



LAPHOUND NEWS

VICTORIA LAPIDARY & MINERAL SOCIETY

P.O. Box 5114, Station B
Victoria, B.C. V8R 6N3



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Website :: www.vlms.ca

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Sunshine Corner:	vacant	



The Newsroom

Announcements

March Rock and Gem Show

A reminder to all club members that this annual Rock and Gem show is scheduled for March 16-18, 2018 at the DaVinci Center, 195 Bay Street, Victoria, BC (in Vic West). Volunteers are needed for setup (Thurs), operation (Fri-Sun), and take down (Sun).

Competition Case at the Rock and Gem Show

Submissions for the competition case at the annual Rock and Gem show are being solicited. Please contact the show organizers (or see the VLMS website) if you are interested in this competition – categories include cabochons, faceted rocks, wire-wrapping, sculpture and silver work involving rocks and gems.

Elections

Prior to the February meeting, Mike Hill stepped down as Vice-President. This precipitated a “special” election to fill the position at the February meeting. Allana Shilito graciously agreed to fill the position and was elected unopposed.

Meetings

The next members meeting will be held as follows:

Date: March, 5 2018

Place: Burnside Lawn Bowling Clubhouse, 274 Hampton Road, Victoria, BC

Time: 7:30 pm

Field Trips (Gilles)

The first field trip of the New Year is to be held on Sunday, February 25, 2018. A trip to Island View Beach is planned (expect to find jasper). In order to take advantage of the tide cycle, interested parties are to meet at Island View beach at 12:30 pm.

Courses (Vanessa)

The year was started with a Basic Lapidary course which included both adults and a junior member (awesome work Madison). There is one more basic lapidary course planned for prior to the March

show and hopefully one more lapidary and one basic silver course shortly after the March show and before the start of summer.

Programs

2nd Annual VLMS Bus Trip to the BC Gem Show on Saturday, April 7, 2018 in Abbotsford

Many requests and inquiries have been received about a return trip to this annual show on the mainland, noted as the biggest show in BC. Last year's trip was enjoyed by all who took advantage of this excursion and sadly missed by those that wanted to come but just could not make it. If you are interested in being part of event, make sure your voice is heard at the club meetings or by email correspondence. Costs are expected to be similar to last years, however, with an increase to the shared bus rental fee. More details will be finalized closer to the event with a possible deadline of March 31st.

VLMS hosts the 2018 Vancouver Island Zone Gemboree – July 26-29, 2018

It is our turn to host this annual island event....and after the last two outstanding hosted events by Campbell River's and Cowichan Bay's clubs, we have our work cut out for us. Although we have many ideas for some excellent Rockhounding Field Trips for our area, we have chosen the Sooke area as our base for next year's event. We are booked as an event at the Sooke River Campground for the days of Thursday July 26th through to Sunday July 29th. We will need a few key dedicated volunteers to help pull this event together and to host events for the registered members.

Reports

President (Vanessa)

A new year is upon us and we are fortunate to welcome many new rock friends to share our knowledge, and to learn with, and to participate in, all available activities. Our interest in rocks, gems and minerals is well shared with people of all ages and backgrounds. We are fortunate to have an abundance of both opportunity and resource. I wish you all a safe, healthy and adventurous year.

Membership (Margaret)

As of February 14, 2018, the VLMS has 90 paid memberships. This total is comprised of 119 adults and 18 juniors. Membership forms and payment may be left for Margaret at the Workshop during open times.

Field Trips (Gilles)

The annual rock and gem show will serve as the field trip for March. As usual, all field trips are subject to change due to weather or unforeseen circumstances. Please confirm with Gilles (250 382-6119) with your participation plans and event meeting location and time.

Sunshine Corner (Vanessa)

As many of you have heard, in January we lost our dear friend, long time VLMS member, and dedicated volunteer, Murdo Smith. His enduring commitment to our club was shared with respect, kindness and humour. He will be greatly missed.

