

HUI PŌHAKU 'Ō HAWAII

Rock & Mineral Society of Hawai'i, Inc.



Meeting Times

MEETING

Wednesday

January 28, 2015

6:15-8:00 pm

Makiki District Park

Admin Building

NEXT MONTH

Tucson Gem & Mineral Show

LAPIDARY

Every Thursday

6:30-8:30pm

Makiki District Park

2nd floor Arts and Crafts Bldg

MEMBERSHIP

DUE COSTS 2015

Single: \$10.00

Family: \$15.00

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Turquoise and Variscite By Dean Sakabe

We are starting the year off with Turquoise and Variscite.

Turquoise is a copper aluminum phosphate, whose name originated in medieval Europe. What happened was that traders from Turkey introduced the blue-green gemstone obtained from Persia (the present day Iran) to Europeans. Who in turn associated this stone with the Turkish traders, 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".



Turquoise (Stabilized), Chihuahua, Mexico

The gemstone grade of Turquoise has a hardness of around 6, however the vast majority of turquoise falls in the softer 3-5 range. With the exception being the Turquoise from Cripple Creek, Colorado which is in the 7-8 range. Turquoise occurs in range of hues from sky blue to grey-green. It is also found in arid places that 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



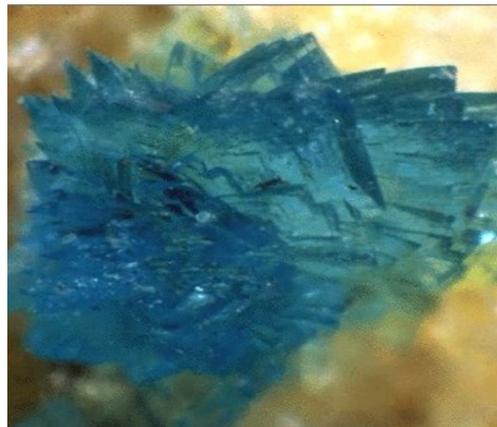
Chinese "Redweb" Turquoise (Stabilized), Hubei, China

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.

Turquoise and Variscite

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 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.

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.



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

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, 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.



Turquoise Pseudomorph after Apatite, Bacuachic, Sonora, Mexico

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

Turquoise and Variscite

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 hard enough to be 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.



Variscite, Clay Canyon, Utah

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.

Variscite is a hydrated Aluminum Phosphate mineral ($\text{AlPO}_4 \cdot 2\text{H}_2\text{O}$). It is sometimes confused with Turquoise; however, Variscite is usually greener in color. Variscite in 1837 was found at Messbach, Voigtland, whose historic name was Variscia, which later gave way to the name of Variscite. In 1865 Variscite was rediscovered in a Celtic grave as cal-lainite by DaMour in Lockmariaquer, Brittany. Variscite is a secondary mineral formed by direct deposition of phosphate-bearing water that has reacted with aluminium-rich rocks in a near-surface environment. It occurs as fine-grained masses in nodules, cavity fillings, and crusts. Variscite often contains white veins of the calcium aluminium



Variscite, Snowville, Utah

WE HAVE A FACEBOOK PAGE! LET'S GO LIKE IT!

HTTP://WWW.FACEBOOK.COM/PAGES/ROCK-AND-MINERAL-SOCIETY-OF-HAWAII/103902329673700?V=WALL&REF=SGM

MAHALO TO MARKUS FOR ESTABLISHING OUR *ROCK FACE!*

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Newsletter Editor

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, 6:15-8 pm. Enter from Keeaumoku Street. Parking is free but limited.

The Newsletter is published monthly, some days 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.

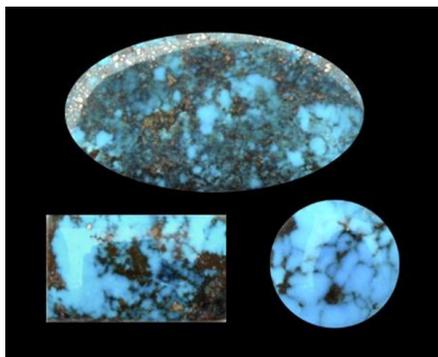
DOOR PRIZES

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.

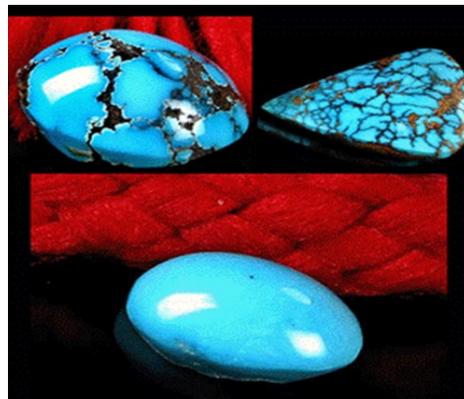
phosphate mineral Crandallite.

Variscite from Nevada typically contains black spiderwebbing in the matrix and is often confused with green turquoise. Most of the Nevada variscite recovered in recent decades has come from mines located in Lander County. Notable localities are Lucin and Fairfield, Utah it is also found in Germany, Australia, Poland, Spain and Brazil.

The principal use for this mineral is as a gemstone. The gems are fashioned in necklaces, Belts, Pins, essentially the same type of jewelry that Turquoise is used in. Variscite is sometimes sold under the names of "utahlite" and "amatrice," Variscite is rather soft, so it cannot always be used successfully.



Morenci Turquoise, Greenlee County, Arizona



Turquoise, Mashad, Korasan, Iran

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