SLABS & CABS GEN & MINERS **OFFICIAL BULLETIN OF THE GULF COAST GEM & MINERAL SOCIETY** P.O. BOX 1817 BUIL **CORPUS CHRISTI, TEXAS 78403-1817 Art Worley Editor** 361-345-4425 **2561 Raintree Trail Ingleside**, Texas 78362 US CHRIST artleew@agates123.com Volume 48 Number 12 December 2009 **Next Meetings Membership Fees for 2010** Membership dues for 2010 are due in January 2010 We have 4 types of memberships and they are as follows: 2 January 2010 Single \$ 15.00 **Baptist Church** Spousal \$ 20.00 6:00 PM- 9:00 PM Junior \$ 5.00 This is for any member from the age of 6-17 years Of age General meeting 19 January 2010 Honorary Sandra Hinkle, Membership chair lady Watergarden Room Corpus Christi Museum of Science & History 1900 No. chaparral Corpus Christi, Texas 6:30 PM

> Hart Ranch Agate West Texas

We are on-line

www.gcgms.org Thanks to Chris Davis of Spurfire and Owen Hopkins For getting us back up and running! Take a look.

INSIDE
Notices Pg 1
Dec Board Minutes Pg 2
Shop Keys & Rules Pg 3
Dec. Birthstone Pg 4-6-7
Coming Events Pg 5
Fossils Pg 8-9
Info Page Pg 10

SLABS & CABS Page 2 December 2009

Minutes of the December Board Meeting of the Gulf Coast Gem & Mineral Society

Held 12/01/09 at the Corpus Christi Main Library. The meeting was called to order at 6:45 p.m.

Board members in attendance were Gene Schade, Jerrold Simpson, Linda Simpson, Dick Cline, Suzy Nick, and Kevin Schleicher, Donna Grimes and Mike McCraw. New board members Kyle and Shanda Hinkle were also present. Also attending was member Joe Grimes.

Membership report - 122 members, 91 regular, 8 honorary and 23 junior.

Minutes -Mike McCraw moved to approve November regular and board meeting minutes and Jerrold Simpson seconded. Approved

Treasurer report –Gene Schade gave treasurers report. Jerrold Simpson moved to approve and Kyle Hinkle seconded, Treasurer's report approved.

Shop report –last 2 or 3 cases are being finished up.

Fieldtrip report – none.

Show report –Jerrold Simpson said 21 dealers have signed up. A few more are expected. Volunteer members will be doing demonstrations and these should be promoted in the bulletins. We need some more volunteers for demos. Let Art Worley know, for newsletter.

Education – Scholarship letter was discussed and updated.

Federation – Linda Simpson spoke briefly.

Old Business – The Christmas Party will be at the Baptist Church on Ocean Drive on December 4, from 6-9 p.m. Donna Grimes sent out announcements.

New Business -- none

Motion to adjourn by Jerrold Simpson, second by Kevin Schleicher, meeting adjourned at 7:55 p.m.

Respectfully submitted, Kevin Schleicher, Secretary GCGMS 2008-2009



Black Plume Agate Harte Ranch

SLABS & CABS

December 2009

GCGMS Lapidary Shop Rules

 The lapidary shop equipment may not be used by anyone who has not signed a liability waiver.
Shop equipment use flat fee is \$2.00 per hour.

Sign in on arrival.

Pay Supervisor and sign out before leaving the shop.

3. "Open shop" hours are to be used only by those who have taken the cabochon class or have shown proficiency on the equipment.

4. All children under the age of 17 must be accom panied by an adult trained on the use of the equipment.5. Supervisor must inspect rock "set-up" prior to anyone starting slab saw.

6. Long hair should be tied back, loose sleeve should be secured, and safety procedures followed.

7. Safety glasses are recommended and are the responsibility of the individual. Some are furnished by the GCGMS, or you may bring your own.

8. The last person to use a piece of equipment before the shop closes is responsible for cleaning that piece of equipment and the work area. This may include tabletop, sponges, aprons, catch trays, etc.

