TC ROCKHOUNDS

October 2024 issue

The next regular meeting will be on THURSDAY, October 17 at 7:00 p.m. at the VFW Post at 3400 Veterans Drive in Traverse City. Our meeting is starting one half hour later, due to a dinner that was previously scheduled.

The meeting will feature another Pebble Pub 5 Minute Program, and the main program will be Dave Regalbuto speaking on Camaanite and Llanite from Central Texas.

The next regular meeting of Pebble Pups will be at 5:30 pm, October 17 in the room attached to the restaurant portion of the VFW.

During the next pebble pup meeting on October 17, they will be working with crushed rock from a Montana mine and looking for sapphires in this material. There may also be other interesting semiprecious gems like garnets and quartz. Someone has even found a gold nugget in the material before. So come ready for fun and adventure. All materials will be supplied. Remember we are meeting in a different room. When you come into the VFW take a left, enter the large room where there is a restaurant with tables, then to the left is the pebble pup room. We start at 5:30.

September Highlights

The September 19 meeting featured a short program by Pebble Pup, Brody Dymond on **Pachyteuthis densus**: A fossil belemnite from the Upper Sundance Formation, Buffalo, Wyoming. The main program was “The Green River Fossil Fish Formation in Wyoming” by Jenny Bowen. A special door prize event took place where the lucky winner got to split open a piece of matrix from Wyoming to look for various fossils.

Food Pantry Donations

Lorna Coe and Jim and De Elder would like to thank all that have brought items for the food pantry and clothing donations. Due to the success of the

program, it will continue at every meeting. Non-perishable food items (no expired dated items, please), personal hygiene products, children's new underwear, sizes elementary to teens, toothbrushes and toothpaste. As an added incentive, every time you donate items, put your name in the hat for a drawing, which will take place at our Christmas dinner.

Upcoming Field Trip and Special Event Information

Oct 19-20 Rockport/Rogers City, MI Fossil Hunting Trip

The last GTRMC outing of the year will be to northeast Michigan. This can be done as a long there-n-back, or some folks enjoy turning this into an overnight/camping trip. The plan includes:

Saturday October 19 - Rockport State Recreation Area (RSRA): on Lake Huron, approximately 10 miles north of Alpena. The RSRA is a 3-hour drive from Traverse City. Rockhounding is available on the pile north of the parking area, in the former 300-acre limestone quarry located inland from the parking area, and along the Lake Huron shore. Bring a lunch, dress for the weather, and bring collecting tools/buckets. The RSRA

falls within the Michigan DNR's annual limit of 25 pounds/person. You will need a recreation passport for entry. The designated meet time at the parking lot is 11:00 am.

Here are two useful websites for the RSRA:

Rockport Recreation Area Detail (michigandnr.com)

Go on a Fossil Hunting Expedition at Rockport Recreation Area (awesomemitten.com)

Sunday October 20 - Optional Visits to Besser Museum and/or Rogers City Fossil Parks:

The Besser Museum, 491 Johnson Street in Alpena, provides a collecting area that is free and open to the public, behind the museum. The museum

itself is open on Saturdays and thus can be visited before reaching Rockport on 10/19, or one can rockhound their pile at your leisure on 10/20. The free fossil park is located on the west side of the building at the back of the museum's parking lot. This fossil park is open to the public from dawn to dusk depending on weather conditions. For more information:

Fossil Park | bessermuseumnew

Similar to the Besser Museum, there is a new fossil park that is open to the public in Rogers City at South Shore Park:

Downtown Rogers City, Little League Ballfield
Rogers City, MI 49779
GPS: 45.41833, -83.80556
More information:

Rogers City Fossil Park - US-23 Heritage Route (us23heritageroute.org

December 8 Holiday Party (date to be confirmed)

Membership Information

From Cathy Kowaleski, Membership Chair:

You must be a paid member to continue to receive club benefits (participation in classes, outings and receiving club newsletters.)
Dues are $15 Adult or $20 for a couple, Juniors (8-17) $5, and those under 8 are free with an adult membership. Name badges are an additional $8 per badge. Thank you!

Make checks out to GTARMC.

