

# HUI PŌHAKU 'O HAWAI'I

## Rock & Mineral Society of Hawai'i, Inc.



VOLUME 43, NO. 5

MAY 2008

### TURQUOISE

We are devoting the month of May to a single mineral...Turquoise. Through out history civilizations have prized turquoise's blue and green color not only for decoration, but have credited the gemstone with mystical and medicinal properties.

Turquoise is a copper aluminum phosphate, whose name originated in medieval Europe. Here traders from Turkey introduced the blue-green gemstone. Although this stone was actually obtained from Persia (the present day Iran), the medieval Europeans associated this stone with the Turkish traders who supplied them with the gemstone, rather than the land of the stones origin. Hence they called this stone "turceis" or, later in French "turquois." Over time english speakers adopted this French word, but adding an "e" (Turquoise). The Spanish called this stone "turquesa"

The gemstone grade of Turquoise has a hardness of hardness of 6, however the vast majority of turquoise falls in the softer 3 – 5 range. Turquoise occurs in range of hues from sky blue to grey-green. It is mostly found in arid places which has a high concentration

of copper in the soil. The blue color is created by copper and the green by bivalent iron, with a little amount of chrome. Turquoise often, has veins or blotches running through it, most often brown, but can be light gray or black depending on where it was found. These irregular patterns are known as "turquoise matrix". As a rule, turquoise occurs as a filling in veins or crevices, or in the form of nuggets. Turquoise crystals are microscopically small, only occur in a couple of localities.

It has been believed that turquoise's color could forecast good or bad, predict the weather and influence dreams. It was good for nearly every ailment including insanity. As a good luck talisman it found usage in nearly every culture. The Egyptians also mounted turquoise in silver to treat eyes suffering from cataract. 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 has been believed to confer foresight and to protect the wearer from danger. In various countries,

### MEETING

Wednesday  
May 28, 2008  
7:00—9:00 pm  
Makiki District  
Park  
"Turquoise"

### NEXT MONTH

Wednesday  
June 25, 2008  
"Minerals From  
India"

### LAPIDARY

Classes on  
Thursday  
Evenings  
7:00—9:00 pm

### MEMBERSHIP COSTS 2008

Single: \$10.00  
Family: \$15.00

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## Turquoise, page 2

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.

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. The turquoise from Iran is characteristically an intense medium blue color and takes a fine polish. American and Mexican turquoises range from light blue to greenish-blue to bluish-green. Egyptian turquoise contains more green, showing greenish-blue to yellowish-green.

Turquoise was likely found and used by early man. The prehistoric peoples of western hemisphere knew of turquoise. As turquoise has been found in burial and archeological sites throughout the two continents. The stone was used in religion, art, trade, treaty negotiations as well as for jewelry.

The oldest known piece of jewelry, a turquoise bracelet, was found on the wrist of a 7000 year-old mummified Egyptian queen. The oldest mine of any kind on the North American continent, the Cerrillos turquoise mine just south of Santa Fe, New Mexico, dates back at least 2000 years. Native American Pueblo peoples dug deep into the stony ground using antlers and stone mauls to bring up the precious turquoise, a true labor of love. To the Pueblos and the Navajos, turquoise is sacred, takes its color from the sky, and symbolizes the supreme, life-giving and healing power of the Creator.

Turquoise generally forms in arid climates and therefore large deposits have been found in the southwest United States, China, Iran, Chile and Mexico. Each turquoise mine is marketed by its name, such as Cerrillos, Bisbee, Sleeping Beauty, Kingman, Morenci, Number 8, Royston, Pilot Mountain and Blue Gem.

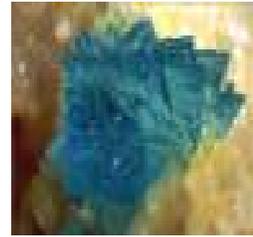
China and Tibet have large mines also. In fact, about 80% of all the turquoise on the market worldwide today is Chinese or

Tibetan. The currently popular chunky blue green turquoise nuggets with dark spider web matrix is mined north of Bhutan high in the mountains of the former Tibet. Northwest of Shanghai is the Ma'ashan turquoise mine, and the Hubei Province produces turquoise colors reminiscent of the much-prized blues and greens of the now closed mines in Nevada. Most of the remaining 20% is American, coming from the Sleeping Beauty and Kingman mines. The other American mines are producing very little or no turquoise. Stones from these highly collectible but depleted mines come onto the market from collections from time to time.

Persian turquoise comes from a number of mines in modern day Iran. The stones from all mines show a great color variation. Many mines were worked around Nishapur, 225 miles east of the southern end of the Caspian Sea, close to old caravan routes. Firm evidence exists that these mines were heavily worked beginning in the 10th century, but there is also evidence that some of the mines near the surface may have been exploited as early as 2100 BC.

The Persians divided turquoise into three classes. Fine ring stones were called Anqushtari. Stones of intermediate quality were called Barkhaneh. Stones that were pale, greenish, or with spots from matrix were called Arabi. Traditionally, brilliant blue stones with no matrix were preferred in the Middle East. Today, Persian turquoise in a variety of shades and matrixes can be found in jewelry.

