



BUGLE



Published by
RIPPLE ROCK GEM & MINERAL CLUB
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www.campbellrivergemandmineralclub.org



Editor: Steve Cooley

November 2024
Regular monthly meeting
2nd Friday each month at 6:30 pm
(except July & August)
Craft Room, Campbell River Community Hall
401-11th Ave
Campbell River, BC

RIPPLE ROCK GEM & MINERAL CLUB

RIPPLE ROCK EXECUTIVE 2024

President	Molly Milroy	250-203-2447
Vice-President	Dagmar Hughes	250-203-6339
Past President	Melissa Ticknor	
Secretary	Owen McIlvenna	778-840-6936
Treasurer	Dennis Cambrey	250-337-8949
Wagonmaster	Julie Olmstead	250-287-0348
Show Chair		
Shop Coordinators	Ian Shepherd Maggie Bradshaw John Fisher	778-269-2655 604-789-7847 250-338-4573
Entertainment		
Publicity	Show – Julia Olmstead Website – Nick Lyon Facebook – Julia Olmstead	250-287-0348 250-287-0348
Bugle Editor	Steve Cooley	250-287-4388

WORKSHOP

Shop located at 247 Dahl Rd.

For general shop information contact
Ian Shepherd 778-269-2655
Maggie Bradshaw 604-789-7847

MEMBERSHIPS

A single membership is \$15.00 and a family is \$25.00. Memberships may be paid at the General meetings, or by mail to the address on the Bugle cover.

Programs:

The Club meets at 6:30pm on the 2nd Friday of each month (except July and August), in the craft room at the Campbell River Community Centre, 401-11th Ave downtown Campbell River. Guests are always welcome! After each meeting, we have entertainment related to some facet of the lapidary hobby.

Workshop:

The Club has an equipped workshop for lapidary work. New members must take a training course to learn lapidary arts and equipment before regular access to the shop is allowed. There is a minimal charge for the use of the equipment.

Field Trips:

The Wagonmaster organizes several family friendly field trips and camps throughout the year.

Newsletter (Bugle):

The Bugle is the Club newsletter. Its purpose is to inform members about monthly meeting, field trips, camps, activities, and almost anything related to RockHounding and Lapidary skills and equipment.

Code of Conduct (British Columbia Lapidary Society):

I will respect private property and do no Rockhounding without the owner's permission.

I will use no firearms or blasting material in Rockhounding areas.

I will take garbage home or deposit in a proper receptacle.

I will leave gates as found.

I will do no willful damage to materials or take more than I can reasonably use.

I will fill excavations which may be dangerous to other people or livestock.

I will build fires in designated places only, and make sure they are completely extinguished before leaving.

I will not contaminate wells, creeks, or other water supplies.

I will not tamper with signs, structural facilities or equipment.

I will obey all laws and regulations of forestry and game departments in the area in which I am Rockhounding.

I will appreciate and protect our heritage of natural resources and wildlife.

I will always use good outdoor manners.

I will show respect to other club members.

Ripple Rock Gem & Mineral Club Membership Application

Single membership, 18 years and up, \$15

Family membership, 2 adults and children under 18, \$25

Membership is for the calendar year.

Name(s): _____

Children: _____

Phone: landline _____ or cell _____

Email: (our primary method of communication) _____

By signing this application, I agree to abide by all Club bylaws and rules.

Fall/Winter schedule of Openers for the Rock Shop

Mondays	10am –12noon	Steve Cooley	phone	250-287-4388
Tuesday	7pm–930pm	Ian Shepherd	text only	778-269-2655
Wednesday	11am-200pm	Kim Wilson	text or call	778-554-8750
Thursday	11am-200pm	Bonnie DesLaurier	phone	250-923-5050

Floating Openers, Call or text to see if they are available.