Library (Christine: nothing to report)

Island Zone (Vanessa)

There have been no new meetings since November. The next Island Zone meeting will be held in Victoria, on Sunday, March 18th, during our annual Rock & Gem show.

This year we are in need of a new apprentice representative of our club for the Island Zone. Please contact either Vanessa Steffens or David Jackson if you are interested in volunteering as a representative of our club. The commitment for an Island Zone representative is 3 years and duties are shared with the junior and senior zone reps of our club through attendance at one or more of the Island Zone meetings held during a year. More information is available in our VLMS Operations Manual posted in the member's section of our website.

Workshop (Vanessa)

If you have been waiting for a course and have not yet been emailed or called, please check with the workshop, by sending an email to vlmsworkshop@gmail.com to confirm your placement on the waiting list(s). Once course dates have been confirmed they will be added to the VLMS website workshop's calendar.

****If there are any courses you are interested in taking that are not included in our regular offerings, please feel welcome to comment by email to the workshop or in person at any club meeting. It might be very possible that we have at least one qualified club member in our group that may be willing to volunteer their time and knowledge to share with other members****

Editor (Gary)

If you haven't checked out the website yet...you should. Becci has done a very nice job in creating a modern and functional website. The Annual Rock and Gem show is fast approaching – if you are hesitant about volunteering, the sign-up sheet is on the website ... I can assure you that it is an interesting way to spend a couple of hours helping the club.

Winter Geology Quiz - 12/25/08 by Andrew Alden

As suggested by Vanessa, this section introduces the About.com Geology annual Winter Geology Quiz, 20 questions ranging from absurdly easy to insanely tricky. Ideally you will do these without looking anything up; failing that you may try hard-copy sources such as books. But you should know that not even the Internet will save you. Answers can be found in the Appendix.

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1. "Smilla's Sense of Snow" featured what murder weapon?
2. What is the mineral name of ice?
3. What is the rear end of a trilobite called? What about the other end?
4. What do these have in common: lead, belt, polynya, bummocks?
5. What do these have in common: suevite, hyaloclastite, lechatelierite, tektite?
6. "Slab pull" is (a) a field-camp game, (b) a lithospheric traction, (c) a step in artificial diamond manufacture, (d) the design strength of a concrete mixture?
7. Put these in order from bottom to top: colonnade, entablature, pillows, vesicular cap
8. Which of these does not belong: muscovite, kutnahorite, franklinite, dolomite?
9. Which of these does not belong: cinnabar, massicot, orpiment, realgar?

10. Which plate is smallest: Arabian, Caribbean, Nazca, Scotia? Which is largest?
11. Which was first to go extinct: ammonites, archeocyathids, eurypterids, trilobites?
12. Which is a radiometric dating method: carbon-14, potassium-argon, samarium-neodymium, uranium-lead?
13. Which rock is plutonic: foidolite, komatiite, lamprophyre, phonolite?
14. Which rock is volcanic: taconite, tephrite, tonalite, troctolite?
15. Which of these does not belong: rille, fosse, corona, catena?
16. Is the Black Sea one of the Seven Seas? Is the Mediterranean?
17. Which midocean ridge spreads the slowest: Gakkal, Gorda, Juan de Fuca, Reykjanes?
18. What comes next: olivine, pyroxene, amphibole, . . . ?
19. What comes next: plinian, vulcanian, strombolian, . . . ?
20. Which starts first: Archean, Eratosthenian, Hesperian?

Fun Facts

Lappy the Lapphound

"All that glitters isn't gold
....but it might be opal!!!!



