

Palomar Gem and Mineral Club

VOLUME 60 - ISSUE #3
March 2019

BOARD OFFICERS ELECTED	
President	Jef Wright
Vice President	John Raabe
Secretary	Fred Floyd
Treasurer	Toni Floyd
BOARD OF DIRECTORS (APPOINTED)	
CFMS Chairperson:	Toni Floyd
Field Trips:	Melissa Takagi
Parliamentarian:	Chris Toft
Shop Coordinator:	Alan Mazzola
Program Chair	vacant
Show Chair	Michele Shepard
Newsletter Editor	Carol Hiestand
Website:	Ian Burney
Membership Chair	Lori Goodman
STANDING COMMITTEES (APPOINTED)	
Facebook Page Coord	Jeff Fox
Ways & Means	Dawn Wright
Historian	Barbara Bury
Hospitality & Good Cheer	Judy Jessup
Meeting Displays	Barbara Bury
Picnic Coordinator	Moni Waiblinger
Refreshments	Carol Hiestand
Redwood Rep	Barbara Bury
Librarian	Chris Toft
Calendar	Justin Engelmeyer

CONTENTS:

Misc:	p 1-2
Classes	p 3-5
March program	p 6-7
Gene's story	p 8-12
Articles of interest	p 13
Aquamarine	p 14-17

NEXT MEETING:

MARCH 20, 7 PM

DITTUS HALL, REDWOOD
TERRACE

710 W. 13TH AVE. ESCONDIDO

**CLUB 65th ANNIVERSARY &
POTLUCK DINNER!!!!**

**HAPPY BIRTHDAY TO MARCH
BIRTHDAY MEMBERS**

**Including Chris Toft, PGMCM long-
term member, VIP and volunteer!**

**BIG THANKS TO
MICHELLE & VAN LYNCH**
for taking us on a Peruvian
adventure!! Their talk and
photos were enjoyed
immensely by club members
at the Feb. meeting.



IMPORTANT INFO FOR CLUB MEMBERS:

Show demonstrators can sell their custom product without the normal 20% fee to the club!

Volunteers needed for the gem show; please contact Michele Shepard to volunteer!

PGMC has a new cell phone, (760)743-0809 with a working voice mail. The WIFI hot spot is in the shop & club will be able to take

credit card charges over \$10.00 in the future!!

CFMS representative reported that the Paradise Gem and Mineral Club in Paradise CA was a victim of the recent fires in CA. They have put out a request for donation of lapidary equipment and rock. People who are willing to donate can contact CFMS and they will arrange for it to be transported to Paradise.

DEL MAR COUNTY FAIR

Open MAY 31- JULY 4

(closed Mondays & Tuesdays in June)

Volunteer opportunities available!!!



****UPCOMING CLASSES****

Lapidary & Silversmith Workshop
2120 W. Mission, Suite S., Escondido

Cabochon/Lapidary Class & Open Workshops

Tuesday 6:30 – 9:30 pm

Wednesday 11:00 am – 2:00 pm

Thursday 2:00-5:00pm

Learn to cut and polish a rock into a beautiful stone suitable for wire wrapping or fabricating in

metal. A fantastic assortment of material is available for purchase on site.

The workshop is also open for general use. No prior registration needed.

Thursday 6:00 pm – 9:00 pm **METAL SMITHING only - open for to those students who have had metal smithing instruction or experience and/or have instructor approval.** Those students who have attended an introductory class may continue to work on improving their skills in this weekly workshop. An experienced metalsmith will be available for consultation.

Cost: A \$7 shop fee will be collected for regular workshop. Club membership required.

Introduction to Faceting

An informative introduction and hands-on experience in the world of gem cutting. Learn how to

create a gem out of a piece of rough, during a weekend class. No machine required. Return

students welcome with or without their own machine. Each class can accommodate 3 new

students without machines and 3 returning students with their own machines.

Instructor: Bob Johnson

Location: Club Shop

Dates & times: Sat. March 16, and Sunday March 17, 2018 – 9am -5pm

Cost: \$80 New students. Club membership required. \$70 return students.

Contact Bob Johnson for more info or to register - 760-809-0152 or email Bob at N78532@yahoo.com

Faceting – Continuation Class

This is a class for continuing students who have completed the Introductory Class and is held once per month, from 9 to 5 on the Saturday following the general meeting, (which is always on the third Wed.)

Instructor: Bob Johnson

Location: Club Shop

Cost: \$35.

