lake Gem & Mineral Society

VOLUME 37 MAY 2011 NUMBER 5

NEXT MEETING: **May 16, 2011**
TIME: **7:30 PM**
LOCATION: CLEAR LAKE PARK BUILDING
5001 NASA ROAD ONE
SEABROOK, TEXAS

The PROGRAM FOR May…

Neal Immega, curator at the Houston Museum of Natural Science, will present the program on the new Paleo Hall being built at the museum.

SHOW and TELL

Share a report of our latest field trip or your own special dig. Bring in your prize specimens and educate us. Bring us your rockhounding finds and let us see how you did.

INSIDE THIS ISSUE

Stoney Statements Spotlight

Stoney Statements spotlights Field trips – Weather is warming and its time to dig! Get your hammer and let's travel.

Editorial

2011 CLGMS Scholarships Award

By Al Pennington, Scholarship Chairman

This year's CLGMS Scholarships for the Earth Sciences have been awarded to two students sponsored by Sharon Choens. The Clear Lake Gem and Mineral Scholarships of $1000 each will be announced at the June General Meeting. Names will be published in the June Newsletter

The CLGMS is continuously giving back to the local community and this is one of the ways we can help the most. As those of us in all clubs know, the young are the future and it is important to help those interested in pursuing a career in the earth sciences.

"An investment in knowledge always pays the best interest." Benjamin Franklin

Minutes of the Clear Lake Gem and Mineral
April 18, 2011

President Bob Brock called the meeting to order and opened the meeting with the Pledge of Allegiance. There were no changes to the March meeting minutes. Ben Duggar presented the Auditor's Report and all items checked were verified and accurate. Here is his report:

To: Officers and Directors of the Clear Lake Gem and Mineral Society
From Audit Committee

The Audit Committee has completed a review of the financial accounts for the CLGMS as of December 31, 2010, and concludes that the financial reports prepared by the Treasurer for the period ending that date fairly present the financial transactions and condition of the organization. The review was based on tracking a sample of checks back through the books, and tracking of a sample of bills or invoices forward through the records, checks, and bank statements, reconciliation between the check and deposit register with the bank statements, and a review of bank statements concerning purchase and maturity of Certificates of Deposit.

Visitor Vince Garcia from Santa Fe was welcomed. Also Clay Keiffer, a member of the HGMS Paleo was a guest of George Wolf, our program speaker.

Field Trips

Chairperson Ed Tindell gave us a report on Topaz Day in Mason, TX. He also reported there would be a memorial for Trey Woodward at Woodward Ranch in Alpine, TX, on April 30. Terri Smith will schedule field trips before and after the memorial. He also reported the old rock shop in Marfa, TX, caught fire and the fire spread to Ft. Davis, TX. Home and buildings were burned. There were three fires around Alpine due to no rain in the area for the last six months.

Committee Reports

Library: The chairperson was not present.
Community Service: Chairperson Nancy Duggar reported she is collecting sample rocks and fossils and needs ten more of ten each to provide kits for the students. She also reported thank you notes were received from La Marque and Texas City schools for our donations.

President Bob Brock mentioned refreshments are available to enjoy them during the meeting.

Education: Chairperson Ed Tindell gave a short presentation of identifying fake specimens using a Dual UV Light and LED Pull-Out Magnifier available from American Tool, CA, for $17.00. Microscopes can also be obtained from Fry's.
Club Publicity: Meeting notices were sent to ten local newspapers and the Clear Lake Park Building has been reserved for October 15, 2011, for a workshop in an effort to increase membership.
Show Committee: The final report will be presented later. Chuck Schuler challenged the club membership to put examples of their finds and collections in display cases next year. He also reported the show was decent from a vendor standpoint.

Program

The program was presented by George Wolf, a current member of the HGMS and a charter member of the CLGMS. He brought a 1978 Stoney Statements Newsletter and some of his ribbons from previous CLGMS Shows. He said finding a mastodon tooth on the Texas City Dike is what started his interest in collecting fossil, bones, teeth and artifacts. He brought samples of his find from the dike such as a mammoth tooth, horse hoof, toe bones, bison hoof and bone, camel toe bones, bear finger bone, and some bones and fossils worked by Indians. He had a several different varieties of bones and fossils used by the Indians. The very interesting fact about these artifacts is that they are 16,000-33,000 years old and were worked green. They fossilized later. George and Clay Keiffer shared their stories and members were able to ask them questions about fossil teeth and identifying arrowhead artifacts between hand-made in modern times.
Door prizes were awarded and the meeting was adjourned.
Respectfully submitted: Anna Williams, Secretary

Record Gold Nugget Found!