Foxy the Foxhound

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



An Encounter in the Inner Harbour

Some months had gone by since Foxy's ordeal at the VLMS Rock and Gem Fair. She had almost forgotten the drama associated with the disappearance of her Topaz¹ necklace but she had not forgotten the brief interaction with Lappy. In fact, every day during her walk along the Inner Harbour she looked ...she hoped... that Lappy would suddenly appear. Alas, it had not, so far, worked out that way. However, today was another day, a special one it turns out, since it was soon Pippa's birthday and Dotty, and her, were joining Foxy on the daily jaunt. Pippa had seemed unhappy lately so Foxy had something special planned but was having trouble keeping it a secret - Dotty was just not very good at keeping secrets. The girls put on their leather collars each adorned with their respective birthstones (Pippa's had a beautiful, and quite large, Aquamarine² stone set among much smaller Bloodstone³ pieces; Dotty's had tassels to which thin pieces of tourmaline⁴ were attached - the tourmaline had a pinkish hue which contrasted beautifully with Dotty's dark fur; Foxy's collar was quite pedestrian by comparison... a smallish, faceted, Tanzanite⁵ stone set on a thin, single strip of leather. As they were straightening their collars Foxy remarked "you know girls, there are several different gemstones associated with each birth month." She continued "moreover it sort of depends on whether you think in terms of calendar months or the signs of the Zodiac⁶ for which there are planetary⁷ stones, talismanic⁸ stones, and sun/star⁹ stones".

Pippa: "Is Bloodstone also my birthstone then?"

Foxy: "Yes, it is one of the birthstones for the calendar month of February – the other is amethyst¹⁰. However, since you are a Pisces, Aquamarine is your planetary stone. Aquamarine is one of the calendar month birthstones for March and October."

Dotty (getting confused and feeling left out): "Do I have a planetary stone?"

Foxy: “Yes, Dotty, you do. Since your birthday is early in October, you are a Libra and your planetary stone is Sapphire¹¹. My birthday is in late December so I am a Capricorn which makes Lapis¹² my planetary stone.”

Pippa: “This is way too complicated for me. I have never believed any of that Zodiac stuff – it seems like such hocus-pocus! Let’s get going.”

Dotty: “Have you got the Handi-Wipes, Foxy?”

Pippa: “What on earth do we need wipes for?”

Foxy (glaring at Dotty): “Oh, just in case.” And then she added, matter-of-factly, “My mother always taught me to be prepared!”

And with that, the girls left the condo and made their way across and then along Wharf Street, intentionally skirting the noisy airplanes and finally descended down towards the wharf area just before the Homecoming Statue. It was a nice day out and there was lots of people taking advantage – the sun, though low in the sky, was beginning to have some warmth to it. They took their time and wandered through the market stalls set up just west of Milestones Restaurant. Dotty was the first to see him – he was on the steps that led up past the restaurant – anxiously looking out at the crowd. He saw Dottie and waved (his tail)....then he started down the steps to meet them.

Dotty: “Foxy, you aren’t going to believe who I just saw”

Pippa (frustrated): “Who? I can’t see anything?”

Foxy (giggling): “That is what we get for being vertically challenged, Pippa. I can’t see anything either. Who is it Dotty?”

Dotty: “You will find out soon enough....he is coming our way”

Lappy had wanted to go down to the Inner Harbour ever since he met Foxy on that unfortunate day (or maybe it was a fortunate day) at the DaVinci Center last October. Alas, not long after his initial meeting with Foxy, Lappy hurt himself playing ultimate Frisbee with his pals....it was his hip he thought, and it was painful enough so as to make walking difficult. Time is the great healer, he had read somewhere and it was turning out to be true because for the last week or so, Lappy’s hip had felt normal and he could walk without difficulty – he decided it was time for an excursion to the Inner Harbour to see, by chance, if he could meet up with Foxy once more. Knowing that Foxy loved rocks and gems, Lappy decided to carry some of his prized possessions – it might be a good way to keep the conversation going during those “inevitable” awkward moments. He actually didn’t know what he was going to say despite rehearsing to himself several different possibilities. Lappy decided to carry the stones, in a “man bag” which he could strap around his neck. He didn’t particularly like the term “man bag” but he liked “purse” (which his pals teased him about) even less. As to the rocks and gems, he included pieces of labradorite¹³, charolite¹⁴, chrysocholla¹⁵, lapis, kyanite¹⁶, azurite¹⁷ and, some citrine¹⁸. He left home at 2:30 pm with the intention of getting to the Inner Harbour at 4pm when he knew Foxy was likely to be on her walk. He took his time since he didn’t want to arrive “all sweaty” and, of course, there was the issue of his hip. He arrived downtown about 3:45 pm and navigated his way to the Inner Harbour – he thought he would descend down to the waterfront via the steps just east of the Milestones restaurant. He had made his way down one level of steps and was looking out over the crowd of people when he saw them – actually he could only see Dotty and “two tails” bobbing up and down beside her – he knew that Foxy was here.