Membership dues may be mailed to:

Cathy Kowaleski, Membership Chair
801 S. Garfield Avenue #241
Traverse City, MI 49686

Club Email Addresses

gtarmc@tcrockhounds.com (is our main club email address)

To send a request for classes or workroom time, please send an email request to our club scheduler.

scheduling@tcrockhounds.com

If you have any photos that you would like to share of club events or members, those can be sent to:

photos@tcrockhounds.com or noonanjohntc@gmail.com

To view club photos on Flicker, enter the following web address:

GT Rock & Mineral | Flickr

President	**Vice President**	**Secretary**	**Treasurer**
Eric Hallman	Bob White	De Elder	Sandie Bull
231-620-6567	231-676-3644	231-360-7111	231-929-3630
ehall686@gmail.com	bluerockcreative@gmail.com	jde123123@yahoo.com	sandie.bull@yahoo.com

Field Trip Coordinator	**Education & Training**	**Workroom & Classes**	**Facebook Page**
Dave Regalbuto	Pierre LaFoille	Denise Groesser	Jenny Burcroff
517-256-4716	586-907-3512	231-714-4559	231-499-4714
dregs9727@yahoo.com	pals0210@gmail.com	scheduling@tcrockhounds.com	burcrofj@gmail.com

Newsletter & Website	**Membership**	**Refreshments**	**Club Show Chair**
Lauren Vaughn	Cathy Kowaleski	Pat Captain	Lauren Vaughn
231-276-6150 H	231-633-0700	231-946-3026 H	231-276-6150 H
231-342-3613 C	ctkowaleski@gmail.com	231-342-6674 C	231-342-3613 C
maple2b@aol.com		cappat@aol.com	maple2b@aol.com

The above contact list will be included in each newsletter so that you know who to contact for various items.

Annual Club Rock and Mineral Show

The annual club show was held on September 28 and 29 at the VFW hall. I would like to thank all volunteers and vendors who participated in the very successful event. There were good crowds both days with lots of families enjoying the day together.

Facebook Page

Visit the club's Facebook page at this web address. There is also a link on our club website. https://www.facebook.com/TCRockhounds

Upcoming Pebble Pup Event

Greetings, there will be a special pebble pup meeting at the Boardman River Nature Center on Cass Road on October 14th. The Pebble Pups will meet with the youth of the TC area for a special celebration of Earth Science Week. The Pebble Pups will then meet again at the VFW for their regularly scheduled session.

October 14th	**Special Event: October 14th Meeting at the Boardman River Nature Center on Cass Road 5:30 pm**	**Earth Science Week** The theme of Earth Science Week 2024 will be "Earth Science Everywhere." The event, to be held October 13-19, 2024, will explore the many ways that earth science is conducted — by various types of people and professions in interconnected disciplines — to help solve problems for communities and the planet.	

October Letter from the president.

This sounds like a fun idea for our rock club! I would like to suggest a common theme color for Rocks each month of the year, inspired by seasonal themes and traditional associations. Below is a list for the year.

- January: White, Light Blue
- February: Cherry Red, Pink
- March: Emerald Green, Purple
- April: Pale Yellow, Grass Green
- May: Cream, Lilac
- June: Pale Orange, Pearl
- July: Coral, Yellow
- August: Burnt Red, Orange
- September: Deep Blue, Gold
- October: Rust, Maroon
- November: Brown, Amber
- December: Silver, Pine Green

.
These colors can help highlight different rocks and minerals that match each month's theme. Let's test it out with October bring in your favorite rock that is Rust or Maroon colored. Maybe that would be a piece of iron ore, a garnet in the matrix, maybe a Lake superior agate, pudding stone or a Jasper. With so many rocks and minerals to choose from in this color, what are you going to bring to the next meeting on October 17th start time of 7:00pm.

October is Rust, Maroon
Rust and maroon are popular colors for October because they reflect the natural changes and mood of the season. As autumn progresses, leaves turn various shades of red, orange, and brown, creating a warm and cozy atmosphere. Rust symbolizes the changing leaves and the earthy tones of fall, while maroon represents the deep, rich hues that become more prominent as the days grow shorter.

These colors also evoke a sense of warmth and comfort, which is perfect for the cooler weather and the festive spirit of the month. I think that I may even wear a rust or maroon shirt too. The red colors in rocks are primarily caused by the presence of iron oxides, such as hematite (Fe_2O_3).
When iron in the rock oxidizes, it forms these iron oxides, which give the rock its reddish hue. This process is similar to how iron rusts when exposed to oxygen and water.
For example Jasper is an opaque variety of chalcedony, which is a type of quartz. It's known for its rich, vibrant colors, often red, yellow, brown, or green, and sometimes even blue. The red color typically comes from iron inclusions[1]. Jasper is often used in jewelry and decorative items due to its beautiful patterns and colors.

