



# the CMS Tumbler

December  
2018

The monthly newsletter of the **Cascade Mineralogical Society, Inc.** Kent, Washington

***Next Meeting: Christmas Party***  
***Sunday December 16, 2018***  
***Set-up 12:00 noon***  
***Eating 1:00 p.m.***

**American Legion Hall**  
**25406 97th Pl S**  
**Kent, WA**

Bring a favorite dish to share.

The Program will be a rock auction.

No Show & Tell this month.



*This month remember  
to wish a  
Happy Birthday to*  
***James Cerenzie on December 4,***  
***Scott Unger on December 4,***  
***Ron Jacobson on December 15,***  
***Beverley Williams on December 29,***  
***Kristie Lund on December 30,***

*and also remember*

*to wish a*

*Happy Anniversary to*

***Mark & Penny Hohn on December 27,***  
***Peter & Beverley Williams on December 29 (36 years),***  
***Philip & Becky Trepanier on December 30 (30 years)***



## Connect with us!

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Tips, suggestions, recipes and experiments printed in this newsletter are the experiences and/or opinions of the individuals submitting them. We are not responsible for their authenticity, safety, or reliability. Caution and safety should always be practiced when trying out any new idea.

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2019 CMS Dues are \$25 per year per family

Pay online, by mail, or at our meetings.

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*14431 SE 254th St.*

*Kent, WA 98042*

You can pay your dues via credit card! We now accept all cards through our website, or at the meeting. You can renew your membership, or enroll as a new member, and pay your dues all in one shot online. You will find it under the "Membership" tab on our website <http://www.cascademineralogicalsociety.org>

The object of the Society shall be to stimulate interest in the study of the earth sciences, lapidary arts and related subjects.

This Society is affiliated with the *American Federation of Mineralogical Societies*; the *Northwest Federation of Mineralogical Societies*; and the *Washington State Mineral Council*.

Every member of the club should be receiving a copy of the Northwest Newsletter. If you are not receiving a copy contact Mike Blanton in person or by telephone at (425) 271-8757 or by computer at [mblanton41@hotmail.com](mailto:mblanton41@hotmail.com)

To get information to the Tumbler via the Internet send it to [greenrockdraggin@yahoo.com](mailto:greenrockdraggin@yahoo.com) Please put Tumbler and subject in the Subject Line. The deadline is the 20th of each month.

The Cascade Mineralogical Society Facebook page is <https://www.facebook.com/CasMinSoc/>

The Cascade Gem & Mineral Show Facebook page is <https://www.facebook.com/cascadegemandmineralshow/>



December



SUN	MON	TUE	WED	THUR	FRI	SAT
	The Meeting/Party on Sunday, December 16, takes the place of our regular meeting.					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
Xmas Party 1 PM 	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31 					

CMS Show Committee Meeting:...None this month

CMS Board Meeting:.....None this month

CMS General Meeting/Christmas Party:.....Sunday, December 16.....Set-up 12:00 noon Eating 1:00 pm

Lapidary Class Hours:.....By appointment, call to set a time & day for your lesson (425) 226-3154

Lapidary Shop Hours:.....Most Tuesdays..... 2:00 pm to 5:00 p, call ahead (425) 226-3154

Lapidary Shop Hours:.....3rd Saturday..... by appointment only (call a few days ahead to set time)

More Field Trip info can be found on Page 11

More Show info can be found on Page 12

### Barry The Blacklight-Nosed Reindeer

by KAM



The Tumbler has received One-Time Rights to publish this cartoon

**CMS Board Meeting Minutes November 5, 2018**



by Pete Williams, 2018 Secretary

Members Attending

- President Kat Koch      Treasurer Rich Russell
  - Federation Mike Blanton    Past President Bob Pattie
  - Show Chair Mark Hohn    Director Roger Danneman
- Meeting called to order at 7:00

The club liability insurance for 2019 has been paid. The website views increased to 2,444 in September due to the show from 70 views in 2017 and was down to 913 views in October. One new member was added in October, bring family memberships to 69.

The Mineral Council reported that a San Diego club is requesting letters from other clubs supporting keeping a paleontology site accessible to the public. No motion was made but Bob will send the letter. There were 180 letters sent to the Forest Service regarding a new policy toward rock collecting on public lands.

The November general meeting program will be Professor Katy Shaw, of the Geology Dept. at Green River College. Mark made a motion that was seconded by Bob Pattie and passed to offer the professor a stipend of \$50.00 at the meeting.

The November field trip will be with the Mineral Council to Blanchard Hill. The Young Tumblers will start having regular meetings after the holidays.

The elections of officers will be held at the December meeting. The current slate for open positions is: Merriann Fu - V.P., Charles Benedict - Treasurer, - both one-year positions to fill vacancies and Rich Russell and Roger Danneman for two-year directors positions.

The December meeting will only be election of officers. The Christmas dinner and auction will be on Sunday December 16th with setup 11 AM, elections 12:00, auction 1 PM. Members should bring their own place settings (plates & silverware) and a potluck dish. Their serving utensil should have their name on it. There will be no December board meeting.

