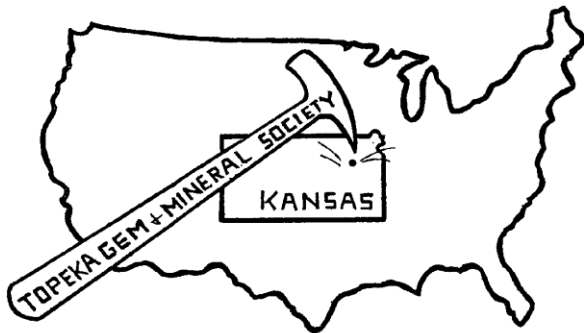


The Topeka Gem and Mineral Society, Inc.  
 1934 SW 30<sup>th</sup> St. Topeka, KS 66611  
 Rock2Plate@aol.com

# THE GLACIAL DRIFTER



[www.TopekaGMS.org](http://www.TopekaGMS.org) or  
 Facebook: Topeka Gem and Mineral Society Field Trips

The Topeka Gem & Mineral Society, Inc.  
 Organized December 3, 1948

Member of Rocky Mountain Federation of  
 Mineralogical Societies American Federation of  
 Mineralogical Societies



The Glacial Drifter, Vol. 62, No. 05,  
 May 2019



The Purpose of the Topeka Gem & Mineral Society shall be exclusively educational and scientific: (1) to promote interest in geology and the lapidary arts; (2) to encourage the collection and display of rocks, gems, and minerals; (3) to encourage field trips and excursions of a geological, or lapidary nature; and (4) to encourage greater public interest and education in gems and minerals, cooperating with the established institutions in such matters.

Meetings: 4<sup>th</sup> Friday of each month, September to May, 7:30 pm, Stoffer Science Hall, Room 138, Washburn University. No meeting in December unless notified of a change. Picnic meetings are held, June, July and August.

Dues: Individual, \$15.00; Couple, \$20.00; Junior (under 18 years of age), \$5.00. Dues are collected in December for the following year. Send dues to: **Millie Mowry, Treasurer, 1934 SW 30<sup>th</sup> St, Topeka, KS 66611.**

[www.TopekaGMS.org](http://www.TopekaGMS.org)

## 2019 OFFICERS AND CHAIRS

President	Mike Cote	220-3272	Cab of the Month	Debra Frantz/Fred Zeferjohn	862-8876
1 <sup>st</sup> Vice Pres.	Dave Dillon	272-7804	Field Trip Coord.	Will Gilliland	286-0905
2 <sup>nd</sup> Vice Pres.	Cinda Kunkler	286-1790	Publicity	TGMS Board	
Secretary	Carolyn Brady	233-8305	Welcome/Registration	Harold Merrifield	633-9745
Treasurer	Millie Mowry	267-2849	Property	M. Cote/D. Dillon	220-3272
Directors	Brad Davenport	379-8700	AFMS Scholarship	Cinda Kunkler	286-1790
	Will Gilliland	286-0905	Editor/Exchange Editor	Millie Mowry	267-2849
	Chuck Curtis	286-1790	Show Chairman	Dave Dillon	272-7804
Historian	Open		Show Dealer Chairman	Dave Dillon	272-7804
Federation Rep	Harold Merrifield	633-9745	Show Secretary	Cinda Kunkler	286-1790
Corporation Agent	Millie Mowry	267-2849	Jr. Rockhound Leader	Jason Schulz	640-6617
Librarian	Millie Mowry	267-2849	Show Case Coordinator	Cinda Kunkler	286-1790
Web Master	Jason Schulz	640-6617			

Area Code for all numbers is (785).

## EXCHANGE BULLETINS WELCOME

For exchange newsletters contact the club via mailing address listed above or email at [rock2plate@aol.com](mailto:rock2plate@aol.com) .  
Permission is granted to reprint articles only if proper credit is given to the author, Glacial Drifter and the date.

## Words from Our Top Rocks!



Lessons at the Barn are open on Tuesday Nights  
as long as the weather is favorable...if not watch for an email.

If you have not sent back your Survey questions, please do so before the dead-line of May 24<sup>th</sup>.