Rock on Eric Hallman

New Member Class: Grand Traverse Area Rock and Mineral Club

Saturday, November 9, 2024

Time: 9:30 am to 1:00 pm

Traverse Area District Library

610 Woodmere Ave, Traverse City, MI 49686

Thirlby room (take elevator to second floor, turn left)

This class is limited to 15 people. By reservation only. Email steven.veatch@gmail.com to reserve your spot today. This class is for members only, and dues must be paid prior to attending.

Class description: This class will provide you with the basic knowledge you need to get started with "rockhounding" or "recreational geology" with the Grand Traverse Area Rock and Mineral Club. You will learn about how the club works and receive information you need to prepare for your first rockhounding trip. The information in this class will cover all the bases, including a review of rocks, minerals, and fossils, how to make a collection, equipment you need, and on down to the safety rules you need to observe on a field trip. Michigan rockhounding resources will be handed out in the class. You will leave the class with a better understanding of the club and this hobby.

Here is the article written by Brody Dymond that he highlighted in his presentation at the September meeting.

Pachyteuthis densus

by Brody Dymond

The *Pachyteuthis densus* was the fossil of a belemnite found in the Upper Sundance formation in Buffalo, Wyoming. Belemnites were a type of squid that lived many years ago.

Image of the *Pachyteuthis densus study specimen. Photo date 2024 by B. Dymond.*

Belemnites evolved to have a different way of protecting themselves from other types of marine animals. They were fast swimmers! Instead of having an external shell, their shell was internal, which helped them speed through the water to escape from predators. The internal shell of a belemnite is the part that was fossilized. There are three parts of the internal shell: the pro-ostracum, the phragmocone, and the rostrum.

A group of belemnites was called a battlefield. The average size of the belemnites when they were alive was 30 - 50 centimeters long. Belemnites could be found worldwide in shallow waters close to the shore. Belemnites ate small fish, other marine animals, and possibly other belemnites.

The belemnite's tentacles did not have suction cups like squid today. Instead, they had curved hooks. While squids today have eight arms, the belemnites had ten arms and on each arm were 30-50 curved hooks. They used the hooks on their arms to capture and eat small marine animals. While some squids today are the same size as belemnites, some squids can get much bigger. For example, Colossal Squid can get up to 14 meters (46 feet) long!

The Belemnites went extinct at the end of the Cretaceous Period roughly 65.5 million years ago. They died around the same time as the dinosaurs.

This artwork was created by Iris Wild, second grade. GTARMC Pebble Pup. The foreground shows Petoskey Stones on a beach at the Sleeping Bear Dunes National Seashore with Lake Michigan and the sun in the background.

Unearthing Ancient Fossils:
A Reflection on the Giants in My Life

By Steven Wade Veatch

I remember a scorching summer afternoon in 1992, when, with my new wife Shelly and mother-in-law Karen, I walked on a trail that meandered down the hill known as Cope's Nipple—named after the 19th-century paleontologist who explored this site for dinosaur bones. People refer to the area as Garden Park, and it is located a few miles north of Cañon City, Colorado.

With my mother-in-law in tow, I took the lead and attempted to be on my best behavior. She was visiting us from Interlochen, Michigan. As we walked, her presence loomed over me, casting a shadow that seemed to stretch endlessly. The air was heavy with her silent intensity, making the surroundings feel eerily quiet. I imagined a pleasing scent in the air. It reminded me of my mother-in-law's garden in Michigan. This added a mysterious touch to the atmosphere. It felt as if every step we took was heavy, as if her presence alone had a gravitational pull. My thoughts went back and forth between making a good impression on her and conjuring in my mind—since we were walking on a dinosaur graveyard—a spike-tailed *Stegosaurus* defending himself from an *Allosaurus*.

Depiction of an *Allosaurus* prowling about in Garden Park during the Jurassic Period. AI generated.

As I walked through this area, memories flooded back from two years before when I had explored it with a friend. As we made our way up a hill on that sunny day my friend and I unexpectedly came across a hilltop ornamented with an abundance of petrified wood. The sight was mesmerizing, with the hill covered in these ancient, hardened remains of trees. The wood appeared as if frozen in time, its intricate patterns and textures on full display. The crisp sound of our footsteps echoed through the stillness of the hilltop, adding an eerie ambiance to the scene. A faint scent of earthiness lingered in the air, reminding us of the long history embedded in these petrified remains. As we gently touched the wood, a cool, smooth sensation greeted our fingertips, connecting us to the past. We were the first ones to see all of this petrified wood. If someone had been there before us, all the wood would probably have been taken.

