



The CULVER CITY ROCK & MINERAL CLUB, located in Culver City, California, brings together persons interested in the earth sciences to engage in research and study, to assist members in the collection and preservation of rocks and minerals and in the study of lapidary and related arts.



## May Program: Delft Sand Casting Techniques

Most of us know that lost wax casting is used by the jewelry industry to produce almost all items sold commercially, but the technique is rarely used in home shops because of the high cost of equipment and the complexity of its procedures.



Sand casting, on the other hand, is a quick and inexpensive method for producing copies of models in silver,

gold, and bronze in a home workshop. The talk will detail how the method works and will highlight its capabilities and limitations. A live demonstration of the casting technique will follow the presentation.

The upcoming May 11 Club meeting will be held on Zoom again as we continue with the social distancing order. The virtual meeting will help to maintain our sense of community with Club members as well as discuss routine Club business. Stay tuned to your email for an invitation to join the upcoming Zoom meeting. A hyperlink will be included in the email that will allow you to join.

Zoom can be used on a computer, tablet, or smartphone. Even if you don't have a webcam or smartphone yourself, you will be able to participate. You will view the presentation with any computer, and may call in with a regular phone to take part in the discussion.

You can install the Zoom app on your device from their website, or the appropriate app store:

[Zoom Website](#)

[Apple Store](#)

[Google Store](#)

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Submitted by  
**Brad Smith**  
President

## General Meetings

General meetings will be held the second Monday of every month at 7:30 pm on Zoom until it is safe to resume in person meetings. **Guests are always welcomed!**

Upcoming Programs

May 11 – Delft Sand Casting Techniques

June 08 – To be announced

July 13 – To be announced

# April Program Report

Steve Dover, Vice President of the club, made a presentation about the Death Valley National Monument, which he has been exploring for decades. Death Valley became a national monument in 1933. With five thousand square miles, it is the same as Los Angeles County.

Not much grows there, as the region receives less than 1.5 inches of rain per year. Steve walked us through a series of marvelous images illustrating some of his favorite, most interest sites in the area.



*Continued on page 3*

## President's Message

Back in 1960, our Culver City Club held it's first meeting as I was getting out of high school and starting college. Since that time, our sanity has been tested by major national security threats like the Vietnam War, the Cuban missile situation, a couple of periods of a financial meltdown, and the 9/11 bombing. The common element is that we have worked through all of these crises in the past. Now as we face the pandemic, I have full confidence we will also find a way to beat this virus as well.

One of the consequences, however, is our annual Fiesta of Gems. I have not missed even one of these shows in the last 23 years. Have worked each from set-up to tear-down and enjoyed the camaraderie of getting to know all of our great members who help put on the event. This year will be a first, for it's a time when staying home and attending to personal and family matters is the most important thing we should do.

But staying home doesn't mean that club activities have to be curtailed. As our recent experiments with online meetings proved, moving more of our activities online lets us continue sharing our common interests, projects, and news. The Executive Committee of all committee chairs has held a couple of meetings using Zoom.com Its a free app that you download onto your desktop, laptop, tablet, or smartphone that allows free live video/audio meetings among up to 100 people for 40 minutes. And there are some good tutorials on how to use it on Zoom and YouTube.

I want to thank Darren Cokin for setting up our April 13 Club meeting on Zoom and acting as an administrator for the session. We had 27 people signed in for a short business meeting followed by a slide show presentation by Steve Dover of Death Valley rockhound attractions. I've used the app myself for several practices and business-related sessions since then and look forward to planning several Club activities too.

The important thing is to stay in touch as we face uncertainties over how this virus thing will play out. One resource I'd like to propose is that we put together an updated membership booklet so all members will be able to reach each other by phone or email. But I want to be sure each member is OK with the Club sharing their info with other Club members. Look for a future email from our webmaster that asks for your permission to go forward with this.

And on a personal note, if anyone is interested in learning to make their jewelry, I have a lot of tutorials and start-up resources that I'm glad to share it. You can reach me at <[brad@greenheart.com](mailto:brad@greenheart.com)>

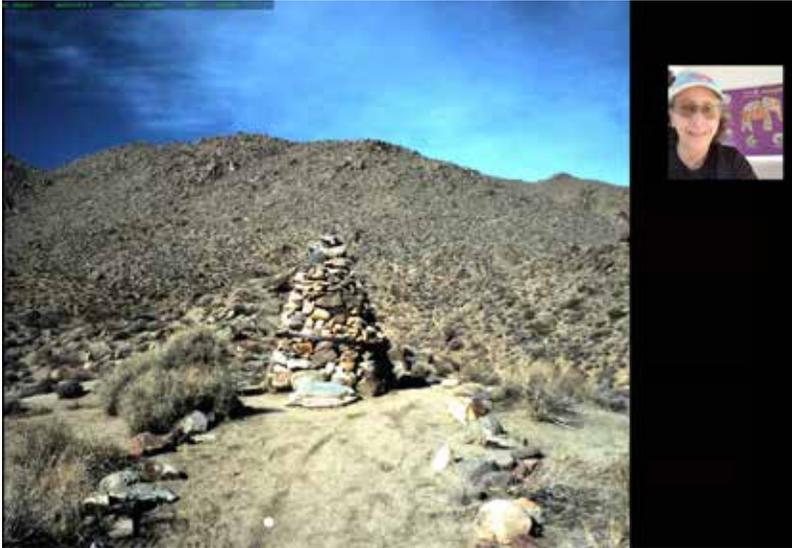
Until we see each other again, stay safe, and stay in touch.

**Brad Smith, President**

# April Program Report *continued*

They included natural wonders such as sand dunes, pinnacles, springs and ponds, craters, waterfalls and wildlife, as well as abandoned mines and cabins, ghost towns and grave sites.

Submitted by  
**Ana Strambi Guimaraes**  
Recording Secretary



# Turquoise Story

## Introduction & History of Turquoise

The name "Turquoise" may have come from the word *Turquie*, French for Turkey, because of the early belief that the mineral came from that country (the turquoise most likely came from the Alimersai Mountains in Persia (now Iran) or the Sinai Peninsula in Egypt, two of the world's oldest known turquoise mining areas.) Another possibility could be the name came from the French description of the gemstone, "pierre turquin" meaning dark blue stone.

For thousands of years the finest and most intense blue turquoise in the world was found in Persia, and the term "Persian Turquoise" became synonymous with the finest quality. The ancients preferred blue because a gem-grade blue stone would not change color (King Tut's treasures include a substantial amount of this type of blue turquoise and the colour appears unchanged today. The mines of Nishapur, in northeastern Iran, described in 1300 AD as having belonged to Isaac, the son of Abraham, supplied turquoise to Europe and Western Asia for centuries. This changed during the late 1800's and early 1900's when modern miners discovered or rediscovered significant deposits of high-quality turquoise in the western and southwestern United States. Material from many of these deposits was just as fine as the finest from Persia Today, the term "Persian Turquoise" is more often a definition of quality, rather than a statement of origin.

Exactly when turquoise first came to the attention of man is unknown. We have archeological as well as literary references that pre date the Christian era by five millennia. The four bracelets of Queen Zar, found on her mummified arm, date to the second ruler of the Egypt's First Dynasty, approximately 5500 BC. Turquoise was used for beads by the Egyptians. Combined with other ornamental stones, the turquoise was inlaid in gold by Sumerians and Egyptians to produce very sophisticated articles of Jewelry.

Large mines were reported around 3,200 BC in the Sinai. The oldest known source of turquoise is the Maghara Wadi mines in the Sinai Peninsula. Mining expeditions of up to several thousand laborers were sent there annually. These mines were worked for the pharaohs for 2000 years. They, were rediscovered in the mid-nineteenth century and worked on and off

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until the beginning of this century.