**Young Richard's Almanac** by Dick Morgan



It's the time of year that all people should greet others with a smile and help those that need it.

Remember that the new year starts soon, it's time to change things so all of us can have a friendlier way of life.

If you are a student you should think about questioning a senior about their life as most of them lived through the period of history that created the most changes of any period of history. Many of our seniors were a part of these changes, but you'll never know if you don't ask. Also makes a good school report if you write it down.

**A Set of Deadly Pearly Whites Surfaces Down Under** by Jim Brace-Thompson

A casual stroll on the beach resulted in the find of a lifetime for Australian Philip Mullaly. Searching the shore near Melbourne for ordinary fossils, he saw a glint in a boulder. That glint proved to be anything but ordinary! The boulder concealed an associated grouping of 40 teeth, each one nearly 3-inches long. While single shark teeth are common finds among fossil hunters, associated groupings are rare. Rarer still are associated grouping of this particular species from 25 million years ago: the Great Jagged Narrow-Toothed Shark, *Carcharocles angustidens*. At an estimated 30 feet in length, this fossil shark was half the size of its relative named "Meg" (*Carcharocles megalodon*) but still twice as big as today's Great White Shark. What does a shark 30-feet long with 3-inch teeth eat? Anything it wants! But, scientists speculate, dinner most often consisted of whales. Mullaly donated the teeth to Australia's Museums Victoria for public display.

from Rockhound Rambling, 8/18

**Mud Volcano Continues Belching** by Jim Brace-Thompson

Last month we reported on how the volume of lava belched by the Kilauea volcano in Hawaii would fill 100,000 Olympic swimming pools. "Earth" magazine reports that a "mud volcano" nicknamed Lusi in East Java, Indonesia, spewed 180,000 cubic meters of hot muddy debris per day when it first awoke in 2006. Per earth scientists, that equaled 72 Olympic swimming pools each day. (It seems earth scientists are unusually obsessed by Olympic swimming pools!) 12 years later, Lusi continues to produce more than 80,000 cubic meters of mud a day. No one knows how it all started - or how to stop it. Meanwhile, only rooftops and lampposts rise above the resulting mud fields in what were once nearby villages.

from Rockhound Rambling, 8/18

You know you're a rockhound if you look forward to coal in your stocking.

**CMS General Meeting Minutes November 8, 2018**

by Pete Williams, 2018 Secretary

Meeting called to order at 7:06

Minutes were approved as written.

Presidents Report: The Board voted to lower dues next year to \$25 from \$30 due to the success of the show. Kat will be surveying the young Tumblers if it will be better to have a meeting before the general meeting or on a Saturday.

Webmaster/Membership Report: Website views have increased from 70 per month last year to 900 per month this year.

Field Trip Report: The field trip this month will be to Blanchard Hill with the Mineral Council on November 17.

Mineral Council: There were over 170 inputs sent regarding making Forest Service regulations similar to the BLM. The inputs were about half favoring no mining on federal lands and half requesting to make it simpler by having similar regulation for both the Forest Service and BLM.

New Business: The current slate up for election is VP - Merriann Fu; Treasurer - Charles Benedict; Director - Roger Danneman; Director - Rich Russell. A third director position was added to the Board due to the growth of the club. Elections will be held in December.

The annual Christmas potluck and auction will be on Sunday December 16 with setup at 11:00, dinner at 12:00, and auction at 1:00.

Program: Katy Shaw from Green River College Geology Department gave a presentation on minerals in hydrothermal vents.

Meeting adjourned at 8:20 followed by show-and-tell and the raffle.

**Holiday Potluck Dinner/Meeting/Auction - Sunday, December 16th** by Kat Koch

Sunday, December 16th. Setup is at 12 noon with dinner at 1 pm. Club members and their families, and guests are welcome to join us.

The Club provides turkey, ham and holiday punch (non-alcoholic). Members are asked to bring a potluck side dish, drinks or dessert to fill-in our table. Also bring your own table service.

After enjoying a good meal and great conversation we will have an election of Officers for the calendar year 2019-2020. Then we will have an auction of some items the Club has on hand (rocks, fossils, opals, lapidary made items and so much more). It's a good time to pickup some great bargains and gifts for that special someone. Our Young Tumblers can use their Rock Bucks to buy any auction items.

I know some people may attend church and can't make it by 11 am. It's okay to be late so please join us when you can. If you are unable to bring anything for the food table please plan on attending anyway.

Everyone is welcome.

**Beware The Bolt From The Blue** by Mel Albright, Safety Chair

There are thunderstorms around and lots of thunder and lightning, but the storms aren't over you, so relax and carry on. No problem? You'll just duck into the car when it gets to you.

Guess what, you may be about to die from lightning. The old phrase "A bolt from the blue" as conveying surprise didn't come from imagination. It came from real lightning strikes, but a bolt from the blue is misleading. Lightning NEVER comes from a clear blue sky. It is ALWAYS caused by thunderstorms, but the "from the blue" part may be true. Lightning can hit as far as 10 miles from a thunderstorm where the sky may indeed be blue.

