



# *the CMS Tumbler*

July  
2019

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

Next Meeting:  
July 11, 2019  
7:00 p.m.

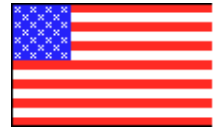
**American Legion Hall  
25406 97th Pl S  
Kent, WA**

The Program will be general  
info about gold hunting

The Show & Tell Theme is  
precious metals... gold, silver,  
copper, etc.



*This month remember  
to wish a  
Happy Birthday to  
Rich Russell on July 5,  
Pat Thomasson on July 11,  
Penny Hohn on July 12,  
Scott Thomasson on July 14,  
Virginia Bird on July 18,  
Roger Pullen on July 30,  
and also remember  
to wish a  
Happy Anniversary to  
Dick & Patricia Morgan on July 14 (57 years)*



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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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<b>Webmaster Mark Hohn</b>	253-332-3736	showchair@cascademineralogicalsociety.org

2019 CMS Dues are \$25 per year per family

Pay online, by mail, or at our meetings.

*Mailing Address: Charles Benedict, 25838 W Lk Wilderness Dr SE, Maple Valley WA 98038*

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/>



# July



SUN	MON	TUE	WED	THUR	FRI	SAT
	1	2	3	4	5	6
7	8 Show Meeting 6:30 PM Board 7 PM 	9	10	11 General Meeting 7 PM 	12	13
14	15	16	17	18	19	20 <i>Darrington Rock Show Sweetwater Trip</i>
21 <i>Darrington Rock Show</i>	22	23	24	25	26 <i>WAMS Rock Show</i>	27 <i>WAMS Rock Show</i>
28 <i>WAMS Rock Show</i>	29	30	31			

CMS Show Committee Meeting: ...Monday, July 8.....6:30 pm to 7:00 pm  
 CMS Board Meeting:.....Monday, July 8.....7:00 pm to 8:00 pm  
 CMS General Meeting:.....2nd Thursday, July 11.....7:00 pm to 9:00 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



TKM © 2019

**CMS Show & Board Meeting Minutes June 10, 2019**



by Pete Williams, 2019 Secretary

Members Attending

*President Kat Koch*

*Treasurer Charles Benedict*

*Federation Mike Blanton*

*Director Roger Danneman*

*Director Rich Russell*

*Vice President Merriann Fu*

*Secretary Pete Williams*

*Show Chair Mark Hohn*

*Director Roger Pullen*

Committee Meeting called to order 6:30

There are 62 booths sold so far with 2 remaining unsold. In addition, 1 space has been donated to Bedrock Gold Panning club.

Kat will ask the Puyallup club if we can use their display cases. Mark will check with a non-profit company that can provide a sand table for the kid's area. Check with Mark if you can help with social media and show promotion. Volunteers are needed in all areas. Separate tickets and prizes will be available for participation through Eventbrite

Board Meeting called to order at 7:01

Some of the file cabinets stored at Bob's house were cleaned up and sorted. Some of the historical items from the old Boeing club will be made available to members at the general meeting. Charley needs access to the membership database to do a reconciliation.

The July program will be on gold panning. The field trip on August 3-4 will be gold panning. Some members from our club have left to go to the Puyallup club since they have quality door prizes and raffle items. The Kitsap Club has good door prizes all donated by members. A motion was made and approved to spend up to \$20 a month on door prizes. Jerry's Rock Shop gives us excellent deals.

The Board is looking for any member that is willing to write an article or provide an activity for the Young Tumblers page in the bulletin. This can be one or more times per year. Please contact Kat or any Board member if interested.

The goal of the profits earned from our show is to have a shop where members can go and use club equipment. A couple years ago our club had a booth at the Gem Faire in Puyallup to help advertise our club. Kat would like to do that again this November. Roger Danneman had a cap embroidered with the CMS logo. He will bring it to the general meeting to determine interest from members.

Meeting adjourned at 7:52

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



Remember, everyone gets older, and if you expect to have others help you; shouldn't you start helping others now?

**Editor's Note: Mistakes and Glitches**

Last month I accidentally listed the meeting minutes as being June instead of May. Whoops! Sorry.