Tuesday, March 15th, 2011 - The discovery in Nevada County, California, of a nearly 7-pound gold nugget last year has been called a one-in-a-billion lucky find. Now, on the eve of the auction of the so-called "Washington Nugget" in Sacramento, its finder has told the story. In addition to a little bit of luck, it's a tale of geological knowledge, use of modern technology, elbow grease - *and fear*. He's afraid to keep his find at home! "I'm just a little paranoid about people knocking on the door, putting a gun to my head and saying, 'Where is it?' " said the finder. Hence, he demanded anonymity until the treasure sells.

The find was far from total luck. The Nevada County resident had a piece of undeveloped property – not far from the old gold mining town of Washington, California –assayed by a professional for possible gold deposits. "Just to see what gold would be down to the first 10 feet," he said.

There was some fine gold, and a hint that there might be more in the bedrock beneath the old mining tailings. Know-ing how Gold Rush lodes were found in similar bedrock, "it led us to think there may be some," he said. A friend brought in a piece of equipment known as ground-penetrating radar. Similar equipment is used to locate sewer lines underground, or potential archaeological sites buried beneath centuries of dirt. In this case, it revealed the lay of the land buried beneath a yard or more of old mine tailings.

"We found an anomaly – a crevice or crack that indicated that it would be a good target," he said. Such crevices sometimes trap nuggets. And this one was less than 10 feet down – the depth limit for their rented backhoe. After digging, they used a metal detector that can distinguish between gold and ferrous (iron-based) metals. "We started to use the gold detector and we got a very strong signal," he said. It told them where – within a square foot – to target All the time they were working through ground water that seeped in as they dug. The nugget they found, weighing 100 ounces and about the size of a small loaf of bread, is worth more than $100,000 at current gold bullion prices. "We weren't expecting to recover anything that size!" the finder said. They did, though, and also two smaller nuggets of less than a pound – about 4 and 10 troy ounces each.

T he finder took it to Fred Holabird, an experienced mining geologist and appraiser in Reno, Nevada. The nugget's size makes it unique. "The Washington Nugget may be the s o l e remaining authenticated large gold nugget of 100- troy-ounce caliber from the California gold region," Holabird said. Holabird draws a distinction between nuggets and gold in crystalline form, of which there are larger California pieces. By way of comparison, the largest California nugget still in existence, which is on display at the Smithsonian Museum, weighs 80 ounces. The Washington Nugget is expected to draw bids of $250,000 to $400,000, at the Sacramento Convention Cen-ter on the final day of the Golden West Auction. The finder, meanwhile, has hopes of returning to his land when the snow is gone to see if there are more. If it doesn't sell at auction "It may go in a museum," the finder said. "I just don't want to have it in the house." UPDATE: The largest piece of Californian gold in existence sold for $460,000 at the auction on Wednesday, March 23rd, 2011. The identity of the buyer has not been released as of press time for this bulletin.

From The Rock Collector 5/11 via Rockhound Ramblings, 4/11

An May HAPPY BIRTHDAY

N/A
New Members send me your info

EMERALD (Greek: smaragdos) it supposedly soothes the eyes, preserves chastity, cures dysentery, prevents epilepsy, drives away evil spirits

May Anniversary includes:

N/A
New Members send me your info

2011 DUES ARE DUE

GOODIE GETTERS…For May

Main Goodies provided by club.

Lapidary Corner ((Rerun from last year by request))

ENRICHMENT OF ORE DEPOSITS, OR COLD-WATER REPLACEMENT

By D. W. Webb Varnum

The process of the enrichment of ore deposits is not as dynamic as the hydrothermal emplacement of primary deposits, but it is nevertheless very interesting.

In general, the enrichment process is basic to deposits of all types. We will first discuss copper, silver, and gold, and we will then go on to talk about the silicification of organic material. These ore bodies were originally placed between 1 million and 150 million years ago at a level of one to ten miles below the earth's surface.

Erosion begins to remove the overburden, and in time a deposit is exposed (outcropped). Quite often, this action takes place on sloping terrain, making the bodies difficult to access.

If the ore body is porous, water can enter the material, where it can then concentrate. This action causes a placer deposit to form. If the amount of water and the ore deposit exist in the correct proportions, and if the mineral in the lode surrounding the rock is of the right type, the dissolved concentrate will flow to a lower level.

