

THE ROCKET

March 2022

deadline for next issue
March 11, 2022

Club email: secretary.hrc@gmail.com
Newsletter email: Edrocket18@gmail.com

Future Meetings: Our monthly meetings are on the fourth Friday of the month.

Next Meeting: Friday – February 25 at 7PM
To Be announced by an e-mail coming to you soon.

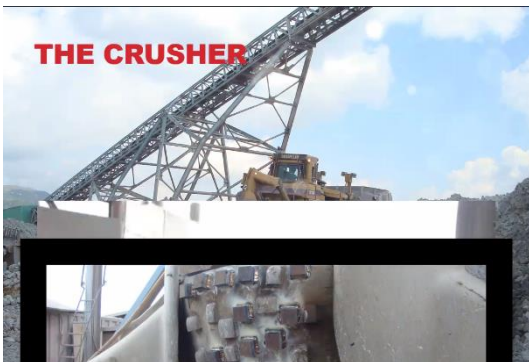


Programs:

The program at our next meeting will be on granite. It is an over looked stone, yet vital in so many ways. Linda Foy will be our presenter and will even bring samples to give out! She will also bring along rocks to touch and play with- even with Covid protocols. For those on Zoom, we will make sure you get up close views of everything.

Last Meeting Programs:

Nickell gave a presentation about Gold Mining in BC. We also learned about the copper extraction and how that impacts the economics of mining. Nickell had lots of pictures to show us of the various steps of the process. Her pictures and talk also gave some insight into a remote mine operation. Nickell made it all work for our zoom meeting too. Thanks Nickell!



Upcoming Events of Interest: Shows

Provincial COVID requirements for such events which include vaccine passport validation and mask mandates.

March 12 & 13, 2022, **Alberni Valley Rock & Gem Club**, Alberni Athletic Hall, Port Alberni, BC

BC Gem Show

The British Columbia Lapidary Society hosts the BC Gem Show in BC each year.



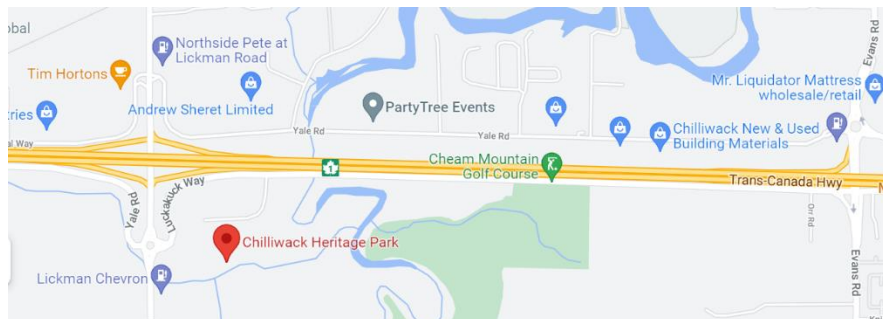
***Door Prizes, Dealers, Demonstrators, Club Exhibits, Displays, Spin and Win, Grab Bags, Gold Panning.
Fun for the whole family!***

When

May 13, 14 & 15
Friday 10:00 AM - 8:00 PM
Saturday 10:00 AM - 6:00 PM
Sunday 10:00 AM - 5:00 PM

Where NEW LOCATION

Chilliwack Heritage Park
44140 Luckakuck Way
Chilliwack, BC



**Adults - \$6.00
Students (6 - 17) - \$2.00
Under 6 (accompanied by an adult) - Free
3 Day Pass - \$12.00
Tickets available at the door**

Rocklovers-Round-Up Tailgate Sale Canceled for 2022

Mask wearing and vaccine passports are required.