Turquoise was worn by Pharaohs and Aztec Kings. Its prized blue color is so distinctive that its name is used to describe any color that resembles it. Pre-Columbian Indians in Mexico, as well the American Southwest, used turquoise for beads and pendants.

The Anasazi and Hohokam mined turquoise throughout our Southwest. Absolute evidence exists that these prehistoric people mined turquoise at both Cerillos and in the Burro Mountains of New Mexico; also, at Kingman and Morenci in Arizona as well as the Conejos areas of Colorado. Turquoise was a popular trade item. We know this because so much has been found in archeological sites, many hundreds of miles away from its source. A prime example is the Cerillos, New Mexico, turquoise found in the Aztec regions of central Mexico.

## The Magic & History of Turquoise

Although not specifically mentioned in the Bible, many scholars believe that the robe worn by the high priest Aaron was adorned with turquoise. Aristotle, Pliny and others refer to stones that must have been turquoise. After the fourth or fifth century AD, many writings appeared discussing the stone. Explorers such as Marco Polo took time to write about it.

Turquoise became a major trade and barter item for the early Persians. Persian turquoise was found in ancient graves in Turkistan, and in the first to third century AD, in graves throughout the Caucasus. Persian stones were much coveted in Afghanistan, and as far north as Siberia.

Jewelry containing turquoise has always been popular in Tibet, where it was highly revered, perhaps considered more valuable than gold. They had their own source of turquoise, usually with a green cast; a very hard stone often with a significant amounts of spider webbing. It would be fair to say that every Tibetan wore or carried a piece of turquoise throughout life. Turquoise was also used for currency in many areas of Tibet.

The history of turquoise in China dates to the thirteenth century AD. Although mining did exist, most stone came from trade with the Persians, Turks, Tibetans, and the Mongols. Much Chinese turquoise was used for carving and in other decorative ways. The Chinese are greatly fascinated by turquoise, and<sub>4</sub>

to them it is second only to jade. Turquoise was unknown until the 18th Century in Japan.

Turquoise was not of great import in early and medieval Europe. However, as Asian conquests and interactions with Europe occurred, seventeenth century Englishmen traveling there brought the style back with them. However, it was not until Victorian time that it became fashionable for European women to wear the stone. Victorian and Art Nouveau jewelry featured a good deal of turquoise.

As turquoise found its way into the mystic arts, ancient doctors exploited the stone's medicinal potentials, which varied from land to land and age to age. It was good for nearly every ailment including insanity. Turquoise is considered beneficial to general physical well-being, and its cooling nature is thought to help high blood pressure as well as to purify the blood and benefit the liver. Its colour could forecast good or bad, predict the weather and influence dreams. It was thought to prevent injury through accident and prevent blindness by placing perfect stones over the eyes. Egyptians mounted turquoise in silver to treat eyes suffering from cataract. It was ground into a salve or powder, and was rubbed on or ingested to cure stomach disorders, internal bleeding and ailments of the hip. It was even said to be used for snake bites and scorpions stings.

As a good luck talisman turquoise found usage in nearly every culture. Turquoise has been believed to confer foresight as well as protect the wearer from danger. In various countries, it is believed to fade when illness or danger is near. Another belief is that a fading stone indicates a lover's faithlessness or a friend's disaffection. In many cultures, the stone is regarded as a harbinger of good fortune, success and health. Aztecs and Egyptians considered it a symbol of prosperity. In India, one was to wear a turquoise on the little finger and look at the stone after seeing the new moon to gain great wealth. Since the fourteenth century, harnesses of dogs, horses and other animals have been decorated with turquoise to protect the animal and master from falling injuries.

### Turquoise Use in the Native American World

Certainly the prehistoric peoples of the Western hemisphere knew of turquoise. Turquoise was likely found and used by early man. A long time ago someone noticed a clear blue line running through

gray rock, and saw the imagery of sky and water in stone, and from that time on, turquoise has been cherished above all else in creation. Pieces of turquoise have been found in burial and archeological sites throughout the two continents. It seems clear that turquoise was always considered a stone of life and good fortune and that it even had healing properties. The stone was used in religion, art, trade, treaty negotiations as well as for jewelry. It was considered by some tribes to be associated with life itself.

There are legends saying that the People danced and rejoiced when the rains came. Their tears of joy mixed with the rain and seeped into Mother Earth to become the SkyStone. Turquoise, the "fallen sky stone" hidden in Mother Earth, has been valued by cultures for its beauty and reputed spiritual and life-giving qualities for all of history. It is a true gem of the centuries.

Other stories say that the stone brought together the spirits of sea and sky to bless warriors and hunters, and that a turquoise arrowhead assured accurate aim. It was also said that fine turquoise was hidden in the damp ground at the end of the rainbow. A Navajo belief is that a piece of turquoise cast into a river, accompanied by a prayer to the god of rain, will cause rainfall.

Another example of the native American view of the power of turquoise would be if you are wearing a turquoise ring and suddenly you look down and see a crack in your stone; the Indians would say "the stone took it," meaning the stone took the blow that may have been aimed toward you.

### Physical Properties of Turquoise $\text{CuAl}_6 [(\text{OH})_2/\text{PO}_4]_4$

Most specimens are cryptocrystalline, meaning that the crystals can only be seen by a microscope. In chemical terms, turquoise is a hydrated phosphate of copper and aluminum, and is formed as water trickles through a host stone for about 30 million years, gradually leaving a deposit. Turquoise is usually found in the "alteration zones" of arid or desert regions. These zones are areas where the native, original rocks have been altered through the intrusion of other rocks from some volcanic or other thermal influence. The hydrothermal alteration is created by magma solutions from deep in the earth being forced to the surface through fractures or pores which eventually change the original rocks.

Several steps and processes are necessary to create

turquoise. First there must be a source of copper. This occurs in a rather limited number of areas in the world. There must be a source of phosphorus CO-located with the copper, usually from the mineral Apatite, which is not always in rocks associated with copper.

There must also be feldspar for the aluminum, along with deep hydrothermal alteration, which breaks down the feldspars and frees the aluminum needed for the turquoise. The phosphorus usually comes from phosphoric acid leached from the Apatite, during the hydrothermal alteration.

The copper is usually introduced into the "host" rocks by the rising hot magma. The copper readily oxidizes near the surface when it is in the hot magma solution. It reacts freely with the aluminum and phosphoric acid to form turquoise. Another key geological activity is called silicification; it too is an act of hydrothermal and intrusive alteration. Here silica, which is a common associate of turquoise, is introduced into the turquoise deposit. This addition combined with periods of intense heat are responsible for the hardness of the turquoise and frequently the matrix as well.

At this time other minerals enter into the turquoise structure and create color variations. The chemical formula of turquoise is:  $(\text{CuAl}_6(\text{PO}_4)_8 \cdot 4\text{H}_2\text{O})$  this structure will vary greatly with the introduction of Iron, Calcium, Magnesium, Manganese, Silicon, and Zinc. These additional elements when incorporated in the molecular structure of turquoise influence its color and hardness. The color of turquoise can vary from a deep blue to a deep green, with every variation of color in-between. Generally, the more copper in the molecular structure the bluer the turquoise. The introduction of iron causes a greener cast to the stone.

To explain further, turquoise must consist of copper, aluminum and phosphorus. Other elements can replace various percentages of these and change the molecular structure. For example, two very rare minerals, Chalcasiderite (where iron replaces the aluminum, creating a yellow-green color), and Faustite (where zinc replaces the aluminum, creating a lime yellow-green color), do exist in turquoise environments. Usually there will only be a partial replacement of the aluminum with iron and zinc, thus leaving the turquoise altered only in color.