This process is complicated. Briefly, the water passes over iron pyrites or iron sulfides (sometimes copper) to release the sulfur, and this forms sulfuric acid. This diluted solution of sulfuric acid dissolves the copper, silver, etc. In order for this reaction to take place, ferrous sulfate and oxygen must be present.

As long as the pH is correct and other chemicals are in balance, the dissolved minerals are carried downward. At some point the chemistry changes, and the mineral is deposited as pure metal, or sulfides or sulfates. This process can occur again and again. Finally, the mineral reaches the end of the oxygenation zone, and the process comes to an end. The resulting material is generally located below the water table and can be as deep as 2,000 feet.

FELDSPAR

The name is derived from the German 'feld' (field), because during their weathering and decomposition, they free great numbers of plant nutrients, such as potassium, and in this way enrich the soil. They are therefore vital components of plant nutrition. There are two important classes of feldspars, potash feldspars and soda-lime feldspars (plagioclase). Potash feldspars crystallize either monoclinically (orthoclase) or triclinically (microcline).

Feldspar is not a single mineral species but a large family of species. Unfortunately for the collector, feldspar species have so many characteristics in common that it is difficult to distinguish one from another. There are a few species that collectors covet, labradorite and albite.

Feldspars are the most important rock-forming minerals. They are the principal part of most igneous (granites and pegmatites) and metamorphic rocks. In acidic rocks, potash feldspars are dominant: in basic rocks, the soda-lime feldspars (plagioclases) dominate. Feldspar crystals usually have a perfect cleavage in two directions which are perpendicular or almost perpendicular to each other. In this they differ from other minerals. They are comparatively hard, and usually light colored.

Feldspars, and particularly orthoclase, are important industrially. They are used chiefly in the glass and ceramic industries, in the manufacture of porcelain, porcelain-glass and enamels.

The largest deposits of feldspar are centered mainly in the United States in North and South Carolina, Maine, and South Dakota.

From Chips and Chatter 2/95, via The Roadrunner 2/96

DID YOU KNOW

The longest word in the third edition of the unabridged Webster's dictionary in one we can avoid ever having to learn to spell. "Pneumonoultramioropicsilicovolcanoco-niosis" is defined as the condition caused by inhaling fine silica or quartz dust. Prevent the condition, often fatal, by wearing a dust mask or having a dust removal system installed in your shop.

Field Trips (2011) by Ed Tindell

Hi All -

Name your Field trip

We will be discussing various destinations for our field trips this year at the next club meeting. I threw out several ideas and now we need to begin working toward some goals. Hope to see you there for ideas.

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THE GARNET FAMILY

By W.L. Cox, member of CLGMS

Garnets are a complicated family of minerals having similar structures but varying greatly in properties and chemical composition. The general formula for garnets is:

A B Si O Where A = Fe, Ca, Mn, Mg B = Al, Fe, Ti, Cr

If B = Al, the family of minerals is called "pyralspites". This arises from the acronym using the first letters of the mineral name. Thus:

PYRope, ALmandine, SPessartine

If A = Ca, the family of minerals is called "ugrandites". Thus: Uvarovite, GRossular, ANDradite

The word garnet comes from the Latin word "granatus" meaning grain. The comparison to grain came from the similarity of garnet grains in rock and the dark seeds of pomegranate fruit.

General Properties

Garnets have no cleavage but show conchoidal fracture and are somewhat brittle. They have a vitreous luster tending to resinous in grossular and andradite. Garnets belong to the isometric crystal group and exhibit the trapezohedron and dodecahedron structure. The hardness of garnets ranges from 6.5 - 7.5 in the ugrandite series and 7 - 7.5 in the pyralspite series.

Individual Properties

Uvarovite - Dark green color, similar to emerald. Not usually faceted due to opaqueness. Found in Oregon, Canada, Norway, and Russia.

Grossular - Colorless, white, yellow, yellowish green, and green. Found in many locations in the world.

Andradite - Yellow-green. green, orangy yellow, brown and black. Found around the world. A version of andradite called demantoid is the most valuable of all the garnets.

Pyrope - Purplish red, pinkish red, orangy red, crimson, and dark red. The best known pyrope is from Czechoslovakia, called Bohemian garnet. Pyrope usually contains almandine and spessartine.

Almandine - Deep red, brownish red, brownish black, and violet red. Gem varieties come from India, Sri Lanka, Brazil and Idaho. Almandine is the most common variety of garnet and usually contains some pyrope and spessartine.

Spessartine - Red, reddish orange, orange. Yellow-brown, reddish brown and blackish brown. Found in a number of U.S. states, Brazil, Norway, and Sri Lanka. Gem spessartines are fairly rare, but some of the most beautiful. The finest color is orangy red.

