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The Newsroom

Announcements

BCLS Membership

The BC Lapidary Society, our parent body, has relayed the following message:

"Due to Covid 19, and in order to help the clubs, the Executive of the BC Lapidary Society has unanimously agreed to waive all dues to the <u>BCLS</u> and the GMFC (<u>Gem and Mineral Federation of Canada</u>) for the 2021 Calendar year. The BCLS will pay the GMFC dues on each club's behalf, as long as we get the required information to do so."

This news means that those members who filled out the "roll-over" form in December are fully covered for 2021 activities.

Club Events

2021 VLMS Rock and Gem Show – Leonardo Da Vinci Centre – March, 2021 This year's show has been cancelled due to Covid-19.

Meetings

Executive virtual meetings are being held.

Field Trip

No field trips scheduled until further notice.

Courses (Silversmithing)

On hold due to Covid-19.

Reports

President (Doug)

I hope everyone is staying healthy and coping with Covid-19 as well as possible. Unfortunately, at this time, the Covid-19 status is not allowing us to return to any club activities. Silver Threads has updated their Covid-19 policy concerning our use of their facility as below:

Feb 10/21

Hi Doug,

I hope you are well. I wanted to give you an update on our opening status, unfortunately we are still unable to welcome back community groups and renters into our centres due to the COVID – 19 Protocols and restrictions. At the moment we are offering a few programs and are at less then 20% of where we were before COVID. Everything we are offering meets the requirements: only activities that are deemed COVID safe, have all participants physical distanced, and allow us to control group size and the total capacity numbers in the building. Further all Programs must have a designated instructor, and cleaning procedures are in place before and after the activities. Most of our programs at Saanich are being offered in the auditorium as it is the best ventilated and is the largest space. At this time we are not able to add programs to the Woodworking Shop or our schedule. We do hope this changes soon, until then stay well.

Thanks,

Tracy

Tracy Ryan, Executive Director Silver Threads Service

There is not much more we can do until Covid-19 restrictions are significantly reduced. The Board of Directors is scheduled to meet virtually on Feb 22nd.

Workshop (Doug)

See above.

Island Gemboree

There has been no activity in the Island Zone due to Covid-19.

Membership (Becci)

Our membership total currently stands at 98; this number breaks down into 130 adults and 31 juniors. I am still receiving a couple of enquiries a month, but understandably people have preferred to defer paying membership until at least some club activities restart. Our membership names and numbers have been sent to the BCLS for insurance purposes. I am waiting to receive the BCLS membership cards for 2021 and will mail them out via surface mail when I have them. I have also

placed the order with the BCLS for the 2021 directory with the BCLS and will mail them out once I receive them.

Please note that, as more communication than normal is done by Canada Post right now, if you change your postal address, then please keep me updated (membership@vlms.ca) so I can make sure your mail continues to reach you.

Field Trips (Sean)

No report submitted.

Social Committee (Susannah)

In late November 2020, I sent Christmas greetings from Jacquie Lawson (free of charge to the Club) to 97 people who are on email distribution list – this did not include those who have non-disclosure agreements with the Club. I also sent 6 Christmas greetings to those who do not have email and on Christmas Day, I sent Christmas greetings from Jacquie Lawson to 7 new members to the Club, who had just enrolled.

Unfortunately, Allana has recently suffered the loss of her home in a fire. I called her, on behalf of the club, at her Mom's home and left a message and then sent a Jacquie Lawson card to her to say that we were rooting for her and siding with the One who makes everything right again.

Finally, on February 11 of this month, I called Gilles Lebrun. In his own words he is "really good, living with restrictions, but really good".

Library (Kathryn)

No report submitted.

Editor (Gary)

I am back temporarily! I have indicated to Doug that I will continue to edit the Laphound News until an election takes place. Note, I have not changed any of the other Board or Committee positions (Page 1 above) even though they may change pursuant to an election.

Fun Facts

Lappy the Lapphound

"All that glitters isn't goldbut it might be opal!!!!