Foxy (seeing Lappy for the first time): “OMG, it’s him!”

Pippa (still not able to see): “For heaven’s sake who?”

Dotty: “Pippa, it is Lappy”

Pippa (suddenly silent): “Ohh....”

Lappy approached the girls, his heart was pounding – “don’t screw this up” he thought to himself.

Lappy: “Hi Foxy, do you remember me?”

Foxy (finding it hard to contain her excitement): “Yes, I do, Lappy. What brings you down here today?”

Lappy: “Well, believe it or not, I was hoping to find you girls down here. I must say you all look very chic in your collars!”

Foxy (blushing a bit): “Why thank you. You remember Dotty and Pippa?”

Lappy: “Sure do. Dotty ... Pippa”

Dotty (enthusiastically): “Lappy, good to see you”

Pippa (barely audible): “Hi”

Dotty (much to Pippa’s chagrin): “Would you like to join us on our stroll along the Inner Harbour?”

Lappy: “I sure would”

And with that they turned to walk east and then south along the sea wall. Pippa immediately positioned herself between Lappy (who was on the left) and Foxy, with Dotty on the far right – off they went, slowly. Foxy was keen to hear what Lappy had been up to (truth be known she wanted to be close to him)....unfortunately, Pippa was in the way. Foxy (feeling quite exasperated) glanced at Dotty as if to say “help me”. Dotty understood immediately what was going on and decided to take action....she stopped suddenly and pretended to have a problem with her foot.

Dotty: “Pippa, help me please”. Pippa stopped and then came back to Dotty ... Lappy and Foxy carried on.

Pippa (concerned): “What is wrong, Dotty?”

Dotty (admonishingly): “You... that’s what. Why are you walking between Lappy and Foxy, you know they are totally into each other.”

Pippa (taken aback): “I ...I just don’t want Foxy to get hurt”

Dotty: “Foxy can look after herself, besides Lappy seems to be a real stand-up guy. Are you jealous? You know, Pippa, one day you will find your own guy”

Pippa (tearing up): “I don’t want to find a guy – I’m sorry but I don’t fancy guys at all – never have.”

All her life, Dotty had always assumed that there was a natural order to things – that is to say, there was “the way things should be” and that was that. Events in her daily life occurred because they were meant to occur – it was a sort of dream-like existence in which Dotty was just happy to go with the flow. However, today, for the very first time in her life, Dotty was confronted with an event she did not expect (nor to be truthful did she really understand). She did realize that her dear friend, Pippa, was struggling with something that was making her unhappy. In the past she might have made light of the situation but Pippa’s tears strongly suggested that a different tack was not only appropriate but necessary.

Dotty: “Pippa, I just want you to be happy. I know Foxy does too - but she really does want to get to know this Lappy guy and I don’t think we should stand in her way.”

Pippa: “I know...but...”

Dotty (uncharacteristically taking charge): “No buts about it...come on, they will be wondering what has happened to us.”

Pippa (contritely and somewhat embarrassed): “Of course you are right, Dotty. Let’s catch up.”

Lappy and Foxy had gone part way along the east side of the Inner Harbour. Naturally, Foxy had asked Lappy what he was carrying in his “purse” (Lappy was quick to point out it was a “man bag” and not a purse). “Ohh.. sorry” she said with a giggle – Lappy didn’t mind. When Foxy found out that Lappy had some Labradorite she seized the opportunity to show off her in-depth knowledge about the stone (she had waited so long for the chance to tell someone).