9. Shop Supervisor is the final authority on shop rules and usage.

Revised May 2009



PomPom Agate San Carlos Mexico



Those with keys to the Lapidary Shop are Mike McCraw-361-993-6425 Jerrold Simpson-361-851-8788 Cell - 361-877-3073 Hank Swan-361-993-9861/361-857-2405 Richard Cline-361-853-8084 Please call one of these when you would like to use the shop. They will not all be available at the same time, and once in a while none of them will be available Most of the time at least one of them should be able to work out a time and date the shop could be open for you. Remember the club has a lot of good equipment to use. Several different classes are being conducted on Monday evening from 6:00 PM to 9:00 PM. The shop is open during these times for use of the equipment even if you are not involved in a class. Shop is also open Saturday 9:00 Until Noon.



Wimpy of Popeye Fame San Carlos Mexico

SLABS & CABS Page 4 December 2009

December Birthstone Zircon-Turquoise



Compiled by Roger K. Pabian, Research Geologist, Emeritus School of Natural Resources, UNL

Zircon or Turquoise, December's Alternate Birthstones

Zircon

Zircon is a relatively recent addition to the list of gems that are commonly worn for personal adornment. Its usage goes back only to about the last decade of the 18th Century. The stone has probably not enjoyed a highly successful usage such as has diamond, ruby or sapphire, and there are several reasons for this. First, zircon is relatively unstable as far as gemstones go. For example, on an important anniversary, a very wealthy man presents his wife a pendant with a very large faceted blue zircon in it. She wears it to the country club for dinner and dancing that evening and wears it on the next couple or three important social occasions. Then she decides that the stone is really too large and valuable to wear except on the most important social events and puts the piece away in a safe. The next big occasion is a few years later when her husband is promoted to chairman of the board. She decides to wear that pendant to the directors' annual dinner and takes it from the safe. Much to her horror, she discovers that the facet junctions on the stone are marred and dulled by numerous tiny chips that weren't there three years ago. It turns out that zircon has this nasty habit of chipping out at the facet junctions.

Metamict is a term that is applied to radioactive minerals or ones that have substituted radioactive elements in the crystal lattice that leads to disruptions in the crystal lattice and atomic arrangement within the crystal although the crystal retains its original external morphology. Zircon is one of these metamict minerals. Radioactive elements are characterized by a decay of the nuclei of their atoms. As Uranium 235 (U²³⁵) breaks down, Alpha and Beta particles and Gamma Rays are emitted. The Alpha particles have a rather large mass and as they are ejected from the nucleus of the atom, the effect on the crystal lattice is the same as if one was locked in a room and began firing a pistol in random directions. There would be bullet holes all over the walls, floor and ceiling of the room. As the alpha particles move at high velocity through the crystal lattice, the effect is similar.

Continued on Page 6



Turquoise

If you were born in December, you have the choice of at least two different birth stones. Turquois is on of the choices and zircon is the other. Historically, turquois has been a very important and long used stone. It has been found among Egyptian artifacts including jewelry and decoration on tombs. The term turquois is probably derived from the French *pierre turquois* (Turkish stone). The name appears both with a final "e" (turquoise) and without the final "e" (turquois). Mineralogists have preferred the latter spelling and it is the custom of the jewelry industry to apply the names and spellings as do the mineralogists since mineral names are generally universal throughout the scientific world.

In the old world, the Egyptians and Persians and Mongols valued turquois highly. Turquois is a very popular stone in Tibet. The Persians were extremely fond of fine, sky blue turquois and the name "Persian Turquois" is now applied to these stones as a color grade rather than as an indication of source area. In the New World, the Aztecs and Incas utilized turquois but the American Indians of the Southwest have probably brought more attention to this stone in recent years than any other culture. Visits to jewelry stores, art and craft shows and gem and mineral shows will usually provide many examples of squash blossom necklaces and thunderbird motifs.