March workshop – March 23, 2019, 9-5

Contact Bob Johnson for approval and to reserve a spot - 760-809-0152 or email Bob N78532@yahoo.com

****UPCOMING CLASSES****

Lapidary & Silversmith Workshop

2120 W. Mission, Suite S., Escondido

Forged Bracelet Class



In this class, we will forge a simple bangle bracelet with a soldered clasp from sterling silver wire.

Instructors: Diane Hall and Annie Heffner

Date and time: March 10, 2019, 10am – 4pm

Location: Club shop

Cost: \$30, plus materials fee

**Call Diane Hall at (760) 741-0433 (leave message for call back) or email dianehall213@gmail.com for more info or to register.

This is a 10-hour introductory silversmith class. The students will learn to develop their designs, use a jeweler's saw to cut out a pattern, solder a bezel to a backing and add a bale or a ring shank, creating a wearable piece of jewelry. Intermediate students can work on a project of their choosing with instructor approval. At the completion of this introduction the student can continue learning in the Thursday night workshop.

Instructors: Diane Hall & Annie Heffner

Dates & times: June 29 & 30, 2019, 10-4

Cost: \$60 (club membership required - \$25 fee for single membership)

Materials additional – (Approx. \$30) and please bring a cabochon to set in silver or let us know if you need one.

**Call Diane Hall at (760) 741-0433 (leave message for call back) or email dianehall213@gmail.com for more info or to register.

Introduction to Silversmithing Class



Ring by Mike Mettelka

Cabochon/Lapidary Class & Open Workshops

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PALOMAR GEM AND MINERAL CLUB

The Palomar Gem and Mineral Club, a non-profit corporation open to all adults and young people, was organized to promote the study of rocks, minerals, gems, fossils and related subjects, such purpose to be developed through regular meetings with educational programs, field trips for the collection of geological specimens, and classes for teaching lapidary arts. The Palomar Gem and Mineral Club shares its knowledge of the earth sciences by sponsoring Gem and Mineral shows featuring exhibits, displays and demonstrations. The Club was founded March 20, 1954.

Anyone know a member or family member who is ill, having a rough time, or even a great congratulatory event?

Please notify our "Sunshine" lady, Judy Jessup, and she will send a card &/or flowers and get right on it!!!

Judy can be reached at:
Judyjessuprealtor@gmail.com



March 2019 General Meeting

Wednesday, March 20

POTLUCK DINNER!

Please bring a dish to share, plates and utensils. Cake provided by club.

65th Anniversary Dinner and Special Guest Speaker

Nancy Arthur-McGehee

Catching Light on the Edge

A Look at Historical and Contemporary Intaglios

Intaglio engraved gems are related to cameo gems - both are carved, but with intaglio the carving travels into the gem whereas with cameo the carving sits on top. Both have been prized from early antiquity to the present day. Artist Nancy Arthur-McGehee is fascinated with gems and in particular with intaglio carvings. In her talk she will show images of the early gem intaglios that inspired her to take up the medium as well as images of her own work and that of other contemporary artists. She will

also discuss tools and materials, and if there is time we will try our hand with a simple yet essential engraving technique using diamond drills and rotary tools.

Nancy is a classically trained artist for whom both drawing and natural history are passions. She enjoys combining the pleasure of drawing with the joy of working a medium that captures, transmits, and reflects light. She creates intricately carved glass vessels, intaglio gems, and scientific illustrations.

Nancy has been given the peer-reviewed title of Craft Member by the London-based Guild of Glass Engravers, and is a member of Gem Artists of North America. Her engraved glass is known and exhibited internationally, has won many awards and is found in public and private collections. Her gem intaglios have been featured in Rene Newman's books, *Exotic Gems Volume 3*, and *Gemstone Buying Guide*. Her intaglios have also been on display in the Wertz Gallery in the Gem Hall of the Carnegie Natural History Museum, and in several exhibits at the Headley-Whitney Museum. In 2015, she received a Gemmy Award from the Lapidary Journal Jewelry Artist's Design Competition. In 2017, she became a graduate of the Gemology course at the Gemological Society of San Diego.