Foxy: “Do you notice that when you tilt the labradorite stone at a shallow angle you can observe a bright play of light? “

Lappy: “Yeah....I guess...what causes that?”

Foxy: “Labradorite possesses a property known as *iridescence*. Iridescence is a phenomenon associated with certain surfaces that appear to gradually change colour as the angle of view or the angle of illumination changes (e.g., like soap bubbles, butterfly wings and sea shells). The play of color is often created by structural coloration whereby microstructures near the material surface interfere with light. “

Lappy (impressed): “Wow, how do you know so much?”

Foxy: “I read a lot”

Lappy (trying to keep up): “I found that labradorite in Finland last summer – did you know that labradorite isn’t only found in Labrador”

Foxy (pretending she didn’t know): “Gee, I did not know that”. Lappy’s chest puffed out just a little.

By this time, Dotty and Pippa had caught up.

Pippa (much to Dotty’s surprise): “If you two like rocks and gems so much, why don’t we wander down to Mike’s Rock and Gem stall and take a look at his cool stuff.”

Dotty (approvingly): “Great idea, Pippa. Let’s go”. And off they went.

There were several people browsing over the various stones that Mike had on display. He was busy explaining to the tourists where the stones had come from and how he had cut and polished them and then placed them in settings. On this day, Mike was being assisted by his young daughter, Kealani. Kealani did not interact so much with the customers but kept a sharp eye on all comings and goings around the stall....she also helped looked after the “money box” and helped Dad with making change when necessary. The crowd cleared a bit so Lappy, Foxy, Pippa and Dotty made their way up to the table and stood on their hind legs with paws on the table. Mike couldn’t help but notice them and, in particular, the girl’s collars.

Mike: “Well, hello there, my furry friends...you girls certainly have colorful collars.” He then went on to say to Lappy ..”and you, my Man, that is an impressive purse that you have there.”

Foxy (quick to stand up for Lappy): “It is not a purse....it is a man-bag”

Kealani: “Yah, Dad, why don’t you wear a man-bag?”

Mike: “Shh...nevermind...” and then sensing that he might have hurt Lappy’s feelings, he went to say “sorry, my bad!”

Dotty (surprising herself once more): “Thank you for noticing our collars and our man-bags. We are just out for a stroll....well actually, it is somewhat of a date for Lappy and Foxy” pointing to first to Lappy and then to Foxy who were quite embarrassed to say the least. She went on to say (with a giggle) “I am Dotty, and this is Pippa, and we are the Chaperones.”

Kealani: “Awww....”

Pippa (taking the cue): “Yes, and they are such rock and gem enthusiasts we thought we would bring them down to view all the amazing and beautiful stones and jewelry that you have – our collars, by the way, have our birthstones attached. Can you guess what they are?”

Mike (feeling the pressure): “Well, Dotty your collar is obviously tourmaline and Pippa you have Bloodstone on your collar. However, it is difficult to distinguish your big stone, Pippa, and Foxy’s stone.....they both have a bluish tinge, although Foxy’s has a bit of purple in it. Hmmm....let me think.”

Foxy: “I will give you a clue..... the colour in Pippa’s stone is caused by iron¹⁹ impurities. My stone is a variety of zoisite²⁰.”

Mike (relieved, but impressed nonetheless): “That makes it easy....Pippa your stone is Aquamarine and Foxy, your stone is Tanzanite.”

Foxy: “Correct..well done Mike”

Kealani: “My birth month is November...can you tell me what my birthstone is?” Pippa, Dotty, and Lappy all looked at Foxy, since they didn’t have a clue.

Foxy: “There are two birthstones for the calendar month of November...topaz and citrine.”

Kealani (a bit envious of the girls): “I wish I had a choker necklace with citrine in it”

Mike (giving Kealani the side-eye): “What? You have never taken such an interest in citrine before now.”

All this time, Lappy had been silent. He had noticed that Foxy, during her discourse with Mike and Kealani, had been eyeing some of the wire-wrapped opal jewelry on the table. It would be cool, he thought, if he could purchase one of the pieces to give to Foxy. Alas, he had no money. Then an idea crystallized in his mind – what if Mike would be willing to do a trade for one or more of the stones that Lappy was carrying in his man-bag.

