

HUI PŌHAKU 'O HAWAI'I

Rock & Mineral Society of Hawai'i, Inc.



VOLUME 45, NO. 11

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FLUORITE

BY DEAN SAKABE

Fluorite is the last topic for 2009. This Calcium Fluoride occurs with a glassy luster and in a vast array of colors. Ranging from the trademark Purple, to blue, green, yellow, brown, pink, black, red, and colorless. The clear cubic Russian Fluorites are especially nice. A picture would have been included, however colorless does not show up on newsletters too well.

Fluorite could be termed as the worlds most colorful mineral. Purple is the most popular color of Fluorite, which easily competes with the varieties of Amethyst. A brown variety found in Ohio has a distinctive iridescence that improves an otherwise poor color for fluorite. The rarer colors of pink, reddish orange and even black are usually very attractive.

The origin of the word fluorite comes from the use of fluorite as a flux in steel and aluminum processing. It was originally and continues to be referred to as "fluorospar" by miners. Fluorite is also used as a source of fluorine for hydrofluoric acid and fluorinated water. The element fluorine also gets its name from fluorite. Other uses of fluorite include use as a protected gemstone (low hardness and good cleavage reduce its use as a gemstone), and ornamental carvings.

Fluorite is one of the most popular mineral to collect. Second only to Quartz. Just about any mineral collec-

tion will have a specimen of Fluorite. Most fluorite specimens have a single color, however a significant percentage of fluorites have multiple colors, with the colors arranged in bands or zones corresponding to the shapes of the fluorite's crystals. In other words, if the fluorite is a cube, then the color zones are in cubic arrangement. This creates an effect is similar to phantom crystals, where the crystal has crystals within crystals that are of differing colors. A fluorite crystal could have a clear outer zone allowing a cube of purple fluorite to be seen inside.

Fluorite is also fluorescent and, like its "normal light" colors, its fluorescent colors are also extremely variable. Fluorite typically fluoresces blue, however other fluorescent colors include yellow, green, red, white and purple.



(1) Fluorite, You Gong Xian, Szechuan Province, China

MEETING

Wednesday
November 18
7:00—9:00 pm
Makiki District
Park
Administration
Building

NEXT MONTH

Xmas Potluck
Dec 9th

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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Some specimens have the added effect of simultaneously having a different color under longwave UV light from its color under shortwave UV light. Some specimens will even demonstrate phosphorescence in a third color. The blue fluorescence has been attributed to the presence of europium ions. Yttrium is the activator for the yellow fluorescence. Green and red fluorescent activation has not been isolated to any one element. However it may be due to manganese or uranium, or a combination of those two. Incidentally the word fluorescent was derived from fluorite since specimens of fluorite were some of the first fluorescent specimens ever studied.

Another unique property of fluorite is its thermoluminescence. Thermoluminescence is the ability to glow when heated. Not all fluorites do this, in fact it is relatively rare. There is a variety of fluorite called "chlorophane," which can demonstrate this property. It will even thermoluminesce while the specimen is held in a person's hand activated by the person's own body heat. The thermoluminescence is green to blue-green and can be produced on the coils of a heater or electric stove top. Once seen, the glow will fade away and can no longer be seen in the same specimen again. It is a one shot deal. Chlorophane (which means *to show green*) is found in Franklin, NJ, Spruce Pine, NC, Mont Saint-Hilaire, Quebec, Canada, and Nerchinsk in the Ural Mountains, Russia.

Fluorite has other qualities besides its great color assortments that make it a popular mineral. It has several different crystal habits that always produce well formed, good, clean crystals. The cube is by far the most recognized habit of fluorite followed by the octa-

hedron which is believed to form at higher temperatures than the cube. Although the cleavage of fluorite can produce an octahedral shape and these cleaved octahedrons are popular in rock shops the world over, the natural (e.g. uncleaved) octahedrons are harder to find.

The Octahedral cleavage means that it has four identical directions of cleavage and when cleaved in the right ways can produce a perfect octahedral shape (think double pyramid). Countless octahedrons are produced from hopefully large undesirable crystals of fluorite and are sold in rock shops and museum gift shops thru out the country. Fluorite mine workers are reported to sit down at lunch breaks and cleave the octahedrons for the extra cash.

Fluorite occurs throughout the world, but only a handful of localities have produced large quantities of high quality Fluorite. England has produced some of the finest specimens, in areas such as Durham, Cornwall, Cumberland, and Derbyshire. Pink octahedrons have been found in Göschenen, Switzerland. Fine crystals were also found throughout Spain, Peru, Russia, Kazakhstan, Germany; Hunan Province, China; and Tuscany, Italy. Fluorite can be found in Wilberforce, Haliburton Co., Ontario, Canada. Mexico is producing specimens, from Mapimi, Durango, Niaca, Musquis, and Chihuahua.

The U.S. also has many fine occurrences, such as the Illinois counties of Hardin, Rosiclare, Cave In Rock. Additionally deposits have been found in Kentucky, Ohio, Missouri, Tennessee, New Mexico, Colorado, New York, and New Hampshire.



(2) Fluorite, Xianghualin, Hunan Province, China



(3) Fluorite, Cave-In-Rock, Hardin County, Illinois



(4) Fluorite, Denton Mine, Cave-In-Rock, Illinois



(5) Fluorite, Elmwood Mine, Carthage, Smith County, Tennessee

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Fluorine which is derived from Fluorite, is the most active chemical element, reacting with virtually every element. Even reacting with the noble gases at high temperatures and pressures. Fluorine was discovered in 1886 by French chemist Henri Moissan, who collected the gas by passing an electric current through Hydrogen fluoride (H_2F_2).

Consumers are most familiar with fluorine's use in two products. Fluorine gas is used to make fluorides, compounds that were made part of tooth-pastes in the 1950s. Fluorides are effective in preventing tooth decay and are added to urban water supplies as well.

Another group of fluorine compounds is the chlorofluorocarbons (CFCs). For many years, they were extremely popular as aerosol propellants. However, CFCs react with ozone in the upper atmosphere. As a result of this the production of CFC's is now prohibited.



(7) Fluorite, Dolomite Products Quarry, Walworth, New York



(8) Fluorite, Heights Quarry, Weardale, County



(6) Fluorite Stalactite, Xiaohualing, Hunan, China

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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!

CHRISTMAS POTLUCK DINNER

**Administration Building
December 9th
5 pm — 8 pm**

The Christmas Dinner has been changed to Wednesday, December 9th.

The change has incurred due to the Parks change in operating hours. The park closes on Fridays at 5:30 pm and on Monday—Thursday at 8 pm.

Rock & Mineral Society of Hawai'i, Inc.

2008 Officers

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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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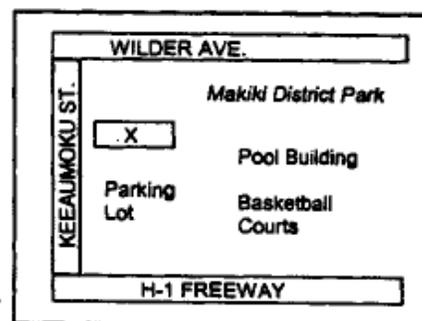


Established in 1970, the Rock & Mineral Society of Hawai'i, Inc. is a non-profit, educational organization dedicated to mineral and rock collecting and appreciation.

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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