INCIDENT AT THE CULVER BAER MINE (part 1)

In early November 1968, my boss J.Q. orders us to move our mobile home from Middletown to Clear Lake Highlands, California where I'm to map a large area on the east side of Clear Lake. Two days after arriving in Clear Lake Highlands, J.Q. telephones and says, **"Change of plan, map and evaluate the Culver Baer mercury mine as soon as possible. The company wants to reopen the mine to get a positive cash flow. You will need to work seven days a week."** (Gene) **"I'm already working seven days a week?"** The Culver Baer mine is within The Geysers geothermal resource area. Thanks to the recent move to Clear Lake, my former 70-mile commute, to The Geysers, is now a 93-mile trip that takes two and a half hours each way. Winter will soon begin and it will be a worse than ever commute through rain and snow on narrow winding backcountry mountain roads and in the dark to boot. The mapping will provide information about the mine's structure and ore controls to possibly locate new undiscovered ore bodies.

The Culver Baer Mine opened in 1872 and has operated for intermittent periods ever since. The ongoing Vietnam War is consuming mercury for explosive ordinance and mercury is selling for the astronomical price of \$900 per flask. In 1968, the mine is an open-pit operation run by Tony Manfredi, under a sublease from my employer, Geothermal Resources International (GRI). I'm to map the geology of the mine's surface and old underground workings, that require using surveying equipment, which fortunately I possess, because GRI only possesses guys full of hot air and liquor. Dave, a local handyman, is employed to hold the survey rod. Dave and I map the mine from November through February, working underground when the weather is bad and on the surface during good weather. The mapping progresses rapidly, because Dave is a savvy and hardworking guy, who catches on quickly.

In February 1969, J.Q. hires a new geologist, who will be arriving to work at the mine. GRI is now technically bankrupt due to their mismanaged geothermal drilling operations. Neither J.Q. nor anyone else in the firm yet realizes this reality and warnings from others and myself fall on deaf ears. I'm instructed to terminate

Dave's employment and begin working with the new geologist Tucker. Tucker is a year or two older than I and has just completed the course work for his Master's degree, which he will receive in June. He is from a very wealthy family and although in his thirties, this is the first job that he has ever had in his entire life. Tucker is the stereotypical idle son of a rich indulgent father. He has been going to college on the slow program for his entire adult life. Tucker managed to cram 8 years of college into 15 years. Tucker and his family live and vacation in the Caribbean on the family's large yacht during holidays and summer breaks from school. The yacht crew takes care of the feeding, cleaning, etc. as the Tucker family plays. At our first meeting, right after shaking hands and before I have a chance to say anything, Tucker states that I'm not his boss and he will not take orders. Furthermore, I'm to address him as Tucker and NOT Tuck. He was certainly no Friar Tuck. The first day in the field begins the trials and tribulations of working with a man, who has no concept of work and doesn't intend to get dirty or do physical labor.

That first day, the weather starts out clear and we are mapping surface geology in the bottom of a steep canyon filled with wet brush, small trees, and mud. I quickly realize Tucker doesn't know how to map geology or survey, but I erroneously assume he can do Dave's job. Tucker's task is to set a stake in the ground and hold the survey rod while I survey in each location. Then we measure the distance to the new stake from the previous stake. Tucker then "rests" while I do the survey calculations, interpret and map the geology, and plot the information on the geologic map. Simple repetitious work, except that Tucker repeatedly goes to the next location without bringing the rod and bag filled with survey stakes. This drives me crazy and slows the work down. Not being a patient person, I make no attempt to hide my growing irritation and frustration. Furthermore, I'm doing all the brush cutting work to clear the surveying sight lines between the surveying instrument and the rod, while Tucker gets more much needed rest, because, in his words, **"I'm a college graduate professional man. I DO NOT DO MANUAL LABOR!"** By the end of the first day, I'm tired, dirty, and very angry. Tucker is clean and well

rested. I'm now furious with J.Q. for hiring this nitwit dilettante playboy. A light rain is falling as we climb the several hundred feet, from the canyon's bottom up to the road where the car that I call the "Blue Bomb" is parked. Placing the surveying equipment and brush cutting tools in the trunk, I turn to Tucker, who I assume has the remaining gear, which I handed him. His hands are empty. (Gene) **"Where is the rest of the gear?"** (Tucker) **"I left it down in the canyon."** (Gene) **"Why did you do that?"** (Tucker) **"We just have to carry it back down tomorrow so I left it there."** (Gene) **"If it rains tomorrow then we work underground and then one of us will have to climb back down in the rain to get the gear. I also handed you the clipboard with the maps and they can't get wet. At home each night, I use the field copies to plot that day's work onto the master base map. You will have to climb back down and get the rest of the gear."** (Tucker) **"If you want the gear then you climb down and get it. I'm done working for today!"** Thus, I spent another hour walking in the rain back down into the canyon to find and retrieve the equipment. By the end of the first day, Tucker has me trained to always carry all the gear back to the car. Boy! do I miss Dave.