Shelly and Karen kept up with me as we continued to descend Cope's Nipple. The scorching sun baked everything in a relentless heat. While we were going down a gentle slope, Shelly and Karen talked about how different this landscape was than the woodlands and humid air of northern Michigan. Shelly vividly recounted to her mother the harrowing encounter she had had a year before, when a venomous rattlesnake unexpectedly lunged at her on an earlier trip here. She urged her mother to remain vigilant and attentive while going down the pathway.

It was the hottest part of the day as we continued to walk along the trail that now cut through a dark-red disintegrated siltstone, part of the world-famous Jurassic-age Morrison Formation. Insects buzzed under an intense Colorado blue sky. A scorpion scurried with a quick dart beneath a cracked slab of siltstone, its jagged edges leaning against a smooth cobble of quartz. Time seemed to slow down in the heat, and seconds lingered in the dry air.

I had been here in the spring of 1991 with a prospector buddy. On that day, while ascending a ravine, we stumbled upon huge heaps of bentonite clay. It had rained the night

before, and the clay had swollen up to five times its normal size. Nodules of a lilac-purple St. Stephen's agate were bulging out of the swollen, wet clay. I crawled up the side of a clay mound and plucked out one of these agates. As I held it to the sunlight to see the concentric layers inside, I slipped and slid down the slick clay on my backside. Wet, cement-like clay covered my back to my head. There was no way to wash it off, and it was solidifying in the arid air. My wife had a lot to say about this when I returned home. She also wanted to see this place, Garden Park, the next time I went.

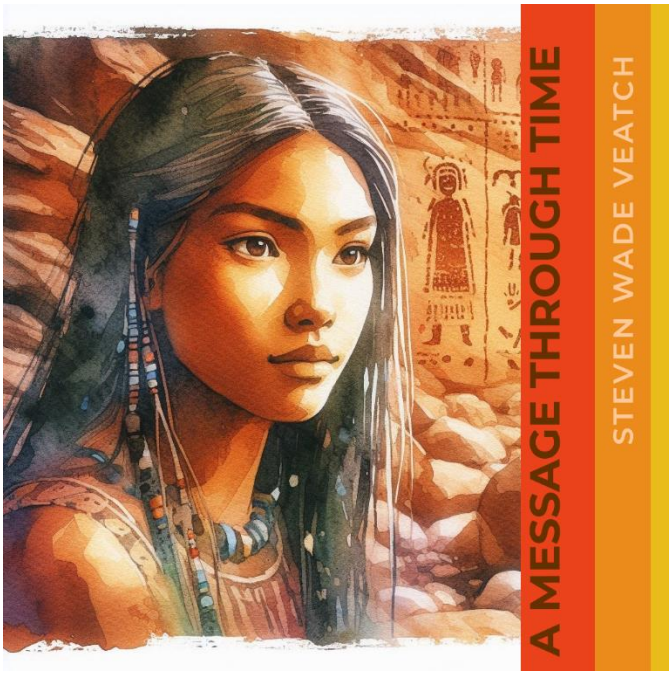
Now my adventure with my wife and mother-in-law heated up. The dirt-covered path, lined by piñon pine, was in the middle of a dinosaur graveyard and was under the protection of the Bureau of Land Management—no fossil collecting allowed. I couldn't imagine dinosaurs once ruled this dry, semi-arid land covered with yucca and cactus. As we walked along the trail Shelly's voice poked into my consciousness. She had just bent down to pick something up from the side of the path. She was describing it to her mother: "It's cone-shaped with a subtle curve. It has a pointed end." She continued, "The other part of this is not pointed. There is a serrated edge." The word SERRATED thundered across my consciousness. I asked her if I could see it. She handed it to me. I knew at once she had stumbled upon an extraordinary find—a pristine *Allosaurus* tooth, a relic from a formidable dinosaur that once reigned supreme in Garden Park's prehistoric ecosystem. The ancient fossil, with its sharp edges and intricate ridges, exuded a sense of raw power. As I held it in my hand, I could feel the weight of its history, imagining the ferocious battles it had fought. The sight of the tooth gleaming in the sunlight transported all of us back to a time when mighty dinosaurs roamed the land. The faint scent of earth and ancient fossils lingered in the air, arousing a sense of awe and excitement.