Turquois is a hydrous phosphate of aluminum and copper CuO.3Al₂O₃.2P₂O5.9H₂O. Most turquoise has been found in deeply weathered and altered rhyolitic volcanic rocks. Turquois may be a weathering product of the mineral apatite, or it may even include some organic phosphate. Turquois forms triclinic crystals---three unequal axes, none of which intersect at right angles.

Continued on Page 7

SLABS & CABS Page 5

December 2009

Coming Events January 2010

1-10--QUARTZSITE, ARIZONA: Show, "Tyson Wells Rock & Gem Show"; Tyson Wells Enterprises Inc.; Tyson Wells Show Grounds, 100 W. Kuehn St.; 9-5 all days; free admission; contact Kym Scott, P.O. Box 60, Quartzsite, AZ 85346, (928) 927-6364; e-mail: tysonwells@tds.net; Web site: www.tysonwells.com

1-31--LAUGHLIN, NEVADA: Show, "Clouds Jamboree"; Richard Cloud; Avi Resort and Casino - Outdoor RV Park, 10000 Aha Macav Pkwy.; 10-5 every day; contact Richard Cloud, P.O. Box 284, Quartzsite, AZ 85346, (866) 558-7719; e-mail: cloudsjamboree@tds.net; Web site: www.cloudsjamboree.com

8-10--DEL MAR, CALIFORNIA: Show, "Gem Faire"; Gem Faire Inc.; Del Mar Fairgrounds/Exhibit Hall, 2260 Jimmy Durante Blvd.; Fri. 12-7, Sat. 10-6, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

8-10--MESA, ARIZONA: 38th annual show, "A.L. Flagg Gem & Mineral Show"; Mesa Community College, US Hwy. 60 and Dobson Rd.; free admission; Peralta Stones display, more than 100 dealers, local clubs and organizations, displays, free activities for children, kids' egg carton kits; contact Ray Grant, (480) 814-9086; e-mail: raycyn@cox.net; Web sites: www.azminfun.com and www.flaggshow.info

15-17--LARGO (ST. PETERSBURG), FLORIDA: 34th annual show and sale; Pinellas Geological Society; Largo Cultural Center, Parkside Room, 105 Central Park Dr.; Fri. 10-6, Sat. 10-6, Sun. 12-5; contact Hugh Sheffield, (727) 894-2440

15-17--SANTA ROSA, CALIFORNIA: Show, "Gem Faire"; Gem Faire Inc.; Sonoma County Fairgrounds/Grace Pavilion, 1350 Bennett Valley Rd.; Fri. 12-7, Sat. 10-6, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

15-17--SARASOTA, FLORIDA: Show; Frank Cox Productions; Municipal Auditorium, 801 N. Tamiami Trail (Hwy. 41); Fri. 10-5, Sat. 10-5, Sun. 10-5; gems, jewelry, beads; contact Frank Cox Productions, 755 S. Palm Ave. #203, Sarasota, FL 34236, (841) 954-0202; e-mail: frankcox@comcast.net; Web site: www.frankcoxproductions.com

16-17--DeLAND, FLORIDA: 39th annual show; Tomoka Gem & Mineral Society; Volusia County Fair Grounds, State Rte. 44; Sat. 10-6, Sun. 10-5; adults \$4, children 12 and under free; hourly door prizes, grand prize, silent auction, kids' activity table, TFG Faceters Guild demonstrations and Q&A, other demonstrations; contact Florence D. Nordquist, 521 S. Palmetto Ave., Daytona Beach, FL 32114, (386) 226-4032; e-mail: fndesign@aol.com; Web site: www.tomokagms.org

16-17--EXETER, CALIFORNIA: Show, "Gemboree"; Tule Gem & Mineral Club; Veteran's Memorial Bldg., Hwy. 65; Sat. 10-5, Sun. 10-4; free admission; dealers, gems, grab bags, club displays, jewelry, rocks, minerals, lapidary supplies, demonstrations, "Wheel of Fortune", door prizes; contact Pepper Okada, 5924 W. Iris Ct., Visalia, CA 93277, (559) 733-5842; e-mail: pepperok@clearwire.net