Turquoise is opaque and has a Mohs scale hardness that varies greatly. The deeply mined chalk-like turquoise may only have a mohs hardness slightly over 2, while a gem specimen mined closer to the surface may be up to 6. The hardness varies due to several factors, including both the environment and the matrix or host rock in which the turquoise is found.

In silica varieties of turquoise, quartz particles are present and the stone will be hard enough for use as a gem stone. Silicification will strengthen some of the matrix as well. If some extent of silicification has not occurred, the turquoise will likely be chalky, porous, and soft. It will not be usable in jewelry without undergoing some form of treatment to harden or stabilize the stone. Stabilization may also be used because moisture will cause turquoise to turn toward green. This can occur in the ground or in jewelry by absorbing moisture and oils. This is not unlike blue azurite changing to green malachite as its creation environment increases its water content.

Turquoise can be formed in many ways. It can appear as nuggets or it can be deposited in cracks in rocks, which then form vein turquoise. Turquoise can be formed in a cavity lined with quartz crystals and, most interesting, can take the place of another crystal when that crystal dissolves and become a "pseudo morph" or false form. This could give the impression that it is an actual turquoise crystal. Since turquoise is a mineral that is deposited by water solutions, turquoise can take the shape of cavities left when the stems and parts of fossil plants were dissolved out of harder rock or matrix, leaving turquoise in its place. Although this is sometimes referred to as "Fossil" turquoise, the term is incorrect, since "fossil" means the actual remains of plants or animals preserved in the rocks of the earth's crust.

If you believe, as Native Americans believe, that the earth is alive, then all things, no matter how small or apparently inanimate, are precious. To the Native American, Turquoise is Life. In the modern age, there is still this primal recognition of life-giving rock: the smooth stones that lie in streams, the clear quartz that juts from limestone, the humble stone found on a walk, the little black pebble lying mysteriously on the path to your door. There are stones medicine men keep in their sacred bundles because they possess powers of healing. There is the stone that comes to you in dreams and the

magic ring you wear on your finger. These rocks and stones are alive and give forth energy to those who wear and hold them. Stones and crystals have unique attributes that support and heal us. Turquoise, especially, is known for its positive healing energy, an aid in mental functions, communication and expression and as a protector.

Here in the United States, turquoise is synonymous with the Southwest. In streets, plazas and in the middle of the desert; over plain dresses, velvet blouses, satin skirts, cowboy shirts and ceremonial costumes, Anglos as well as Pueblo and Navajo Indians wear turquoise necklaces, turquoise pendant, turquoise bracelets, belts and pins and as much as they can at one time. Elsewhere, turquoise may come and go with fashion. Here turquoise is more precious than gold, an enduring expression of Native American culture. It is the birthstone of December and signifies success. All pictures on this page are of untreated, beautiful, Natural Turquoise.

Turquoise, once a luxury intended only for the noble, is worn by every native of the Southwest as a sign of relative wealth. The rain gods and the kachinas wear it. The Earth Mother herself was once a little figure made of turquoise, before Talking God brought Changing Woman to life.

Today, turquoise can be found in many countries of the world, but high-grade turquoise is found mostly in China, Tibet, Persia and the Southwest.

The name is derived from "Turkish Stone" because it was brought to Europe through the ancient trade route, via Turkey. Pure blue is rare; with most stones either a blue-green hue or else containing matrix. Deposits are found in Iran, China, Australia, Israel and the southwest United States. The deposits in the Sinai were already worked out by 4000 BC. At that time turquoise was used for jewelry, amulets and the preparation of cosmetics by the Egyptians. Considered precious by the Native Americans, turquoise evokes peace of the soul, as when we gaze at the immensity of the sky. By gazing at turquoise the same way, we eventually feel a peace that surpasses all analysis. Turquoise amplifies light blue and blue/green rays in the Divine Light spectrum. When handled or worn, turquoise often turns a darker green, which is said to be caused by the absorption of lotions and body oils.

## Understanding the Value of Turquoise: True Natural Turquoise is Very Rare

Since the late 1950's, there has been a larger demand for turquoise than there has been supply. Since supply has not been able to satisfy the demand, there have been many market-oriented business people (sometimes unscrupulous), who have tried to fill this void with alternate products. The range of turquoise treatments is huge. Soaking soft, light colored turquoise soaked in a liquid plastic creates the effect of a much higher quality material. This idea was not new as it was done with animal fat and tallow thousands of years ago. Another technique is achieved by grinding soft turquoise into a powder and then compressing it, later adding various resins and sometimes dye, to create a "reconstituted" block of turquoise.



Photographer: Akira Obata, October 18, 2011 Top grade Lander Blue Turquoise 17.57 ct. <https://www.flickr.com/photos/blueamber/>

The various possibilities are numerous and I will try to make some sense of them for you. The words treated and stabilized are similar, but not necessarily synonymous. They describe the same type process, and there are several, for impregnating soft porous turquoise with liquid plastic and hardening or stabilizing it. One of the newer processes being used today is called 'enhancing'. This process creates a slurry, and then charges the turquoise with electrical energy, intensifying its hardness and color. The actual chemical structure does not change, as opposed to stabilizing with plastic. Most of these processes are well-guarded secrets, so any description is, at best, only an educated opinion.

The treating of turquoise is not to be condemned 7

and it is not wrong to buy or sell it; but it is wrong to misrepresent it or to mislead people. It should be sold as treated or stabilized and should not hold the status and value of Natural Gem Turquoise, which is the true gemstone. In my opinion 98% of all turquoise mined is stabilized or enhanced in some way. This is generally the turquoise that is softer, porous and chalky and will not hold together by itself. Treating the stone in this way makes it darker and harder, less likely to fall apart or crack when worked.

To complicate the subject even further, there is high-quality turquoise that is stabilized due to the seam-structure in the stone that might fracture if not treated. This material is often treated with "opticon", a kind of super glue used as a fracture-seal, just before cutting, in an effort to hold the matrix together. It is getting more difficult for even gemologists and turquoise experts to tell the difference between some forms of treated turquoise as opposed to the natural.

The natural turquoise used in many of the pieces we offer on this website represents less than 1 percent of the all the turquoise mined. If we state that the turquoise is untreated and Natural, we will guarantee it. We generally buy our turquoise either from the miner in rough rough stones or cut cabs, or else we cut our own stones from our extensive personal collection of turquoise. In most cases we design our jewelry our jewelry and then give the stones to one of the many Native American artists who work with us, to execute the design. That way we can guarantee the quality and authenticity of our jewelry and stones. The best guarantee to the buyer as to the authenticity of a piece and the stones that are set in it is to deal with a reputable dealer that you can trust. After over 40 years as an Indian Trader, and being fortunate to live and work in Santa Fe, the 'heart of the Indian Jewelry business', we have access to the sources that enable us to offer such quality items. Native American artisans may buy turquoise cabochons directly from miners, but most buy from jewelry supply stores or trading posts.

## Turquoise Terms & Definitions

Here are a few terms and their definitions that may help in understanding the various processes:

**Natural Turquoise** means a stone with no alteration

to its original state. Such stones are merely polished and cut into shapes before being made into jewelry. Natural turquoise remains porous, as all natural stone is to varying degrees, and may tend to change color over time as it is worn and handled, absorbing ones natural body oils.