Rendezvous 2022

Coombs, BC, June 2 — 6, 2022
Coombs Fair Grounds
1014 Ford Rd.
Coombs, BC

The Registration form for Rendezvous 2022 is now on the BC Lapidary society website. Rendezvous is our Society's annual gathering which has taken place since 1958 (well, until the COVID pandemic). Rendezvous 2022 will feature:

Field Trips
Camaraderie
Mini Rock Show and Sale
BCLS Annual General Meeting

The BCLS will strive to make Rendezvous 2022 open and welcoming to all while following the required COVID protocols set out by the Provincial Government at the time of the event.

This year Rendezvous and Gemboree have been combined into a single larger-than-usual event focused on bringing us all back together after 2 years of COVID retreat. Rendezvous 2022 will be hosted by our Vancouver Island clubs including Victory Lapidary and Mineral Society, Cowichan Valley Rockhounds, Parksville & District Rock & Gem, Courtenay Gem and Mineral Club, Alberni Valley Rock & Gem, Ripple Rock Gem & Mineral Club (Vancouver Island Zone).

Visit the web site at <https://www.bclapidary.com/rock-hunting-rendezvous.php> for the registration form and everything Rendezvous. Let's make a point of getting back together again and rocking BC!



Hastings Community Centre has removed all restrictions on the number of people that can attend a workshop. Our workshop instructors decided that people no longer needed to make a reservation.

If you are a member in good standing, have taken the required lapidary workshop training course, and are double vaccinated "passport" with ID to show, you can drop in at the workshops and use the equipment on a first come, first served (shared) basis. Be prepared to work on another project if you need to wait to use a particular piece of equipment,

Lapidary:	Monday	6:30 pm - 9:30 pm	Richard
	Wednesday	1:00 pm - 4:00 pm	David
	Thursday	6:30 pm - 9:30 pm	Sante
	Saturday	1:00 pm – 4:00 pm	Bob
Silversmithing	Wednesday	9:00am – 12:00 noon	Marilyn
	Saturday	9:00am – 12:00 noon	Robert

Origin of Rocks and Minerals

Linda Foy wrote this article and the next. She presented a talk on granite to a group which is the second article and wrote this article to provide the background she wanted for a written article on granite..

As the whole living world is in a continual state of change, so minerals also originate, grow and alter. Most of them are formed very deep down in the earth, where they are exposed to the effects of high pressures (thousands of atmospheres) and high temperatures (from approx. 900 to 1300 degrees C). The earth's depths are composed of a glowing, liquid, molten silicate mass called magma. Because of the continuous movement of the earth's crust, parts of this magma have been driven upwards to cooler layers, where they gradually solidified forming agglomerations of rocks.

The magma is a molten mass, saturated with gases and water vapour and composed of different silicates and oxides. Its composition generally corresponds with the chemical properties of the rocks forming the earth's crust. Various currents keep the magma moving continuously, causing chemical reactions in its internal regions. Consequently, new compounds arise, forming fresh minerals.

When the molten magma- which is constantly under pressure- reaches the upper, cooler levels of the earth's crust, its temperature falls. During this cooling process the first minerals start to separate out, their number growing with the gradual cooling of the magma. The lighter minerals remain in the upper levels and the heavier ones sink slowly down again. This process is called magmatic differentiation. As a result, rich heavy mineral deposits are formed, such as those of magnetite and chromite.

Image from Wikipedia: Chromite from Zimbabwe



During the next stage of crystallization, the crystals start to grow. Minute cores become overgrown with crystals and the process continues as the magma cools.

In the final phase of crystallization, the remainder of magma becomes more liquid. Its content of volatile components, such as gases and steam, is increasing. If some of the magma leaves the original mass it may form the so-called pegmatites, in which such minerals as mica, tourmaline and beryl are concentrated, together with others containing elements of rare earths, such as tin and tungsten ores. Finally, the remainder of the magma cools off.