So, take care to protect yourself whenever you can hear thunder. Sound travels about a mile per second. So, thunder from 10 miles away may seem unrelated to any lightening you see. In fact, you may not be able to see the lightning strike. When you can see a flash, start counting "one thousand one, one thousand two, one thousand three, etc.," until you hear the thunder. Divide that number of seconds by 5 and you'll know about how far away the storm is. I've been near two lightning strikes and it isn't fun.

During one storm, I was driving a tractor & raking an alfalfa patch. Suddenly my hair stood on end and electricity began sparking back and forth between the strands of a barbed wire fence 50 feet away. Guess who was the highest object around? I shut off the tractor and dived for the ground. I didn't reach the ground before lightening hit the fence about 100 feet away. There were no clouds overhead.

Another time, we were playing miniature golf when our hair stood up and sparks started flying around the wire on the lighting system. A huge cottonwood tree was in the middle of the course where we squatted under and ducked our heads. Lightening did strike then, but it hit a chimney and 2 power poles two blocks away. Three bolts! The thunder was deafening!

So, remember, you can indeed be hit by a bolt from the blue. If your hair starts standing up, you are in trouble and have little time. You have seconds at most to protect yourself. Do not be the highest object around. Squatting with your head down is considered by many as the safest position. But, stay well away from trees, power poles, chimneys, antennas, or anything else that stands tall. If you're in a boat, ball up with only your bottom touching the boat.

via T-Town Rockhound, 5/18; via Ozark Earth Science Club News, 4/18; from the American Federation Newsletter, 11/01

**A Note From The President's Desk...**

By Kat Koch, 2018 CMS President

We have had a very successful year!

December 2017 our membership was 41 families with 59 active members. Our November 2018 membership is 72 families with 95 active members. We are nearing what AFMS and NFMS consider a large group - 100 members.

After a 5 year absence, CMS resumed their Cascade Rock and Gem Show under the leadership of Mark Hohn. Everyone from club members, to visitors and vendors have said it was a great show! A big thanks to Mark as it was a huge undertaking. The show same venue has been reserved for September 21 & 22, 2019.

This year we started our youth group "Young Tumblers." We have 4 active members. Alex Danneman, Isaiah Fu, Aiden Cerenzie and Cora Unger all earned their AFMS Showman Badge for their case displays plus 1st Place Ribbons for their respective display categories at our Gem Show. CMS is very proud of our young members and hope in 2019 the number of active members to grow.

Roger Danneman has been the Field Trip Leader for the past year. He is continuously on the lookout for new locations and ideas for field trips. This is a huge job and I thank Roger for the great job he is doing.

We won AFMS and NFMS website awards for the past 2 years. The website traffic grows monthly. February 2017 our website traffic was 110 views. September 2018 it was 2,444 partly because of our Gem Show. We are now averaging 900 +/- views a month and growing every month. Mark Hohn has done a fabulous job with our website.

CMS's newsletter, The Tumbler, has won AFMS and NFMS awards for the past 2 years. Our club has also won AFMS and NFMS awards for articles in The Tumbler and the Keith's monthly cartoon.

CMS now has a positive financial picture. With Rich Russell leading the way we were able to let go our storage unit. This was a huge undertaking and could not have been accomplished without Rich and Mark Hohn. Thank you to both of you!

Our Board of Directors announced last month that our dues are going to be lowered as of January 2019 from \$30 annually to \$25 annually. The Board was able to do this because of the success of our Gem Show and the now positive cash flow of the regular club treasury.

Thank you to each and every one of our members that have contributed to the growth and success of CMS!

We will have a few new faces on the Board of Directors in 2019. I am looking for new ideas to continue to lead us forward in 2019. If you have any suggestions or ideas for our club please don't hesitate to share them with a Board members.

I hope to see everyone at our holiday dinner on Sunday, December 16th.

Happy New Year and have a great holiday season! Our club really rocks!

**Borax** by Dave Jacobson

This month I am writing a few words about a mineral you most likely have used as a flux if you have done any casting. It is borax,  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$ , hydrated sodium borate. It is found in evaporate deposits in dry lakebeds called playa deposits in desert regions. A playa is a temporary lake, which is filled water from mountain runoff during the rainy season. In playa's where borax is found the mountain runoff is rich in boron. Evaporation concentrates the boron forming borax and other borate minerals. It is associated with halite, trona, ulexite and other borate minerals. When borax loses water it alters to a mineral called tinalconite,  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 5\text{H}_2\text{O}$ , a pseudomorph, which retains the shape of the original borax crystal. Borax was originally discovered in Tibet. Today it is mined in many parts of the world including California; Stassfurt, Germany; Tuscany, Italy; and the Atacama Desert in Chile.

Borax is in the monoclinic crystal system. Crystal habits can be blocky and prismatic, often with square cross sections. The material can be massive. It also forms crusts. The crystals are transparent to translucent. When the crystal alters to tinalconite it turns white maintaining the original crystal form. The range of colors is colorless, white, yellowish or bluish. Streak is white. Hardness is 2 - 2.5. Specific Gravity is 1.7. It has a sweet alkaline taste but I don't recommend tasting any minerals, as it can be hazardous to your health. It fuses easily to a small glass sphere, which colors the flame yellow. The yellow flame is an indicator of sodium. Borax also is soluble in water.