As a reminder in the months of June, July and August, there will not be our regular club meetings, but, we will have pot-luck picnics at Millie's house on the 4<sup>th</sup> Friday of the month at 6:30 p.m.

Dave's wife is really sick and he will be taking time off to take care of her for a while. We ask that you do not bother him with questions that someone else can answer for you.

Mike Cote` & Dave Dillon

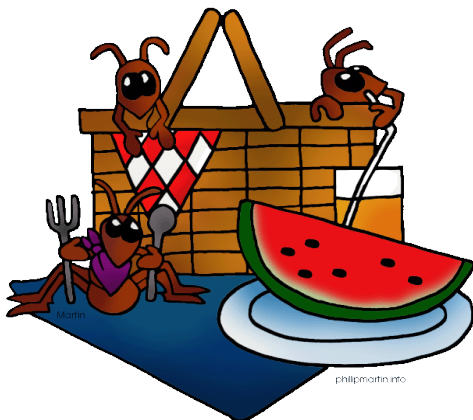
We need your **BEST CHOICE UPC Labels** --- Bring them to the monthly meeting,  
and give them to Cinda Kunkler.



Program for the May 24th, 2019 meeting:

TBA

Cinda Kunkler, 2nd Vice-President.



POTLUCK PICNIC AT Millie's

1934 SW 30<sup>th</sup> St. 6:30 p.m.

June 28, 2019

Bring your own table service & favorite picnic  
food to share. We eat inside where it is cool unless you  
want to eat on the patio. I will furnish ice tea and coffee.

## JR ROCKHOUND Classes & Reminders

Here are reminders of the next few months of classes: Topeka Shawnee CO Public Library sign in starting at 6:00pm and classes starting at 6:30pm. 1st Thursday of each month...



<https://www.facebook.com/TopekaGMSJuniorRockhounds>  
To register for the Junior Rockhounds or any of the classes, email:  
Jason Schulz at: Fleetcommander@att.net

- June 6, 6 – 8:45 p.m., Marvin Auditorium Room 101A, Fluorescent Minerals, Will Gilliland
- July 11, 6 - 8:45 p.m. Marvin Auditorium Room 101C, World of Miniatures, Cinda Kunkler/Brad Davenport
- Aug 1, 6 – 8:45 p.m., Marvin Auditorium Room 101A, Stone Age Tools & Art, Brad Davenport

**Reminder:** If you want to earn the patches from the classes that you have attended you need to turn in your homework assignments.

### Brad teaching Special Effects



This month, our Junior Rockhounds class learned about Special Effects from Brad Davenport. It was a virtual geology magic show as the kids learned about fluorescence, magnetism, and other interesting properties of rocks and minerals...

Our next class, Will Gilliland will cover various fluorescent minerals. Class will be June 6th in room 101A at the Topeka and Shawnee County Public Library. Sign-in starts around 6:00pm and class starts at 6:30. See you then!



## TG&MS Field Trip May 4, 2019

The May 4, 2019, Topeka Gem & Mineral Society spring field trip to Oklahoma was far different from we thought it would be. The Great Salt Plains were flooded with water and coats were welcome until afternoon when the sun came out. Attending were 12 club members and 8 guests for a day of seeking gypsum (selenite) crystals and their unique hourglass patterns of sand and silt. A Friday night recon showed water across the salt flats. Saturday at 8:30 A.M. the water appeared to be lower and the tracks of one brave couple lead out on the mile drive to the collecting area. The drive through the salt water and around or through major pot holes seemed much longer than one mile. The parking area was above water and the digging for crystals began. Our group braved the drive out, however several large groups of people decided to walk out.

The morning was cool and jackets were welcome most of the morning. Everyone found selenite crystals with the hourglass inclusions. By noon some were ready to leave and get cleaned up from the sand and salt. It appears that a good time of crystal mining was had by all. On returning home to clean and sort the crystals, I checked them under the UV light and found that the selenite crystals are both fluorescent and phosphorescence. The crystals react to both long and short wave lights with a orange tinted yellow that is stronger under short wave. The phosphorescence endures for a very short period and becomes slightly greenish as it fades. The sand inclusions do not react to the UV light.