Lappy (seeing an opening): “I have some citrine for trade.”

Mike (somewhat skeptical): “You do, where?”

Lappy: “Right here in my man-bag ... and I have some other stones as well.”

Mike: “Okay, let’s have a look”

With that, Lappy emptied his man-bag on the table. Mike looked over the specimens....as did Kealani.

Lappy (pushing his luck): “What would it take to wrestle one of those opal pendants from you?”

Mike (on the defensive): “More than what you have here I think.”

Kealani : “Oh look Dad, that is a nice piece of azurite. You could give the azurite to Azurite for his birthday”

Mike: “Kealani, you are not helping.”

Pippa and Dotty looked at each other ...

Pippa (whispering): “Azurite for Azurite ...huh...what is she talking about?”

Dotty : “I haven’t the foggiest..”

Kealani (overhearing): “Azurite is my brother...he was born during the Tucson Rock and Gem show some years ago.”

Mike: “That is a nice piece of labradorite – where did you get that?”

Lappy (sensing he might be making some headway): “Finland – I bet you don’t have any labradorite from Finland”

Mike (a bit disbelieving): “Finland!!!! No way.”

Foxy: “It is true, Mike, Lappy is a Finnish Lapphound and was visiting there this past summer.”

Mike: “I don’t know, those opal pieces are worth quite a bit.”

Kealani (whispering in Dad’s ear): “Please Dad, can’t you see Lappy is really trying to make an impression?”

Mike (smiling): “And I am trying to make a living.”

Kealani (pleading): “Puullleeeasse....”

Mike: “Okay, I tell you what, the citrine, the azurite, and the labradorite for this medium-sized opal pendant.”

Lappy: “Hmmm, if I include the charolite, would you cut me a small piece of the labradorite so that I have a keepsake from my Finland visit. Also, could you throw in a couple of these rhodonite²¹ bobbles (small polished rhodonite stones with holes drilled in them suitable for a chain or leather strap) – I would like to give them to Pippa and Dotty.”

Mike looked at Kealani....her eyes told him that he had to make the deal.

Mike (defeated but a good defeated): “You drive a hard bargain, Lappy.. but okay..let’s shake on it.” And with that Mike shook Lappy’s paw. He promised to have Lappy’s piece of labradorite ready for them when they came back along the seawall.

Lappy, Foxy, Dotty and Pippa (in unison): “Thanks, you’re the best Mike....and you have a very smart daughter!!”

Lappy gave the opal pendant to Foxey....she rewarded him with one those big Foxhound smooches. "I could get used to this" Lappy thought to himself. He then gave Dotty and Pippa their rhodonite bobbles. Any misgivings that Pippa had about Lappy melted away at that instant –they were both thrilled at their small gift.

Foxy: "Let's go for ice-creams.....we can celebrate Pippa's birthday, a bit early"

Lappy: "Good idea....I love ice cream"

Dotty: "I'm starved It's maple walnut for me"

Pippa (giggling): "Did you bring those Handi-wipes, Foxey? We are going to need them"

With that, the four pals were off to the ice-cream stall. Just as they proceeded west along the sea-wall in front of the parliament buildings they heard a voice call out. "Lappy – stop him!!!" but before Lappy could react a scruffy individual had raced by followed closely by Chief Inspector Bailey-Cooper. "No time to talk" he yelled as he went by. "Lappy, call me at the office" were his last words before he disappeared in hot pursuit up to Bellevue Street.

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.

Forum

Editorial Comment

The club is totally dependent on members volunteering their time in order to make the organization work for all. Recently, we have had long-standing members express their desire to take a step back – we respect their wishes and thank them for their contributions. However, means that we need other members to step forward.

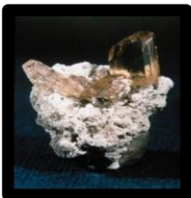



Appendix

ANSWERS to the Winter Geology Quiz!