16-17--FREDERICKSBURG, TEXAS: Show, "Hill Country Gem & Mineral Show"; Fredericksburg Rockhounds; Pioneer Pavilion, Lady Bird Johnson Municipal Park, 1606 S. Hwy. 16, south of downtown Fredericksburg; Sat. 9-6, Sun. 10-5; free admission; Rollin' Rock meeting Sun., hourly door prizes; contact Jeff Smith, 208 Castle Pines Dr., Kerrville, TX 78028, (830) 895-9630; e-mail: jeffbrenda@windstream.net; Web site: www.fredericksburgrockhounds.org

22-24--HILLSBORO, OREGON: Show, "Gem Faire"; Gem Faire Inc.; Washington County Fairgrounds, 873 NE 34th Ave.; Fri. 12-7, Sat. 10-6, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

Continued on Page 8

Zircon Continued from Page 4

The alpha particles leave their paths of damage or "bullet holes" in the crystal lattice. These paths are called *fission tracks*. It is the damage to the crystal lattice that is caused by radioactive decay of elements that is the cause of the chipping of the facet junctions.

Absolute dates are the numbers in years of the ages of rock samples taken from the earth. Not every rock in the earth is the same age and these fission tracks, as much of a pain they may be to the jeweler or gem fancier, are very useful little clues that help geologists date rock samples. Uranium 235 breaks down at a constant rate, or it has a known *half-life*, the length of time it takes for half of a given quantity of a radioactive mineral to break down. If a radioactive element has a half-life of one million years, then if you start out with 2 kilograms, in one million years it will break down yield one kilogram. It is also going to fire out a lot of Alpha particles into the surrounding medium. What geologists can do is count the number of fission tracks in a given area or volume. The tracks are very tiny and at first, a thin section of rock must be cut and it must be etched in *Hydrofluoric Acid* (HF) to enlarge the holes so that they can be seen under low magnification. The tracks are counted and this number is plugged into a formula and an absolute date is arrived at in this way.

Fission track dates offer the geologist a much less expensive method for obtaining absolute dates for rock samples. Dates can be obtained from other minerals but the method was originally developed with zircon.

December's birthstone still has several things going for it in spite of a tendency to chip out at the facet junctions. It is pretty hard (7.5 on a scale of 10) and fairly tough. It has a fairly high *refractive index* (ranging from 1.92 to 1.95 on the low end and 1.96-2.02 on the high end), and these numbers measure how much a beam of light is bent and slowed down when it enters the stone. The disturbances and irregularities in the crystal lattice probably cause these variations. Zircon crystallizes in the tetragonal system and is therefore *uniaxial*. Minerals that crystallize in the tetragonal system have two refractive indexes, one of which remains fixed in value and one of which varies either upward or downward to meet the one of fixed value. In the case of tetragonal crystals, the refractive index that is parallel to the *c axis* remains fixed in value and this axis is called the *optic axis*. Zircon is uniaxial because it has one optic axis even though it has two refractive indexes.

Birefringence is the numerical difference of the higher and lower refractive indexes of a substance; hence, a numerical measurement of the double refraction of that substance. The birefringence of zircon can be as high as 0.10 (2.02 - 1.92 = 0.10, from above). That means that double refraction can be readily detected in even small stones, which will show strong doubling of the back facets when viewed through the table. To minimize this effect, the faceter can orient the stone such that the table of the completed stone is perpendicular to the *c axis* or the optic axis of the crystal.

Dispersion is the ability of a substance to break white light up into its component colors--- red, yellow, and blue. For zircon, this figure is quite high, 0.039. This measure is arrived at the numerical differences between the refractive index measured from the red and blue wavelengths of light. From the jeweler's viewpoint, the dispersion is a measure of the colorful sparkle of a faceted gem as it rolls around in white light.