Foxey the Foxhound

"Diamonds are a girls' best friendcubic zirconia... not so much !!!!



A Game of Chance

It was early February and Old-Man-Winter had the Lower Island in a headlock. The streets were blanketed in deep snow, it was windy and unusually cold (or at least it felt like it) for this part of the

world. Couple the weather with the never-ending Covid-19 crisis and the net result was a "perfect storm" of inactivity. Lappy, Foxey, and the rest of the gang were bored beyond wits end – they simply had to get together for a social. Of course, no one was prepared to risk an actual physical encounter so the plan revolved around a Zoom party. Foxey ran the idea by Dottie and Pippa (and hence Charlie) via text-message. For his part Lappy had contacted Fin and Roddy on his work radio. Everyone was in agreement that a Zoom-party was a great idea. It was decided that 8 pm on Saturday night was the best option that met everyone's schedule – a prime factor was allowing Bonnie and Roddy to get Roddy Jr in bed and asleep since everyone knew that Roddy Jr unleashed on a Zoom call could be detrimental to everyone's enjoyment of the evening. It had nothing to do with Roddy Jr being a sweetheart – he could be - listening to Roddy Sr recount seemingly every detail in Roddy Jr's development (including potty training) could be just a bit insufferable.

Roddy (on the phone to Lappy): "Are we going to play a game?"

Lappy (enthusiastically): "A game of chance – do you and Bonnie have the game of Yahtzee (or equivalently, 5 dice)?"

Roddy (getting excited): "Oh, boy! Yahtzee! I never lose at that game. Yes, we have Yahtzee."

Lappy (thinking fast): "Well it is not the traditional Yahtzee that we will be playing but it is a very similar game called Yahtzee-Trivia! It is Yahtzee with a twist."

Roddy(somewhat subdued): "Awww.... What if I am not very good at it?"

Fin (Chief Inspector chimes in): "Then you will be just like the rest of us Roddy!"

Lappy (continuing): "Actually, I think you will do just fine, Roddy. You will be on a team with Bonnie and besides, I want you to be the Roller!"

Fin (sensing Lappy's direction): "The Roller is a crucial element of the game!"

Roddy(suddenly feeling important): "The Roller? I have never been a Roller before but I will do it."

Saturday evening arrived, Bonnie had put Roddy Jr. to bed, and Roddy was excited. The Zoom party commenced.

Foxey (excited): "Hello, everyone... are we all ready to play?"

All (eagerly): "Yes, we are."

Foxey (breathing out): "Okay, we play as teams – Pippa and Charlie, Dottie and Fin, Bonnie and Roddy, and Lappy and me. Now, I sent each of you three pictures via text that are labeled Tables 1, 2 and 3. You will need to refer to these tables as I speak. The game is played similar to Yahtzee except we have added a Trivia component. The objective is to score points for your team – at the end of play, the team with the most points wins. Teams score points based on the face-up number distribution on the dice (just as in Yahtzee). For the purposes of this game we use the point's assignment shown below in Table 1. During each team's "turn", up to three rolls of all or subsets of the dice are allowed;

depending on the roll, teams can terminate their "roll sequence" after any roll. For example, if a "five of a kind" or a "straight" is rolled on the first roll then the team probably would take the point value and decline the additional allotted rolls. However, if only one pair is obtained on the first roll, the team can decide to save-the-pair and re-roll the remaining three dice to try and improve the score. This can be repeated once more for a total of three rolls."

1 pair	5
2 pair	15
3 of a kind	20
Full House	25
4 of a kind	30
Straight	40
5 of a kind	50

Table 1. Specialty Dice- Cast Values.