Working underground with Tucker is no different. Tucker enjoys the excitement of being in an underground mine, but, as usual, he avoids work by wandering off "to explore the mine" and hide from work. At quitting time, I leave the mine covered in dirt and mud, while Tucker always looks as if he spent a day at the office. Within a few days, the novelty of working with Tucker has worn very thin and I decide more can be accomplish by working alone. I suggest that Tucker take over the Round Mountain Project, while I continue to work on the Culver Baer Mine evaluation. Tucker jumps at the opportunity to work at Round Mountain, because we are living within the Round Mountain Project's area. He can avoid the daily five-hour-round-trip commute and thus have even more leisure time. Furthermore, Round Mountain will be his own project. I leave Tucker to sink or swim on his own. After all, as he frequently reminds me, **"He is a professional"**.

I now work alone and it is necessary to stand the rod up by shoving it into the ground and then walk back and forth between the rod and the instrument to measure

and plot each survey point. Progress is much slower than when I worked with Dave but a lot more pleasant and no slower than working with Tucker. Underground, the rod man is replaced by driving a special type of nail into the roof of the mine tunnel (*The roof of a mine tunnel is called the "back".*) and then hang a plumb bob from that nail. Thus, the plumb bob string replaces the rod. Gradually, I begin to understand the ore body and where new ore is likely to occur.

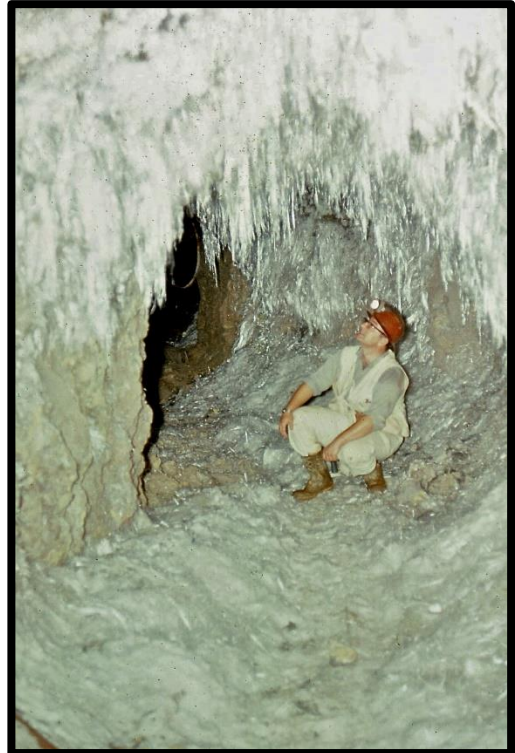
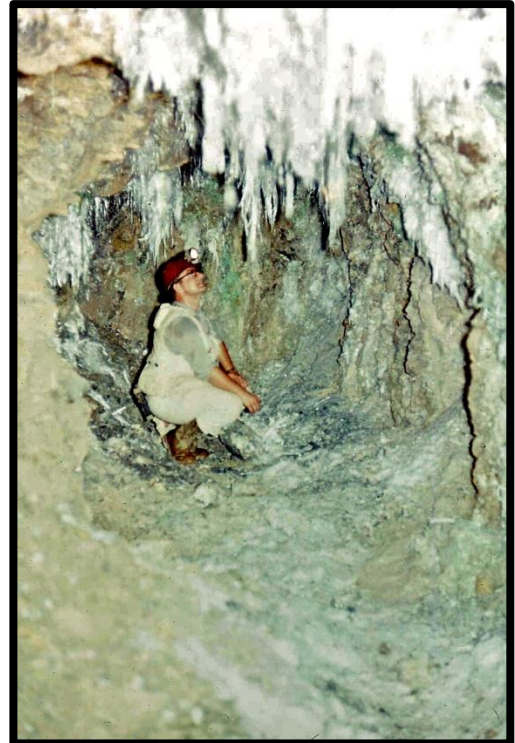
One day my chest is pounding while working in a dead-end drift. Realizing I'm not getting enough oxygen, I run back to the main haulage tunnel. I will die if I cannot make it to fresh air, because there is no one to rescue me.