Burma and Sri Lanka have been important historic sources of zircon. Some examples have also been recovered in Ontario, Canada, and in Wisconsin. None of the latter have yet proved to be of gem grade.

Zircon comes in quite a few colors: colorless, yellow, brown, orange, red, violet, blue and green have been observed. When zircons are removed from their host gravels, they are commonly cloudy and clear up only after being heat treated by baking them in mud balls for several days. The rough material comes in high, medium, and low forms, with high having the highest physical and optical properties. Low zircons are usually glassy and only about 6 hard. These anomalies are probably due to the metamict state of the mineral. **Turquoise** Continued from Page 4

Only micro- or very minute crystals of turquois are known. Strangely, the most common occurrence of turquois crystals has been in Virginia, an area from which little, if any, gem turquois has been produced. Turquois is fairly hard, 5-6 on a scale of 10. It may be chalky to brittle, the latter showing a conchoidal fracture. Better rough grades may have a waxy luster whereas lower grades are dull. The chalky material is often impregnated with a resin to make it more durable and more lustrous. The resin-treated turquois can usually be detected by odor. The specific gravity ranges from about 2.60 to 2.83.

Turquois is almost always opaque but rare, translucent stones are known to exist. The refractive indexes range from 1.61 on the low end to 1.62 in the middle and 1.65 on the high side of the scale. It is biaxial positive and has a fairly high dispersion. Optical tests are usually not needed to determine if a stone is turquois as physical tests will almost always suffice.

Turquois may form as chalky coatings or finely disseminated crystals in small cavities and crystal interstices in the host rock. This fact has led to the development of reconstituted turquois. The rock that contains turquois is finely pulverized and the turquois is separated from the gangue by a flotation process. The pulverized turquois is placed into a bomb and it is injected with a resin to form a brick. Pulverized pyrite and other natural appearing inclusions may be added to the mixture to produce a more convincing turquois substitute. Finer grades of turquois are usually blue to blue green and names such as "robin's egg blue" or "sky blue" have been used to describe these stones.

Several natural and synthetic things may be confused for turquois. Vivianite is a hydrous ferrous phosphate, $Fe_3P_2O_8.8H_2O$, that may impart a blue color to fossil bones. Some of this material is sometimes offered under the trade name of bone turquois. The bluish tinge shown by many of the fossils in museum exhibits is due to the presence of vivianite.

Variscite is a yellow-green to blue-green hydrous phosphate of aluminum, $AIPO_4.2H_2O$. It is much softer than turquois and crystallizes in the orthorhombic system. Malachite, a copper carbonate, $Cu_2(OH)_2CO_3$ is a very deep blue green and usually has a layered structure. Chrysocolla is a hydrous silicate of copper, $CuSiO_3.2H_2O$, that is only 2 to 4 hard and has a specific gravity of about 1.46 to 1.57. Chrysocolla may often be impregnated with or suspended in chalcedony and produce a very hard but deep blue green stone.

Colored glass is often sold as a turquois substitute and it usually shows swirls, bubbles, and a conchoidal fracture. It may contain some added, pulverized pyrite or bronze foil. Plastic will have a very low specific gravity and often show bubbles. It will melt and emit an odor if a non-conspicuous point of the stone is touched with a hot needle here.



PomPom Agate San Carlos Mexico



Brown Moss Agate San Carlos Mexico

SLABS & CABSPage 8December 2009

Events Continued from Page 5

22-24--ST. PETERSBURG, FLORIDA: Show; Frank Cox Productions; The Coliseum, 535 4th Ave. N; Fri. 10-5, Sat. 10-5, Sun. 10-5; gems, jewelry, beads; contact Frank Cox Productions, 755 S. Palm Ave. #203, Sarasota, FL 34236, (841) 954-0202; e-mail: frankcox@comcast.net; Web site: www.frankcoxproductions.com