**Stabilized Turquoise** means that the natural material as it comes from the ground has been chemically altered to harden the stone, usually by infusing an epoxy or similar chemical into the porous surface of the stone. The stabilization process serves to maintain or sometimes darken the color of the stone so it will not change. Generally the color remains natural in this process.

**Color Treated Turquoise** means that the natural material, as it comes from the ground, is usually too soft and pale to be of any commercial use. It is then altered in similar ways as the stabilized product, but a blue dye is also added to the mix. Treated turquoise is best recognized by its transparent plastic appearance. It looks unnatural because it looks too blue and too highly polished.

**Reconstructed Turquoise** is the name used for turquoise dust and chips that are mixed with plastic resins and dye and compressed into a solid block so as to resemble natural turquoise.

**Simulated or Imitation Turquoise** is not really turquoise. This material is pure plastic which has been colored with blue dye. It contains absolutely no actual turquoise whatsoever. Pieces of rocks, sand, pyrite and black dye are often added to the formula to imitate matrix.

## Turquoise Mines & Origins

### Ajax Turquoise

The Ajax mine, a small mine located in south central Nevada in the Royston area, is one of the relatively new turquoise mines. The mine yields stones from light blue with darker blue veins to predominately dark green with light blue areas. This latter coloration is considered quite unusual for turquoise.

### Arizona Blue Turquoise

### Australian Variscite

### Bisbee Blue

"Bisbee Blue" is a name that originates from the Bisbee Mine, near Bisbee, Arizona, in Cochise County, USA. The term refers to the turquoise that

comes from copper mines in this region. Turquoise from Bisbee has a reputation as a hard, finely webbed stone with high blue color, ranging from sky blue to a dark lavender blue. The matrix patterns vary a great deal, but can be characterized by the deep chocolate brown to black webbing. The hardness is 4.5 on the mohs scale.

The name "Bisbee" conjures a mystique among all turquoise aficionados, and it is one of the most sought after of all domestic turquoise. The turquoise from Bisbee is highly collectible and it is one of the more famous of the American mines. Although the turquoise from Bisbee has a wide variety of color and hardness, the most exceptional quality originates from the Lavender Pit, especially the east side. Such stone has beautiful high blue color with a dark distinct matrix. The turquoise is found as stringers that form as much as a few inches wide, as well as minute stringers in pyrite; also, small nugget masses in granite and quartz.

Bisbee turquoise was one of the first to appear on the modern American market, which is at least partly responsible for its fame. The turquoise mine was a secondary operation to the Bisbee copper mine, operated by the Phelps Dodge Corporation. The vast majority of Bisbee turquoise surfaced when the Phelps Dodge started their open pit mining operations at the location now known as the Lavender Pit. The mine has been closed since the early 1970's, so anything new coming from the mine has been scavenged from the old dumps. Much conglomerate rock had to be removed by Phelps Dodge before the deeper copper ore could be mined. This conglomerate was considered waste rock to the mining company, but was actually a hidden treasure as the host rock for Bisbee turquoise. This waste was discarded in huge piles called "dumps." The corporation made no decided effort to recover the turquoise, so almost all of it was recovered by company employees taking it out covertly in lunch boxes. Though this activity was prohibited, it was rarely enforced. For several years, through the late 1970's, these individuals (locally known as "dumpers"), were the only source for this fine turquoise. Also, during this time, Phelps Dodge began leasing out rights to individuals to mine the dumps for turquoise. However, the large majority of Bisbee turquoise was extracted during the 1950's and 1960's through the covert actions of mine employees.

There are other very rare materials from Bisbee that were mined both from stream beds in the Mule Mountains, as well as from the Campbell shaft. The various lesser-known formations, other than turquoise, among the copper oxides of Bisbee are of interest, as they rarely form in a similar way anywhere else in the world. There is a conglomerate mix of Azurite, chatoyant malachite, chrysacola and cuprite...all in a single stone, coming from the Campbell Pit, that is incredibly understated and altogether unrecognized for its uniqueness.

In 2004, Phelps Dodge Corporation decided to bury the old mine under hundreds of tons of dirt and rock. They felt that the miners, due to the increasing value of the turquoise, were paying too much attention to the turquoise and not enough to copper mining.

### Blue Diamond Turquoise

The Blue Diamond mine, located south of Austin, Nevada, produces a very hard light to deep blue turquoise, with an attractive swirl or mottled pattern of light and dark blues. It has brown to black matrix. The mine is located at a high altitude and cannot be mined in the winter months due to the extreme cold and snow.

### Blue Gem Turquoise

The Blue Gem Lease Mine has been staked also as the Turquoise Tunnel and the Contention, and at one time it was on the Pedro Lode claim belonging to the Copper Canyon Mining Company. The Blue Gem mine is located south of Battle Mountain, in the SE 1/4 of Section 29, T. 32 N., R. 44 E., at about 4,000 feet north - northeast of Copper Basin. It is surrounded by the copper workings of the Copper Canyon Mining Co. The parent company is the Duval Corporation. Blue Gem turquoise occurs in argillized quartz monzonite cut by two limonite-stained sheer zones, one trending N. 35 o W. and dipping 75 o NE., the other trending N, 25 o E. and dipping 55 o NW. An extensive breccia zone about 10 feet wide is developed between the two bounding shears. Exceptionally good quality turquoise forms veinlets up to three-quarters of an inch thick along the shears. Pyrite-bearing quartz veins are closely associated with the turquoise.

The Blue Gem mine was at one time located deep underground, accessed by tunnels as deep as 800 feet. This is of interest because the Blue Gem Mine and the Bisbee Mine in Arizona are the only two mines (of which we are aware) that turquoise was

found that deep in the earth. The Blue Gem mine was once developed in extensive underground workings. An adit several hundred feet long on the main structure connected to numerous shorter tunnels and several open stopes. Directly above the main adit was a glory hole some 100 feet long.

The Blue Gem deposit was first noted by Duke Goff in 1934. It was subsequently leased from the Copper Canyon Mining Co. by the American Gem Co. of San Gabriel, CA., owned by Doc Wilson and his sons, Del and William. The company operated the property until 1941 when the outbreak of the war caused a shortage of experienced miners. When both Del and William Wilson were called into the Army, the mine was closed for the duration of the war. Consequently, the lease was allowed to lapse and work was abandoned. In 1950 the mine was leased by Lee Hand and Alvin Layton of Battle Mountain.

In the early days of the operation, production of turquoise at the Blue Gem Lease was enormous. Although there is no exact information, it is reported that the output amounted to nearly \$1 million in rough turquoise. The mine is still active, although it is currently in the center of a major copper deposit being developed by Duval Corp.

Pyrite in Blue Gem is unusual to see but not unheard of. Very little large material ever came out of Blue Gem. The majority found was small 1-3 mm "bleeder" veins, which often came in sheets measuring 2 inches x 2 inches, as well as tiny nuggets which was perfect for Zuni inlay and fine needlepoint, petit-point and snake-eyes jewelry. Blue Gem turquoise was very popular in the late 1930's and 40's and was commonly used in the Fred Harvey "railroad and tourist jewelry" that is so collectable today. Blue Gem turquoise is extremely hard and stands up well to the test of time.

Blue Gem turquoise is a rare, valuable and historic American treasure. Quality Blue Gem Turquoise has been gifted with a wide range and variety of color, from a beautiful sky blue to an aqua blue-green, not unlike parts of the Mediterranean Sea. Because Blue Gem turquoise is very hard, a high polish is associated with this stone, and unlike most turquoise, it won't easily change color. This turquoise has a unique character and many different looks all of which are striking, full of wonder and pleasing to the eye.