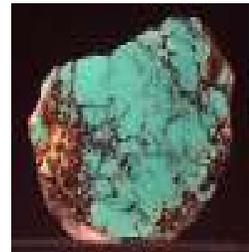
The Sleeping Beauty mine is seven miles outside of Globe, Arizona. It is noted for its solid, light blue color with no matrix. This mine is one of the largest in North America. Monty Nichols, owner and miner of the Sleeping Beauty mine, says that the mine is producing about 1600 pounds a month. Of that, only 4% is natural. Most of the turquoise from the mine, 80-90%, is altered in some way. Most of that percentage is enhanced, which is more expensive than stabilization, and sold to



Triclinic crystals of turquoise on matrix.  
(Lynch Station, Campbell County, Virginia)



Chinese "Redweb" Turquoise (Stabilized), Hubei, China



Chinese "Redweb" Turquoise (Stabilized), Hubei, China

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## Diamonds, page 3

large distributors in this country and Europe. Currently, most of the turquoise that comes out of that mine comes from the tons of tailings piles that have been accumulating all these years.

The Kingman mine in northwestern Arizona is one of the largest turquoise mines in the southwest. Kingman blue has become a color standard in the industry. The mine became famous for its rounded bright blue nuggets with black matrix. Few turquoise mines produced nuggets, especially of this high grade. The Kingman mine re-opened in September 2004 after being closed since the 1970's. The new owners of the copper mine have contracted to dump anything with turquoise veining or nuggets into trucks for Marty Colbaugh Processing. About 95% of Kingman is stabilized which makes it very affordable. Of that stabilized stone, 50% is then shipped to China for cutting; the other half is sold in the rough to American artists and those in the turquoise trade. The remaining 5% of the Kingman turquoise stays in its natural state. The Kingman mine currently yields about 1600 pounds of rough stone per month.

Commercially here are the different "kinds" of Turquoise:

**Natural Turquoise** - turquoise that is so hard and beautiful that it is simply mined, cut, polished and set into jewelry, or carved into a fetish or sculpture. Less than 3% of all the turquoise on the market worldwide is natural.

**Stabilized Turquoise** - soft or "chalk" turquoise that has been infused with a clear epoxy resin. The resin, under pressure, absorbs into the rock, which permanently hardens the rock and deepens the color. Natural turquoise will deepen in color over time by gradually absorbing oils from the skin as it is worn, the colors in stabilized turquoise are permanent. Most of the turquoise on the market is stabilized and should not cost as much as natural.

**Treated Turquoise** - soft or "chalk" turquoise that is stabilized as described above, except that the epoxy resin is also dyed. Colors in treated turquoise have a tendency to look artificial. Prices should be much less than natural or stabilized.

**Reconstituted Turquoise** - turquoise "chalk" that is very low grade. It is ground into powder, saturated with epoxy resin, dyed, and compressed into blocks or cakes to be cut into shapes for jewelry making.

**Imitation Turquoise** - this is not turquoise. These are stones like Howlite (white stone, very porous) dyed to look like turquoise or there is pure plastic (epoxy resin) that has been dyed to look like turquoise.

**Enhanced Turquoise (Zachary Process)** - turquoise that has been treated with chemicals, then heated. The heating process eliminates any residual chemicals in the turquoise. Therefore, it is difficult to tell the difference between enhanced turquoise and natural, untreated turquoise. Unlike natural turquoise, enhanced turquoise usually does not turn green over time.

**Backed Turquoise Cabochons** - Backed turquoise gems have a non-turquoise backing on the bottom of the stone. The backing is usually made out of some form of epoxy, or plastic resin. The backing is not seen when the stone is set in jewelry, because only the bottom of the stone has the backing material.



Lander Blue Turquoise, Battle Hill, Nevada



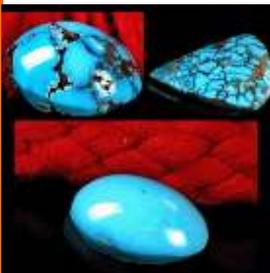
Turquoise (Stabilized), Chihuahua, Mexico



Turquoise Pseudo-morph after Apatite, Bacuachic, Sonora, Mexico



Turquoise (Stabilized), Chihuahua, Mexico



Turquoise, Mashad, Korasan, Iran

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## News and Notes, page 4

### DOOR PRIZES

Please note that we have instituted door prize drawings at our monthly meetings. Because of Hawaii's gambling laws, these drawings cannot be conducted in the common "raffle" format where tickets are sold. Rather, each *paid* member attending the meeting will receive a drawing ticket upon request. A voluntary donation of \$1.00 is requested and encouraged. Drawings will be conducted at the end of the meeting with available prizes awarded in random order. You must be present to win. Please remember: if you win a prize, please bring one to the next meeting. This helps to keep our drawings going. Thank you.

### Rock & Mineral Society of Hawai'i, Inc.

#### 2008 Officers

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##### *Recording Secretary*

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The Rock & Mineral Society meets on the 4th Wednesday of each month (except for adjusted dates in November and December) at the Makiki District Park, 7:00 - 9:00 pm. Enter from Keeaumoku Street. Parking is free but limited.

The Newsletter is published monthly, a week prior to the meetings and is distributed in electronic format by email (Adobe Acrobat PDF file attachment). Printed copies are "snail" mailed to those who do not have email. The electronic format usually contains full-color images; the print version may be limited to B&W due to reproduction costs.

### NEWSLETTER COMMENTS? SUGGESTIONS?

I am hoping to 'freshen up' the newsletter a bit., and would love your input! If there is anything that you would like to be added, taken away or changed around, please email me at elise.thomasson@gmail.com All comments would be appreciated.

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