Borax is mined as an important economic mineral. Some of its uses are in glass manufacture, pottery glazes, flux, fire retardant, water softener and fertilizer. A transparent borax mineral specimen would have to be sealed to maintain its appearance. When altered to tinalconite it is relatively stable specimen.

Borax takes it's name from the Arabic *buraq*, for white.

The following reference materials were used in preparing this article:

*A Field Guide to Rocks And Minerals* by Frederick H. Pough.

*Mineralogy For Amateurs* by John Sinkankus.

*Simon & Schusters Guide to Rocks And Minerals*.

*Amethyst Galleries Mineral Gallery on the Internet* at <http://mineral.galleries.com>.

<http://www.geology.wisc.edu/~jill/borax.html>

*Boron Minerals of Death Valley* by Celeste Cosby, Jeanette Hawkins, Jani Kushla and Molly Robinson at [http://](http://www.science.smith.edu/departments/Geology/dv/Boron/home.html)

[www.science.smith.edu/departments/Geology/dv/Boron/home.html](http://www.science.smith.edu/departments/Geology/dv/Boron/home.html)



## Rubies and Sapphires by Kat Koch

Rubies and sapphires are mostly the same clear mineral: an extremely hard aluminum oxide, in a crystalline form called corundum. Trace elements present in varying amounts cause the different colors by altering which wave lengths of light are absorbed and reflected by the stone.

The ideal composition for rubies includes significant traces of chromium but little or no iron. The chromium alters the crystal structure so that all but red light tends to be absorbed. Rubies are found from pink to blood-red depending on the chromium content.

Chromium also absorbs ultraviolet wavelengths of light, but re-emits some of it at a lower energy in the red wavelengths. Iron would absorb this light; without it, the finest rubies fluorescent in the red range.

Blue sapphires, the most sought-after color, is caused by trace elements of iron and titanium. Their presence alters the crystal structure so that all but the blue wavelengths are absorbed.

Sapphires in other colors have other chemical signatures. Laboratories often can identify the source of a gemstone by analyzing its chemistry.

Recent research suggests that traces of silicon may also play a role in determining the color of corundum. It's exact role has not been determined.



**Ruby**



**Sapphire**

Understanding the definition of silver and sterling is a slippery topic.

I've been floundering about for a better way to explain.

Let's establish a few ground rules.

### Metallurgical facts -

1. Silver must be mixed with copper to make an alloy strong enough to be workable and functional. The mixture reaches about 50-50 before the copper colors the silver.

### Human behavior -

1. Fact #2 above is very inconvenient, as it leaves wide open the possibility of fraudulent behavior. Without resorting to scientific tests, there is no way for the average person to determine if a piece is .950, .750., possibly even .550

Each country legally defines what the standard of fineness, or ratio of silver:copper is for that country. It then issues an official Assay stamp to prove to consumers that they are getting what they pay for.

Have I completely lost you? I believe the trouble lies in two places.

Number 1, for unknown reasons standards of fineness varied from place to place.

Different ratios of silver: copper impart varying qualities to silver alloy. More copper means greater strength. For example, I have a very old ladle that is .750. Its handle is sufficiently fine, and comes off the very large cup at such an angle, if it was made of .925 silver, I don't think it could stand the weight of a heavy stew.

The second difficulty is with the word sterling.

Unfortunately, I can not think of another term in the English language that expresses this concept of "standard of fineness" in the way that "sterling" does.

In Germany, .800 is the legal standard of fineness.

In Japan, .950 is the legal standard of fineness.

In France both .950 and .800 are legal standards of fineness.

One could argue that a country's standard of fineness is the definition of sterling in that country.

Originally, sterling referred strictly to the English standard of fineness - which happened to be .925. In England, the first known regulation of the silver trade dates to 1238. The origin of the term sterling is more obscure. One explanation is that the group of silversmiths who petitioned the King to issue this decree were called Easterlings, in reference to their Germanic descent. Over the years this corrupted to sterling. As an interesting aside, in England the shorthand way of referring to silver pieces that meet the standard of fineness is to say they are HM or hallmarked silver. What I do know, is that the term "sterling" crossed the Atlantic to the US and came into circulation in the mid-1800's. Tiffany (in a stroke of marketing genius) adopted and stamped sterling .925 on its goods as a way to differentiate them from the competition.

Since colonial times, US silversmiths used coin silver - literally melted silver coins - to fashion their wares. In practice, the ratio of silver: copper in coins ranged from .892-.900.

Tiffany's marketing worked extremely well. Although there was no official standard of fineness in the US until the early 20th century, it didn't take long for other silver companies jump on the "sterling" bandwagon. Consequently, domestic silver became perceived as inferior goods. (For the record I do not believe that for 1 second, let alone 1 minute.)