1. A geologist's hammer
2. Ice
3. Its pygidium; its cephalon
4. All occur in the Arctic ice cap
5. All are glassy
6. B, a lithospheric traction
7. Pillows, colonnade, entablature, vesicular cap - the parts of a continental basalt flow
8. Dolomite is named for a person while the rest are named for places
9. Massicot is not a sulfide
10. Scotia is smallest, Nazca largest
11. Archeocyathids didn't make it out of the Cambrian
12. Only carbon dating relies on actually measuring radioactivity
13. Foidolite (foidite is volcanic)
14. Tephrite

15. Catenas are known from more than one planet, unlike the others
16. No and no
17. Gakkel
18. Biotite (in the Bowen reaction series)
19. Hawaiian
20. Archean, then the Hesperian (on Mars) and the Eratosthenian (on the Moon)

Fun Facts - Rocks and Gems

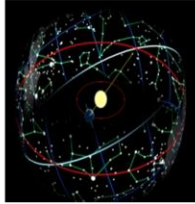
1.  **Topaz** - is a silicate material of aluminum and fluorine. Pure topaz is colorless and transparent but impurities cause it to occur in a variety of colors. Topaz is commonly associated with silicic igneous rocks e.g., granite. Topaz can be found worldwide, including locations in Utah and Texas; Brazil is the world's leading producer.
2.  **Aquamarine** (March birthstone) is a blue or cyan variety of beryl. It occurs at most localities which yield ordinary beryl i.e., Sri Lanka. Brazil, Madagascar and in Wyoming and Idaho here in North America. The pale blue color of aquamarine is attributed to Fe^{2+} whereas Fe^{3+} ions produce golden-yellow color. When both Fe^{2+} and Fe^{3+} are present, the color is a darker blue as in maxixe. Note Fe refers to iron.
3.  **Bloodstone** is a heliotrope that is a variety of jasper or chalcedony . It is typically green jasper (chalcedony) with red inclusions of hematite (the blood). Bloodstone has been referred to as the "stone of Babylon" in reference to several magical properties (stone of invisibility), creator of rain and solar eclipses.
4.  **Tourmaline** (October birthstone) is a crystalline boron silicate mineral compounded with elements such as aluminium, iron, magnesium, sodium, lithium, or potassium. This brightly colored Sri Lankan gem is identical, minerally, to *shorl* and has special pyroelectric properties that enable it to attract and then repel hot ashes. This unique property led the mineral to be know as the Ceylonese Magnet. It is an established semi-precious gemstone.

5.



Tanzanite is the blue and violet variety of the mineral zoisite, belonging to the epidote group. The gemstone (December birthstone) was discovered in 1967 and only exists in Northern Tanzania. In its rough state tanzanite is usually colored a reddish brown, and much of it requires heat treatment to remove the brownish "veil" and bring out the blue violet of the stone.

6.



The zodiac is an area of the sky that extends approximately 8° north or south of the apparent path of the Sun across the celestial sphere over the course of the year. The paths of the Moon and visible planets are also within the belt of the zodiac. In Western astrology the zodiac is divided into twelve sectors roughly corresponding to the constellations Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Sagittarius, Capricorn, Aquarius and Pisces

7.



Planetary stones – ancient beliefs associated specific gemstones with the planets. It was thought that wearing the stone associated with the ruling planets at your time of birth would offer positive effects in your life.

8.



Talismans (or talismanic stones) are cut or engraved as an amulet or piece of jewelry. When worn they are believed to have magical powers and to protect the wearer against evil. In order to receive magical powers and influence, talismans are engraved on stones corresponding to the signs of the Zodiac.

9.



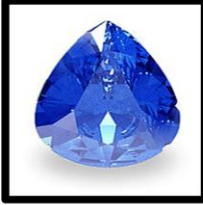
Sun/star stones date back to ancient times (before modern calendar) when astrologers assigned gemstones to the 12 signs of the Zodiac based on the symbolism and metaphysical powers each stone was thought to possess. There appears to be a proliferation of birthstone definitions of which star stones are one.

