HUI PŌHAKU 'O HAWAI'I
Rock & Mineral Society of Hawai'i, Inc.

VOLUME 43, NO. 7 JULY 2008

PEARLS AND MOONSTONES

BY DEAN SAKABE

This month's topic will be June's Birthstones: Pearls and the alternate birthstones of Alexandrite and Moonstone. Yes, this is July, however we thought of the topic too late for June, hence June in July

Pearls

Unlike gemstones produced deep inside the Earth, Pearls are created by mollusks. These animals live in marine and freshwater habitats as well as on land. The evolutionary history of this group extends back some 530 million years, with approximately 100,000 species of mollusks alive today. Pearl producing mollusks are rare, and found in less than one of every 10,000 animals. But the cultured pearl industry, which has flourished since the early 20th century, has developed techniques to greatly improve these odds.

The most distinctive feature of a nacreous pearl is the way it glows from within. This property, known as "luster," gives pearls their unusual beauty. Luster results from the reflection of light rays not only off the surface of the pearl, but also off the concentric inner layers of nacre. Because a pearl's surface is round, it acts as a convex mirror, reflecting light so that it appears to emanate from within the pearl. The multiple layers of nacre also give rise to the "iridescence" or "orient" of pearls: a characteristic that resembles the shimmer seen on a soap bubble. The layers of nacre act like tiny prisms, refracting light so that it appears with all the colors of the rainbow.

Contrary to popular belief, pearls hardly ever result from the intrusion of a grain of sand into an oyster's shell. Instead, a pearl forms when an irritant such as a wayward food particle becomes trapped inside the mollusk. The animal senses the object and coats it with layers of aragonite and conchiolin. These two materials are the same substances the animal uses to build its shell. In most pearls, the mineral aragonite is arranged in sheets of flat, six-sided crystals. Between each sheet, the mollusk secretes a very thin layer of the membrane-forming protein conchiolin. This composite material is called *nacre* ("NAY-ker") or mother-of-pearl.

During the Middle Ages and the Renaissance, dense beds of European Pearl Mussels in Scotland, Germany, Scandinavia and Russia provided abundant "river pearls". With broadening European exploration and trade, the popularity of these freshwater pearls was eventually overshadowed by the availability of more lustrous marine pearls from the Persian Gulf region and immense quantities of pearls from Venezuela.

Many North American pearl mussels also produce high-quality pearls. Use of these pearls for jewelry and decorative objects dates back at least 2,000 years, to the ancient Hopewell culture in Ohio. American freshwater pearls went almost unnoticed until the mid-1800s, when several people reported finding spectacular pearls in rivers and streams around the United States. Those discoveries triggered the beginning of large-scale harvesting, first for pearls, later for mother-of-pearl to be used in buttons, and today for shells to produce nuclei for cultured pearls.

MEETING
Wednesday
July 23
7:00—9:00 pm
Makiki District Park
"Pearls and Moonstones"

NEXT MONTH
Wednesday
August 27, 2008

LAPIDARY
Closed for the Summer

MEMBERSHIP COSTS 2008

Single: $10.00
Family: $15.00

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The Akoya is the original cultured pearl. This is the one that Mikimoto had developed, and the first cultured pearl to be commercially successful. Akoya comes from the name of the oyster which is found in Japan and China. Its scientific name is *Pinctata fucata*. The Akoya oyster is rather small when compared to the oysters used in cultivating South Sea and Tahitian pearls. It produces pearls that range in size from 2MM to 9MM

There are three areas in Japan where these oysters are most commonly found, so it naturally follows that most of the pearl cultivation is done in these areas. The areas are Ise, Kyushu and Shikoku.

Oysters that have been operated on, and introduced a pearl-causing irritant, are then suspended from rafts in the water for a period of time ranging from eight months to two years. During the time they are in the water they are moved from warmer to colder water. This is very important in the development of Japanese Akoya pearls. More nacre is secreted in warmer water than in colder water. But, the nacre that is secreted in colder water is the nacre that gives the pearls their mirror like luster.

Chinese Akoya pearls that are grown completely in warmer waters might have a thicker nacre coating but do not have the luster of Japanese cultured pearls.
In the early 1950's when cultured pearls were becoming popular the quantity available was much less than today. Most of the necklaces produced then were graduated and ranged in size from 3mm to 7-1/2mm and were called 31/2 momme grads. This description referred to the weight of the necklace in momme, a weight measurement used by the Japanese equal to 18.75 carats. As more pearls were produced, uniform necklaces became popular and remain the most popular today. A uniform necklace is one in which there is a half millimeter difference between the center pearl and the end pearl in the necklace, the center pearl being the larger.

South Sea pearls can be quickly identified because of their large size. Generally, they range from 9mm to 17mm in diameter. Only in very rare cases do they grow larger.

Alexandrite

This gemstone is named after the Russian tsar Alexander II, Alexandrite was discovered in April 1834 in the emerald mines near the Tokovaya River in the Urals. The discovery was made on the day the future tsar came of age. It has a noble history since it shows both red and green, which are the principal colors of old Imperial Russia.

Alexandrite is a Chrysoberyl (Beryllium Aluminium Oxide), a mineral consisting of colorless or yellow transparent Chrysoberyl, Cat's eye Chrysoberyl and color-changing alexandrite (also in cat's eye varieties). Alexandrite differs from other Chrysoberyls in that it not only contains iron and titanium, but also chromium as a major impurity. It is the chromium which accounts for the spectacular color change. Alexandrite has the surprising ability to change its color from green or bluish-green in daylight, to a shade of purplish-red or raspberry red in incandescent light.

