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

Meeting Times

MEETING
Wednesday
November 16
6:15-8:00 pm
Makiki District Park
Admin Building

HOLIDAY PARTY
December 9
6-8:30pm
Makiki District Park
Arts and Crafts Blg

NEXT MEETING
Wednesday
January 25
Topic: Garnets

LAPIDARY
Every Thursday
6:30-8:30pm
Makiki District Park
2nd floor Arts and Crafts bldg

MEMBERSHIP DUE COSTS 2011
Single: $10.00
Family: $15.00

Opals

By Dean Sakabe

The last topic for 2011 will be Opals. Opals have been treasured from antiquity. Archaeologist Louis Leakey found six-thousand year old opal artifacts in a cave in Kenya.

Roman historian Pliny the Elder described the beauty of opal as the combination of the beauty of all other gems: "There is in them a softer fire than the ruby, there is the brilliant purple of the amethyst, and the sea green of the emerald - all shining together in incredible union. Some by their splendor rival the colors of the painters, others the flame of burning sulphur or of fire quickened by oil." Opal was much loved and valued highly by the Romans, who called it opalus.

Opal was also treasured in the Middle Ages and was called ophthalmios, or "eye stone", due to a widespread belief that it was beneficial to eyesight. Blonde women wore opal necklaces to protect their hair from losing its color. Some thought the opal's effect on sight could render the wearer invisible.

A beautiful opal called the Orphanus was set in the crown of the Holy Roman Emperor. Just like in Roman times, the colors of the opal were remarked on by scholars. It was described as follows: "as though pure white snow flashed and sparkled with the color of bright ruddy wine, and was overcome by this radiance." This opal was said to guard the regal honor.

THE "ORPHANUS JEWEL" IN THE GERMAN IMPERIAL CROWN.
From the "Hortus Sanitatis" of Johannis de Cuba [Strassburg, Joan Prys, ca. 1483]: De lapidibus, cap. xcii. Author's library.

Woodcut depicting the Orphanus

But not everyone thought well of the opal. Shakespeare found in the opal a symbol of shifting inconstancy, likening play of color to play of mind in one

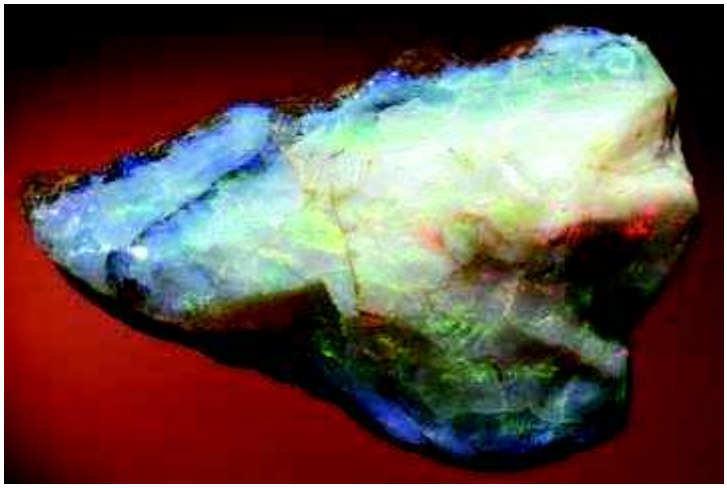
of the most apt uses of gemstone symbolism in literature. In Twelfth Night, he writes: "Now the melancholy God protect thee, and the tailor make thy garments of changeable taffeta, for thy mind is opal."

In the nineteenth century, opal was considered unlucky due to the plot of a popular Sir Walter Scott novel of the time. The heroine of the novel has her life force caught in the beautiful opal she wears in her hair and she dies when the fire in the opal is extinguished.

Despite the unpopularity of the opal during her reign, Queen Victoria loved opals and often gave them as wedding presents. She and her daughters created a fashion for wearing opal. Queen Victoria was one of the first to appreciate opals from an exciting new source: Australia.

Opal was also sought in South America; the Aztecs mined opal in South and Central America.

Opal, Hungary



Ancient opals came from the mines near Cervenica, Hungary, in what is now Eastern Slovakia. Ancient opal fanciers never had the chance to see the opal of Australia, where the opal of today was born, which far surpasses the beauty of Hungarian opal in fire and brilliance.