The Culver Baer is a geologically very interesting mine and the information it provided added to my understanding of the region's geology and geothermal resources. The mine's workings are partially collapsed at the back end of the #3 adit. There is a small space with just enough clearance to crawl about 50 feet over the collapsed rock to where the tunnel reopens. This isolated area has been closed off with "dead" air for many decades. Over that time, evaporative minerals formed long thin delicate crystals called "mine whiskers". From the tunnel's back (roof), masses of long white crystals, as thick as a hair and two to four feet long, hang in long thick "beards". In among these white crystal beards there are small translucent lime-green stalactites and small bright blue copper-oxide crusts. It is a fairyland that is impossible to walk through without brushing against and breaking off some delicate crystal masses. Photographing these white crystals is difficult, because the crystals reflect flash-bulb light. The minerals cannot be collected and removed from the mine, because these minerals quickly dissolve upon exposure to the outside air's higher humidity.

The underground and surface geologic maps indicate the underground workings passed a short distance outside the main ore-body's downward extension. The main ore-body is exposed in the open-pit mine at the surface, but it was never found in the mine's deeper workings. I have surveyed both the surface and underground workings and tied the geologic mapping to

the survey. For the first time, this provides an understanding of the ore deposit's shape and downward position in three-dimensional space. The geologic work produced not just the ore deposit's position, but also the ore controls and alteration mineralogy. These suggest a small crosscut extension from the main-haulage tunnel should encounter the main ore-body's downward extension, which, on the #3 level, is below and slightly offset from the open-pit mine. Confirmation for this downward ore extension was never investigated. As is so often the case, the Culver Baer mine work is a wasted effort that remains untested.

Tony Manfredi hires two miners to open the surface access to the upper #2 underground level. The #2 level's surface entrance caved in long ago and its exact location is unknown. Therefore, Tony's plan for reopening the #2 level is to access that level from the #3 level and then clear out the #2 level back to the surface entrance. The #2 level is accessible from the #3 level by climbing 100-feet upward through the narrow vertical airshaft that connects the two levels. The narrow airshaft does not have a ladder. Instead, men must climb upward using as rungs



Mine whiskers hang down in the Culver Baer Mine metal rods driven into the airshaft's rock wall. The metal rungs stick out "open" into the airshaft's center.

Climbing up through the airshaft is like climbing a 100-foot vertical ladder, which has no side rail and doing this in a dark abyss. The darkness is a blessing, because the climber doesn't experience the height of the vertical distance up which he's climbing. Now much older and wiser, I realize how stupid I was to climb this airshaft just to map geology for greedy fools.

The miners are working in that upper level when there is a cave-in. One miner has his lower body crushed by a huge rock, which his partner can't move. The miner must leave the man, exit the mine, and drive for an hour to get help. It takes hours to get rescue people, including a doctor, to the seriously injured man. The injured miner waited alone and in agony, for hours in a dark mine crushed beneath an enormous boulder. For a frightened doctor, who has never been in a mine, it is especially difficult climbing up in the dark confinement of that narrow airshaft. The miner has to be first sedated before the rock crushing him can be removed. He is then strapped to a special mine rescue stretcher and lowered by rope down the airshaft. The ambulance then drives over an hour to the nearest hospital. It takes more than 8 hours from the time the man was injured until he arrives at the hospital. The miner lives, but is permanently crippled. Work to reopen the #2 level never resumes. I was working in the mine when the cave-in and rescue operations occurred, but I knew nothing about this until the next day. Sound doesn't travel far in an underground mine and the miners didn't know where I was in the mine.

Betty is friendly with Tucker's wife and our children often play together. The Tucker family is renting a beautiful home on the edge of Clear Lake Highlands. It is a brand-new house with a fenced yard and nice landscaping. They buy their kids an Irish goat cart to ride in. One evening, Betty says she went for a visit that morning and Tucker was just waking up at 10 AM. Later at 2 PM, she met Tucker and his kids eating ice cream in town. Betty says, **"Tucker seems to be home whenever I go to visit. When does he work?"** (Gene) **"That is not my problem. J.Q. hired him and he is Tucker's boss."**

J.Q. calls one evening after Tucker has been working on the Round Mountain Project for about three weeks.