Foxey (continuing): "Is everyone still with me? Okay, once the "roll" portion of a turn is complete then we enter into the Trivia portion of the game during which the teams can earn bonus points. Our Trivia game is going to revolve around our knowledge of gemstones and minerals (Dottie and Roddy groan in unison). Based on the total face-up values of the dice when the "roll sequence" is declared complete, the team then has an option to earn "bonus" points by naming a gemstone or mineral that begins with a certain letter. It turns out that the possible totals on the five dice lie between 5 (five one's) and 30 (five six's) which just so happens to cover the alphabet nicely as shown in Table 2."

5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Α	В	С	D	E	F	G	Н	ı	J	K	L	М	N	0	Р	Q	R	S	T	U	٧	W	X	Υ	Z

Table 2. Map of Dice Total to the Alphabet.

Foxey (continuing): "Here is how the scoring works in the Trivia portion of the game. For reference, please have a look at Table 3. I will explain by example. Suppose Lappy and I terminate our roll phase with a total of 20 showing on the dice (three 4's, one 6 and one 2 giving us 20 pts for our Yahtzee total). From Table 2, the number 20 corresponds to the letter P. We now have the opportunity to name a gemstone or mineral that begins with the letter 'P'. Let's say we do then based on Table 3 we earn 10 bonus points. All other teams in succession get an opportunity to also gain 10 points by correctly identifying different gemstones or minerals that also begin with the letter P. "

Correct Identification	10
Comeback Round #1	20
Comeback Round #2	30
Comeback Round #3	40
•	
Comeback Round #N	(N+1)*10

Table 3. Additional Bonus Points for Correct Identification of Gems and Minerals.

- Foxey (continuing): "After each team has had the opportunity to respond, Lappy and I can then enter into what we call the Comeback Rounds in which we can further gain points by naming an additional but different gemstones or mineral that also begin with the letter P. Note, a team can enter into further Comeback Rounds even if no other responds during any particular Comeback round i.e., the more you know the better. Thus, if Lappy and I know of two gemstones or minerals that begin with the letter P that no other team identifies then we would earn 10 pts for the correct initial identification plus 20 pts for Comeback Round #1. Let's play and we can explain further as we go along."
- Lappy (breathing a sigh of relief): "Wheewww! That was a lot of information. Roddy will roll the dice for each of the teams. Each team must provide Roddy with instruction on which dice to "keep" and which to "re-roll". Fin is going to keep score, Charlie will be the Judge over correct identification of material for bonus points, and Foxey will be the timer. We will decide on order of play by having a preliminary roll of the dice for each team the team with the highest point total (obtained by adding the face-up scores of all five dice together) goes first followed by those with successively less point totals. In the case of ties, a roll-off may be required. Roddy, please roll the dice."
- **Foxey (continuing):** "Oh, since this game could take quite awhile, we will total up the scores after each team has had one turn."
- Fin (somewhat hesitantly): "Without intending to prolong this initial discussion, what happens if, after you and Lappy have rolled a P and we have exhausted our collective knowledge on gemstones and minerals that begin with the letter P in the Comeback Rounds, Dottie and I also roll a P. Are we simply out of luck when it comes to bonus points or is there some recourse for us?"
- **Foxey (sheepishly):** "Ahh...thanks for reminding me. In that case, you and Dottie could "spend" ten of your accumulated point total to have a re-roll of the dice to change your face-up total (only for the Trivia portion). You can do this as many times as your current point total allows i.e., 10 pts per roll. Each team is assigned 100 pts to start the game."

Roddy rolled the dice and it was determined that Dottie and Fin would go first, followed by Bonnie and Roddy, Foxey and Lappy and, finally, Pippa and Charlie.

Dottie and Fin

Roddy rolled the dice for Dottie and Fin. Dottie was only focused on Fin and wasn't particularly interested in the nuances of the game. However, Fin realized that he knew more gemstones and minerals associated with low point totals and that was going to form the basis of his strategy. The first roll contained two 6's, two 2's and one 3: two pair and a total of 19. Fin looked at Table 2 and pointed to the O.

Dottie (perking up): "Oh, oh, oh....I know one!"

Fin (shssing her): "Okay, okay...don't say anything yet! I also know a couple."