10.



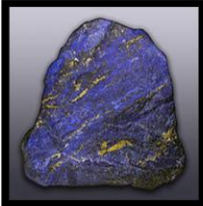
Amethyst - is one of several forms of quartz. It is a semiprecious stone and is the traditional birthstone for February. The name comes from Greek origins whereby ancient Greeks wore amethyst and carved drinking vessels from it in the belief that it prevented intoxication.

11.



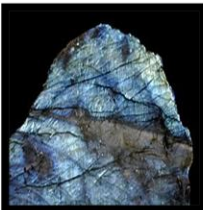
Sapphire is a variety of the mineral corundum, an aluminium oxide. It is typically blue in color, but natural sapphires also occur in yellow, purple, orange, and green colors; "parti sapphires" show two or more colors. This variety in color is due to trace amounts of elements such as iron, titanium, chromium, copper, or magnesium. Sapphire is the birthstone for September

12.



Lapis lazuli or lapis for short, is a deep blue metamorphic rock used as a semi-precious stone that has been prized since antiquity for its intense color. As early as the 7th millennium BC, lapis lazuli was being mined in northeast Afghanistan. Today, operational mines are found in Afghanistan, Pakistan, Russia, Chile, Italy, Mongolia, US and Canada.

13.



Labradorite - is a feldspar mineral found near the town of Nain in Labrador, Canada. It has also been reported in Scandanavia and various other locations worldwide. Labradorite can display an iridescent optical effect known as labradorescence which involves the peculiar reflection of the light from submicroscopical planes orientated in one (but rarely two) directions.

14.



Charolite (charoite) is a rare silicate mineral, first described in 1978 and named for the Chara River in Russia and only found in limestone deposits in that area. Charoite is translucent lavender to purple in color with a pearly luster. Charoite is strictly massive in nature, and fractures are conchoidal. It has an unusual swirling, fibrous appearance with intense color.

15.



Chrysocolla is a hydrated copper phyllosilicate mineral whose structure suggest that it may be a mixture of the copper hydroxide spertiniite and chalcledony. 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.

16.



Kyanite is a typically blue silicate mineral, commonly found in aluminium-rich metamorphic pegmatites and/or sedimentary rock. It is also known as disthene, rhaeticite or cyanite. Kyanite is a member of the aluminosilicate series (includes andalusite and sillimanite). Kyanite is strongly anisotropic, in that its hardness varies depending on its crystallographic direction.

17.  Azurite - is a soft, deep blue copper mineral produced by weathering of copper ore deposits. It is also known as Chessylite after a location in France. The mineral, a carbonate, has been known since ancient times, and its blue color is exceptionally deep and clear, and for that reason the mineral has tended to be associated since antiquity with the deep blue color of low-humidity desert and winter skies.
18.  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.
19.  Iron - is a chemical element with symbol Fe. It is a metal and by mass it is the most common element on Earth, forming much of Earth's outer and inner core. It is the fourth most common element in the Earth's crust. Pure iron is relatively soft, but when combined with impurities (in particular carbon) hardens a thousand fold i.e., steel.
20.  Zoisite - is a calcium aluminium hydroxy sorosilicate belonging to the epidote group of minerals. It is being in metamorphic and pegmatitic rock. Zoisite may be blue to violet, green, brown, pink, yellow, gray, or colorless. It has a vitreous luster and a conchoidal to uneven fracture. Sources of zoisite include Tanzania(tanzanite), Kenya(anyolite), Norway (thulite), Switzerland, Austria, India, Pakistan, and the U.S. state of Washington.
21.  Rhodonite is a manganese inosilicate (structure composed of silicate tetrahedrons). Pink rhodonite (native to Vancouver Island) coupled black manganese oxides is sometimes used as gemstone material. Rhodonite has also been worked as an ornamental stone. Rhodonite is the official gemstone of the Commonwealth of Massachusetts.