Will Gilliland, Field Trip Coordinator



# TGMS Event Calendar

May 2019		June 2019	
1W		1S	
2T		2S	
3F		3M	
4S		4T	Barn Open Tonight 6 p.m. – 9 p.m.
5S		5W	
6M		6T	TGMS Jr RHD's, Marvin Auditorium 101A 6 P.M. Wire Wrap Class @ Millie's 1-3 p.m.
7T		7F	
8W		8S	
9T		9S	
10F		10M	
11S		11T	Barn Open Tonight 6 p.m. – 9 p.m.
12S		12W	
13M		13T	Wire Wrap Class @ Millie's 1-3 p.m.
14T	Barn Open Tonight 6 p.m. – 9 p.m.	14F	No Board Meeting
15W		15S	
16T	Wire Wrap Class @ Millie's 1-3 p.m.	16S	
17F		17M	
18S		18T	Barn Open Tonight 6 p.m. – 9 p.m.
19S		19W	
20M		20T	Wire Wrap Class @ Millie's 1-3 p.m.
21T	Barn Open Tonight 6 p.m. – 9 p.m.	21F	No Meeting at Washburn—Club Picnic @ Millie's 6:30 P.M. Potluck
22W		22S	
23T	Wire Wrap Class @ Millie's 1-3 p.m.	23S	
24F	General Meeting @ Washburn TGMS 7:30 pm, rm 138 Stauffer Science Hall, program TBA	24M	
25S		25T	Barn Open Tonight 6 p.m. – 9 p.m.
26S		26W	
27M		27T	Wire Wrap Class @ Millie's 1-3 p.m.
28T	Barn Open Tonight 6 p.m. – 9 p.m.	28F	
29W		29S	
30T	Wire Wrap Class @ Millie's 1-3 PM	30S	
31F			

**If you are interested in Wire Wrap Classes, contact Millie, 267-2849 or [rock2plate@aol.com](mailto:rock2plate@aol.com)**

**LESSONS AT THE BARN ARE WEATHER PERMITTING – WATCH FOR EMAILS**

No general meeting at Washburn Univ. during months of June, July and August. See you at the potluck picnics at Millie's house. See page 2.

Check out the calendar on our web site  
[www.TopekaGMS.org](http://www.TopekaGMS.org)

## Minutes of TGMS General Meeting

April 26, 2019

April 26, 2019 TGMS General Meeting was called to order by president Mike Cote.

There were 32 members and 3 guests present.

**Winners** of the doors prizes are: Jasper Jason Schultz; palm root Fred Zepherjohn; red jasper Donna Stockton

**The minutes** of March meeting are printed in the Drifter. It was moved and approved as presented.

**A field trip** to Great Salt plains was discussed. Let Will Gilliland know if you want to go. An article with instructions on what to bring to dig, safety equipment and water was in our March newsletter. Several other trips were discussed. Hope everyone has a safe trip and a good time.

**Scholarship:** Our club donated \$319 dollars to the national scholarships. That makes our donations to the scholarship fund 14,700% OR AN equivalent off \$1.00 per member for 147 year and puts us in the top 10% of the group.

Will Gilliland displayed a 25cent off coupon for a 1973 Show.

**Old business:** none

**New business:** none

**It was moved** and approved to adjourn to the program by Steve Wagner. His talk with beautiful pictures was on the 4 different categories of crinoids.

Don't forget the gem and mineral show at McPherson May 3-5.

**Cab of the month** winner are: crazy lace agate cab Brad Davenport; member jewelry Pietersite Millie Mowry; member faceted stone Regina Wampler; Chain mail bracelet Ian Schulz.

Submitted by Carolyn Brady, Secretary



## Nation Park Service (NPS)

### Website article: Minerals

A clear, concise article that is a great resource for beginning rockhounds and review of the basics for all!

"Minerals are formed naturally by geological processes. A mineral is a homogeneous solid that can be made of single native element or more usually a compound. Minerals make up Earth's rocks and sands, and are an important component of soils."