Part of the gases and vapour remains enclosed in the rocks and, like air-bubbles in a loaf, forms almond-shaped cavities. These cavities are a common phenomenon especially in basaltic rocks. At a later stage they often become filled with quartz, agate or chalcedony. The largest part of the gases and vapour escapes through rock fissures and cracks to the surface of the earth. Meanwhile the originally hot solution becomes cooler and new minerals appear in the form of crystals on the walls of the fissures. Well known minerals, such as quartz and calcite, originate at this stage and are known as hydrothermal minerals. If elements of heavy metals are present at this time ore veins are formed. The process of direct separation of specific ores, such as molybdenum, tungsten and tin ores, from hot gases and vapour, is called pneumatolytic mineral formation. (Minerals, Rocks and Precious Stones



Image from Wikipedia: Molybdenum
1974, pages 11,12)

Igneous rocks such as granite and pegmatite are born of molten rock, and they cool slowly underground. There is enough time for larger crystals to form before the materials hardens. These rocks are classified as intrusive (plutonic) igneous rocks, and they are created when heat melts the underside of a continent or a piece of sinking ocean crust. The magma rises in enormous blobs, cooling and crystallizing as it goes. A blob, or pluton, comes to rest in the crust before it reaches the surface. Rocks and Minerals – (Discovery Channel book)

The mineral building blocks of igneous rocks are typically feldspars, ferro-magnesian, mica, and quartzes. Since the element silica is their primary ingredient, all these minerals are known as silicates.

Feldspars are a group of rock forming silicate minerals. Feldspar crystallizes from magma as both intrusive and extrusive igneous rocks and are also present in many types of metamorphic rock.

The silicon ions are linked by shared ions to form a three-dimensional network.

There are three main types: orthoclase (KAlSi_3O_8)

Albite ($\text{NaAlSi}_3\text{O}_8$)

Anorthite ($\text{CaAl}_2\text{Si}_2\text{O}_8$)

Feldspar gemstones are moonstone, sunstone, labradorite, amazonite and Spectrolite to name a few.

Feldspar is used in plate glass, ceramic tiles, paint, plastics, pottery along with other industrial uses (fertilizer, etc.)

Biotite sheet silicates:

Iron, magnesium, aluminum, silicon, oxygen and hydrogen form sheets that are weakly bound together by potassium ions (black mica) versus white mica (muscovite). Well known micas are- muscovite, fuchsite, and lepidolite.

Biotite occurs in both igneous rock (granite) and metamorphic rock (gneiss).

It is estimated that biotite comprises up to 7% of the exposed continental crust.



Image: Geology.com

Did You Know?

[Azurite Granite](#), also called "K2 granite," is often cut into gems. People enjoy its blue and white colors.

The white granite is very fine-grained and composed of quartz, sodium plagioclase, muscovite, and biotite

Amphibole is a group of inosilicate minerals forming prism or needle like crystals, composed of double chain SiO_4 tetrahedron linked at the vertices and generally containing ions of iron and/or magnesium in their structures. They can be green, black, colourless, white, yellow, blue or brown.

Amphiboles can have pleochroism; that is an optical phenomenon in which a substance has different colours when observed at different angles, especially with polarized light.

Hornblende is a complex inosilicate series of minerals. It is not a recognized mineral- in its own right, but the name is used as a general or field term to refer to a dark amphibole. Manganese and titanium are often present.

- Sodium and potassium are often present, and fluorine often substitutes for the hydroxyl in the crystalline structure.

Hornblende alters easily to chlorite and epidote.

The name comes from the German horn and blenden (to deceive). It is formed from the metamorphism of basalt.

Zeolite is mostly found in extrusive igneous rocks. Means boiling stone, tend to bubble when heated and combined with water.

Pegmatite is an igneous rock formed by slow crystallization at high temperatures and pressure at depth and exhibiting large interlocking crystals. Most pegmatites are intrusive rocks found in sheets of rock near large masses of igneous rocks called batholiths.

Take some time to study the rock cycle study the one on Science Facts.net from the rock cycle page for ease of understanding.