In a odd glitch, some pictures didn't show up. They were there in the program I use to make the Tumbler, but for some reason when saving as pdfs, they didn't show up. One was a picture from Kat's article on Rock Gardens. It didn't show up in both the print Tumbler pdf and the email Tumbler pdf. The other picture was one of the field trip finds which was missing from the email pdf only.

When looking over the pdfs I somehow missed the big blank spaces where the pictures should have been until after I'd sent them out. Sorry.

**Limestone** by Duane Flackus

You can hardly go a day in the geology world without hearing the word limestone.

Limestone is used in glass making, paint, tiles, paper, plastics, bread and cereal as calcium, toothpaste, livestock and poultry feed, iron production, soil conditioner, and too many other products to mention here.

The pyramids of Giza are made of limestone. You can go into many train stations, banks, etc. and see limestone walls, ceilings, columns and walls of polished limestone. The major cave systems around the world are of limestone since it is easily dissolved in acidic ground seepage water.

10% of all sedimentary rocks are limestone.

So what is limestone?

Limestone is nothing but ancient skeletal fragments of marine organisms (such as coral and shellfish).

Ancient Mayans preferred limestone for their carvings.

## CMS General Meeting Minutes June 13, 2019



by Pete Williams, 2019 Secretary

Meeting called to order at 7:15

Minutes were approved with corrected date.

**Treasurer's Report:** The club has about \$2K in checking and \$4K in savings. Patches and other memorabilia from the old Boeing club are available for members to have.

**Tumbler Editor:** Since the club show is coming up soon be sure to get any articles related to the show submitted in the next couple of months.

**Webmaster/Membership Report:** There are only 2 remaining open booths with a wait-list of a few vendors. The show will be in the gym at Green River College. Donations are needed for the silent auction and spinning wheel. Provide any slabs, rocks, polished rocks at the general meeting or give to any club officer. Volunteers to work at the show will be needed. Show flyers are available to hand out to friends and family. Some of the proceeds from the show will go to grants to GRC students. The long-term goal with club funds is to have a permanent club shop.

**Field Trip Report:** The June field trip is to Red Top. The August field trip will be gold panning in Eastern Washington.

**Old Business:** The program next month will be on gold panning.

**New Business:** The summer picnic will be on August 11 at the Lake Washington Arboretum. The Christmas party will be on December 15 at our meeting location. Please consider donating rocks, slabs or other material to the show silent auction. The silent auction at the Puyallup show was fantastic.

**Program:** A presentation was made on diamonds and lab grown diamonds and silicon carbide by "Better than Diamond".

Meeting adjourned at 8:19 followed by show and tell and the raffle.

### **Displays:**

*Brian Oliver* - Mammoth bones.

*William Oliver* - Crystals from Hanson Creek.

*Mike Blanton* - Calcites.

*Rich Morgan* - Fancy polished sphere, 3 faceted pieces, 2 quartz crystals, a polished tower of fluorite, and a snowflake obsidian pyramid.

## **Editor's Note: Copyright And Credits** by Keith Alan Morgan

When I receive articles from members I assume that they actually wrote the article, which is why I stick the name of the person by the title as the author.

Apparently, I've been assuming wrong, at least in some cases. Just because an article is posted on the internet doesn't mean it's free to download and copy anywhere, most are protected by copyright like anything else printed.

If you wrote the article, proudly put your name on it.

If the article is public domain (free of copyright), or you have permission from author or editor of where you got it from, let me know and let me know the web address. Don't leave off the name of the original author.

At the very least, if you can't get permission, rewrite the article in your own words. School children know how to do this. It's not rocket science.

The Tumbler has an agreement with other newsletter editors to allow us to copy articles from each other's publications and I'd prefer not to let stolen articles become part of that.

## **What is Micro-Mineral Photography?** by Beth Heesacker

How many of you own a camera? If you do, maybe you know what MACRO-photography is. The pictures you obtain are those beautiful close-ups of a flower or even better a bug or bee on a flower.

You need to creep up on the unsuspecting insect and hope it does not fly away or the breeze does not come up and move the flower.

There are those who go even further and try to photograph a part of a bug. The eyes seem to be interesting to many. Well, other people can chase down bugs or hope for a windless day but some of us like the objects of our pictures to sit still.