Foxey (interjecting): "You have 2 min to decide what to do – as determined by this sand-dial timer."

With that, Foxey started the timer. Dottie and Fin muted their Zoom feed and discussed their plan. Of course, everyone else muted their Zoom feed as well in order that they might discuss their options if Dottie and Fin decided to "keep" the O.

Dottie (muted): "I know Opal¹ and Onyx²."

Fin (impressed): "Wow, good ones Dottie. I know Olivine³ and Obsidian⁴. We need one more to get guarantee that we get to the second Comeback Round. Hmm..let me think. During our secondment to Arizona we ran across the term orthoclase⁵... I don't know what it is but we can go with that. Okay, let's get the game going and play with what we have."

Fin unmuted the Zoom app and indicated to the group that he and Dottie were prepared to play and keep the O.

Dottie (proudly): "We identify Opal as our gemstone."

Bonnie (matter of factly): "Roddy and I have selected Obsidian as our response – actually, it was Roddy's choice – he remembered it from watching the Flintstones just last week with Roddy Jr."

Foxey (somewhat surprised): "Well done, Roddy! Lappy and I can think of only one gemstone that begins with the letter O and that is: Onyx."

Charlie and Pippa not only had the benefit of slightly more time but also they got to hear everyone else's selection. They decided to go with what they thought was the more obvious choice first and save the best for last.

Pippa (smugly): "Charlie and I, go with Okenite⁶."

Roddy(skeptical for some reason): "Okenite? Why haven't I ever heard of it?"

Foxey (avoiding the obvious truth): "No, Roddy, now that Pippa mentions it, I recall there is such a mineral, it is usually associated with zeolite⁷."

Bonny(lying but wanting to move on): "Roddy, I have heard of the term. Let's keep the game moving."

Dottie (agreeing): "Okay, our candidate for the first Comeback round then is Orthoclase"

Bonnie (laughing): "We have nothing"

Lappy (also laughing): "Ditto!"

Pippa (disappointed): "Darn you Dottie...that was our next and only choice!"

With that Dottie and Fin's turn ended; it was quite productive for them as they amassed 15 pts for Yahtzee, 10 pts for identifying Opal and 20 points for Orthoclase in the first Comeback Round. The score at the end of the first turn was (including the initial 100 assigned points):

Dottie and Fin	145 pts
Bonnie and Roddy	110 pts
Foxey and Lappy	110 pts
Pippa and Charlie	110 pts

Bonnie and Roddy

Roddy rolled the dice for Bonnie and himself. His first roll contained one 1, one 2, one 4, one 5, and one 6.

Roddy (confidently): "I always roll a straight in Yahtzee..shall we keep the2, 4,5,6 or the 1,2,4,5?"

Bonnie (muting the Zoom feed): "Based on Table 2, straights are either and M or a P. How many gemstones do you know that start with those letters?"

Roddy (ruefully): "I can't think of any."

Bonnie (making the call): "I only know one – malachite⁸. Let's keep the 1 and the 2 and roll the other three."

Roddy rolled the remaining dice with the result that two more 1's appeared with a five. That gave them a total of 9 but when Bonnie noticed that 9 corresponds to an E in Table 2, she decided they should roll the five again. Roddy didn't care as long as he could keep rolling!!! They kept the two 1's and rolled the five – the result was a 3, giving them a four of a kind and a total of 7. From Table 2 they had drawn a C. Fin was quite envious of their low total. Bonnie and Roddy entered the Trivia portion of their turn – all teams muted their Zoom feeds and Foxey started the timer.

Roddy (not so confidently): "I don't know any gemstones that begin with the letter C except calcite⁹ and cellulite?"

Bonnie (giggling): "Sweetie, cellulite is very definitely not a gemstone...I think you mean ceruleite¹⁰ but good on you for getting calcite. I also know a couple of others: chrysocolla¹¹ and chalcedony¹²."