(J.Q.) **"How is Tucker getting along at Round Mountain?"** (Gene) **"I don't know. I don't have time to visit him."** (J.Q.) **"I want you to spend a day with Tucker and make sure he is getting settled in and making progress."** Tucker is not happy to have me looking over his shoulder and it isn't a chore I relish. Tucker has mapped less than one square mile in three weeks. Later, when working in the same area, I will map about one square mile a day. This is possible because the terrain is open rolling hills with good access and the geology is simple compared to The Geysers area. I caution Tucker that he needs to get moving, because J.Q. is an experienced field geologist and he will not stand for such a low production rate. I return to the mine and avoid calling J.Q. because I'm not a spy or tattletale. Two weeks later, I check with Tucker again only to find he has still not mapped a single square mile. Again, I try to get him moving, but Tucker lacks both motivation and a work ethic. This is not an uncommon situation for rich men's sons, who don't need a paycheck to eat. Eventually, J.Q. calls to ask about Tucker and I mention he is a slow worker. (J.Q.) **"Push him"**. Nothing can get Tucker moving. At best Tucker is a one-hour a day man. J.Q. now begins dealing directly with Tucker and I'm thankful to be out of the loop. One evening Tucker calls to say he is taking a week off to attend the graduation ceremony to receive his Master's degree. Three days later, J.Q. calls, **"Tucker is not answering his phone."** (Gene) **"He's out of town attending his graduation ceremony at the University."** (J.Q.) **"When will he be back?"** (Gene) **"He told me he was taking a week off."** (J.Q.) **"A week off! He hasn't done a day's work in three months. When he gets back you fire him."** (Gene) **"Shouldn't you fire him? You're his boss."** (J.Q.) **"You do it!"** I break the news upon Tucker's return, which naturally makes Tucker angry. We arrange to meet in a few days for me to collect the company's maps, air photos and equipment.

Arriving at Tucker's house for the scheduled meeting, I find the front door is wide open. I knock and call out, but no one answers. There is nothing but empty filthy rooms inside the house. The maps and aerial photographs are scattered across the living room floor.

The doors have been removed from every room throughout the house, even the bathrooms. The fenced yard, which formerly had grass, small trees, and shrubs, is now a desert. The pet goat has eaten all the plants and grass down to the soil and he is still locked inside the yard without food and water. Lake County has no animal control and rescue department. I give the goat water and open the fence so he can escape into the surrounding forest. Piled alongside the house are all the inside doors, which are now destroyed by the wet spring weather and goat manure. I close the house and quickly leave before anyone in that small town can connect me with Tucker. It was a brand-new beautiful home when Tucker moved in a few months ago. Now the owners will spend thousands of dollars and considerable work repairing the damage.

The Culver Baer Mine's geologic evaluation is completed in mid-June 1969. I will now learn my employer's future plans for the mine. *(To be continued)*



Adit entrance to #3 level



Collapsed support timbers in #3 level

Article on **PIEZO ELECTRICITY** contributed
by Michele Shepard:

A

When I was an instructor in my club's lapidary shop - and on other occasions - members (& others) would ask me about the bright sparks and flashes produced when they are cutting agate, jasper, and other quartz stones, and sometimes it would look like an internal glow in their stone. I would tell them they are creating PIEZO ELECTRICITY. Most had never heard about piezo electricity, or knew anything about it.

So, if you are not familiar with piezo electricity, below is some info in it.

Certain crystals such as quartz are piezoelectric. That means that when they are compressed or struck, they generate an electric charge. It works the other way as well: If you run an electric current through a piezoelectric crystal, the crystal changes shape slightly. This property makes piezoelectric crystals useful in many applications. The most well known piezo producing crystals is Quartz, but can also be Tourmaline, Topaz, Cane Sugar crystals, and Rochelle salt.

Many of us encounter the use of piezo electricity when we turn on our (modern pilotless) gas stoves. When you hear the "click-click-click", that is a small hammer striking a piece of quartz crystal, thus producing an electric spark and igniting the gas. But, that is only a minor use of piezo electric crystals. Here are a few of their other uses.

Quartz timing; probably the most important uses of piezoelectric crystals. Depending on its size a quartz crystal will vibrate at a certain rate. Electrical pulses are generated as the crystal vibrates back & forth. "Quartz clocks", and other timing devices, use small slices of quartz crystal, that are cut to a exact size to keep time. A circuit called an oscillator keeps the quartz crystal vibrating by adding electricity to its pulses. The clock counts the number of pulses the quartz crystal makes and uses that as a basis for measuring seconds, minutes and hours. So, virtually anything that needs very precise timing uses precisely cut quartz wafers to maintain their accuracy, includes most electronics, computers, and cardiac pace makers.