Now to the mineral part of this topic. Many of you may own minerals. They usually do sit still even if you need to prop them or place them in some type of stand. You can stand back and take a picture and get the whole specimen in focus and take your picture.

That is not so easy with micro minerals. First, they are very small. Very, very small. Many of the pictures I have taken are of crystals that are only a couple of millimeters in size. For those not used to speaking of millimeters, there are 25.4 millimeters in one inch.

Second, if you have taken macro-photos or flowers you will notice that you can only get a very small area in focus. Depth of focus is very shallow. This problem is magnified many times in photographing micro-minerals. Only a VERY small part of a VERY small mineral crystal can be in focus at any time.

Yet, with the right equipment and the right process, we can photograph these small crystals and see the most wonderful, tiny, colorful worlds.

from The Clackamette Gem, 5/19

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

By Kat Koch, 2019 CMS President

I can't believe summer has arrived. Our picnic is Sunday, August 11th at Lake Wilderness Arboretum, Maple Valley. Setup is 11 a.m. with potluck picnic lunch at 12 noon. We will have an auction following lunch. So mark your calendars now and plan on attending. The kids can use their "Rock Bucks" to buy any auction item. There will be no General Meeting in August.

Jacquie Pattie provided refreshments for our meetings for 25 years. She retired in December 2017. It's hard to thank her enough for such dedication to our club. Since Jacquie's retirement, Angie Bayer has been making sure we have drinks and snacks at our meetings. Thank you Angie. Rich Russell's wife, Jennifer, and Angie also regularly bake goodies for our meetings. I would like to give a big thank you as they are always delicious!

Just a reminder that we need rocks, minerals and fossils for the silent auction at our upcoming Gem Show in September. If you go rockhounding please remember to pickup a bucket or so of extra stuff to donate to our club. Right now the auction supply looks a little bleak so please remember to gather some extra.

I would like to acknowledge and say thank you to Glen and Joan of Jerry's Rock and Gem Shop, Kent and Herbert Shepard of World's Fossils and Minerals for being an unwavering supporters of our club. It is much appreciated.

## Blue Diamonds - The Rarest of Diamonds by Kat Koch

Natural Blue Diamonds are among the rarest and most valuable gem on Earth. They can be worth up to \$250 million a piece. A very small natural blue diamond can cost thousands of dollars. It's estimated that only .02% of the diamonds found are blue. The blue color comes from the presence of boron and nitrogen. Depending on the boron and nitrogen content they can range in colors from the palest blue to a deep "sapphire" blue.

Blue diamonds are only found in a few mines around the world. Currently two of the mines are the Cullinan Mine, Pretoria, South Africa, and the Argyle Mine, East Kimberly Region, North Australia. In the past, blue diamonds were also found in India's famous Golconda region.

Scientists have now discovered how and where they are formed. To discover the origins of the blue diamond researchers used lasers to analyze 46 stones for impurities. To their surprise they found remnants of minerals found only approximately 400 miles beneath the earth's surface. This is about 4 times deeper than were regular diamonds are typically formed. The researchers feel the boron must have been pushed to those depths by the collision of the tectonics plates and forced slabs of the ocean crust deep down into the Earth's lower mantle. "We now know that the finest gem quality blue diamonds come from the farthest down in our plant," per researchers from the Carnegie Institution for Science, Washington, DC.

I did a search of the internet and found inexpensive blue diamonds everywhere from Etsy, to Amazon, to TV jewelry programs.

So what's the story behind these lower priced blue diamonds?

I found out these are HPHT (High Pressure High Temperature) treated lower color grade regular natural diamonds. Since the diamond started out as a natural off-colored diamond they can advertise them as "natural" blue diamonds. Often times in the description of the inexpensive blue diamond it is never mentioned that they are heat treated. Even HPHT blue diamonds bring a higher price than a low color quality white diamond. HPHT treated diamonds are not considered lab grown diamonds.

When HPHT diamonds are treated they can produce an array of colors depending on the impurities in the starter diamond. HPHT diamonds can be found in every color: Gray, brown, yellow, orange, red, pink, green, blue, violet, purple and black. They are also often described as "natural" diamonds without mentioning they are heat treated.