Ellen Cadwallader Text please 250-201-6960

John Fisher Call or text 250-338-0204

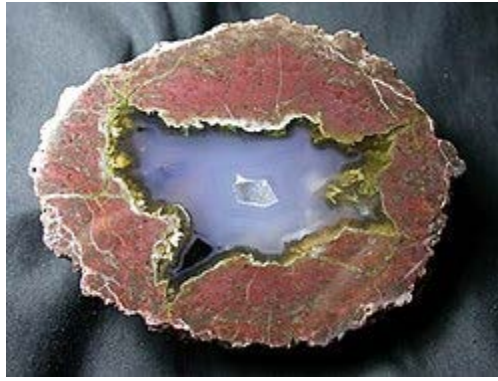
Geodes

Geodes are hollow, vaguely spherical rocks, in which masses of mineral matter (which may include crystals) are secluded.

Geodes can form in any cavity, but the term is usually reserved for more or less rounded formations in igneous and sedimentary rocks. They can form in gas bubbles in igneous rocks, such as vesicles in basaltic lava; or, in rounded cavities in sedimentary formations. After rock around the cavity hardens, dissolved silicates and/or carbonates are deposited on the inside surface. Over time, this slow feed of mineral constituents from groundwater or hydrothermal solutions allows crystals to form inside the hollow chamber.

When cut in half, visible bands corresponding to varied stages of precipitation may at times show patterns that reveal points of fluid entry into the cavity and/or varied colors corresponding to changes in chemistry.

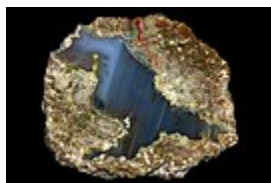
Most geodes contain clear quartz crystals, while others have purple amethyst crystals. Still others can have agate, chalcedony, or jasper banding or crystals such as calcite, dolomite, celestite, etc. There is no easy way of telling what the inside of a geode holds until it is cut open or broken apart.



A **thunderegg** (or **thunder egg**) is a nodule-like rock, similar to a filled geode, that is formed within rhyolitic volcanic ash layers. Thundereggs are rough spheres, most about the size of a baseball—though they can range from a little more than a centimeter (one half inch) to over a meter (three feet) across. They usually contain centres of chalcedony which may have been fractured followed by deposition of agate, jasper or opal, either uniquely or in combination. Also frequently encountered are quartz and gypsum crystals, as well as various other mineral growths and inclusions.

Thundereggs usually look like ordinary rocks on the outside, but slicing them in half and polishing them may reveal intricate patterns and colours. A characteristic feature of thundereggs is that (like other agates) the individual beds they come from can vary in appearance, though they can maintain a certain specific identity within them.

Thunderegg is not synonymous with either geode or agate. A geode is a simple term for a rock with a hollow in it, often with crystal formation/growth. A thunderegg on the other hand is a specific geological structure. A thunderegg may be referred to as a geode if it has a hollow in it, but not all geodes are thundereggs because there are many different ways for a hollow to form. Similarly, a thunderegg is just one of the forms that agate can assume.



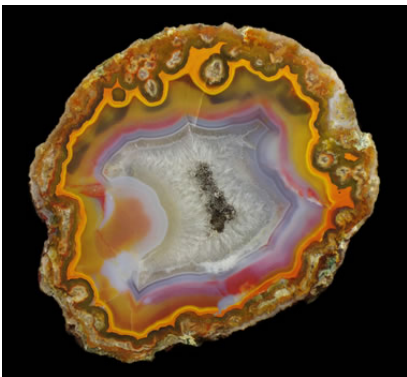
Geologic Occurrence and Formation

Geodes are not found randomly here and there. Instead they are usually found in large numbers in areas where the rocks have formed in a special geochemical environment. Most geodes localities are in A) stratified volcanic deposits such as basalts and tuffs; or B) stratified sedimentary carbonate deposits such as limestones and dolomites. A diversity of other environments yield a small number of geodes.



Geodes in basalt: An outcrop of a basalt flow exposing several open amethyst geodes.