In this fossilized wood, silica minerals from volcanic ash have replaced the organic material. Minor minerals, such as iron, manganese, and carbon add the rainbow of colors. Petrified Forest National Park, Arizona. NPS photo

<https://www.nps.gov/subjects/geology/minerals.htm>

(Source: CIMS – Nuggets May 2019)

## A Tiny Mineral from JeffCO—GOYAZITE (pronounced GOY-a-ZITE)

By Beth Simmons and Bruce Geller

What is one of the smallest minerals from Jefferson County (and other places in Colorado) that you never heard of? How big is it? What strange chemistry does it have?

If you visit the Dakota hogback, at the I-70 road cut south of Golden, or along Alameda Parkway at Dinosaur Ridge you will find a rock layer called the Mowry Shale laying on top of the Dakota Sandstone. In both rock formations there are volcanic ash layers called “tonsteins.” Local geologists call them “porcellanite.” Around Canon City, they are called “kaolinitic bentonites” because of the abundance of the clay mineral kaolinite. Within the “tonsteins” are intergrown crystals that average about 1 micron ( $1/1000$ th of a centimeter = 1 millionth of a meter =  $\mu\text{m}$ ) in size, usually detected with a scanning electron microscope and/or x-ray diffraction. What is so unique about this rare mineral and what exactly is it?

Goyazite, with a formula of  $\text{SrAl}_3(\text{PO}_4)(\text{PO}_3\text{OH})(\text{OH})_6$ , was first described from a Brazilian deposit in 1884. It occurs as microscopic rhombic crystals in several colors, including white, yellow, colorless, lilac, pink, or orange. This mineral, and the closely related beudantite minerals, are best studied with a scanning electron microscope in back-scattered electron imaging, looking for heavy elements like strontium, barite, or lead.

Some of Colorado’s mines contain goyazite, or related phosphate-sulfate minerals of the beudantite group. In fact, according to mindat.org, Colorado has more goyazite localities than any other state. At Brown Mountain in Ouray County, Dan Kile identified microscopic pale yellowish-tan crystals as large as 1 mm, growing on small prismatic quartz crystals.

One report about the Eagle Rock Mine in the Boulder Tungsten belt near Nederland in Eckel et al. (1997, p.246) mentioned that “goyazite comprises 10 to 25% of the ore, occurring as tiny crystals and fragments. Generally it is most abundant in green horn quartz, where it accounts for the green color.” Though unable to identify any goyazite in samples from that mine nor any others he studied in the Boulder tungsten belt, Geller (1993) was able to confirm related phosphate-sulfates of the beudantite group, particularly hinsdalite ( $(\text{Pb,Sr})\text{Al}_3(\text{SO}_4)(\text{PO}_4)(\text{OH})_6$ ), corkite ( $(\text{PbFe}_3(\text{SO}_4)(\text{PO}_4)(\text{OH})_6$ ), svanbergite ( $(\text{SrAl}_3(\text{SO}_4)(\text{PO}_4)(\text{OH})_6$ ), and possibly woodhouseite ( $\text{CaAl}_3(\text{SO}_4)(\text{PO}_4)(\text{OH})_6$ ).

Another reported Colorado goyazite locale is the Sweet Home Mine near Alma, where “attractive, well-formed, brilliant orange goyazite crystals as much as 1/4 inch” across are found. They are associated with pink to purple fluorite crystals, gemmy rhodochrosite, and pale-green fluorapatite crystals” (Eckel, et al., 1997, p.246). You may never see or own a piece of GOYAZITE, but we thought you’d like to know that it exists, right in our backyard!

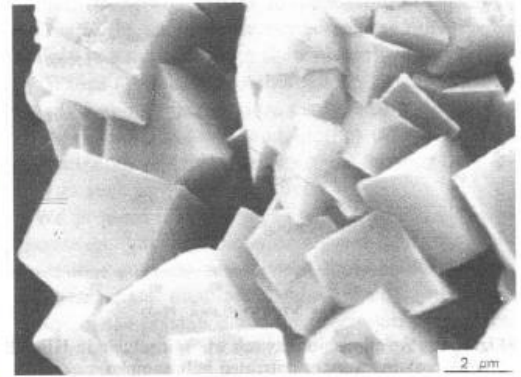
### REFERENCES:

Eckel, Edwin, et al., 1997, “Goyazite” in Minerals of Colorado, p. 246.