In the US, "sterling" has turned into slang for .925. Sterling and .925 are synonymous. The best analogy I can come up with is, it is similar to the way Xerox has come to refer to a copy.

I'm (slowly) realizing many Americans feel the only "sterling" silver worth having is .925. I've been shocked many times when people essentially say everything else - regardless of the standard of fineness in it's place of origin - is somehow substandard!! Compare coin silver (.892-.900) to .925.

Design and craftsmanship are the real issues, not  $25/1000$ th's of silver vs. copper.

via The Council Reporter, 6-7/16; from Stone Age News, 6/16

## How Can I Learn More about the Specimens I Collect? by Reggie Rose, CRMS Field Trip Chair

Though this question is brief, the answer is not — it is a long and involved. Now that I have had some time to think about your question, I have come up with the beginnings of a solution. In a one sentence answer, I would tell you to study to improve your understanding of geology. How I would approach it without coursework is explained below. It is how I would try to expand my knowledge.

To learn more about geology (and ultimately mineral and fossil collecting), you need to immerse yourself in the subject. By this I do not mean let it take over your life, but rather expose yourself to it every chance you get. It's kind of like if you were a Buckeye football fan; you would watch all the games and all the talking heads on the sports shows. In the case of learning a subject, short of going back to college, there are many resources available to you.

**Television:** There are many geological shows on TV, but the one I would start with is "How the Earth Was Made" on the History Channel. Most episodes are 1 hour long, and I tape the ones that concern North America; but there is one episode that is 2 hours long that is about the geological history of the Earth. There are also some good episodes from Naked Science.

**Library:** Build a small library for yourself. Geology has many branches, but the ones that will immediately enhance your interest in geology are listed below with a few intermediate-level references. All books are available cheaply online at Amazon.com or Alibris.com (paperbacks are cheaper). In order to understand the rocks, minerals and fossils that you will be collecting, you want to build not only a specific knowledge of rocks, minerals and fossils; but also a good working knowledge of geology.

**Physical Geology:** To understand and appreciate how minerals form, it is helpful to understand Earth processes. What appears to be a good book (I recently bought it to bolster my library) is "An Introduction to Physical Geology" by Edward J. Tarbuck. This college text sells new for about \$105, but I bought a used copy online for \$5.85 that is "like new."

**Historical Geology:** To understand geology in general, it is important to have a good understanding of historical geology. If you understand historical geology, you can put what you collect into proper context with respect to what was happening on Earth and specifically in North America when your specimen, be it rock, mineral or fossil, was created. The physical geology book above will help you understand which formation environments correspond to the specimens you are collecting. I recently bought "Earth System History" by Steven M. Stanley, another college text that retails new for \$120 at Half Price Books on Bethel Road (also on Lane Ave. and Graceland) for \$10. Another book I got cheaply on the internet is "Historical Geology of North America," 2nd edition, by Peterson, Rigby & Hintze.

**Minerals:** Since they are complex subjects, studies of mineralogy, petrology and paleontology will come later in your learning experience; but a book that I like as a reference for minerals is "Rocks & Minerals" by Frederick H. Pough (it is a Peterson Field Guide). This one or a comparable book is a must-have for field collectors.

**Fossils:** I am not a fossil aficionado, but I do own a fossil book. A good starter book is "The Complete Encyclopedia of Fossils" by Martin Ivanov, Stanislava Hrdlickkova and Ruzena Gregororova. Now that's a mouthful. No wonder the Soviets lost the cold war; it took them a half hour to introduce themselves and shake hands. I bought this book at Half Price Books for \$4.98.

**Club Members:** The last and perhaps most important resource you have is other club members.

via The Quarry, 5/16; from Glacial Groove, 4/12



# Young Tumblers News

## Use Of Minerals And Rocks By Native Americans by Kat Koch

*Agate:* Tools, jewelry.

*Alabaster:* Carving.

*Azurite:* Jewelry, carvings.

*Basalt:* Tools, grinding stones.

*Catlinite/Pipestone:* Peace pipes

*Carnotite (radioactive):* Yellow paint.

*Chalcedony:* Tools, jewelry.

*Clay:* Make pottery, white and red paint.

*Coal:* Baking pottery, domestic heating and cooking, black paint.

*Copper:* Jewelry, green and blue body paint.

*Feldspar:* Make pottery.

*Flint:* Arrowheads, tomahawks, spears heads, make fire.

*Galena:* Jewelry, silver and white paint.

*Gold:* Jewelry, garment decorations.

*Granite:* Chopping wood, tools, mortars, grindstones, pestles.

*Gypsum:* White paint.

*Hematite:* Red paint.

*Jasper:* Arrowheads, tomahawks, spears heads, jewelry, tools, ceremonial stone.

*Lapis:* Jewelry, blue paint.

*Limestone:* White or green paint.

*Mica:* Ceremonial objects, garment decorations, jewelry.

*Obsidian:* Arrowheads, tomahawks, spears heads, ceremonial stones (Apache tears).

*Pumice:* Make pottery.

*Red Ochre:* Red paint, ceremonial burials.

*Salt:* Tanning hides, food flavoring.