Thanks,
Ed Tindell 2011 CLGMS
Field Trip Coordinator
a.k.a. "The Official Cat Herder"

Beat the Heat Swap meet!

Everyone is invited to come and swap, trade or sell your rock-related items, stones, minerals fossils, equipment, tools or whatever you need to get rid of, in the parking lot of H.G.M.S. on Sunday, May 22nd, between 9:00 a.m. and 3:00 p.m. (it will be hard to beat the heat, if we stay any later!!!)

We always have plenty of room for folks to set up a tailgate and we know you will enjoy coming regardless of what you have to bring, even if it is only cold, hard-cash!

Cold beverages can be purchased inside the clubhouse and are located in the refrigerator and some snacks will be provided by those who offer to bring something to share. There should be plenty of hot coffee and donuts early and pot luck, after that.

For more information please call Matt Dillon at 713-682-8043

ABOUT WATER AND MINERALS

By Kempton H. Roll

Water is a strange and fascinating chemical. It could be said we're living on a misnomer; that our planet should have been named "Water" instead of "Earth." In its liquid and solid form, water comprises about three-quarters (72 percent) of Earth's surface. It's the main reason why our planet is such a beautiful blue "marble" when seen from outer space. Down here, water is the chemical we depend on for survival, if not our very existence. We drink it. We cook much of our food in it; food which couldn't have grown without it. We wash ourselves, our clothes and our dishes with it. We can swim in and sail on it in the summer and skate on it in the winter. It can rain on us when it's warm or make us shovel it when it's cold. When heated sufficiently it can undergo a phase change – turning from a liquid to a gas (steam). Here in the mountains, water boils at a slightly lower temperature because the atmospheric pressure is slightly lower. In a vacuum (no pressure), water can actually "boil" at room temperature!

When the pressure is increased, such as in a locomotive boiler or a pressure cooker, it takes a higher temperature to make the water boil. But it will still change phase and turn into a gas. The vapor confined causes the pressure to increase so the inside temperature can rise higher than 212 degrees. The higher the pressure, the higher the water temperature must be in order to go through its phase change.

However a strange thing happens to water when both the temperature and pressure are raised above a certain point, known to mechanical engineers as its "critical point." At these extremes, water no longer undergoes a phase change from liquid to gas. It remains liquid! This phenomenon takes place at 705.4 degrees F and 3206.2 psi pressure (more than 218 atmospheres). Mechanical engineers call the resulting liquid medium "water substance" (J. Gieck, *Invention & Technology*, Vol. 12, 1996). It is no longer ordinary water.

Water Substance

While "water substance" is important to the mechanical engineer, it appears that it might also have a very special meaning for the geologist and mineralogist. It may help explain why, deep in the bowels of some parts of the earth where temperatures and pressures exceed the "critical point," water can still be present as a liquid. Leonard Wiener, a recently retired geologist with the NC State Geological Survey, calculates that to attain critical point pressure (3206.2 psi) water alone, without heat, would have to be at a depth of about 7,500 feet or nearly 1½ miles below the surface. Typical rock, he notes, exerts critical point pressure at a depth of roughly 2,700 feet or about ½ mile. So water confined under a rocky overburden at this depth would have reached its critical point, pressure-wise. Add heat so that the temperature of this trapped water can reach at least 705.4 degrees F, and its liquidity will be assured by the higher pressure. It now becomes "water substance."

Returning to liquid water's ability to dissolve solids, every tea drinker knows that sugar dissolves more easily in hot tea than in cold. This is because all chemical reactions, including dissolution are influenced by temperature: the higher the temperature, the more rapid the rate of reaction and the more solids the liquid can hold in solution.

If water's ability to dissolve solids is enhanced at higher temperatures, then it makes chemical sense that water, or "water substance" to be more precise, deep down in the earth enjoys a greater capability of dissolving minerals like quartz and even metals like gold. In contrast, up on the surface that same chemical H_2O, under normal temperature and atmospheric conditions, even when boiling, can at best dissolve only tiny traces of quartz, for example. A "noble" metal like gold is virtually insoluble.

Another condition that could play a role in the deep earth dissolving process is the pH factor. How acid or alkaline is this "water substance?" There are two answers: "We have no way of knowing," and "It depends on what other chemicals are present." Either way, high or low pH, more "hydrothermal" (water + heat) chemical reactions will tend to take place which would lead to the formation of more, often exceedingly complex chemical/mineral combinations. It's only when these aqueous solutions subsequently work their way up to the higher reaches, cool down and solidify (hopefully crystallize), that we can appreciate their complexity and enjoy what Mother Nature and Father Chemistry have created for us down below.