## The La Brea Series of Articles by Steve Mulqueen

### The Fossil Record at the Page Museum of La Brea Discoveries

The natural petroleum seeps located at Hancock Park in Los Angeles are examples of huge seeps that once occurred along active fault traces in this general area during the Pleistocene Epoch. The seepage of crude oil and asphaltum is thought to date back approximately 50,000 years. The oldest age of fossil bone from Rancho La Brea, based upon the carbon-14 age-dating method, has revealed dates of approximately 38,000 years old.

The fossil record from the excavations at Rancho La Brea represents one of the best-preserved assemblages of Pleistocene vertebrate fossils in the world. With fossil bones, some consisting of large extinct mammals, there exists an abundance of invertebrate animal and plant remains.

Excavations, conducted by staff and volunteers at Pit 91 and Project 23, continue to the present day. There are many mysteries that remain regarding the fossil record at La Brea. Listed below are some of the conclusions published by the Page Museum, based upon over 100 years of excavating fossils, cleaning specimens, identifying remains, museum cataloging and the managing of a

huge specimen inventory.

Important Information Regarding the Fossil Record at the Page Museum of La Brea Discoveries

Pleistocene fossils, 38,000 - 11,000 years old.

Holocene fossils less than 11,000 years old.

Since 1906, excavated over 1 million fossil bones.

Represent 231 species of vertebrate animals.

Include 235 species of invertebrate animals.

And 159 species of plants.

More than 3 million museum specimens.

Project 23 - Expected to double the number of bones in the museum collection. Project 23 derives its name from the twenty-three large blocks that were extracted in 2006 at a construction site for a parking structure at the Los Angeles County Museum of Art. This site is located immediately west of the Page Museum within Hancock Park. The excavation of fossils from these large blocks is expected to take many decades involving meticulous work with long-term funding needed from many sources.

Conclusion: A portion of the fossil assemblage that was excavated from the Hancock Park region of the original Rancho La Brea is on exhibit at the Page Museum of La Brea Discoveries in Los Angeles. The occurrence of natural petroleum seeps played an essential role in preserving Ice Age animal and plant remains beginning in the Late Pleistocene Epoch. The fossil collection on exhibit at the Page Museum is just a fraction of the fossil specimens that are in storage or still in the ground waiting to be discovered and unearthed. Only time will tell what other great mysteries will be solved through the hard work and dedication by museum staff, students and volunteers involving meticulous excavations and fossil preparations. Fossil research will continue at the Page Museum, as long as there is funding to support the museum's long-term goals and objectives.

#### *Fossil Preservation at Rancho La Brea*

Petroleum seeps played an important role in preserving ancient Ice Age fossils at Rancho La Brea in present-day Los Angeles. There were many factors that led to animals being trapped in the asphaltum during the early Pleistocene through the Holocene Epochs. Listed below are important conditions that attracted animals to this area and created unusual depositional environments that preserved plant and animal remains.

Petroleum Seeps Provided:

Animal habitat, related to plant life and food associated with petroleum seeps.

Salt brine source, water and salt are essential for animal metabolism.

Rainwater retention, in shallow asphaltum-lined depressions and basins.

Animal traps, in soft asphaltum.

Petroleum acts as a preservative, saturating animal bones.

Petroleum seeps formed a fossil 'package' within and alongside the original near-surface pathways of the rising fluids.

Paleontologists excavating at Rancho La Brea find high-concentrations of plant and animal remains within these formally active seeps.

Bones And Other Remains Are Protected From:

Solar radiation and the detrimental affects of ultraviolet light.

Oxidation, from exposure to the atmosphere.

Acid rain, weak carbonic acid formed naturally in the atmosphere.

Breakage and dispersion of bones, caused by animal movement.

Breakage and dispersion of bones, caused by surface erosion.

Biodegradation on the surface, within soils and in alluvium.

Bioturbation, common within soils due to the action and movement of organisms.

Clay expansion/contraction, common within soils and alluvium.