Geodes form in many different ways, and there are a number of valid theories about their formation.



The Story in the Rock: A spectacular sawn and polished geode specimen with multiple layers of colorful agate and a crystal-filled central cavity. Each colored band represents an episode of agate formation and a change in the composition of the groundwater that delivered mineral material into the geode. Image copyright iStockphoto / WojciechMT.

Volcanic Geodes

The most widely known and sought-after geodes are those that formed in areas of volcanic activity. Voids in basaltic lava flows often are infilled with agate, quartz, opal and other material delivered by hydrothermal water or groundwater. Some voids are spaces occupied by gases that failed to escape the lava flow before its surface crusted over.

Where does all of the gas come from? Some magmas contain a lot of dissolved gas. They can be several percent dissolved gas on the basis of weight. (Think about that - several percent gas by weight!) When these magmas ascend to the surface, the gas expands in proportion to the pressure reduction. When the magma erupts as a lava flow, so much gas is released that not all of it is able to escape. Some of that gas can be trapped in the lava to produce a large cavity when the lava solidifies.

Other voids in solidified lava flows were produced as liquid lava flowed out after the flow was only partially solidified. These small "lava tubes" produce some of the largest and longest geodes. Many cathedral geodes are branches of these lava tubes that later infilled with mineral material. Many of them have the geometry of long tree branches, being nearly a meter in diameter and many meters in length.



Geodes ready for shipment: Geodes from Brazil and other collecting localities are carefully crated to prevent damage during shipment. This photo shows a matched pair of cathedral geodes which are two halves of the same cavity. They have been given bases of heavy concrete that will enable them to be used as items of decor in a home or office. Image copyright iStockphoto / VYG.

Geodes, Nodules, Vugs, Concretions and Thundereggs

Geodes have a hollow space inside, or once had a hollow space inside that was filled with precipitated mineral material. The precipitated mineral materials filled the cavity mainly through concentric inward growth. They have a competent external lining that allows them to separate from their host rock. This competent external lining allows many geodes to separate and survive after the host rock has been completely disintegrated by weathering. The geodes can then be collected from the land surface, dug from the soil, or found in stream beds.

Nodules are solid objects composed of precipitated mineral material. They may have been hollow (and a geode) at one time, then completely filled with precipitated mineral material. They might also have formed by mineral growth on a sediment surface, growth within a cavity, or by replacement of their host rock.

Vugs are cavities that might contain crystals, but they do not have a competent lining that allows them to separate from their host rock. Unlike many geodes, they probably will not exist after the host rock is weathered away.

Concretions are solid aggregates composed of sediment grains and a cementing material. They form when chemical precipitation begins around a nucleus in the sediment, such as a fossil or a mineral grain. More and more material accumulates around the nucleus, and the concretion grows in three dimensions by filling in pore spaces and/or replacing mineral grains. Their growth starts in the center and they enlarge outwards without a cavity, whereas geode growth begins in a cavity and the minerals grow inwards.

Thundereggs are spherical to subspherical masses of [rhyolite](#) that weather out of volcanic strata. They have an internal cavity that has been infilled with agate, opal or other mineral material. Thundereggs rarely contain mineral crystals growing into a void.



Oregon Thundereggs:

Examples of thundereggs sawn to display their interior. The top two are halves of a single egg about three inches in diameter. It is filled with gray chalcedony with gray agate and drusy quartz in the center. The bottom is a half egg about six inches in diameter with gray banded agate around the outside, white agate towards the center, and a drusy quartz cavity in the center.



Herkimer diamond in a vug: A vug is an unlined cavity that will not remain when the rock that contains it weathers away. The famous doubly-terminated quartz crystals known as "Herkimer Diamonds" occur within vugs in the Little Falls Dolostone of Herkimer County, New York. The rock in the photo is about 18 centimeters across.

"Herkimer diamonds" is the name given to the doubly terminated quartz crystals found in Herkimer County, New York and surrounding areas.