22-24--TYLER, TEXAS: Show, "Gemstone and Jewelry Showcase"; East Texas Gem & Mineral Society; Rose Garden Center, 420 Rose Park Dr.; Fri. 9-5, Sat. 10-6, Sun. 10-5; adults \$3, students \$1; exhibits, demonstrations, fluoresent mineral display, geode cracking, dealers, rocks, minerals, jewelry, fossils, supplies, Wheel of Fortune, silent auction; contact Keith Harmon, 8316 Oxford Dr., Tyler, TX 75703, (903) 581-4068; e-mail: kharmon1219@sbcglobal.net

29-31--SAN RAFAEL, CALIFORNIA: Show, "Gem Faire"; Gem Faire Inc.; Marin Center/Exhibit Hall, 10 Avenue of the Flags; Fri. 12-7, Sat. 10-6, Sun. 10-5; \$5 weekend pass; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

30-31--PANAMA CITY, FLORIDA: 19th annual show; Panama City Gem & Mineral Society; Bay County Fairgrounds, American Legion Bldg., U.S. Hwy. 98 (15th St.) and Sherman Ave.; Sat. 9-5, Sun. 9-4; free admission; door prizes, gems, minerals, fossils, beads, jewelry, lapidary arts, wire wrapping, exhibits; contact Ruth Alldredge, 316 Cherry St. #38, Panama City, FL 32401, (850) 784-0740; e-mail: Aquezpie@comcast.net

Trilobite Taxonomy and Phylogeny

Trilobites comprise a complex and huge class of arthropods with estimates of number of species ranging from 10 to 15 thousand among the nine distinct Orders. Despite their extensive fossil record, the extinct trilobites remain problematic in terms of both phylogeny within the trilobita, and trilobite placement within Phylum Arthropoda. More stratigraphical and cladistics work is needed, since the problems are unlikely to be resolved with modern genomic science.

Darwin was confident in his conjecture that trilobites descended from one Pre-Cambrian crustacean ancestor. But, the trilobite's position in the universal tree of life remains confounded, with debate remaining whether their closest extant cousins are, for example, a crustacean, the horseshoe crab, or among the spiders or scorpions. Classification requires following the tree of life back to points of branching. This we cannot do for the trilobite whose first appearance in the fossil record is in the lower Cambrian. When they appear, they are already diverse in form, and dispersed in geography, clearly indicative of the paucity of the fossil record in the Precambrian, where the roots of trilobite ancestory extend. By the time <u>trilobites</u> appear in the fossil record they are already highly diverse and possess two characteristics that likely served them well to survive in the <u>Paleozoic</u> seas, a well- mineralized exoskeleton, and a highly advanced visual system. Both of these attributes likely resulted from the selective pressures of the <u>ageless evolu-</u> tionary war between predator and prey, an arms race in which trilobites were surely bold participants. Despite setbacks during numerous Paleozoic extinction events, the trilobite lineage persisted for some 300 million years before finally becoming extinct at the end of the Permian Period.

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SLABS & CABS Page 9

December 2009

Trilobites Continued from Page 8

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This is a Very Large Site. For more information copy and paste the URL below into your browser

http://www.fossilmuseum.net/Tree_of_Life/PhylumArthropoda/ClassTrilobita.htm

GULF COAST GEM & MINERAL SOCIETY, INC. P.O. BOX 1817, CORPUS CHRISTI, TEXAS 78403-1817

MEMBER of	American Federation of Mineralogical SocietiesAFMS South Central Federation of Mineral Societies, Inc
Meeting	Held the third Tuesday of each month at 6:30 pm at the museum of Science & History 1900 North Chaparral September through May, and at the Lapidary Shop 3933 Timon Blvd., Corpus Christi TX for June through August.
Membership Fees	Individual \$15.00 Couples \$20.00 Junior (under 17) \$5.00
2010 Officers	President: Kevin SchleicherSecretary: Suzy NickVice President: Kyle HinkleTreasurer: Gene SchadePast President: Suzy Nickgene@casadeoro.net
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