Conclusion: The remains of ancient Ice Age animals and plants were preserved at present-day Rancho La Brea as a direct result of unusual depositional conditions related to petroleum seeps. This geologic setting resulted in the preservation of a world-class fossil assemblage. These fossils represent a window into the past and reveal an environment that existed during the Late Pleistocene. Many mysteries remain to be uncovered and resolved through the process involving the excavation and detailed research of fossils at Rancho La Brea. Staff and volunteers at the Page Museum of La Brea Discoveries continue to seek for new clues to these mysteries through their dedicated efforts.

#### *Rancho La Brea Fossil Deposits: An Abundance of Carnivorous Animals Represented in the Fossil Record*

When paleontologists at the Page Museum examine the variety of animals that have been discovered and excavated at Rancho La Brea, they find an abundance of meat-eating carnivores, as compared to plant-eating herbivores. The proportion of carnivores to herbivores in the fossil record at La Brea is about seven to one, amongst the mammals and birds.

In the normal food chain, there are many more herbivores than carnivores. This is also the case with animals preserved at most other significant Pleistocene fossil sites throughout the world. However, conditions during the Pleistocene around the petroleum seeps at what is now Rancho La Brea were different.

When large herbivores became trapped in the thick tar, they attracted carnivores that would feed on their carcasses. Some of

those carnivores in-turn became trapped. An example may include: One horse stuck in the asphaltum may have resulted in attracting a few saber-toothed cats and some dire wolves.

At times, the carnivores fought for access to the dead horse. Some of those carnivores died in battle or died after also becoming trapped in the asphaltum.

Those carnivores that died added to the attraction as a food source, and the cycle continued.

from Rockhound Rambling, 4/17, 5/17, & 6/17

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### **Terribly Toxic Treasures** by Ellery Borow, Safety Chair

Tightly tucked toward the top of our trinket trunks are treasures too toxic to touch, tempting us though as they tease our thoughts.

Yes, tis true! Tossed throughout our treasure trunks are things that are toxic to the touch and taste, even in this totally tantalizing, yet tranquil, task of teaching there are terrors taken my task.

Well, enough of these terrible Thesaurus taking "t's." The message this month is a mention that there are dangers lurking among our mineral treasures and what to do about that. Think for a moment, if you will, about the chemical compositions of some of the minerals we collect- autunite, arsenopyrite, cinnabar, betafite, thorite, cuprosklodowskite, malachite, even beach shells for the jewelry we make have within them chemistries that, under certain conditions of working, handling, or storage can present concerns about their part in maintaining our health. Think of the conditions in which we find our mineral treasures - conditions that hide biting, stinging insects, or rash causing plants, or offer precarious physical conditions which may impact ones health.

Our hobby is associated with great joys but also has within it certain dangers with which we should not be touched with bare hands and fingers. There are minerals that should not be worked dry. There are minerals that produce slivers that, oh so easily, penetrate the skin. There are minerals of a radioactive nature as well. Each of those situations requires certain protective measures.

We encounter many specimens of fauna and flora along the way as we walk to our favorite collecting localities. Many of those same fauna and flora are ones which bite, sting or scratch us. Some things just lay in wait to dig into our delicate hides, or scratch and tear us. We don't usually encounter hiding tigers or crouching dragons on our trips but those perky little eight and six legged things sure can mess with our enjoyments.

What is a body to do to protect oneself? Glad you asked! We have a hobby based on sharing, giving, and teaching! Most of the hobby's enthusiasts out there, ones I've met over the years, follow those practices in all ways. There are folks in our clubs who have all manner of experiences with our hobby's related dangers and hazards. What I would like to offer here is a thought for your consideration. I would like to offer a suggestion that we encourage our members with the most experience to share, give, and teach not just about their knowledge with rocks, minerals, and fossils, but also share, give an teach what they have learned about being safe - safe mineral handling, safe storage, safe caring and feeding of our treasures, and when we are traipsing on quarry roads, safe avoidance of biting insects and so on.

I'd like to broaden the sharing approach of our hobby to all things safety. indeed, if your club does not have a safety coordinator, I would recommend your investigation of the benefits to your club with having a dedicated safety person. And, if you already have such a dedicated person in your club, I applaud your forethought! If you have a safety coordinator making safety fun, interesting, and a learning experience, you are well ahead of the safety curve!

