

HUI PŌHAKU 'O HAWAI'I

Rock & Mineral Society of Hawai'i, Inc.



VOLUME 45, NO. 10

OCTOBER 2009

BLUE MINERALS

BY DEAN SAKABE

October's theme is Blue minerals. Just about everyone has some, and they encompass over a hundred recognizable minerals, along with another couple of hundred unfamiliar minerals. I am sure that most of us first found out about blue minerals from raising fish. Invariably, one of the fish became infected with ick, and we had to treat it. The pet store had this blue stuff that we pinched and threw and threw it into the fish tank. We did not know what it was, but it cured our fish, and that was all we needed to know. If we were inquisitive, we would have found out that it was just Copper Sulfate, and although we didn't know just how it worked, we knew that it did. As we grew older, our knowledge of colored minerals usually resolved around the simple color scheme. A Sapphire was blue, a Ruby was red, Amethyst was purple, Jade was green, and Diamonds were colorless.

Diamond is still ultimate gemstone. The most famous blue diamond is the 45.52 carat Hope Diamond, and it came from the Kollur mine in Golconda, India. This diamond has trace amounts of Boron, which give the diamond its blue color. Although it is impressive to us, French Queen Marie Antoinette used to place it on her pet dog.

Sapphire (1) is often considered to be blue, even though Sapphires occur in every color of the rainbow. The blue Sapphires that comes to mind are the Khanchanaburi dark blue sapphires or

the corn flower blue Yogo Sapphires. At one time, any blue gem material was called sapphire. References to a blue-flecked stone led mineral experts to realize that some of what had been called "sappheiros" was actually lapis lazuli. "Sappheiros" is Greek for "blue." From the Mountains of Kashmir, the finest sapphire color is a rich, velvety cornflower blue. This is called "Kashmir" in respect to the traditional source of the finest quality sapphires. Today, most current production comes from Sri Lanka, Burma, Thailand, Australia, and Africa.



(1) Sapphire
Ratnapura, Sri Lanka

Lapis Lazuli, (2) or Lapis for short, is mostly lazurite and commonly contains pyrite and calcite. The name means "blue rock," and it is always a brilliant blue with violet or greenish tints. The

MEETING

Wednesday

October 28

7:00—9:00 pm

Makiki District

Park

Administration

Building

NEXT MONTH

November 18

Fluorite

LAPIDARY

Every Thursday

7pm-9pm

Second-floor Arts

and Crafts Bldg

Makiki District

Park

MEMBERSHIP

COSTS

2008

Single: \$10.00

Family: \$15.00

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rich blue color is due to the sulfur that is inherent in the structure of Lazurite. The calcite produces white streaks in the lapis. Too much calcite will lower the value of the stone. Small crystals of pyrite are usually present in lapis and their brassy yellow color is quite attractive, and serves to distinguish Lapis from its blue cousin, the Sodalite rock that lacks pyrite. The calcite produces white streaks in the lapis. Lapis lazuli has been mined for centuries from the same locality still in use today: the remote mountain valley called Kokcha, Afghanistan. First mined 6000 years ago, the rock was transported to Egypt and present-day Iraq and later to Europe where it was used in jewelry and for ornamental stone. Although Lapis is found in other localities, the source in Afghanistan still produces the finest quality material.

Benitoite (a Barium Titanium Silicate) is named after San Benito County, California, where it was discovered in 1907. It has a sapphire-blue color, and was first thought to be a variety of sapphire. However, it was later found to be a new mineral (along with Joaquinite and Carlosote). Benitoite found in association with the minerals neptunite, natrolite and joaquinite, and is formed from hydrothermal solutions in a natrolite dike in the green schist of the serpentine parent rock. Benitoite is the first species known to crystallize in the ditrigonal dipyramidal class of the hexagonal crystal system.

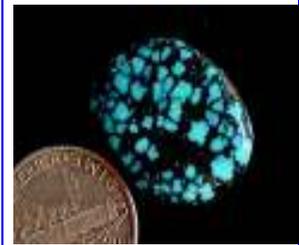
Turquoise (3) may have come from the word "Turquie", French word for Turkey, because of the early belief that the mineral came from that country. Turquoise was first mined in the Alimersai Mountain in Persia (now Iran), and the Sinai Peninsula in Egypt. Turquoise is a hydrated phosphate of Copper and alu-

minum, and it is usually found in the "alteration zones" of arid or desert regions. 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. However, to create turquoise, several conditions must occur. There must be a source of Copper and Phosphorus. Additionally, Feldspar must be present for the aluminum. The hydrothermal alteration breaks down the Feldspars and frees the Aluminum needed for the Turquoise. The phosphorus usually comes from phosphoric acid. Copper is usually introduced into the "host" rocks by the rising hot magma. The Copper then oxidizes near the surface, and reacts freely with the Aluminum and Phosphoric acid to form Turquoise. At this time, other minerals enter into the turquoise structure and create color variations. The introduction of Iron, Calcium, Magnesium, Manganese, Silicon, or Zinc influences its color and hardness. Because of this, 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. Iron causes the greener color of the stone.

Aquamarine (5) is a greenish-blue Beryl, whose name is Latin for sea water. Aquamarine gets its color due to trace amounts of iron impurities in the Beryl structure. The color ranges from pale green to pale blue to deep blue depending on the concentration of the iron and where the iron impurities are located within the Beryl crystal structure. Aquamarine is typically associated with Quartz, Feldspars and Muscovite, and often occurs with other common pegmatite minerals such as biotite, garnet, phenakite and topaz. Aquamarine have also been found in incredible sizes and



(2) Lapis Lazuli,
Badakhshan, Afghanistan



(3) Turquoise
Lander Blue Mine,
Nevada



(4) Turquoise



(7) Cordierite Espirito
(8) Santo, Brazil

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Green Minerals, page 3

quality. One of the largest known crystals was found in Brazil in 1920. It was 19" long and 16" wide and weighed 243lbs.