Rock Cycle

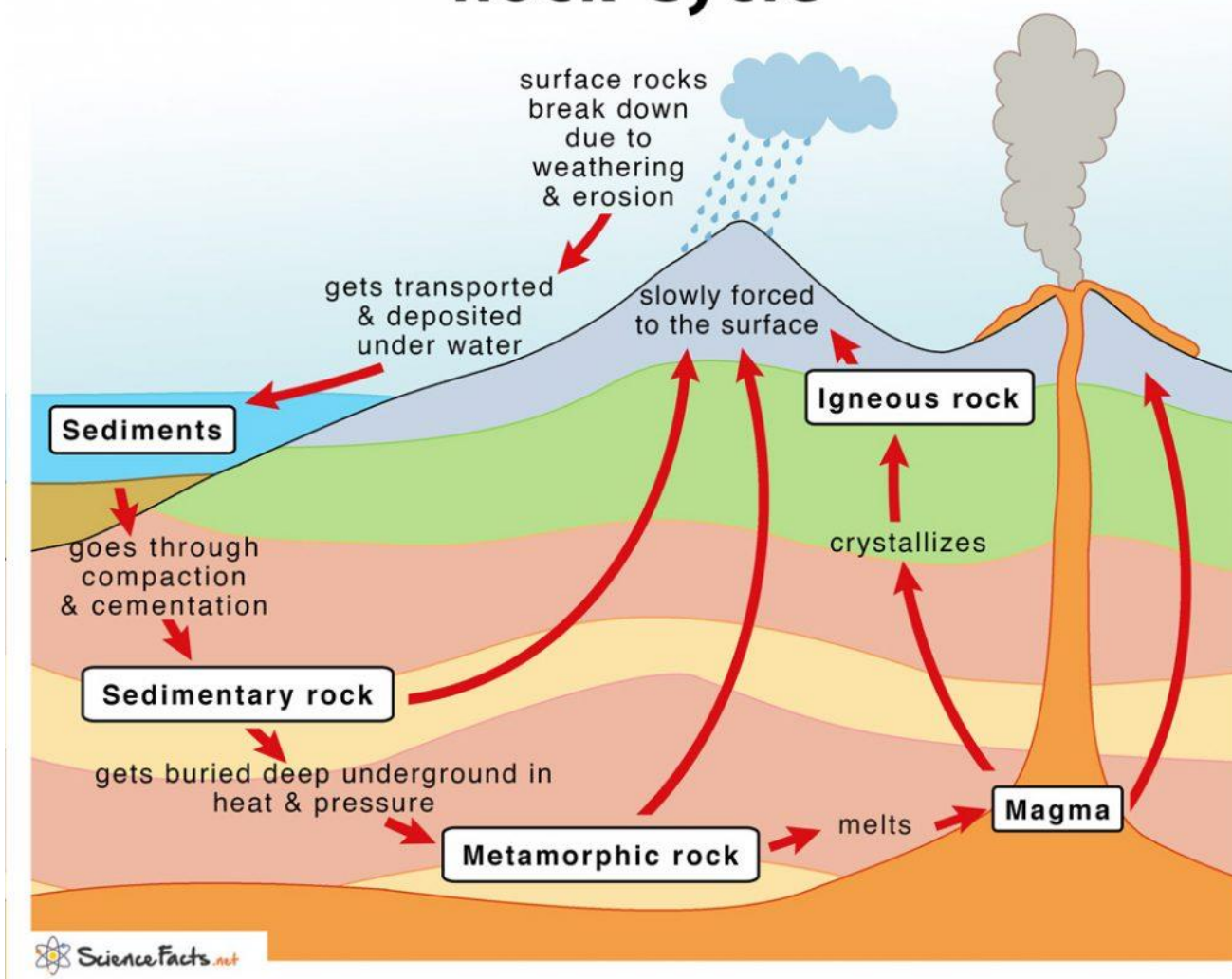


Image from Science Facts.net

Components of granite for study:

Quartz- Silicon Dioxide (SiO_2)- Silicates group

Feldspar -Albite (KAlSi_3O_8)-Silicates-feldspar group

Mica (biotite; $\text{K}(\text{Mg}, \text{Fe}_{+2})_3(\text{Al}, \text{Fe}_{+3})\text{Si}_3\text{O}_{10}(\text{OH}, \text{F})_2$ -Silicates-mica group

Amphibolite- $(\text{Ca}, \text{Na})_{2-3}(\text{Mg}, \text{Fe}, \text{Al})_5(\text{Al}, \text{Si})_8\text{O}_{22}(\text{OH}, \text{F})_2$

(hornblende and plagioclase feldspars)-Silicates (Amphibole group)

And there is also the garnet group $\text{X}_3\text{Y}_2(\text{SiO}_4)_3$ -Silicates group

Note: all the components are within the silicates group definition

For Rockhounds

Telltale signs (from Rocks and Minerals; and Discovery Channel book)

The first clue to the identity of a common igneous rock is its locality: Look for signs of volcanoes.

Other clues include:

Colour- The lighter the colour, the higher the silica content. A light coloured rock (65% silica) may be granite, pegmatite, or rhyolite. A medium coloured rock (55 to 65 % silica) may be gabbro or andesite. A dark-coloured rock (45 to 55 % silica) may be basalt, serpentinite, or peridotite.

Granular texture- The size of a rock's grains can help in narrowing possibilities. Coarse grained rocks (grains visible- to the eye) include nepheline syenite, granite, granodiorite, pegmatite, and gabbro. Fine grained rocks (invisible grains) include basalt, rhyolite, and andesite.

- Nepheline syenite has no quartz.
- Granodiorite- like granite but with coarse grains- has more plagioclase feldspar rather than potassium feldspar.
- Diorite- equal amounts of light and dark felsic minerals (salt a pepper appearance), richer in iron and magnesium than granites.
- Gabbro- silica poor, but rich in ferro-magnesium minerals (mostly found in oceanic crusts)
- Peridotite- formed in the earth's upper mantle, is a dark dense igneous rock (olive green to black in colour), contains abundant iron and magnesium.
- Basalt (and scoria) extrusive- it is more abundant than all other volcanic rocks combined. Dark greenish gray to black with crystals too small to identify. (scoria develops near the surface)
- Rhyolite- is the extrusive equivalent to granite.

Everything has energy- if it has mass- there is energy.

What is it? That is to be explored...The thing to focus on is the X factor.

Constant is constant- the frequency depends on the chemical makeup- the 'so called' genetic code.

Configuration is important as the chemical makeup. There is a part of 'us' that connects with the stone- it can 'hold' a vibration. A rock seems not to move, but it is moving 'so fast' that we cannot see it.



Image: Wikipedia

Granite as a study

By Linda Foy

I gave a talk recently on granite, and this is what I presented to the participants to have them be 'on the same page'. In my presentation I went beyond the known information while wanting to tie in my words. Hopefully, I was able to 'show' how to move beyond the present information 'out there' and help to find the information available 'in there', thus allowing a person to make connection with the mineral kingdom through one of the most interesting rocks in this world- granite.

According to Encyclopedia Britannica, granite is a coarse or medium grained intrusive igneous rock that is rich in quartz and feldspar. It is the most common plutonic rock of the earth's crust forming by the cooling of magma (silica melt) at depth. Magma, as part of the rock cycle, can either spew out of the earth as lava and basalt (extrusive igneous rock) or push its way slowly towards the surface crystallizing into various types of rocks and minerals along the way (intrusive igneous rock).

These intrusive rocks are desired, and many are 'precious' with resulting crystals being the 'pretty rocks' which command high prices and can be of museum quality.