Please be safe, and think safety.

via Gem & Mineral Journal, 5/16; from EFMLS News, 5/16

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### **Rutilated Quartz**

When cutting rutilated quartz, watch the heat. When cutting this material, try to keep the needles from being on the surface - they could pull away. Polish both the top and bottom, and have the stone as highdomed as possible. Otherwise, follow cutting and sanding instructions for agate.

via West Seattle Petroglyphs, 3/19; via Golden Spike News, 3/02; via Quarry Quips, 2/02; from Show Me Geode, 12/01

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### **Tumbling Tip** by Bob & Shirley Jiminez

For a really glossy finish after washing out the final polishing powder, add three spoons of sugar, one spoon of Cascade or All or any non-sudsing detergent, and add about ten drops of muriatic acid. Let stand for one minute - then close tub and tumble for a few days. We have run several tubs using this method and found that even ordinary sandstone becomes highly glossed.

via West Seattle Petroglyphs, 3/19; from Maplewood Rock Club Newsletter, 10/02

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Galvanizing is the process of dipping steel in molten zinc to prevent rusting.

Sources: *U.S. Geological Survey, Minerals Information Institute*

from <https://minerals.usgs.gov/west/morefun.htm>, 12/15/17



# Young Tumblers News

Bring to the meeting the micrometeorites you found and get \$5 Rock Bucks.

## How To Collect Micrometeorites In Your Backyard by Ron Miller

Meteors rain down on the earth every hour of every day. Most of these are hardly larger than a grain of rice or a pea. The majority are little more than particles of dust, 10 to 40 micrometers (0.0004-0.0016 inch) in size. The average one is scarcely a quarter of the width of a human hair. The atmosphere makes short work of the larger ones. The remainder of these small meteors -called "micrometeorites" -are perpetually sifting down to the surface. Ten thousand tons of them every day. They fall on everything.

Here is how you can do this, too. All you need is:

Cookie sheet

Plastic wrap

Magnet

Sheet of paper

Magnifying glass or microscope

Line the cookie sheet with the plastic wrap. Fold the edges of the wrap under the sheet, so it won't blow away.

Place it outdoors in a place where nothing blocks the sky and the sheet is protected from the wind. Let the sheet remain outdoors for at least a week. When you bring it back inside, the plastic will be covered with all sorts of debris. If it has rained, it will be full of water, too.

Another method is to fasten a couple of magnets over the downspout of a rain gutter, so that rain water will pour over them. After a couple of weeks, check the magnets.

Straining the water through a sieve will help get rid of any large debris, such as leaves and bugs. You can also just let the water evaporate. Carefully run the magnet through what remains. A piece of paper wrapped over the end of the magnet will make it easier to remove whatever sticks to it.

You will find some small particles sticking to the magnet. These are the remnants of meteoroids that disintegrated in the upper atmosphere. They stick to the magnet because most meteoroids have iron and nickel in them. Look at the particles through the magnifying glass or microscope. What do they look like? Compare them to the ones in the photo.



You can save them in a small jar or an envelope. Have fun!

from <https://io9.gizmodo.com/how-to-collect-micrometeorites-in-your-backyard-5984951>

## What Gives Fireworks Their Color?

Mineral elements provide the color in fireworks. Barium produces bright greens; strontium yields deep reds; copper produces blues; and sodium yields yellow. Other colors can be made by mixing elements; strontium and sodium produce brilliant orange; Titanium, zirconium, and magnesium alloys make silvery white; copper and strontium make lavender. Gold sparks are produced by iron filings and small pieces of charcoal. Bright flashes and loud bangs come from aluminum powder.

Sources: U.S. Geological Survey, Minerals Information Institute

from <https://minerals.usgs.gov/west/morefun.htm>, 12/15/17

# Young Tumblers News

## Dinosaur Names Not Ending In Saurus by Keith Alan Morgan

Not all dinosaur names end in Saurus. So here are 20 names of dinosaurs that avoid the common ending and went for something completely different.

Answers go up, down, forward, backward and diagonal. Kids who complete the puzzle and bring it to the next meeting will get 2 rock bucks. Have fun.