Geller, B.A., 1993, Mineralogy and origin of telluride deposits in Boulder County, Colorado: Boulder, Colorado, University of Colorado Ph.D. dissertation, 731 p.

Triplehorn, D. M., and Bohor, B. F., 1983, Goyazite in kaolinitic altered tuff beds of Cretaceous age near Denver, Colorado: Clays and Clay Minerals, v. 31, no. 4, p. 299–304.

(Source: DGMG -Tips & Chips May 2019



Scanning electron micrographs of GOYAZITE from the Mowry Shale at the Turkey Creek roadcut. (From Triplehorn and Bohor)

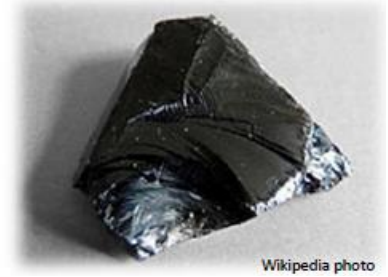


Scanning electron micrographs of GOYAZITE from the Mowry Shale at the I-70 roadcut. (From Triplehorn and Bohor)

# About Obsidian, an Intrusive, Igneous Rock

By Ed Peterson

Igneous rocks are often divided into two groups, intrusive and extrusive rocks. Intrusive rocks are those that form as a result of molten rock, called magma, intruding between masses of rock below the earth's surface and then solidifying. The rock that cools below the earth's surface cools relatively slowly, giving time for different minerals to separate and form crystals of particular minerals. The slower the rock cools the larger the crystals. Examples are granite, diabase and gabbro.

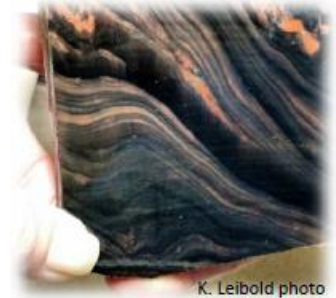


Extrusive rocks are a result of molten rock (magma) forcing itself above the earth's surface and then cooling and solidifying. This can be by volcanic eruption or through fissures in the earth's crust. Examples of extrusive rocks are pumice, obsidian, basalt, and rhyolite. Extrusive magma cools fast forming rocks having tiny crystals, generally too small to be seen without magnification or rock having extremely small or a near absence of crystals. Examples of extrusive rock with typically tiny crystals are pumice, scoria, rhyolite and basalt. Obsidian results when volcanic rock cools especially rapidly resulting in a near-absence of crystals (If magma cools so rapidly that open spaces required for crystal growth does not occur, molecules of minerals When magma reaches the surface through volcanic action, pressure inside the volcano decreases rapidly and water in the magma escapes as steam. The magma, minus water, becomes very viscous and cools rapidly, resulting in very limited crystal growth. This kind of lava flows very slowly and is called obsidian. On the surface of the volcano obsidian generally picks up impurities. If the obsidian results from flowing in volcanic vents the obsidian is often free from impurities.

Because of obsidian's high viscosity minimal mixing of magmas having different minerals occurs. It can form streaks and patterns of different colors, though, because of some mixing of various layer colors. Slow movement and mixing of obsidian layers can form varieties of obsidian such as "midnight lace." Colors are due to the variety minerals in the obsidian.



The black or brown color, for example, is due to the presence of hematite or limonite. Trapped gas and crystal orientation affects the reflected light and thus the appearance. "Rainbow obsidian is a result of the orientation of tiny crystals of feldspar or mica in flow layers. Gold and silver sheen obsidian results from the reflectance of tiny gas bubbles that have been trapped and stretched along flow layers. Over extended time obsidian gradually changes from glass to rock. This is called "devitrification." Devitrification occurs when the silica molecules in the rock slowly orient themselves to



form crystals. "Snowflake" obsidian is a result. As a result of devitrification snowflake obsidian is not as conchoidal and glassy.

Obsidian has a glassy texture. It is roughly 70 percent silica which is chemically rather similar to granite and rhyolite. It has a hardness that varies between 5 and 5.5. It has a conchoidal fracture and is brittle with sharp edges due to the near absence of crystals.

(Source: CIMS – Nuggets May 2019)