*Sand/Sandstone:* Make pottery, tools.

*Serpentine:* Carvings.

*Silver:* Jewelry.

*Slate:* Arrowheads, tools.

*Steatite/Soapstone:* Small bowls, cooking pots, carvings.

*Sulfur:* Medicine.

*Tourmaline:* Funeral gifts, healing jewelry, medicine stone.

*Travertine:* Carvings.

*Turquoise:* Jewelry, medicine stone, burial stone, carvings.

*Quartz:* Make fire, healing jewelry, tools, arrowheads and spear heads.

NOTE: 1. Native Americans tribes traded their local rock and mineral resources with other tribes.

2. Paint was most often was mixed with animal fat and/or saliva. It was then used as face and body paint, cave painting, pottery decorating, clothing decorations and other crafts.

## Famous Formations: The Stephen Formation

The Stephen Formation is a middle Cambrian unit exposed in the Canadian Rockies of British Columbia. It is famous for the exceptional preservation of soft-bodied fossils: the Burgess Shale Biota. The Stephen Formation formed on the western limit of a continental craton, a low-latitude miogeoclinic continental margin. Sediments were washed in by rivers from the continent, over the calcareous reefs of the Cathedral Formation forming the shallow sea floor. During the Cambrian period, the Cathedral escarpment was a submarine cliff about 520 ft. tall, below the depth agitated by waves during storms, at a water depth of around 6-700 ft. It often associated with the exquisite preservation of the Burgess Shale. It runs for more than 60 miles through and around Yoho National Park, British Columbia.

During the Cambrian period, mudflows ran down and along the escarpment, trapping and quickly burying organisms, and preventing their decay, permitting the preservation of soft tissue in the rocks that now comprise the Stephen Formation. The fossiliferous deposits are a collection of slightly calcareous dark mudstones. The edge of the Cathedral formation reef became detached from the rest of the reef, slumping and being transported some distance from the reef edge. The submarine cliff is divided into two quite separate parts, the "thin" sequence deposited in the shallower waters atop the escarpment, and the "thick" sequence deposited in the deeper waters beyond the cliff.

# Young Tumblers News

## Tell Us About Your Rocks, Minerals or Fossils

(Fill out the questionnaire below. Bring it to the meeting & earn \$3 Rock Bucks.)

What do you like to collect?

Rocks \_\_\_\_\_ Minerals \_\_\_\_\_ Fossils \_\_\_\_\_

How do you find your favorite things?

CMS Field Trips \_\_\_\_\_ Field Trips with your family \_\_\_\_\_ You Buy It \_\_\_\_\_ A Gift \_\_\_\_\_

What is your favorite place to collect at?

Mountains \_\_\_\_\_ Rivers \_\_\_\_\_ Beach \_\_\_\_\_ Just walking around \_\_\_\_\_ Your backyard \_\_\_\_\_ On Vacation \_\_\_\_\_

What was the last item you got? \_\_\_\_\_

Tell us what it looks like. \_\_\_\_\_

What is your favorite item in your collection? \_\_\_\_\_

Tell us what it looks like. \_\_\_\_\_

Where do you keep your collection? \_\_\_\_\_

Who else in your family or friends likes collecting rocks? \_\_\_\_\_

## Let's Talk Igneous! Terms Regarding Rocks Formed By The Cooling Of Lava From Volcanoes.

*Rhyolite* - a light colored fine grained volcanic rock

*Volcanic rock* - extrusive rock

*Extrusive rock* - volcanic rock at the surface of the Earth

*Felsic*- an Igneous rock made up of light colored minerals

*Accessory minerals* - minor minerals in an igneous rock

*Intrusive rock* - liquid molten rock forced into cracks or between layers

*Granite* - a felsic plutonic rock with granular texture - visible grains

*Plutonic rock* - a igneous rock formed at considerable depth by magma cooling

*Highly viscous* - very resistant to flow

*Volcanic breccia* - an igneous rock made up of angular fragments

*Volcanic plug* - vertical pipe-like rock that represents a volcanic vent

*Volcanic dike* - an igneous body of rock that cuts across adjacent rocks

*Vitrophyre* - glassy igneous rock

*Obsidian* - volcanic glass of felsic composition

*Flow foliations* - layered flow of igneous rock

*Spherulitic* - a spherical crystalline body with a radial internal structure

*Vesicular* - having small holes or vugs

*Tephra* - all the pyroclastics of a volcano

*Pyroclastics* - rocks composed of fragmented ejected in an explosive event

*Tuff/welded tuff* - consolidated volcanic ash

*Ignimbrite* - an explosive ground hugging fast moving flow of hot volcanic fragments

via T-Town Rockhound, 11/16; via the Rock Magnet News, 3/13; from Ozarki Earth Science Gem, 10/16

When writing out a scientific name with the genus and species, such as *Homo sapiens* or *Tyrannosaurus rex*, the first word (genus) is capitalized, but the second word (species) is not.