Roddy (unmuting the Zoom): "Okay, our gemstone is calcite"

Foxey (impressed): "Good one Roddy. Our choice is chrysocolla"

Roddy (disappointed): "But we were going to say that one next! That's not fair."

Bonnie (firmly): "Roddy, that is just part of the game. We will get our chance to steal one of their stones when it is their turn."

Charlie (feeling very good about this round): "Pippa and I select Chrysoberyl¹³."

Dottie (with Fin's encouragement): "We select charolite¹⁴."

Roddy (breathing easier): "Okay, for our Comeback round we select chalcedony."

Foxey (after a brief convo with Lappy): "We have a bad feeling about this....Pippa!!! We select carnelian¹⁵."

Pippa (quickly and with a laugh): "Ha..Ha.. we select cerussite¹⁶."

Fin (subdued): "We are out"

Bonnie (surprisingly upbeat): "Thank goodness we lasted two rounds...we are out."

Lappy (likewise subdued): "We are done as well."

Charlie (secretly excited but not wanting to run up the score): "We have just one more and I am surprised no one got it... citrine¹⁷."

Fin added up the scores with the results shown below.

Dottie and Fin	155 pts
Bonnie and Roddy	170 pts
Foxey and Lappy	140 pts
Pippa and Charlie	170 pts

Roddy was feeling pretty good about his team's chances.

Foxey and Lappy

Roddy rolled the dice for Foxey and Lappy. His first roll contained two 6's, one 5, one 3, and one 2.

Lappy (muting his Zoom feed): "That is an R ... do we know any gemstones beginning with the letter R?"

Foxey (upbeat): "A couple. Let's keep the 6's and the 5 and roll again."

Roddy rolled the two remaining dice for Foxey and Lappy. His got a 3 and a 1 – they decided to try and roll the two dice again. Unfortunately, this time it was back to a 3 and a 2.

Lappy (resolutely): "Okay we settle for the pair and a total of 22 – that is an R. Foxey, can you set the timer please."

Foxey set the timer and everyone muted their Zoom feeds.

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Foxey(hesitating): "Well, I know ruby and its relative, realgar¹⁹. Do you have anything, Lappy?"

Lappy (feeling a bit more upbeat): "Well, yes I can think of rhodonite²⁰ and rhodochrosite²¹. Is there anything else?"

Foxey (suddenly remembering): "Oh, yah...there is rubellite²² .. it is type of tourmaline²³."

Lappy (unmuting the Zoom): "Okay, we are good to go...we choose ruby."

Pippa (again, smugly): "We are going with rubellite."

Dottie (with an air of false confidence): "Fin and I select rhodochrosite."

Bonnie (breathing a sigh of relief): "Wheww.. that was close. We choose rhodonite."

Foxey (genuinely surprised): "Wow...I can believe everyone has got an answer. The R gemstones are quite not very numerous. Well done everybody! For the Comeback Round we select realgar"

Charlie (surprised): "We are done."

Fin (still upbeat): "Yup, we have nothing."

Roddy (much to Bonnie's surprise): "Red Rock"

Charlie (trying to be nice): "Roddy, Red Rock is actually a place, not a gemstone. But good try."

Fin added up the new scores with the results shown below.

Dottie and Fin	165 pts
Bonnie and Roddy	180 pts
Foxey and Lappy	175 pts
Pippa and Charlie	180 pts

Roddy was still feeling good because he and Bonnie were tied for first place but he was a bit disappointed with the decision on Red Rock – he personally had seen several "red rocks" in his lifetime

Pippa and Charlie

Roddy rolled the dice for Pippa and Charlie. His first roll contained two 4's, two 1's and one 3. Pippa and Charlie made the obvious choice to have Roddy keep the 4's and 1's aside and re-roll the 3. They got another 4.

Pippa(excited): "Perfect...Roddy you are such a good Roller. Our total is 14 and that corresponds to a J. Foxey, can you start the time please."