Only opal with a perfectly aligned grid of silica spheres will show play of color, which is created through diffraction. The size of the spheres determine the wavelengths and therefore the colors seen. The brilliance of the colors is determined by the regularity of the grid. The strength of the colors seen in opal also depend on the background body color and the transparency of the stone. The body color determines the variety of opal and has a large impact on the value.

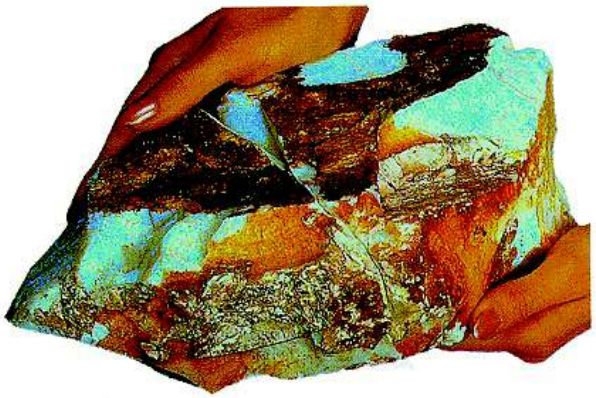
In Australia, there are black opals or opals with a black to dark gray body color. This has the most brilliant colors and is the most valuable. Crystal opal, the next most costly type of opal, is transparent with flashes and is highly valued due to the brilliance of its colors and there are sometimes many layers of color within the stone, which can also be seen. white opal and milky opals tend to have more diffused colors due to the light background color.

Another more unusual type of opal is boulder opal. This opal has an ironstone host rock matrix which creates a natural dark background to view its fire. These sometimes occur in "splits", or a matched pair of opals created when a piece of boulder opal is split along the

opal vein. These are particularly favored for earrings, since they are mirror images of each other.

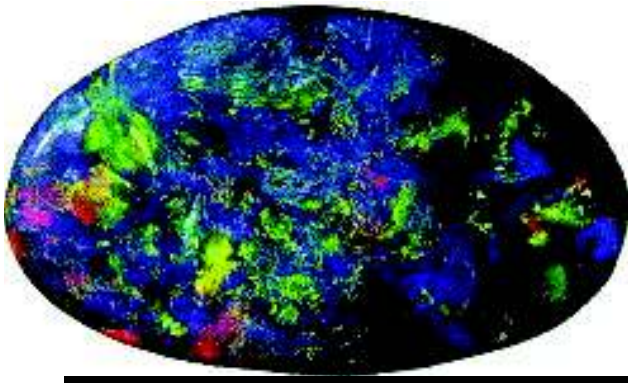
Black opal is found only in Lightning Ridge, Australia, is the most famous opal deposit in the world. It was discovered in 1903. Another large opal producing area is Coober Pedy, Australia. This area produces light opal. The name Coober Pedy is an Aboriginal name meaning "white man in a hole." If you visit Coober Pedy, you will understand how it got its name: many houses - and even a church! - are burrows dug into the ground called dugouts. This type of dwelling is quite practical and cool as temperatures soar in the daytime. Andamooka is known for producing crystal opal and light opal. Boulder opal is produced in several areas in western Queensland.

In addition to Australia, a small quantity of precious opal is produced in Brazil, Mexico and the state of Oregon in the United States produce a volcanic opal called fire opal. Fire opal is transparent opal ranging in color from colorless to yellow, orange, and red. If there is a play of colors within the orange and red, then it is called Jelly Opal or Precious Fire Opal.

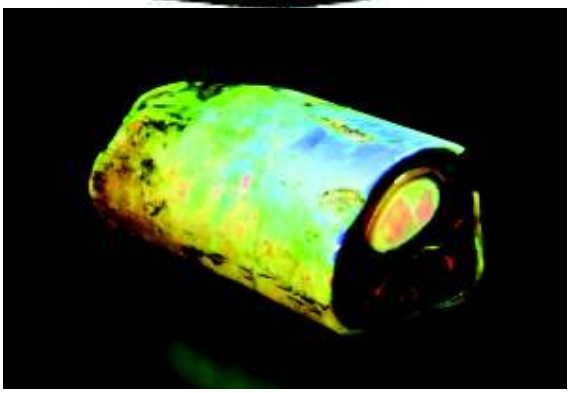


The Aurora Australis is the world's most valuable black opal. It was found in 1938 and weighs 180 carats. The opal was dug from a dried seabed and has a distinctive starfish impression on its back. In 2005 it was valued at AUD$1,000,000

The Olympic Australis is reported to be the largest and most valuable gem opal ever found. It weighs 17,000 carats and is 11 inches long. It was found in 1956 in the famous Eight Mile opal field in Southern Australia. It consists of 99% opal with the remaining 1% being soil that is still attached to the stone. It was valued at AUD$2,500,000 in 2005.