Alexandrite (Daylight and Incandescent light)

This is from and still is attached to a giant clam, the *Tridacna gigas*

Conch Pearls

The Quahog Pearl

Scallop Pearls

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Russia is the primary source of high-quality Alexandrite. However in 1987, Alexandrites were discovered in Hematita, in Minas Gerais, Brazil. These Alexandrites showed both a distinctive color change and good clarity and color. However the color of the Brazilian stones is neither as strong green nor red of the Russian Alexandrite. Alexandrites are also being found in Sri Lanka, but the hue of these stones compares less than favorably with that of the Uralian Alexandrites. They appear green in daylight and a brownish red in artificial light. The Tunduru area in southern Tanzania has produced some outstanding specimens since the mid-1990s.

Moonstone

Moonstone belongs to the large mineral group of the feldspars, of which almost two thirds of all the rocks on Earth consist. In particular, moonstone is the feldspar variety known as 'adularia', a potassium aluminosilicate of gemstone quality, which was found in the European Alps near Mt Adular (in Switzerland) – hence the name 'adularia'. We derive the term "adularescence" which is the optical phenomenon of iridescence which creates a billowy, floating blue to white light in this gem.

Adularescence is due to diffraction of light as it hits thin, alternating layers of orthoclase and albite within the gem. Very thin layers produce blue "schiller" and thicker layers produce white. Body color is generally due to iron content.

Moonstone is one of a handful of gems that have inclusions so characteristic that seeing them guarantees the identity. Pairs of tiny stress cracks running parallel to the vertical axis of the crystal with smaller cracks aligned along them, have been called "centipedes" and are diagnostic of moonstone.

Generally, moonstone is cabbed with a high dome which accentuates the adularescence. Those specimens with strong displays often reveal cat's eyes when cut this way. Asterism is rare in moonstone, but when it occurs, the star is four legged. On rare occasions, extremely transparent stones are faceted.

Traditionally, the classical moonstones, almost transparent and with their bluish shimmer, come from Sri Lanka. However, they are also found in the USA, Brazil, Australia, Myanmar and Madagascar. Since bluish moonstones of good quality have been becoming more and more of a rarity in recent years, prices have risen sharply.

For a few years, there have also been some green, brown and orange specimens on the market, as well as some with a smoky color and some the color of champagne, and some black and some reddish ones, mainly originating from India.

Note : Astronauts Neil Armstrong and "Buzz" Aldrin landed on the moon July 20, 1969, preparing for man's first personal inspection of the lunar surface. Since the Apollo 11 and all other manned space flights had blasted off from the Kennedy Space Center in Brevard County, the Florida State Legislature sought to memorialize America's unprecedented international, scientific and technological triumph. Therefore, ten months later, May 20, 1970, the Moonstone as the official State Gem of Florida. Ironically, the moonstone is not found naturally in Florida... nor was it found on the moon.

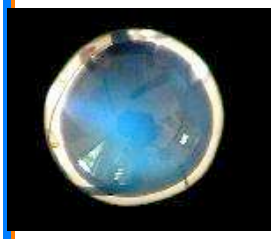
OUR ANNUAL ROCK SHOW
OCTOBER 11-12
OUTRIGGER HOTEL

MEMBERS HAVE AN OPPORTUNITY TO BE VENDORS OR TO EXHIBIT THEIR COLLECTIONS

MAHALO TO THE OUTRIGGER HOTEL! CONTACT KEITH IF YOU WOULD LIKE YOU EXTEND YOUR MAHALO

Alexandrite Crystal group
(Tokovava mine, Russia)

Cat's Eye moonstone



Blue Flash Moonstone

WE ARE MAKING SOME CHANGES. CHECK OUT OUR NEWS AND NOTES SECTION OF THE BACK PAGE FOR NEW THINGS AND WAYS THAT *YOU* CAN CONTRIBUTE *YOUR* STORIES.

Rock and Mineral Society of Hawai'i INC.

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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*!

THE METAPHYSICAL PROPERTIES OF PEARLS AND MOONSTONES

BY JADE EMORY

The best, but also the rarest book from India that I have found on healing with gems is by a Dr. Bhattacharya, called *Gem Therapy*. The two most important deviations Dr. Bhattacharya makes in the selection of healing stones compared to western thought are: 1) The use of astrological correlations for each stone based on the part of one's birth chart that needs strengthening or lessening to facilitate healing, and 2) The "cosmic ray" of the stone, rather than its physical colour. The "cosmic ray" is ascertained by heating the gem and then viewing its aura through a prism, which surprisingly shows often a very different colour than the physical stone.

Pearls and Moonstones, both astrologically related to the sign Cancer, during the first 3 weeks of July, represent purity and innocence. Songs of religious devotion have lyrics about worshipers placing garlands of pearls around the statues of Deities, honoring the purity of realized beings whose sole purpose in life is to unselfishly help other people attain enlightenment. Moonstones are especially related to women's "monthly moon cycles" and their emotional sensitivities at that time.

NEW THINGS FOR THE NEWSLETTER—WE NEED YOU!

Elmore Easter had a wonderful idea. The great thing about Rock Club meetings is hearing the stories behind the rocks. Let's make that part of the newsletter, too! If you would like to contribute, feel free to send something to elise.thomasson@gmail.com. I'm looking for about 500 words, which is about 2 typed pages double spaced. It can be about anything from rock hunting, to a show you saw, to a person with whom you had a "rocky relationship." This will be fun!

Rock & Mineral Society of Hawai`i, Inc.

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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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