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

Meeting Times

MEETING
Wednesday
March 28, 2018

6:15-8:00 pm
Makiki District Park
Admin Building

Next Months Topic
Jadeite and Nephrite

LAPIDARY
Every Thursday
6:00-8:30pm
Makiki District Park
2nd floor Arts and Crafts Bldg

MEMBERSHIP
DUE COSTS 2018
Single: $10.00
Family: $15.00

P.O. Box 23020
Honolulu, HI
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Lead Based Minerals
By Dean Sakabe

The topic for March is Lead Based Minerals. The word Lead is of Germanic origin from Middle English "leed" and Old English "Lead" (with a macron over the "e"). The old English name is derived from Germanic "Lauda", which is related to the Latin "plumbum", from where we get lead's chemical symbol of Pb.

Galena, Smith County, Tennessee

The main lead-bearing mineral is **Galena**. This Lead Sulfide is mostly found with zinc ores and is the most important ore of Lead and also a source of Silver. Having been used since ancient times, primarily because of its wide dispersion and low melting point. Which made it easy to liberate by smelting. Besides the low melting point, Galena crystallizes within the cubic crystal system often showing octahedral forms.

Galena deposits usually contain about 2% of Silver Sulfide, which when the silver is smelted out is worth more than Lead. Galena is also a major mineral of Zinc-lead mine, particularly those in the tri-state district of Missouri, Kansas, and Oklahoma.

Wulfenite, Red Cloud Mine, Yuma Co., Arizona

Galena is the State Mineral of Missouri and Wisconsin and the largest documented crystal of Galena is composite cubo-octahedra from the Great Laxey Mine, Isle of Man, measuring 10 inx10 in×10 in.

Gemstones in Pegmatites

Pyromorphite, Limousin, France

Wulfenite is a lead Molybdate Mineral, with the formula of PbMoO4. It can be most often found as thin tabular crystals with a bright orange-red to yellow-orange color, sometimes brown. In its yellow form it is sometimes called "yellow lead ore". Wulfenite was first described in 1845 and named for Franz Xavier von Wulfen, an Austrian mineralogist.

It crystallizes in the tetragonal system, often as stubby, pyramidal or tabular crystals. It also occurs as granular masses and it is found in many localities with associations with lead ores as a secondary mineral in the oxidized zones of the lead deposits. It is also a secondary ore of Molybdeum.

Wulfenite was first found in Carinthia, Austria. However a noted locality for Wulfenite is the Red Cloud mine in Arizona. The Wulfenite crystals are a deep red and usually well formed. The Los Lamentos, Mexico Wulfenite produces very thick tabular orange crystals.

Mimetite is a lead arsenate chloridemineral ($Pb_5(AsO_4)_3Cl$) which forms as a secondary mineral in lead deposits. Forming usually by the oxidation of galena arsenopyrite. Mimetitie's name derives from the Greek "mimetes" meaning imitator, which is in reference to Mimetite's resemblance to Pyromorphite.

Vanadinite, Mibladen Morocco

The resemblance is not coincidental, as Mimetite forms a mineral series with Pyromorphite and Vanadinite. Major mines are in Mapimi, Mexico and Tsumeb, Namibia.

Mimetite is a minor ore of Lead, used primarily as a collector's specimen. Although Mimetite is also found in prismatic crystal forms, it is too soft to use as a gemstone.

Pyromorphite is a Lead Chlorophosphate (Pb5(PO4)3Cl) which sometimes occurs in quantities to be mines as an ore of Lead. Pyromorhites's name is derived from the Greek "pyr" and "Morfe" (fire and form) due to its crystallization behavior after being melted. Pryomorphite forms in hexagonal prisms, although crystals with barrel-like curvature are not uncommon.

Lead Based Minerals

Pyromorphite resembles Mimetite and Vanadinite so much that it is sometimes only distinguishable by chemical testing. The color of Pyromorhite is usually a bright shade of green, yellow or brown (it has also been called Green Lead Ore.

Vanadinite belongs to the apatite group of phosphates, with a formula of PB5(VO4)3CL. It is one of the main industrial ores of the metal Vanadium and a minor source of Lead. It was originally discovered in Mexico in 1801. Being called "Brown Lead", which Andres Manuel del Rio first named "pancromium" and later "erythronium". Manuel del Rio later believed it was not a new mineral but an impure form of Chromium. Thirty years later Nils Gabriel Seftrom discovered Vanadium, which was revealed to be identical to Manuel Del Rio's "Brown Lead". In 1838 it was renamed Vanadanite because of its high content of Vanadium.
Vanadanite is a dense and brittle mineral, usually found in the form of red hexagonal crystals. It is formed by the oxidation of lead ore deposits such as Galena.

Anglesite, Oujda, Morocco

Anglesite is a lead sulfate mineral ($PbSO_4$.), it occurs as an oxidation product of galena. Anglesite was first recognized in 1783 in a copper mine in Anglesey, which led to the minerals name of Anglesite.
Anglesite occurs as prismatic orthorhombic crystals and is isomorphous with barite and Celestine. It contains 74% of lead by mass therefore it has a high specific gravity of 6.3. Anglesite's color is white or gray with pale yellow streaks. It may be dark gray if impure.

Cerussite is a Lead Carbonate ($PbCO_3$), and a important ore of lead. Cerussites name is from the Latin "cerussa", or white lead. Cerussite is also know and Lead Carbonate or White Lead ore.
Cerussite chrystalizes in the orthorhombic system and is isomorphous with aragonite. Hence as with Aragonite it is ususally twinned together on two faces of the prism. The mineral is usually colorless or white, sometimes grey or greenish in tint and varies from transparent to translucent with an adamantine luster

Cerussite, Santa Cruz Co., Arizona

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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.

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