Everyone muted their Zoom feeds and Foxey started the timer.

Charlie (likewise excited): "J is a hard one but that could be good for us. I guess the obvious ones are jade²⁴ and jasper²⁵."

Pippa (thinking hard): "There is also jadeite²⁶ and, in your course that I took, didn't you mention something called jet²⁷."

Charlie (pleasantly surprised): "Wow, good memory, Pippa. I don't know that we will need all these with this group...maybe, Foxey knows some of them. I do have one more up my sleeve just in case."

Pippa (unmuting the Zoom): "Okay we are going with jade."

Dottie (smugly): "We have jasper."

Roddy (downcast): "Those were our two guesses...we don't have any more gemstones for J"

Foxey (taking her time): "Hmm...which one to say first... okay we are going with jadeite."

Roddy (realizing his team's fate): "Surely that is the same as jade."

Bonny (ever the peacemaker): "Roddy, it is only a game. I have heard of jadeite before."

Pippa (starting to get that winning feeling): "For the Comeback Round we select jet."

Fin (also realizing his team's fate): "We are stumped on this one."

Bonnie (still soothing Roddy's ego): "We tried hard but just came up empty."

Lappy (after conferring with Foxey): "I think we are done too."

Charlie (knowing her and Pippa had won): "Okay, we have no more selections."

Fin added up the new scores with the results shown below.

Dottie and Fin	175 pts
Bonnie and Roddy	180 pts
Foxey and Lappy	185 pts
Pippa and Charlie	235 pts

Fin read out the final scores. Roddy was happy that his team didn't finish last. Foxey was surprised that no one had to spend any points for a re-roll – perhaps, they would have to play again in the future. They all agreed that it was fun and that Zoom Game night was a big success – they would do it again.

Acknowledgements

Once again I would like to thank all those members who contributed to this Newsletter – it continues to be only as useful and complete as the information you provide.

Appendix

1. Fun Facts - Rocks and Gems (all material obtained from the web!!)



Opal - is a hydrated (up to 10% water) amorphous form of silica. It is deposited at a relatively low temperature and may occur in the fissures of almost any kind of rock. Common opal occurs in a variety of colors (e.g., white, blue, green, pink, yellow, or grey). Common opal is found worldwide including right here in British Columbia.



Onyx - primarily refers to the parallel banded variety of the silicate mineral chalcedony. Onyx is a variety of layered chalcedony that has parallel bands. The colors of its bands range from white to almost every color. Commonly, specimens of onyx contain bands of black and/or white.



Olivine – (also known as peridot). In BC it is found near Timothy Mt., eastnortheast of Lac La Hache. This area produces bombs from which excellent dark green stones weighing as much as 10 carats have been obtained. Lightning Peak in the Monashee Mountains also produces peridot grains large enough to cut small gems from.



Obsidian - Black obsidian occurs in varying sizes north of Anahim Lake, on Anahim Peak and Ilgachuz Mountains. it is a naturally occurring volcanic glass formed as an extrusive igneous rock. Obsidian is mineral-like, but not a true mineral because as a glass it is not crystalline; in addition, its composition is too variable to be classified as a mineral. It is sometimes classified as a mineraloid.



Orthoclase - or orthoclase feldspar, is an important tectosilicate mineral which forms igneous rock. The name is from the Ancient Greek for "straight fracture," because its two cleavage planes are at right angles to each other. It is a type of potassium feldspar, also known as K-feldspar. The gem known as moonstone is largely composed of orthoclase. Orthoclase is a common constituent of most granites and other felsic igneous rocks and often forms huge crystals and masses in pegmatite.

6.



Okenite - is a silicate mineral that is usually associated with zeolites. It most commonly is found as small white "cotton ball" formations within basalt geodes. These formations are clusters of straight, radiating, fibrous crystals that are both bendable and fragile. It was first described in 1828 for an occurrence at Disko Island, Greenland and named for German naturalist Lorenz Oken. Okenite is also found in India, New Zealand, Chile, Ireland and Bordo Island in the Faroe Islands.