Acoustic, and other sensing uses; Piezoelectric devices are used both, to capture sound and to produce it. Piezoelectric pickups are commonly used for folk guitars and other acoustic instruments. A piezo pickup is a strip of piezoelectric material connected to two wires. The pickup is attached to the instrument. When the instrument is played, the sound makes it vibrate. These vibrations create an electrical current in the piezo pickup, which can be recorded or amplified as sound. Also, the ability of piezoelectric sensors to sense minute changes in physical pressure, they have many other uses.

So, when you are cutting (or grinding) quartz minerals, or lighting your stove for your "morning Joe", you are creating electricity. Hey, if we can harness all of the electricity lapidary cutters produce, we can eliminate (at least one) fossil fuel power plant.

TREATMENTS:

In most cases but not always, red tiger eye is not a natural occurrence. It is usually a result of heating and can be done using the kitchen oven. Here's a basic recipe for heat treating tiger eye.

To protect the tiger-eye from thermal shock during heating cover slabs of ordinary, gold tiger eye in fine clean silica sand, at least 3" all around the slab.

Place the metal container in a cold oven and increase the temperature 50°F every hour until it reaches 400°F. Then turn the oven off AND DO NOT open the door. Allow plenty of time for the container to cool all the way through. (If you heat treat tiger eye to sell **BE SURE** you let it be known it has been treated, it's only right and it's the law.)

There are natural occurrences that tiger eye can be found with red color. And other known ways have been from brush fires where the deposits are found and also when miners would build fires next to the seams to help crack it up into smaller pieces, remember most of these miners had nothing but hand tools to work with.

Not long after tiger eye was first discovered for lapidary the world famous Idar-Oberstein lapidaries discovered by using hydrochloric or oxalic acid they could bleach tiger eye to an evenly colored light, translucent yellow. When cut properly they produced "cats eye" stones that look much like the rare variety of chrysoberyl but can be distinguished very easily between the two by gemologists.

Other treatments but not usually done, never by me, but some do do it. In pietersite and bighamite stones especially, it is very common to run into pits, cracks or voids called vugs. These are sometimes filled with wax, super glue or opticon in the last steps of sanding and polishing the stone. I never do any of these treatments but as I said it is and has been done by others.

There are many other types of stones that display a "cats eye" or shimmering chatoyance but we'll get into them later. The word "Chatoyant" comes from the French word for "cat" or to glow like a cat's eye.

Tiger eye is the anniversary gemstone for the 9th year of marriage

Article on **how to make red Tiger eye in your oven** from Alan Mazzola.

Please contact him with any questions or
comments: mazzolaal@aol.com

ROMANCE, HISTORY & LORE

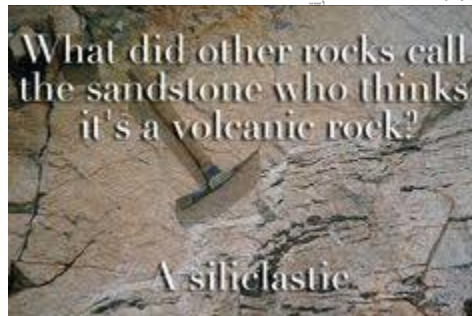
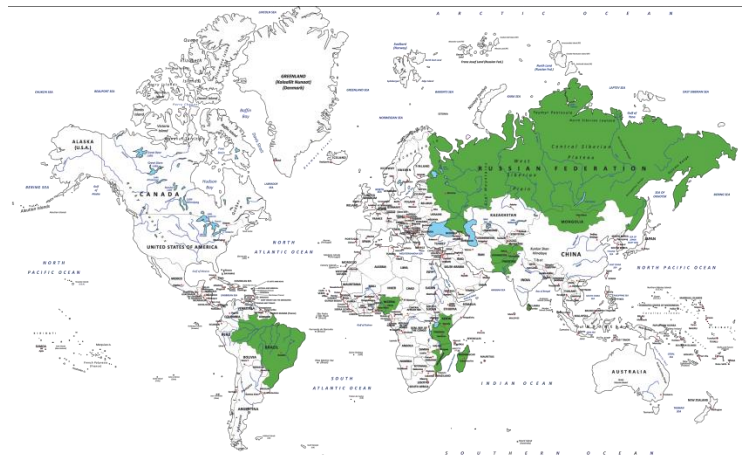
Legends say that aquamarine originated in the treasure chests of fabulous mermaids. For centuries, aquamarine was the constant companion of mariners, their protection against the wrath of the sea.