**Safety In The Field: Hypothermia** by Timothy Foard

Many years ago, during my time with the Army National Guard, I participated in a compass navigation exercise. My platoon was split up in pairs, and each assigned a course with two destination points so that each person has the opportunity for hands on navigation. One person used the compass to send the other person in the direction of the destination point. The terrain was wooded and very hilly and the activity occurred during mid-June in one of the southern states. The first part of the course went fairly quickly; my partner reached his destination despite the challenging terrain. It was now his turn to send me off on a transit. Shortly after starting this second leg of the course, a heavy, but brief thunderstorm drenched us. Since it was hot, it was quite welcoming. Long after the storm passed, it was still overcast, our clothes not yet dried, and it was taking much longer to finish this second leg, although the terrain type remained the same. So much longer it took, in fact, that the navigation instructors went out looking for us. When they found us, one of the officers immediately grabbed the sleeve of my uniform. He shouted to the other officer, "his uniform is still damp", and they abruptly terminated the field exercise for the day. Their concern was that the conditions were present to trigger the onset of hypothermia.

Hypothermia is a life-threatening condition resulting from the body's core temperature is lower than the minimum needed for normal metabolism. In humans, this minimum temperature can vary from 97°F to 95°F. When the body's core temperature reaches about 95°F, a mild form of hypothermia occurs. Symptoms of mild hypothermia include involuntary (but controllable) shivering and numbness of the fingers, toes, nose - the more distal areas of the body. At first, the body restricts blood flow to the extremities to conserve heat in the vital organs. If the body continues to lose heat, this mild form of hypothermia morphs into a moderate and then severe form of hypothermia. Moderate hypothermia, which occurs when the core temperature ranges from 92-95°F, is characterized by a lack of coordinated motor skills, such as fumbling hands and slurred speech, along with fits of uncontrollable shivering. Mental confusion, which can result in poor decisions in the face of crisis (such as the shedding of clothes), is also a sign of worsening conditions. When the body core temperature reaches 86-92°F, it becomes difficult to move because of reduced blood flow, the pupils become dilated, the pulse slows and become very weak, the person's skin is pale or chalky, and there is a tendency for the person to curl up into a ball in an effort to conserve heat. This is hypothermia in its severe form. If not treated, shallow breathing and unconsciousness ensues, resulting to death from cardiac arrest. Often in the final stages, the person becomes semi-conscious and feels the returning warmth. The warm feeling is the result of the body organ system shutting down, including the nervous system and thus the loss of the cold feeling. The danger in hypothermia lies in the fact that it can occur in warm or even hot regions that rarely receive freezing temperatures. In northern regions, hypothermia often occurs when either people were caught off guard by unexpected extreme weather patterns or were prepared, but the precautions were not adequate. The most recent data in the CDC Mortality Database from 1999 to 2005 yields some obvious results, such as Wyoming and Montana: two states with the most cold-related deaths, New Mexico and the District of Columbia were also high on the list of regions with incidents. In western regions, conditions leading to hypothermia often occur after sunset, when nighttime temperatures drop rapidly, whereas in the southern and mid-Atlantic regions, rapidly changing weather patterns will trigger these conditions. In urban settings emergency workers sometimes missed the signs of severe hypothermia because victims are often intoxicated or otherwise psychologically impaired. Many of the fatalities occurred at detoxification centers before their hypothermia was recognized.

Hypothermia more likely occur in men more than in women, and increases with age, although infants are also a high risk group. People who spend long periods of time outdoors (sounds familiar?) are also at risk. There is at least one reason the cold kill people regardless of locality: alcohol. Heavy drinkers are especially vulnerable to severe and frequently fatal hypothermia. Alcohol, which creates a brief "warming" sensation by expanding the blood vessels, accelerates the onset of hypothermia by altering the body's normal circulation rate. Water has excellent heat-absorbing capacity, and for that reason, wet clothing greatly accelerates the heat loss from the body core.

Mild hypothermia can be prevented by simply putting on additional clothing to stay warm. In more severe cases, however, additional measures are necessary, and if you are the victim, you may not immediately recognize the symptoms. Seek medical attention for moderate or severe hypothermia. The first thing to do when hypothermia is suspected or even a possibility is to stop the heat loss. If wet, remove wet clothing and get into dry ones and add extra layers if possible. If outdoors, get into shelter that will protect against wind and rain such as a car or tent. If you have to keep moving, put on clothing that will offer some protection from the elements. In moderate and severe hypothermia, rewarming the body is necessary. Warm the center of the body - chest, groin, neck, and head - first. To rewarm the victim, have the person lay under dry blanket, clothing, sheets, a sleeping bag or any dry insulating material. A second person lying next to the victim may be needed to provide additional heat. Avoid rewarming the extremities first, especially in extreme cases, as cardiac arrest may result. If the victim is conscious, giving warm beverages helps, as long it contains no alcohol or caffeine. Keep the person warm and insulated until help arrives.

The good news is that the body is potentially more resilient to the cold than the data suggest. While the survival rate in cases where the body's core temperature has fallen below 70 degrees Fahrenheit is minute, people have survived with a core temperature as low as 59 degrees. In places like Alaska and Canada, rescue workers always act according to the following rule: "A body is not dead until it is warm and dead."