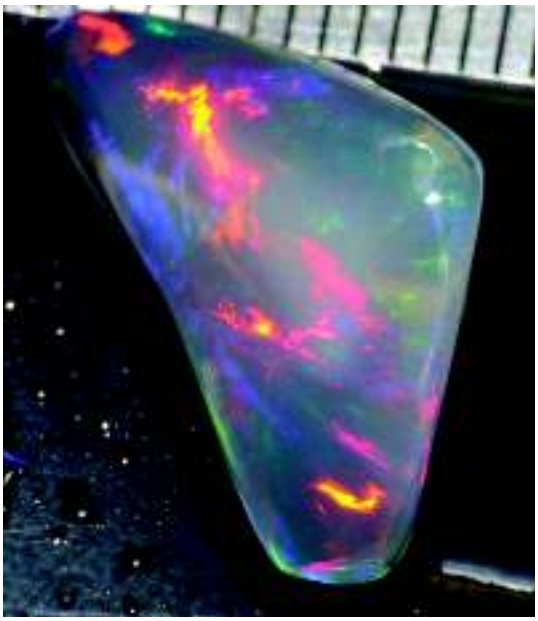


The Virgin Valley opal fields of Humboldt County in northern Nevada produce a wide variety of opals. These range from the precious black opal, crystal opal, white common opal, fire opal , and lemon opal. The black fire opal is the official gemstone of Nevada. Most of the precious opal is partial wood replacement. There are also Miocene age opalized teeth, bones, and fish. Some of the opal has high wa-



Opalized bone, Virgin Valley, Nevada

Welo Opal, Ethiopia



ter content and may craze and crack when dried. The largest black opal in the Smithsonian Institution comes from the Royal Peacock opal mine in the Virgin Valley.

Spencer Idaho, is another source of white base opal or creamy opal. Most of the opal found here occur in thin layers and usually made into doublets or triplets.

In late 2008, NASA announced that it had discovered opal deposits on Mars. They detected opaline silicates, via the MRO's Compact Reconnaissance Imaging Spectrometer. They formed where liquid water altered materials created by volcanic activity or meteorite impacts on the Martian surface. "This is an exciting discovery because it extends the time range for liquid water on Mars, and the places where it might have supported life," said CRISM principal investigator Scott Murchie of the Johns Hopkins Applied Physics Laboratory in Laurel, Md. "The identification of opaline silica tells us that water may have existed as recently as 2 billion years ago."

Opal, Mezezo, Ethiopia

One particular location where the opaline silicates were found was the large canyon system Valles Marineris. "We see numerous outcrops of opal-like minerals, commonly in thin layers extending for very long distances around the rim of Valles Marineris and sometimes within the canyon system itself," Milliken said.

The minerals were also found in Gusev Crater by NASA's Mars rover Spirit. "What's important is that the longer liquid water existed on Mars, the longer the window during which Mars may have supported life," Milliken said. "The opaline silica deposits would be good places to explore to assess the potential for habitability on Mars, especially in these younger terrains."

Opal can even be found in our little state of Hawaii. Trapped within the volcanic rock, pockets of Hydrated Silicon Dioxide formed. A vast majority of the opal is common white potch. Sometimes one gets luck and finds Blue potch.

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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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.

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.

Parking at Makiki Park
Parking along Keeamoku St. starts at 5:30

After that, good luck because it drops off really fast!

Black Opal from Honduras, but not for the Holiday Party—sorry!

Mele Kalikimaka!

Join us December 9 for our annual Rock Club holiday party! Bring a little something to share in the raffle, and share fun with your fellow Rock Hounds!

6-830pm, Arts and Crafts Blg

We'll **rock** around the Christmas tree, alright!

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