Production of the mine started about 1934 and continued into the 1970's. Blue Gem Turquoise is still some of the finest turquoise ever found, and unlike most turquoise mines, (in which the majority mined is chalky and only usable if stabilized) most of the turquoise found there was of gem-quality. Today the Blue Gem mine can no longer be worked, as it sits in the middle of a huge mining operation. The emphasis is on precious metals; the extraction of turquoise is considered more of a hindrance in the mining process than an asset. Even the ever popular "Dump Diving" for turquoise is not tolerated due to the very real danger of becoming buried in a slide. Insurance factors, equipment hazards, high explosives and safety issues, along with a lack of interest from the mining company, keep Blue Gem turquoise unavailable to the world, at least for now.

The original Battle Mountain blue Gem Mine no longer produces turquoise, although numerous other mines in the area now carry the same name. The only true old Blue Gem turquoise available today is through old collections.

### Broken Arrow Variscite

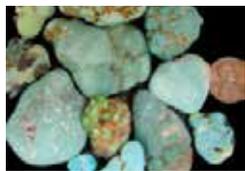
### Carico Lake Turquoise

Cairo Lake Turquoise is named after the location of its mine, located on a dried up lake bed in a high, cool area of Lander County, Nevada. It's clear, iridescent, spring green color is due to its zinc content and is highly unique and collectible. Carico Lake turquoise is also found in a dark blue as well as a blue-green color with a black, spider web matrix. The Carico Lake mine is primarily a gold producing mine. However, from time to time, the mining company leases the turquoise producing part of the mine to individual miners who are permitted to work that part. The limited amount of time allowed to mine Carico Lake turquoise and the limited amount of turquoise yielded, combine to make Carico Lake turquoise a valuable addition to one's collection.

### Cerillos Turquoise

Cerillos Turquoise is not only an uncommon and unique form of native New Mexican turquoise, but also has a long history which is deeply entwined with both the ancient native peoples of the Southwest and the more recent American mining companies. Considered the oldest known source for turquoise in America, the Pueblo peoples continued to extract turquoise from the Cerillos mine until the 1870's

when a silver mining boom raised interest in the area. The Tiffany Company in New York and its associates bought up the mine area and extracted \$2,000,000



Carico Lake Mixed Green

worth of turquoise between 1892 and 1899, the per carat value of which has never again been attained.

Cerillos turquoise was created and mined under unusual circumstances, as it is the only turquoise that has been known to form at the base of a volcano. Thus, a variety of colors developed from the minerals in the various volcanic host stones. Cerillos turquoise thus offers a huge range of different colors, from tan and khaki-green to a rich, blue-green to a multitude of blues and even white. Cerillos is a very hard stone and so takes a brilliant polish. Much of the host rock is riolite.

In addition to producing distinctive colored stones, the Cerillos mines are considered the oldest mines of any kind in North America. Located ten miles south of Santa Fe, it was the site of the largest prehistoric mining activity on the continent because the huge turquoise deposit was partially exposed at the surface. Miners from the San Marcos Pueblo, who later moved to Santa Domingo Pueblo south of Santa Fe, most heavily worked the mine. Using only stone axes, mauls, antler picks, and chisels, Pueblo miners removed 100,000 tons of solid rock to create a pit mine 200 feet deep. They dug other vertical shafts into the ground to reach veins of turquoise. Miners carried tools and leather rock buckets on their backs as they climbed in and out of the shafts using notched logs as ladders.

The turquoise obtained from the workings at Cerillos was traded via the old trade route, first to workshops at Chaco Canyon, New Mexico, where artisans polished stones that were coveted by nobles of distant lands. Turquoise from these workshops has been found as far south as Oaxaca, Mexico. The kings and emperors of the Mixtec and Aztecs wore crowns and pendants of turquoise, as amulets of good fortune and long life. The material was also traded east to Pecos and on to the land of the mound builders. Indisputable proof of the movement of this turquoise exists through laboratory analysis of turquoise found in many different geographic locations. Vast numbers of pieces of Cerillos turquoise

for personal and trade use have been unearthed in the prehistoric ruins of Pueblo Bonito in Chaco Canyon, as well as in Aztec ruins after the Spanish conquest.

The mine is currently owned by Douglas Magnus, Santa Fe painter and jeweler extraordinaire, who has made a lifelong project of preserving and protecting what little of this material still exists. I have spent many hours digging around in the dumps of the old Castilian claim and remember every piece I was lucky enough to find. In fact I once staked the claim next to the Castilian, the Spanish Gem, where I never found a single piece of turquoise. Rarely does this material come on the market, as it is coveted by those fortunate enough to possess it.

### Crescent Valley

There are many turquoise mines in Crescent Valley, the name is a catchall for them. Many are small esoteric mines that can only be worked by shovel and access by foot or horse. Some of the more famous names are the Blue Goose and Montezuma mines.

### Cripple Creek Turquoise

Cripple Creek Turquoise comes from the Cripple Creek mining area, located in Teller County Colorado, near the town of Cripple Creek. This is a very hard stone with colour range from light and dark blues with brown matrix, and more rarely a golden limonite matrix to blue-green. Hardness can be up to 6 mohs. The best use over all is for inlay and cabbing, although the medium quality is often a little pithy or porous, the result of which does not become visible until the end of the polishing process. This turquoise, like Carico Lake turquoise, is found as a by product of gold mining. This stone is found as both vein material and nodules.

This history of Cripple Creek Turquoise is quite interesting. One of the last great Colorado bonanza camps, the district was first discovered in 1891 by cowboy Bob Womack and turned out to be one of the richest gold mining camps in US history. The 500 mines in the area have yielded over 600 metric tons of gold, making it the third most productive gold district in the history of the United States.

Cripple Creek is unusual in that it is one of only a few domestic Turquoise mines still active today, although production has been limited. There are currently two active turquoise mines in the area being operated by two different families. The area is also quite mineral rich; along with gold and turquoise, over 120 other

mineral species have been found.

### The Damale Mine

The Damale mine is a small, tightly run operation, located thirty miles northeast of Austin, Nevada. The mine is located next to the Godber-Burnham mine, on The Dry Creek Ranch owned by the Damale family. There, they raise unique horses that carry the Damale name. Benny Damele discovered the mine sometime around 1973. Soon thereafter, Clyde Wright became involved in mining the claim and worked it for approximately 18 years. Tony Cotner, a shrewd merchandiser and colorful character, has owned the claim since 1990 when he bought it from Benny Damele. Cotner, also known as "Mean Green", states there is an ancient subtropical zone located beneath the mine that may be responsible for the unusual colors associated with Damele turquoise although he is unsure whether the organic environment has anything to do with the coloration.

Damale is a well known mine, distinctive because it is one of the few turquoises that can be truly yellow-green, either from iron or environmental conditions, but without zinc. Turquoise from the Damale mine is wonderfully distinctive; very hard, and visually appealing. It forms in veins and occasionally as nuggets in carbonaceous chert and also diatomaceous earth. Much of the production from this mine is a high grade variscite, a "first cousin" to the turquoise.

The mine is extraordinarily versatile, it's colors ranging from pure lime-green through bright chartreuse; it can also be yellow with black webbing, or white, orange and brown, or even a caramel color with bright green polka dots. The mine also produces small black nuggets with bright yellow-green bumps poking out of the black matrix. It's availability is extremely limited because the mine is small and difficult to work. Due both to its limited quantity as well as its rare color and quality, turquoise from the Damale is an exceedingly collectible turquoise.