Sources: <http://emergency.cdc.gov/disasters/winter/staysafe/hypothermia.asp>

<http://timberlinetrails.net/ClimbingHypothermia.html>

[http://www.forbes.com/2008/12/19/hypothermia-public-health-biz-healthcare-cx\\_wp\\_1219colddeaths\\_slide\\_6.html?thisSpeed=30000](http://www.forbes.com/2008/12/19/hypothermia-public-health-biz-healthcare-cx_wp_1219colddeaths_slide_6.html?thisSpeed=30000)

from Rock Talk, 11/14



# Show



***December 8 & 9: Saturday 9 am - 5 pm; Sunday 10 am - 5 pm***  
**Maplewood Rock and Gem Club, 7th Annual Winter Bazaar**  
Maplewood Rock and Gem Clubhouse  
8802 196th ST SW  
Edmonds WA



## **Ammolite** by Timothy Foard

This past August my friend Nick went on a hiking trip to Alberta. One of the things on his to-do list was to obtain some Canadian ammolite in the rough, not to cut into jewelry, but as specimens. He succeeded, and I asked him to bring them the next time we meet. The following month, during the Atlantic Coast Gem, Mineral & Jewelry Show, at the Howard Co. Fairgrounds, I saw him, and later that day we went out to his car and he showed me the ammolite he purchased.

The name ammolite is the trade name (introduced in 1967) for the iridescent shell material from only a very few species of ammonites, which are extinct cephalopods related to octopus and squids. It is one of the few gems of organic origin, which includes amber and pearls. It was first described formally in 1909, but it has not received much attention until the 60's and was recognized as gem status in 1981. Specifically, the Canadian material comes from either *Placentoceras meeki* or *Placentoceras intercalare*, from the upper Cretaceous Bear Paw Formation (70-75 million years ago or Ma), which occurs in the southwestern part of the country, extending as far south as Montana, USA. Both are large species, reaching about 3 feet in shell diameter. Ammolite has been known for centuries by the native peoples (the Blackfoot tribe) of the region and used as a talisman.

Chemically, ammolite is aragonite, which is identical in composition to calcite ( $\text{CaCO}_3$ ), but crystallizes in the orthorhombic system instead of hexagonal as calcite. It is a soft mineral - hardness 3.5-4 with a specific gravity of 2.6-2.9. It has a vitreous luster and takes a bright polish.

Ammolite is not restricted to Canada; it has been found in Madagascar, and to a lesser extent, Utah. The Malagasy species are either *Cleonoceras cleon* or *Cleonoceras beseiei*, much smaller (usually 1-3, up to 6 inches in diameter) species occurring in the early Cretaceous (100-113Ma) from the Mahajanga province. At least 90% of the gem quality material comes from Canada. The geological environment favor the occurrence of ammolite: the aragonite is deeply buried in the bentonite sediment which prevented the conversion of aragonite into calcite. The Canadian material display the widest color range and is of the best quality. Ammolite from other areas such as Madagascar tend to display relatively subdued colors, often with interruptions when viewed at different angles or the shell material too thin, and the color ranges are usually restricted to reds or oranges.

When taken out of the ground, ammolite is rarely durable by itself to be cut as a gem. These are the best material for lapidary, but the vast majority of times the aragonite layer is so thin and easily subjected to damage (the so-called dragon skin or stained glass appearance) that it has to be strengthened and protected before use in jewelry. The company which mines most of the ammolite, Korite International, has developed ways of preparing the raw material for durability. The backing may be the base rock, which can be shale or siderite ( $\text{FeCO}_3$ ) and the top is capped with spinel ( $\text{MgAl}_2\text{O}_4$ ), giving it a hardness of 8. The material is often cut in free form to obtain the maximum amount of carat weights. Like other gemstones, there is a grading system, although it is not a universal one. The grading system used by Korite International range from AA, (exquisite), which is the best grade, to A+ (extra fine); A- (fine); A (Standard or good); B (fair) and finally C (commercial), which is of the lowest quality.

The Canadian ammolite seldom leave the country in rough form - an application for export must be approved by the federal government, and thus it does not show up regularly in gem and mineral shows in the US, although the finished product and ammonite specimens can be purchased online. It is the official gemstone of Alberta and considered a national treasure. They command high prices because of their rarity and the amount of labor required for extracting and preparation. The mines where ammolite is quarried are relatively small in area and in some places the material are buried too deep to extract profitably. Malagasy ammolite, on the other hand, are much less expensive and are quite common in US markets.

### *Sources:*

<http://www.korite.com/ammolite.html>

<http://geology.com/stories/13/ammolite/>

[http://www.madagascandirect.com/acatalog/Iridescent\\_Ammonite\\_ref\\_3403\\_Fossil\\_Madagascar.html](http://www.madagascandirect.com/acatalog/Iridescent_Ammonite_ref_3403_Fossil_Madagascar.html)

<http://www.theglobeandmail.com/news/british-columbia/gemstone-worth-500000-stolen-in-vancouver/article16089557/>

from Rock Talk, 11/14