It was now time to finish the hike. We left the hotter, drier landscape for a riparian environment. Four Mile Creek greeted us as it sliced its way through a scenic valley adorned with cascading layers of limestone, siltstone, and sandstone. The gentle sound of flowing water filled the air, harmonizing with the rustling of cottonwood leaves along the creek bank. The earthy scent of wet soil along the stream mingled with the refreshing aroma of the nearby vegetation. As we stood there, we couldn't help but feel a sense of awe and wonder at the natural beauty surrounding us.

The day changed, it shifted into something new. Shelly' discovery was important. You don't find an *Allosaurus* tooth every day. My mother-in-law had a breakthrough in how she thought about me. She enjoyed our day together and listening to me talking about a vanished ecosystem filled with dinosaurs.

And I discovered how fortunate I was to have these two women in my life.

The previous story is written by Steven Veatch along with the poem that follows.



Mammoths, sabertoothed cats, and cave bears
once ruled this place. When people first came,
they lived here in rock shelters, floored
with packed dirt, below smoke-blackened ceilings.
On canyon walls—splashed with desert varnish—
they carved and pecked designs, symbols,
people and animals: *A message through time.*

This site awakens my senses as my mind
conjures vivid images of ancient people
moving, swaying, dancing in the warm glow
of a crackling campfire while casting shadows
on the smooth canyon wall.
They send a message through time.

I think about these ancient people
who have faded into the dry desert air
and try to understand their
message through time.

Finally, is information shared by Eric Hallman on Petrified Wood to go with his presentation in July.

Petrified Wood

First, what is Petrified wood?

Petrified wood is a fossil. The first step in this process is for the organic material to become buried under sediment. This can occur through natural disasters like floods, volcanic ash and landslides or simply through normal sedimentation over time. Once buried, the organic matter becomes protected from exposure to oxygen and microbial decay – both essential triggers for rotting of the wood.

Once the wood becomes “water-logged” then comes the infiltration of minerals: groundwater containing dissolved minerals replacing the original plant material with calcite, pyrite, or another material silica, such as opal. These minerals slowly percolate into the layers surrounding the organic material by seeping down through faults and cracks. Over time, these minerals fill in tiny spaces within the cell walls and gaps between cells replacing them entirely with the minerals .

Once completely replaced with mineral deposits, more specifically with silica (the main component of quartz), petrified wood now sparkles with iridescent colors like blues, purples, reds and greens giving it an otherworldly glow that looks almost too beautiful to be real. In addition to silica deposits, the replacement process sometimes included copper and chromium residue which gives rise to greenish hues (the rarest of color) inside petrified wood pieces.

Petrified wood has 4 stages or types

Petrified, Agatized, Opalized and Crystallized.

Let's look into each one of these stages/types.

Stage 1 Petrified, Calcium Carbonate replacement (calcium carbonate, $CaCO_3$). Some good examples of calcium carbonate mineralization from spring limestone deposits is the Eastern Alps. Individual deposits range in mineralogy from aragonite plus magnesian calcite to primary low-magnesian calcite.

Stage 2 Agatized - basically Quartz replacement by chalcedony (cryptocrystalline Quartz)
The Petrified forest in AZ is a good example of agatized wood.

Stage 3 Opalized - Fine silica dioxide replacement (silicon dioxide, SiO_2)
One famous spot for Opalized wood is in Virgin Valley, Humboldt county, Nevada.
Oplized wood is the state gemstone for Nevada from this area.

Stage 4 Crystalized: Where the voids are filled with crystals after petrification. Hollow logs or branches that did not decompose will sometimes crystalize in the vugs.

In the United States, noteworthy locations where abundant fossilized wood can be seen include: Please note that some of these locations are for viewing only and collecting may not be allowed.

- Petrified Forest National Park near Holbrook, Arizona
- Petrified Palm Deposits in the Catahoula Formation of Louisiana, Texas and Mississippi
- Ginkgo Petrified Forest near Wanapum Reservoir, Washington
- The Petrified Forest near Calistoga, California
- Mississippi Petrified Forest near Flora, Mississippi
- The Gilboa Fossils near Gilboa, New York
- Florissant Fossil Beds near Florissant, Colorado
- Gallatin Petrified Forest near Yellowstone, Wyoming
- Escalante Petrified Forest State Park near Escalante, Utah
- Petrified Wood Park in Lemmon, South Dakota (a rock sculpture park - some made of local petrified wood)
- Blue Forest near Eden Valley, Wyoming

Above - Limb cast and petrified wood -

Agatized and some common opal replacement - Fully opalized piece below