### Dry Creek Turquoise

The Dry Creek Turquoise Mine is located on the Shoshone Indian Reservation near Battle Mountain, Nevada. The mine was first discovered in 1993, but the nature of the material led to much confusion, due both to its extreme hardness and odd color. After having the material assayed, it was proven to be turquoise. The miners at Dry Creek have also found a

white stone at this deposit that is mistaken as "white turquoise", but is actually Aluminite.

The turquoise from the Dry Creek mine, which has also been known as the Godber as well as the Burnham mine, is a creamy pastel-blue and blue-white turquoise. The gem grade material from this mine is very hard and available only in small quantities. Since turquoise gets its pigment from the heavy metals in the ground where it is formed, and this area has a distinct lack of heavy metals, the odd color is due to a slightly heavier balance of aluminum rather than copper in the stone's chemistry makeup. The matrix in Dry Creek Turquoise is typically light golden or brown-gray to gray-black. This turquoise is beautiful alone in a piece of jewelry and is especially striking when juxtaposed with other colors of turquoise in a single creation.

To date, no other vein of this color turquoise has been discovered, and when this current vein runs out, that will be the last of it. Because this turquoise is as rare as the legendary sacred white buffalo, the Indians call it "White Buffalo" Turquoise.

### Evans Turquoise

The Evans Mine is located in Baja, California. It is one of the few mines south of the border that has yielded such a wide variety of turquoise. Colors range from a high blue with a beautiful brown matrix to a green with gold matrix. The formation runs from thin veins of dark blue turquoise to nuggets to flats. There is an extremely limited amount of this material on the market because the mine was covered up in the 1990's.

### Fox Turquoise

The origin of the Old Fox mine is near Lander County, Nevada. While indigenous people found large nuggets in this area in prehistoric times, the area was first discovered for contemporary mining purposes in the early 1900's. In the 1940's, Dowell Ward purchased & developed the old Cortez claims. Turquoise from this mine comes under several different names including Fox, White Horse, Green Tree and Smith, to differentiate the different deposits and colors and to create a larger perceived share of the turquoise market. Color range is from a soft sky blues, sometimes with a subtle water-marked matrix, to blue-green to green. While quite a bit of this material came out in nugget form, there is also large seam material, sometimes as thick as two inches.

The colors in the seam material go to a deeper green, sometimes in conjunction with a very nice blue. The nugget material, while usually small, makes very nice cabs or can be used for inlay. The seam material, often not of ultra high quality, is better suited for carving and, with the better quality for cabbing. Hardness is 4.5.

### Sonoran Blue Gold Canyon Turquoise

Sonoran Blue Gold Canyon Turquoise is an interesting turquoise from Senora, Mexico, near Nogales, Arizona and its neighbor: Nogales, Mexico, which is the northernmost point in all of Mexico. The series of mines bearing this name are on several sites contingent to the American border. Very little hard natural material has been mined here. Most has needed stabilizing to be useful. The high grade natural material is a medium blue, with darker blue matrix, forming a "birds eye" pattern. This is usually accompanied by iron pyrite, giving it a similar look to a high grade Morenci. The high grade turquoise from this mine is rare and is considered both esoteric and valuable.

### Hubei Turquoise

The Hubei mine is located in the Hubei Province, in central China and has been the most prolific mine in Asia. The Mohs hardness ranges from a 4 to 5.5. The qualities that come from Hubei range from very soft material, needing to be treated to make it usable, to an attractive green spider web, to a very hard and fine blue with dark veined (spider web) matrix that could be considered some of the world's finest turquoise.

### Kingman Turquoise

Kingman Turquoise originates in the Mineral Park Mining District near Kingman, Arizona. One of the largest domestic turquoise mines, it is found in a large open pit copper mine in the high desert country. The Kingman Mine district was first mined by Native Americans; it was part of the most extensive prehistoric workings in Arizona.

However, modern production of turquoise dates back to the 1880's when James Haas rediscovered the area. Natural Kingman Turquoise ranges in color from light to very dark blue and sometimes tints of green. Matrix can range from white, light brown to black and frequently flecked with pyrite and occasionally quartz. The most famous stones from this mine are rounded bright blue nuggets with black matrix. Few turquoise mines produced nuggets, especially of this quality. In its high-grade

form it has always been considered among the top quality American turquoise. This high blue color has become a "color standard" in the industry, reflected by the name "Kingman Blue". However, much of the turquoise from Kingman occurs as seams, masses and veins, rather than in nugget form. Besides the nugget form, the most desirable Kingman turquoise is a deep blue with molybdenum pyrite; also, deep blue with pyrite as well as in a "bird's eye" pattern with "water web" matrix.

The mine is currently owned & Operated by the Colbaugh family's company, Colbaugh Processing. While old natural Kingman turquoise is rare, they have recently gone back into older sections of the Kingman mine and are bringing out some new natural Kingman Turquoise. Although there are quantities of this fine natural deep blue turquoise available, the largest percentage of turquoise mined at Kingman is being treated or stabilized. There are several other names for the turquoise coming out of the Kingman mining district: Ithaca Peak, Old Man Mine, Kingman Duval, Courtland, The Wall and Turquoise Mountain, just to mention a few.

### Lone Mountain Turquoise

The Lone Mountain Turquoise Mine, near Tonopah, Nevada, was one of the leading producers of fine turquoise in Nevada. It was discovered by Lee Hand in 1920 and filed under the name of Blue Jay Mining Lode. At first it was called the Blue Jay Mine on Lone Mountain and later just Lone Mountain. It is presently closed.

As with most mines, it was at first a tunnel and shaft project but when Menless Winfield bought the mine it was made an open pit operation. The turquoise from this mine is mostly good to high-grade and usually in the form of nuggets although there is a quantity of vein material. A very interesting occurrence of turquoise found here is a condition where the turquoise was deposited in cavities or molds left when parts of fossil plants were dissolved out of a harder rock. The turquoise is graded into golden matrix, black matrix and spider web. At present, most of it is cut and polished or the nuggets drilled and polished at the mine, making this is a very collectible turquoise, and rarely available in rough form.

### Maanshan Turquoise

### Morenci Turquoise

Morenci Turquoise is mined in southeastern Arizona,

in Greenlee County. It is light blue to high blue in color. Morenci has an unusual matrix of irregular black pyrite, or fool's gold; when polished, the pyrite often looks like silver. It also is sometimes webbed in a darker shade of blue, called water webbed. Morenci turquoise is well known because it was one of the first American turquoises to come on the modern market, and is often difficult to obtain because the mine is now depleted, making it an exceedingly collectible turquoise.

Material coming out in the 1960's seems to be harder, tending more to the blue-greens, usually with the pyrite. In the 1970's, the material was a much brighter blue, often with quartz along with the pyrite.

## Northern Lights Turquoise

### Number 8 Turquoise

Located in the Lynn mining district (no. 19, pl. 1 ) in northern Eureka County, north of Carlin, Nevada, the Number 8 mine is on the west side of the Tuscarora Range in the NW 1/4 sec. 4, T. 35 N., R. 50 E., and was at one time a gold and copper mining operation. It was in a large mining district encompassing ten 20-acre claims and was active from the 1930's through the early 1950's. Host rocks for the Number 8 deposit consist of intensely altered quartz monzonite, shale, and thinly bedded black chert, which are complexly folded, faulted, and much altered. Turquoise is concentrated along quartz veins in the intrusive rock and along faults in the sedimentary rocks.