7.



Zeolites - are microporous, aluminosilicate minerals commonly used as commercial adsorbents and catalysts. Natural zeolites form where volcanic rocks and ash layers react with alkaline groundwater. Zeolites also crystallize in post-depositional environments over periods ranging from thousands to millions of years in shallow marine basins. Naturally occurring zeolites are rarely pure and are contaminated to varying degrees by other minerals, metals, quartz, or other zeolites.

8.

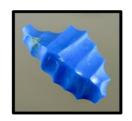


Malachite - is a copper carbonate hydroxide mineral which crystallizes as an opaque, green-banded mineral in the monoclinic crystal system. It most often forms botryoidal, fibrous, or stalagmitic masses, in fractures and deep, underground spaces, where the water table and hydrothermal fluids provide the means for chemical precipitation. Individual crystals are rare, but occur as slender to acicular prisms. Pseudomorphs after more tabular or blocky azurite crystals also occur

9.



Calcite is a carbonate mineral and the most stable polymorph of calcium carbonate (CaCO₃). Calcite is a common constituent of sedimentary rocks, limestone in particular, much of which is formed from the shells of dead marine organisms. Calcite is transparent to opaque and may occasionally show phosphorescence or fluorescence.



Ceruleite – is a little-known gem material of truly exquisite color, skyblue ceruleite takes a very high polish easily and quickly. However, fine, solid, cuttable pieces are extremely rare. It is a sedimentary material formed in the vicinity of copper deposits, like turquoise.

11.



Chrysocolla is a hydrated copper phyllosilicate mineral whose structure suggest that it may be a mixture of the copper hydroxide spertiniite and chalcedony. It forms in the oxidation zones of copper ore bodies. It is typically found as botryoidal or rounded masses and crusts, or vein fillings. Because of its light color, it is sometimes confused with turquoise.

12.



Chalcedony is a cryptocrystalline form of silica, composed of very fine intergrowths of quartz and moganite. These are both silica minerals, but they differ in that quartz has a trigonal crystal structure, while moganite is monoclinic. Agate Chalcedony differs from ordinary chalcedony in that the growth of silica occurs in well-defined layers.

13.



Chrysoberyl is an aluminate of beryllium and has Greek origins. It is a completely different gemstone than Beryl and is very hard lying somewhere between corundum and topaz in hardness. Ordinary chrysoberyl is yellowish-green and transparent to translucent. When the mineral exhibits good pale green to yellow color and is transparent, then it is used as a gemstone. The three main varieties of chrysoberyl are: ordinary yellow-to-green chrysoberyl, cat's eye or cymophane, and alexandrite.

14.



Charoite – or charolite s a rare silicate mineral, first described in 1978 and named for the Chara River. It has been reported only from the Aldan Shield, Sakha Republic, Siberia, Russia and it is found where a syenite of the Murunskii Massif has intruded into and altered limestone deposits producing a potassim feldspar metasomatite. Charoite is translucent lavender to purple in color with a pearly luster and is strictly massive in nature; fractures are conchoidal and it is sometimes chatoyant.



Carnelian is a brownish-red mineral commonly used as a semi-precious gemstone. Carnelian is a variety of the silica mineral chalcedony colored by impurities of iron oxide. The color can vary greatly, ranging from pale orange to an intense almost-black coloration. It is most common in Brazil, India, Siberia and Germany.

16.



Cerussite (also known as white lead ore) is a mineral consisting of lead carbonate and is an important ore of lead. Cerussite crystallizes in the orthorhombic system and the crystals usually have very bright and smooth faces. The mineral also occurs in compact granular masses, and sometimes in fibrous forms. The mineral is usually colorless or white, sometimes grey or greenish in tint and varies from transparent to translucent with an adamantine lustre and is very brittle.

17.