S U H T A N G O S P M O C O O Q O L P I D  
 T B A R Y O N Y X E T W S A U R I Z Q X V  
 R U N R L T A U E S U R U R T N E C A D A  
 U A A X C E M T O E A N M P T O S A D E B  
 T U T A N H N U T V W F I S Z L E N M I M  
 H N O D O N A U G I M E M Z O A L M D N V  
 I H T Q U I L E Z X P R O O D T A N D O W  
 O O I A W V C H O L O Z H B R A H I V N I  
 M N T Z C X Q A Z P R Q T R A N P E P Y Z  
 I O A A H J A V E R T S I B C L E D J C X  
 M I N M I H U W H O B E N L O R C E R H B  
 U C F W R K R Q W T P C R D R K O S S U R  
 S C T C O R S O U O R D O Y E T L U V S O  
 D E A T S O U B T M A C T S X M A C A R N  
 E N D O T M P O T N U F P E O P M V X E T  
 M E O W E A O R D S K L A T A B O O T F O  
 E N S D N G T U R A N T R S J W H Q A H S  
 T O E N O N C E M R T R I C E R A T O P S  
 R L O N T O E D P P K G V U O U W E E V S  
 O R N U E T R I C A I N O T N O M D E Z I  
 B A L Z S A E T V G S A Z X F A R J K A M

Archaeopteryx  
 Anatotitan  
 Baryonyx  
 Chirostenotes  
 Compsognathus

Dacentrurus  
 Deinonychus  
 Diplodocus  
 Dracorex  
 Edmontonia

Erectopus  
 Homalocephale  
 Iguanodon  
 Minmi  
 Ornithomimus

Oviraptor  
 Struthiomimus  
 Triceratops  
 Troodon  
 Yi

## Field Trips

The club or clubs sponsoring the field trips are shown in italics. When known I have listed a phone number and contact person for each sponsoring club below the listed trips. If you are not a member of the sponsoring club, you should phone and ask permission to go on their field trip.

Information from the Washington State Mineral Council webpage (<http://www.mineralcouncil.org>).

**July 20** *Darrington Rock Club - Sweetwater* - Meet at the Darrington Rock Show before 11:00 am - *Travertine* - Bring digging & hard rock tools

## Diamond by Dave Jacobson

This month we will take a brief look the hardest mineral on the Mohs scale, with a reading of 10, diamond, C, crystallized carbon. Diamond is used as a gemstone and industrially as an abrasive. As lapidaries and faceters we are using diamond all the time. Small diamonds are also used as specimens in mineral collections. Some of the more famous localities where diamonds are found are: South Africa and several other localities in Africa: India, Brazil, Russia, Australia and Arkansas in the United States. In the December 1998 issue of Rock & Gem magazine there was an article about diamond collecting in Crater of Diamonds State Park, in Murfreesboro, Arkansas.

Some interesting facts follow. Diamond is a very good thermal conductor. It is 5 times better than the second best thermal conductor, silver. Diamond has the highest melting point which 3820 degrees Kelvin. Diamond has the greatest lattice density which means the atoms are packed tighter together than in any other substance. Diamond also transmits light over a greater range of wavelengths (from ultra violet through the far infrared) than any other substance. Diamond is in the isometric crystal system.

Typical habits are cubes and octahedrons. Diamond has perfect cleavage in four directions, which means, as hard as it is, if it receives a hard blow in one of these directions it can split. In a diamond each atom is at the center of a tetrahedron of four other carbon creating an extremely strong framework although in one direction the structure has fewer bonds resulting in the cleavage plane. This cleavage plane repeats via symmetry to form an octahedron. Diamond comes in many colors with variations of each color including yellows, browns, grays, white, blue, black; reds, greens and colorless. Specific Gravity is 3.5. Hardness is 10. Streak is white.

Diamond and graphite are both polymorphs of the element carbon. Both are carbon but have completely different forms and structure. Some interesting facts about both follow:

Graphite	Diamond
One of the softest minerals	Hardest mineral
Good conductor of electricity	Insulator
Good lubricant	Ultimate abrasive
Opaque	Usually transparent
Hexagonal crystal system	Isometric crystal system

The differences between diamond and graphite are due to the atomic structure of each mineral. In graphite the atoms are closely spaced in planes with wide spacing between the adjacent planes. There is a tight bond between the planes of atoms but a weak bond between the adjacent planes. In a diamond the atoms are equally spaced. Each atom is at the center of a tetrahedron of four other carbon atoms creating an extremely strong framework.