(5) Aquamarine & Feldspar
Chumar Bakhoo, Nagar Gilgit District, Pakistan

Celestite a Strontium Sulfate derives its name from the Latin term caelestis which means (of the sky) and refers to the blue color commonly observed in Celestite. The blue color of Celestite has been attributed to trace amounts of gold. Celestite is usually found within the cavities in sandstone or in limestone as crystals or as geodes.

Tourmaline a Strontium Sulfate, whose name comes from the Sinhalese word "turmalī" meaning mixed. Tourmalines come in a rainbow of colors and is often confused for other gemstones. The Indicolite variety of Tourmalines are those colored blue. The finest being the medium dark blue, (similar to the color of Blue Sapphire). Paraiba Tourmalines were first called "Electric" or "Neon tourmalines." This gemstone was discovered in 1989, it possesses brilliant blues and greens. It is also the only tourmaline containing Copper. It's only location is near the village Sao Jose de Batalha. In the state of Paraiba, Brazil.

Chrysocolla, (6) a hydrated Copper silicate, can be colored blue to greenish-blue and green, and is often streaked with black, and sometimes contains all of these colors. Chrysocolla's name is derived from the Greek chrysos - "gold" and kolla - "glue" in allusion to the name of the material used to solder gold. Chrysocolla is commonly found in massive forms that are crusts on other minerals, as stalactites or botryoidal masses.

Cordierite, (7) whose gemstone varietal name of Iolite is unusual due to its blue-violet color. It is also pleochrois-

tic. In viewing the gem from one direction, it will give a blue to blue-violet color. However, rotating the crystal or gemstone to another direction will give a yellowish-gray to light blue color. The bluish color is also why the gemstone was sometimes called "Water Sapphire".



(6) Chrysocolla

Kyanite (8) is a polymorph with two other minerals: Andalusite and Sillimanite. A polymorph is a mineral that shares the same chemistry, but a different crystal structure with another mineral. Kyanite can be an attractive mineral that has a near sapphire-like blue color. It also has a unique characteristic in that it has a wide variation in hardness in the same crystal. The hardness of Kyanite is approximately 4.5 when scratched parallel to the long axis of the crystal, and approximately 6.5 when scratched perpendicular to or across the long axis. Most of the Kyanite comes from Brazil, however it can also be found in North Carolina, Georgia, and India.



(8) Kyanite
Minas Geras, Brazil.

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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.

WE HAVE A WEBSITE!

http://pohakugalore.net/Hui_pohaku/Hiu_pohaku_1.html

MAHALO TO MARKUS FOR HELPING US GET OUT OF THE ELECTRONIC STONE AGE!

Rock & Mineral Society of Hawai'i, Inc.

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Elise Thomasson
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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, 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.

Any newsletter comments are appreciated, and can be sent to elise.thomasson@gmail.com

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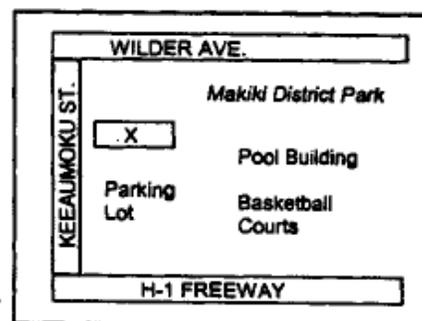


Established in 1970, the Rock & Mineral Society of Hawai'i, Inc. is a non-profit, educational organization dedicated to mineral and rock collecting and appreciation.

The group meets on the fourth Wednesday of each month at the Makiki District Park on Keeaumoku Street in Honolulu from 7:00 to 9:00 pm. The public is invited to attend any single meeting as guests. Parking is free but limited. Membership is open to all ages, including non-residents.

The benefits of membership include:

- Attendance at informative monthly meetings.
- Monthly newsletter, either a printed copy or electronic distribution via email.
- Access to a well-equipped lapidary shop, available on Thursday evenings periodically throughout the year. Classes and training in lapidary techniques provided by experienced club members.
- Rockhounding field trips to various locations around the islands.
- Participation in club-sponsored shows and exhibits, where members can display and/or sell minerals, rocks, fossils, and lapidary items, including jewelry.
- Networking with other members to exchange ideas and information.



For more information:

President - Faye Chambers (808) 226-8478
 Vice-President/Lapidary - Dean Sakabe : (808) 535-5012

***** MEMBERSHIP APPLICATION FORM *****

Membership for calendar year: Single \$10.00 Family (2+) \$15.00 New Renewal

Name(s) (please list childrens' names and ages): _____

Mailing address: _____

City: _____ State: _____ Zip: _____

Phone Number(s): _____

Email address: _____

Please send the monthly newsletter: via email (PDF file) printed copy via regular mail

Special Interests: Lapidary Faceting Thumbnails Micromounts Fossils Other

Please make check payable to: Rock & Mineral Society of Hawai'i, Inc., P.O. Box 23020, Honolulu, HI 96823-3020

RMSH Use Only:

Received by: _____ Date received: _____

Amount received: \$ _____ Method of payment: Cash Check # _____ Receipt given: Y/N

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