The number 8 mine was presumably discovered about 1925 by a barber from Carlin whose name has been forgotten, because he made no attempt to mine the property. The mine was rediscovered by Earl Buffington and Lawrence Springer in 1929. They filed formal claim to the property and proceeded to mine turquoise in serious fashion, producing about 1,800 pounds of good stone the first year. In 1930 Ted Johnson bought Buffington's interest and during the next four years produced about 5,000 pounds of commercial stone. In 1935 Doc Wilson bought the number 8 mine from Johnson but did nothing with the property and the claim lapsed. Myron Clark relocated the claim and, after working it for awhile, sold it to Lee Hand. Hand operated the mine for a short time, but became dissatisfied with the quality of the stone, and sold it to the five Edgar brothers who now own it. The Edgars extended operations and produced

a considerable amount of fair-to-good turquoise.

In 1950, as most of the visible turquoise had been taken from the workings, the Edgars hired a contractor with bulldozer equipment to remove overburden from another part of the claim. A deposit of copper had been found on the property, and the Edgars thought they might mine copper if they did not find more turquoise. The bulldozer, after digging a pit about eight feet deep and 80 feet long, uncovered a deposit of some of the finest spider-web turquoise ever found in Nevada. The deposit was mostly in nodules, some of gigantic size.

One of the largest pieces of turquoise and matrix in the modern world, perhaps the largest nodule ever uncovered, was discovered at the Number 8 mine on June 23, 1954, by T. G. Edgar, J. M. Edgar, and Marvin Symes. This specimen was 33 inches long, 18.5 inches wide, and seven inches thick. Cleaned and polished it weighed 150 pounds. The nodule was of excellent texture, good color and hardness, and ranked with any turquoise of good commercial grade. Another nodule, of excellent quality, weighed more than nine pounds. It was sold to C. G. Wallace, of Zuni, New Mexico, for \$1,600. The discovery proved to be a rather large-pocket and produced more than 1,600 pounds of the very highest grade turquoise before being worked out. Spurred by this find, the Edgars further explored the property, without finding any more spider-web turquoise of notable quantity. Other turquoise was discovered, however, of good commercial grade, sufficient to keep the mine in operation.

Of the ten claims in this 20-acre area, the Number 8, first claimed by the Blue Star Company in Lander County, is considered the finest example of the gold-webbed turquoise. The mine has produced one of the most prized spider web turquoise deposits in the world. In its prime, enormous nodules were found, including one that weighed 150 pounds. Number 8 turquoise is famous for its black, golden-red and brown spider web matrix background, which is set off by the soft blue to blue green turquoise. Only rarely does gem material appear: a very dark blue turquoise with black spider web matrix. The mine is now depleted and Number 8 turquoise is extremely rare and valuable.

### Orvil Jack

Orvill Jack discovered and developed the mine in the northern Nevada, known as Crescent Valley, that

bears his name. This claim is actually made up of two mines: when the blue turquoise is mined, it is called the "Blue Ridge Turquoise Mine." When the yellow-green "fausite" is mined, it is referred to as "Orvil Jack Turquoise." The rare yellow-green color of the turquoise comes from the zinc content. Mr. Jack is now deceased, but his daughter Grace Jack Wintle continues to manage and work the mine, although it is now operated primarily as a gold mine. Only a very small amount of the yellow-green variety is now being produced, and is considered very collectible due to its rare color and scarcity.

### Pilot Mountain Turquoise

The Pilot Mountain mine is located in northern



*This is a selection of quality American Turquoise Jewelry from Durango Silver Company. The large Turquoise Bracelet in the center is a piece of Antique Turquoise Jewelry with an exceptional Number 8 Turquoise Stone from Nevada. It was handcrafted by a Native American Turquoise Jewelry artist called a Navajo Silversmith in the 1940's. The balance of the Turquoise Jewelry shown in this photo was produced by Durango Silver Co. Jewelry like this can be viewed and/or purchased by viewing our online catalog from the buttons on the left.*

<https://www.durangosilver.com/turquoise-jewelry.html>

Nevada, in Mineral County, near the town of Tonapah. It is still producing and is worked by one family. The stone is highly admired for its deep blue-green colors. In addition, it can show light blue to dark green colors on the same stone. This graduation in color is unusual and makes the turquoise very collectible. The matrix is black to golden brown. Although sometimes a little porous, or pithy, Pilot Mountain is a hard stone and takes a good polish.

### Royston

Royston is a district in Nevada consisting of three turquoise mines: Bunker Hill, Oscar Wehrend, and the main producer, The Royal Blue. Royston is known for its beautiful colors ranging from deep green to rich, light blues which are set off by a heavy brown

matrix. The Royston mine is producing a little high grade turquoise today, operated by the Ottison family. They process most of their material into finished cabs and allow very little rough to come onto the market. This controlled output has raised the price of this material considerably in recent years.

### Sleeping Beauty Turquoise

The Sleeping Beauty Mine, located in Globe, Arizona, is no longer an active mine. For many years it produced a wide range of turquoise that is now even more highly prized for its solid soft blue color, with little or no matrix. The color of the turquoise ranges from a deep royal blue to a light sky blue. The mine originally was worked for copper and gold but during the last five decades or so it has produced gemstone quality turquoise in quantities to satisfy the commercial market. In general, the miners lease portions of the "dumps" and sort turquoise from there.

There is a small town in south central Italy, near Naples, famous for its cameos. Their needs for huge quantities of this material over the years have always kept the supply down and demand high. The clear blue is reminiscent of old Persian turquoise, and is without doubt the most preferred and prized by Europeans, both for cameos as well as in bead or jewelry form.

There is a sister mine nearby, called the Bluebird, that produces some of the world's most beautiful azurite. This material is a copper oxide and also contains malachite, crysacolla as well as a mineralized copper or cuprite. This is a rare and undervalued gem stone that has all but disappeared from the marketplace.

### Sources

Turquoise, The Gem of the Centuries, by Oscar T. Branson, Treasure Chest Publications  
Bob Jones, Senior Editor, Rock & Gem Magazine, "Turquoise, Blue Sky...Blue Stone"  
The Turquoise Trail, by Carol Karasik, Harry N. Abrams Publisher  
Arizona Highways, January 1974  
Silver Sun, 656 Canyon Road, Santa Fe, New Mexico 87501, [www.silversun-sf.com](http://www.silversun-sf.com)

[https://traderoots.com/Turquoise/Turquoise\\_Story/index.html](https://traderoots.com/Turquoise/Turquoise_Story/index.html)

Submitted by  
**Devon Lloyd**  
Minerals Chair

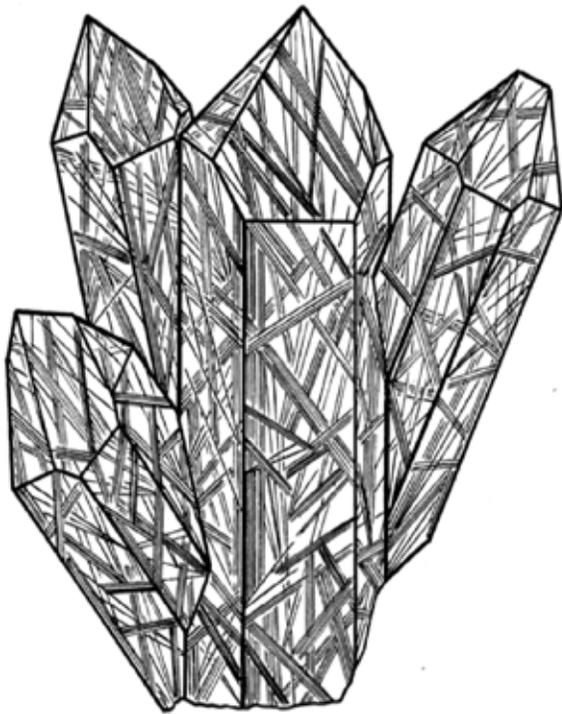
## What Mineral Am I?