Magmatic Water

Surface water is essentially indestructible. It may not be in the right place at the right time, too much or too little, but it's always there, even if it's just in the form of clouds floating in the sky. On the Earth's surface and at temperatures higher than 212 degrees F, water simply turns to vapor and escapes into the atmosphere. It does this

even at lower temperatures in the form of humidity. Too low and it returns to its original liquid state, i.e., fog and clouds, or if the air is really saturated, rain. Drop the temperature still further, and it changes phase again and becomes solid, falling as snow or hail.

With all of these forms of water so readily accessible on the land, in the sky and in the rivers and oceans, if the Earth is essentially solid, how does any of this water get down to those depths where "hydrothermal" mineral formation can take place? It doesn't.

Some surface waters will work their way deep within seemingly impervious rock formations. Most mines, even the deepest, usually encounter water; however, such waters cannot possible reach "critical point" conditions. Certainly the temperature would be much too low. Instead, "water substance is literally liberated or created by chemical reaction down in the mantle itself where high temperature/high pressure reactions are constantly taking place. Bill Miller notes that such water molecules can come from OH groups or H_20 in minerals (mica, amphiboles, etc.). Then, he adds, there is "juvenile" or magmatic water – "original water" – formed deep within the earth, which has a different isotopic signature than meteorological water. Some of it also originates as hydrogen and oxygen gases released through chemical reactions that can recombine to form water and heat energy. While most volcanoes – "the safety valves for these sub-surface chemical reactions – spew an assortment of subterranean gases and solids out into the atmosphere; the most voluminous gas is almost always water vapor in the form of steam. This is magmatic water. It may end up as rain and drinking water, but it did not start out that way.

If not ejected violently, magmatic water formed at the extremes of pressures and temperatures encountered deep in the earth's reaction chambers will remain in the liquid state, not as ordinary water, however. It is "water substance" and as such becomes the solvent – "super solvent" – that seems capable of dissolving a far more impressive array of chemical elements and compounds (minerals) than its surface counterpart.

The great pressure encountered at these depths can force a saturated liquid substance to work its way upward, taking the nearest path of least resistance, percolating through fissures and cracks in matrix rock dislocations created by plate tectonics, or it can collect in vugs left by gas pockets.

At some point, when conditions have changed from high temperature/high pressure to lower pressure and temperature, especially the latter, the above process reverses itself. What went into solution now has to come out. Whenever any liquid is saturated – dissolved as much as it can – those solids in solution will precipitate out when the temperature drops. Rock candy crystals, for instance, begin to "grow" when a hot, saturated sugar solution cools down.

In the case of subsurface saturated "water substance," if the escape action is not associated with volcanic activity, but instead the liquid remains trapped beneath rock overburden, as it nears the cooler upper regions, it will begin to "freeze" and allow the chemicals in solution to precipitate as solids. Now they turn into "minerals" for the rockhound and "ore bodies" for the miner. Minerals held in solution may ultimately precipitate out as vein deposits or interstitial deposits, and sometimes, if the rate of cooling is just right and if there is room, they form into large, multi-faceted crystals. If we rockhounds are lucky, we may someday find some of them.

While the chemical known as "water" plays a vital part in our lives, in the form of "water substance" it may be even more important because of its ability to create so many of the minerals and crystals we enjoy collecting. It is a most powerful substance; yet, strangely, one which we mortals destined to live out our lives up here on Earth's surface will never see or feel or taste, even though we drink tame versions of it every day – long after Mother Nature has finished with it down below.

From Mountain Mineral Monthly 01 & 02/97, via AFMS Bulletin Editors Articles, l998 – And This Is What They Wrote, via The Rockpile, 11/98. (It received the 2nd Place trophy in the Adult Articles category of the 1998 AFMS Contest.)

SCFMS and MEMBER CLUB GEM SHOWS			
May 28 - 29 FORT WORTH, TX Ft. Worth G&MS Will Rogers Mem. Ctr.			

A Monthly Publication of the Clear Lake Gem and Mineral Society

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.
May 16, 2011, Clear Lake Park Building
5001 NASA Road One, Seabrook, Texas

Member of:

Next Annual Show
February Feb 25-26, 2012
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

2011 OFFICERS:	President	Bob Brock	281-338-2252
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Annual Show 2012……..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. 2011: 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 2011 – 11326 Sagetrail Houston, TX 77089-4418

Deadline for June Issue is May 28, 2011