Diamond takes it's name from the Greek adamas meaning "invincible" or "hardest".

I used the following reference materials 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*.

*Gemstones Of The World* by Walter Schumann.

*The Audubon Society Field Guide To North American Rocks And Minerals* by Charles W. Chesterman.

*Gems, Crystals, & Minerals* by Anna S. Sofianides, George E. Harlow and George W. Robinson, Ph. D.

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

*Rocks And Minerals* by Chris Pellent.

*Min Search* a shareware mineral identification program by dp Software, Warren, New Jersey.

via The Quarry, 9/16; from Canaveral Moonstone, 9/16

## Cutting Porous Rocks

When cutting porous rocks under a hardness of 5, soak the material in water for a week, then you will have no problem with the stone soaking up the oil.

via West Seattle Petroglyphs, 3/19; via Golden Spike News, 3/02; via Quarry Quips, 2/02; from Pick & Pack, 10/01



## Shows

**July 20 & 21**: Saturday & Sunday 10 am - 5 pm

### **Darrington Rock & Gem Club**

Mansford Grange

1265 Railroad Avenue (behind IGA)

Darrington, WA

**July 26 - 28**: Friday & Saturday 9 am - 6 pm; Sunday 9 am - 5 pm

### **Washington Agate and Mineral Society**

*Annual Rock & Gem Show*

Parkside Elementary School

301 Central Avenue E corner of Central Avenue & Stage St.

South Tenino WA



### **Rock Formations, Stratigraphic Units & Geologic Structures** by Steve Mulqueen

- Barstow Formation - Exposed in Mojave Desert near Barstow, San Bernardino Co., CA.
- Burgess Shale - Near Burgess Pass/Mount Burgess, Alberta/British Columbia, Canada.
- Caldera, a volcanic feature - Caldera de Taburiente, La Palma, Canary Islands, Spain.
- Cathedral Peak Quartz Monzonite - Rock type on Cathedral Peak, Yosemite Valley, CA.
- Chatsworth Formation - After prominent sandstone outcrops exposed at Chatsworth, CA.
- Chattanooga Shale - Extensive deposits exposed near Chattanooga, Tennessee.
- Conejo Volcanics - Early references to the "Conejo" Mountains, Santa Monica Mts., CA.
- Dove Spring Formation (formerly "Ricardo") - Dove Spring, Red Rock Canyon, CA.
- Matilija Formation, Matilija Sandstone - After Matilija Hot Springs, Ventura Co., CA.
- Monterey Formation - Named from exposures along the coast near Monterey Co., CA.
- Rincon Formation, Rincon Shale - Sequence at Los Sauces Can., east of Rincon Mt., CA.
- Sespe Formation - Exposures along Sespe Creek in the Ventura Basin, Ventura Co., CA.
- Temblor Formation - Exposures in Temblor Ranch, McKittrick area, Kern County, CA.
- Temple Butte Formation, Temple Butte Limestone - Temple Butte, Grand Canyon, AZ.
- Topanga Canyon Formation - Exposures in Topanga Canyon, Los Angeles County, CA.

via The Quarry, 5/16; from Rockhound Rambling, 4/16

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### **Carat - Factum**

The weight of a gem carat is equal to about 3.168 troy grains. It is usually divided into 4 Diamond or pearl grains, each .7925 of a true grain. Fractions of a carat are also known as fourth, eighths, sixteenths, thirty-seconds and sixty-fourths. The weight of the carat originally differed slightly in different countries, and this diversity finally led a syndicate of Parisian jewelers, goldsmiths, and gem dealers, in 1871, to propose a standard carat.

This was subsequently confirmed by an arrangement between the diamond merchants of London, Paris, and Amsterdam, fixing the uniform value of the diamond carat at .205 gram.

via Golden Spike News, 5/19; from The Petrograph, 5/19