I am made of titanium and oxygen (TiO<sub>2</sub>). My crystals can be thick and large. On the other hand, my crystals can also be very thin and long, like needles.

My color can be steel gray, but I can also be golden.

Most collectors know me as a mineral that is found trapped inside clear quartz crystals, like the ones pictured here.

What mineral am I? Answer on page 17



Mini Miners Monthly, January 2020, Vol. 12 No. 1



## Happy Birthday!

Elizabeth Hessami	May 4
Chris Chamberlain	May 5
Scott Fears	May 11
Maria Leyva	May 27

## General Meeting Minutes April 13, 2020

The meeting was called to order at 7:36 pm by President Brad Smith.

Brad Smith thanked Darren Coking for setting up the meeting on Zoom. He asked that those attending provide him with feedback.

Treasurer Darrell Robb informed the Club remained solvent and provided information about the Club's investment account.

Quorum was established and the March General Meeting minutes were approved as read in the April Nugget.

The meeting adjourned and the April Program followed.

Submitted by  
**Ana Strambi Guimaraes**  
Recording Secretary

## Upcoming CFMS Shows

Many clubs have cancelled or changed their show dates due to Covid-19 social distancing orders. Please check the CFMS website for the most up to date information on upcoming shows.

<https://www.cfmsinc.org/shows-2/>

May 1-3: Yucaipa, CA  
Yucaipa Valley Gem and Mineral Society  
Email: [grandpasgems@gmail.com](mailto:grandpasgems@gmail.com)  
Website: <http://www.yvgms.org>

May 2-3: Jackson, CA **CANCELLED**  
Amador County Gem & Mineral Society  
Email: [mountaingirl@volcano.net](mailto:mountaingirl@volcano.net)  
Website: <http://www.amadorgemandmineral.org>

May 2-3: Bakersfield, CA **CANCELLED**

May 2-3: Anaheim, CA **CANCELLED**  
Searchers Gem and Mineral Society  
Website: <http://www.searchersrocks.org>

# the Nugget - Submissions

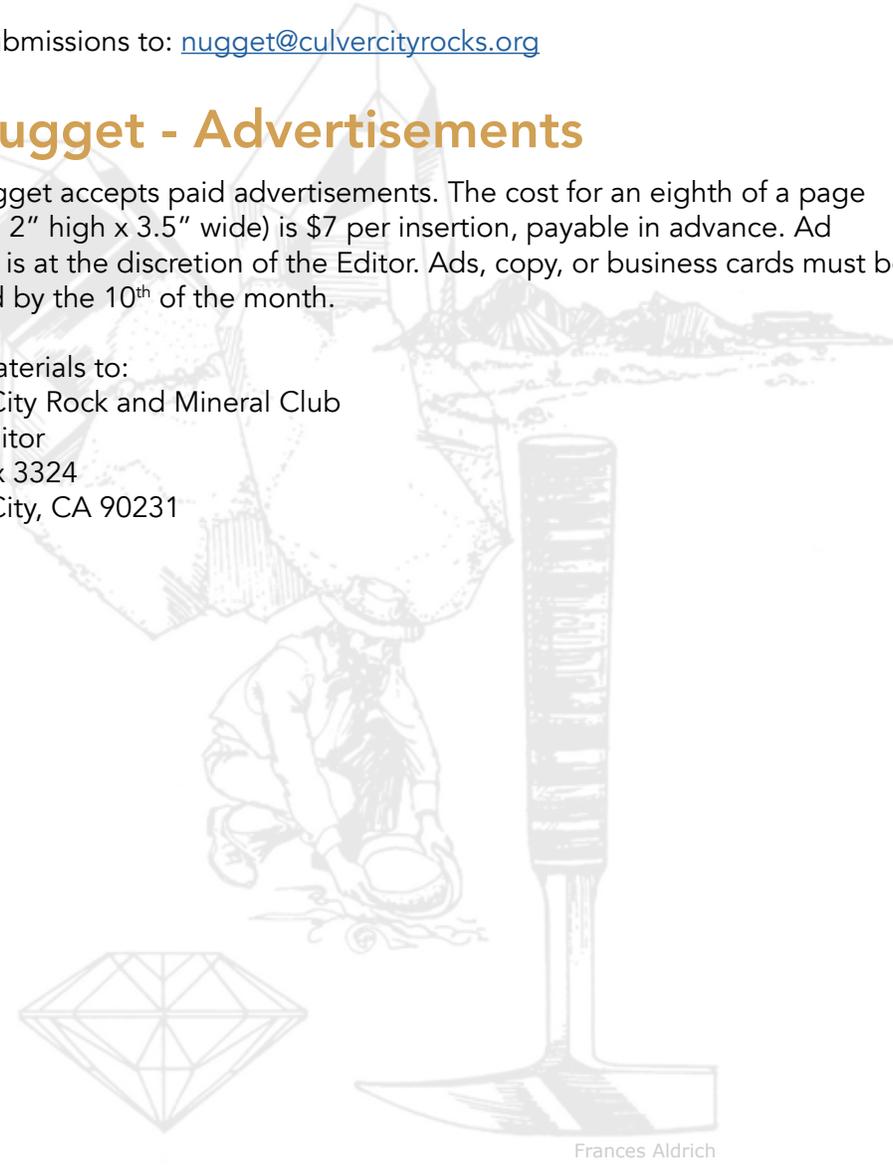
Submissions deadline is on the 15<sup>th</sup> of every month. Articles or notes without a byline are written by the Editor. Permission to copy is freely given as long as proper credit is noted. Photographs without credits are shot by a CCRMC member. Permission to use photography is freely given as long as proper credit is noted.

Email submissions to: [nugget@culvercityrocks.org](mailto:nugget@culvercityrocks.org)

# the Nugget - Advertisements

The Nugget accepts paid advertisements. The cost for an eighth of a page (approx. 2" high x 3.5" wide) is \$7 per insertion, payable in advance. Ad location is at the discretion of the Editor. Ads, copy, or business cards must be received by the 10<sup>th</sup> of the month.

Send materials to:  
Culver City Rock and Mineral Club  
Attn: Editor  
P.O. Box 3324  
Culver City, CA 90231



Frances Aldrich

Answer: Rutile

## Stay In Touch



Mailing Address:  
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PO Box 3324  
Culver City, CA 90231  
310-836-4611

## 2020 Elected Officers

**President**  
Brad Smith

**Vice President**  
Steve Dover

**Treasurer**  
Darrell Robb

**Recording Secretary**  
Ana Maria Strambi Guimaraes

**Corresponding Secretary**  
Véronique Gautherot

**Parliamentarian**  
Jon P. Gowling

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- Education – Karen Wallen
- Federation Director – Rick Shaffer
- Field Trips Chair – Devon Lloyd
- Historian – Virginia Hollis
- Librarian – Andrea Fabian
- Membership – Stephanie Dangott
- Membership Co-Chair – Laura Seffer
- Minerals Chair – Devon Lloyd
- Photography – Pam Leitner
- Programs – Ken Rogers
- Publications Chair – Janet Gampe
- Publicity – Janice Metz
- Show – Adrienne Louie
- Shop Committee – President, Vice President & Shop Instructors
- Social Co-Chairs – VACANT
- Sunshine – Felice Ganz
- Trading Post – Gary Mitchell
- Web Master – Jette Sorensen
- Workshops – Janice Metz

### Board of Directors

**2020**  
Anna Maria Strambi Guimaraes  
Bruce Mensinger

**2021**  
Franne Einberg  
Gary Mitchell

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# the NUGGET



Frances Aldrich