Granite is a light coloured igneous rock with grains large enough to be visible with the unaided eye. It forms from the slow crystallization of magma below the Earth's surface. (Geology.com)

Granite is composed mainly of quartz and feldspar with minor amounts of mica amphiboles and other materials. This mineral composition usually gives granite a red, pink, gray or white colour with dark mineral grains visible throughout the rock. Granite is defined as having at least 20 % quartz and up to 65% alkali feldspar by volume.

Rocks and minerals (discovery books 1999) states that the mineral composition is quartz, potassium feldspars, and plagioclase feldspars dominant, minor amounts of biotite, muscovite, and hornblende.

There are two types of granite to be considered: "I" type with the principal constituent being feldspar and the "S" type which may have garnet, cordierite and sillimanite contained within. Both types of these granitoids may also have biotite and muscovite. Many rocks used within the construction industry are not actually granite and are called granite for ease of classification. That is the reason for the word granitoid to include the variations.

According to Wikipedia (re: buildings), granite has been extensively used as a dimension stone* and as flooring tiles in public and commercial buildings and monuments. Aberdeen Scotland is known as "the Granite City" because of it is constructed principally from local granite.

***dimension stone-**
is a natural rock material that will be cut into blocks or slabs of specific length, width and thickness.



The obelisk is single shaft of red granite quarried at [Aswan](#).

Image from: <https://www.memphis.edu/egypt/resources/colortour/luxor5.php#:~:text=The%20obelisk%20is%2071%20feet,red%20grainage%20quarried%20at%20Aswan>.

The following is from The Stone Specialist (stonespecialist.com)- Building with Stone: Granite (part1) Barry Hunt, author; October 15, 2013.

"To the uninitiated, almost any rock of igneous (or lava) origin is called granite and little differentiation is made by the stone industry other than to call particularly dark versions 'black granite'. Stones such as gneiss, diorite and syenite are included in the broad trade classification, but are not what a geologist would consider truly granite... The highest quality granites are recognized as those with little variation from veining, spotting and other features, however, some of the rarer examples featuring large porphyritic and rapakivi textures are much sought after.

It is not only the enduring qualities of granite that make it desirable as a building stone, but also the uniform nature and potentially massive size of the blocks available because of the continental scale mode of formation of granites. This feature was first exploited by the Egyptians with the building of their great temples and obelisks, which remain some of the largest stone monuments in history. The temple complex of Amun-Ra at Luxor is home to the obelisk of Hatshepsut, the largest standing in Egypt at 30 metres tall. It is said to have taken just seven months to carve from a single block of granite.

The largest solid building in the world is the Palacia de San Lorenzo de el Escorial, 30 miles outside of Madrid, Spain. This was commissioned by Phillip 11 of Spain in compliance with a promise to Charles V to erect a mausoleum to him and his descendants.”

So, throughout history, mankind has been drawn to this rock. It was used in many buildings: from city halls and state capitals to banks, schools, museums and memorial buildings. Granite has been traditionally used to create statues and monuments and continues to be used for headstones and important places like churches and prominent buildings.

For those interested in the Metaphysical

With so much of this stone all around us, it helps us to utilize the creation ‘element’ within its makeup in creating new aspects desired within our lives and selves.

The different chemical components of granite allow one to slow down and connect to the mineral kingdom, while at the same time speed up your vibration and energies to higher thoughts and realms while maintaining a sense of being ‘grounded’. It gives a ‘landing pad’ to start from.

According to the Essential Crystal Handbook (Simon and Sue Lily, 2006), granite balances the subtle bodies and speeds the healing processes (especially the red and pink varieties). Place pieces by the throat and feet and hold in each hand.



Mount Rushmore: Mount Rushmore in the Black Hills, South Dakota is a sculpture of United States presidents George Washington, Thomas Jefferson, Theodore Roosevelt, and Abraham Lincoln sculpted from a granite outcrop. Image copyright iStockphoto / Jonathan Larsen.

Image: Geology.com