Citrine - is a yellow-to-golden member of the quartz mineral group. Citrine has been called the "stone of the mind" as ancient cultures believed that it was associated with psychic power. Natural Citrine can be found in Madagascar, France and Russia. However, much of the world's treated Citrine (from Amethyst) comes from Brazil.

18.



Ruby is a pink to blood-red colored gemstone, a variety of the mineral corundum (aluminum oxide). The red color is caused mainly by the presence of the element chromium (Cr). Its name comes from *ruber*, Latin for red. Rubies are predominantly found in marble deposits along the southern slopes of the Himalayas.

19.



Realgar - is an arsenic sulfide mineral, also known as "ruby sulphur" or "ruby of arsenic". It is a soft, sectile mineral occurring in monoclinic crystals, or in granular, compact, or powdery form, often in association with the related mineral, orpiment. It is orange-red in color, melts at 320 °C, and burns with a bluish flame releasing fumes of arsenic and sulfur. Realgar is soft and its streak is orange colored. It is used in conjunction with explosives.



Rhodonite – most deposits in B.C. are in the form of lenses occurring with bedded chert or jasper. Very beautiful rose-pink material occurs on Saltspring Island and Vancouver Island, notably on Hill 60 and Cottonwood Cr. Other rhodonite bearing sedimentary rock formations are the Shoemaker formation near Keremeos; the Cache group from Tsitsutl Mt. (near Fort St. James) extending to Williams Lake; the Fennell formation (Clearwater to Barriere); the Cassiar area; Kaslo to Slocan area; and fine pink material with black patterns from Bella Coola area.

21.



Rhodochrosite is a manganese carbonate mineral. In its pure form, it is typically a rose-red color, but impure specimens can be shades of pink to pale brown. It forms a complete solid solution series with iron carbonate (siderite). Calcium, (as well as magnesium and zinc, to a limited extent) frequently substitutes for manganese in the structure, leading to lighter shades of red and pink.

22.



Rubellite is a variety of tourmaline with reasonably saturated dark pink to red colors and medium to dark tones. They make excellent jewelry stones, and ruby-red colored specimens without orange or brown overtones are highly prized.

23.



Tourmaline - Although tourmaline crystals are abundant worldwide, only a few occurrences are reported in B.C. Pegmatites at the headwaters of Skookumchuck Cr. and St. Mary Lake north of Cranbrook, the Slocan Valley north of Castlegar, and Midge Cr. west of Kootenay Lake have reported some tourmaline crystals. Pegmatite dykes on Mica Mt. south of Tete Jaune Cache and Mount Begbie south of Revelstoke contain black, green and red tourmaline.

24.



Jade is an ornamental rock, mostly known for its green varieties, which feature prominently in ancient Asian art. The term *jade* is a general term applied to two different metamorphic rocks that are composed of different silicate minerals, namely (i) jadeite, and (ii) nephrite. Jade has been a favorite carving material for many centuries.

25.



Jasper ia an aggregate of microgranular quartz and/or chalcedony and other mineral phases. It is opaque, and usually red, yellow, brown or green in color; but it is rarely blue. The common red color is due to iron inclusions. It can be highly polished and is one of the traditional birthstones for March. Jasper is common throughout BC.



Jadeite is a inosilicate mineral with a monoclinic crystal system. Jadeite is formed in metamorphic rocks under high pressure and relatively low temperature conditions. Rocks that consist almost entirely of jadeite are called jadeitite. Jadeitite is resistant to weathering, and boulders of jadeitite released from the serpentine-rich environments in which they formed are found in a variety of environments.

27.



Jet - is a type of lignite, the lowest rank of coal, and is a gemstone that is not a mineral but a mineraloid. It is derived from wood that has changed under extreme pressure.

Jet is either black or dark brown, but may contain pyrite inclusionswhich are of brassy colour and metallic lustre. Jet may induce an electric charge like that of amber when rubbed and is very easy to carve, but it is difficult to create fine details without breaking so it takes an experienced lapidary to execute more elaborate carvings.