Perhaps because this gem has earned its own reputation for beauty, many don't realize that aquamarine is emerald's sister. While both stones are of the beryl family, aquamarine possesses a delicate, light blue hue reminiscent of the ocean's calm. Its very name, taken from Latin, translates to "seawater."

As the birthstone of March and a favorite of water-signs, aquamarine is well-suited to building a collection year after year, milestone after milestone.

ORIGINS

The largest deposits of aquamarine are found in Brazil, Tanzania, Kenya, Mozambique, Nigeria and Madagascar. Russia and Sri Lanka also contribute a lesser production. More recently, stunning aquamarine crystals been found in Pakistan and Afghanistan, lending promise to the potential for future mining in the region.





ENHANCEMENTS

The pure blue of aquamarine is the most prized, and as such, heat treatment is often applied to enhance aquamarine's color. After applying gentle heat for several hours, a once-greenish gemstone will become the purer pastel blue more typical of aquamarine in today's market. The result is permanent and widely accepted in the jewelry industry.



SELECTING A STONE

With an expressive color evocative of both sea and sky, aquamarine is considered a fashion staple. It is a rare gemstone in that it can effortlessly move from day to night, work to play, and casual to elegant.

Jewelry set with aquamarine, because of its pastel tones, tends to be light and bright. The darker and more saturated an aquamarine's color is, the rarer and consequently the more valuable it is. In general, however, aquamarine is a pastel gemstone and its lighter tones never reach the deeper tones of sapphire. Adding to its popularity is aquamarine's beauty when set in either white or yellow metal. Yellow enhances the warmth of a greenish stone, while white metal highlights its cool blue hues.

Aquamarine quite frequently has a flawless or lightly included interior and is often cut with large step facets and an open table that show off the remarkable purity of its structure. In fact, because of its pastel character and superior

transparency, aquamarine will sparkle with brilliance no matter how it is faceted. Unlike its sister, emerald, aquamarine quite frequently has a flawless, unincluded interior. Aquamarine is often cut with large step facets and an open table that show off the remarkable purity of its structure. In fact, because of its structure, unincluded aquamarine will sparkle with brilliance no matter how it is faceted.



Aquamarine is also available in large sizes and unconventional shapes, making it a perfect candidate for special order design and manufacture. And given the generous availability of rough aquamarine, there is truly no limit to a lapidary's creativity.

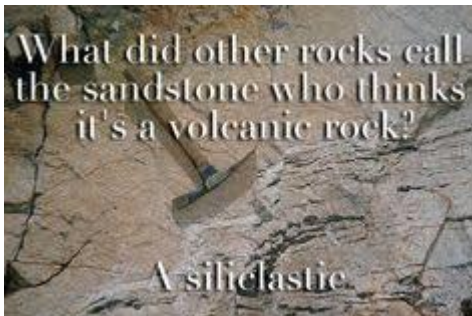


CARE

Aquamarine is resilient enough for frequent wear but to look its best, aquamarine should be cleaned every third or fourth time it's worn. For at-home cleaning, the safest method is using a solution of warm water and gentle dish detergent. Lightly scrub the gemstone with a soft brush and let dry on a soft cloth. To look its best, aquamarine should be cleaned every third or fourth time it's worn. For at-home

cleaning, the safest method is using a solution of warm water and gentle dish detergent. Allow the piece to soak for a few minutes, lightly scrub with a soft brush, and let dry on a soft cloth. As with other fine jewelry, remove aquamarine before bedtime.

AQUAMARINE PROPERTIES AT A GLANCE	
Family	Beryl
Chemistry	$\text{Al}_2\text{Be}_3\text{Si}_6\text{O}_{18}$
Refractive Index	1.564 - 1.596
Birefringence	.005 - .007
Specific Gravity	2.68 - 2.74
Hardness	7.5 - 8 (Moh's Scale)
Color Range	Light blue to dark blue, blue-green



Q: Why did the prospector throw his ore samples away?

A: He took them for granite.

Q: Why did the prospector take a bath with his rock samples?

A: Because they were soapstone.

Q: Why did the prospector make his mother carry his ore samples?

A: He thought it was the mother lode.