TC ROCKHOUNDS

March 2025 issue

The next regular meeting will be on THURSDAY, March 20 at 6:30 p.m. at the VFW Post at 3400 Veterans Drive in Traverse City. See below for more information.

The next regular meeting of Pebble Pups will be at 5:30 pm, March 20, in the big room where the regular club meetings are held.

February Highlights

Vice President Bob White gave a slide presentation of his trip out west this past summer.

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, ***(Please check to make sure that there are no expired dates on the food items, they can't be accepted by the food banks if they are expired.),*** personal hygiene products, children's new underwear, sizes elementary to teens, toothbrushes and toothpaste. Now that we are in cold winter weather, please bring mittens and gloves, coats and other cold weather items, especially for school-aged children. 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.

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 Field Trip and Special Event Information

Please forward ideas for field trips to Dave Regalbuto. His contact information is listed below.

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
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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.

Rock color of the month for March; Green and Purple.

Green Rocks make a brilliant choice for March for a couple reasons:

Spring Season: March marks the beginning of spring in many parts of the world. Green is often associated with renewal, growth, and the lushness of springtime. Celebrating green rocks aligns perfectly with the theme of nature coming back to life.

St. Patrick's Day: This holiday, celebrated on March 17th, is closely associated with the color green. Featuring green rocks can tie into the festive spirit of St. Patrick's Day and the imagery of shamrocks and emeralds.

Emerald: This precious gemstone is a variety of the mineral beryl and gets its rich green color from trace amounts of chromium or vanadium. Emeralds have been prized for thousands of years and are often associated with royalty and luxury.

Malachite: Known for its vibrant green color and distinctive banded patterns, malachite is a copper carbonate mineral. It's often used for decorative purposes, such as in jewelry and ornamental carvings.

Jade: Jade comes in two varieties, jadeite and nephrite, both of which can exhibit green colors. Jade has been highly valued in many cultures, particularly in China, for its beauty and durability.

Peridot: This gem-quality variety of the mineral olivine has a distinctive yellow-green color. Peridot is often found in volcanic rocks and is one of the few gemstones that occur in only one color.

Serpentine: This group of minerals has a characteristic green color and a waxy luster. Serpentine is often used as a decorative stone and can be found in sculptures, countertops, and tiles.

Purple Rocks- Purple rocks can bring a sense of beauty and uniqueness to your rock collection. Plus, with spring on the horizon, the color purple can symbolize new beginnings and growth.

Amethyst: This is the most well-known purple gemstone and is a variety of quartz. It has been prized for centuries for its rich purple color, ranging from light lavender to deep violet. Amethyst is also the birthstone for February, so discussing it in March can tie into the theme of spring renewal.

Fluorite: This mineral comes in a variety of colors, including beautiful shades of purple. Fluorite often forms in cubic crystals and is known for its fluorescence under ultraviolet light.

Lepidolite: This lilac-gray or rose-colored mineral is part of the mica group and often has a pearly luster. Lepidolite contains lithium and is used in the production of lithium batteries.

Identifying rocks - Identifying your rocks in the field can be a fun and rewarding experience! Here are some tips to help you distinguish between different green rocks:

1. **Color and Shade**: Pay attention to the specific shade of green. Some rocks, like emerald, have a deep green color, while others, like peridot, have a yellow-green hue.
2. **Luster**: Observe the rock's luster or how it reflects light. For example, jade often has a smooth, glossy appearance, while serpentine may have a waxy or greasy luster.
3. **Transparency**: Check if the rock is transparent, translucent, or opaque. Emeralds and peridot are typically transparent to translucent, whereas malachite is usually opaque.
4. **Hardness**: Use the Mohs hardness scale to test the rock's hardness. For instance, emerald is quite hard (7.5-8), while serpentine is softer (2.5-5.5).
5. **Crystal Structure**: Examine the rock's crystal structure. Emeralds have hexagonal crystals, while malachite forms botryoidal (grape-like) clusters or fibrous patterns.
6. **Streak**: Perform a streak test by rubbing the rock on a porcelain streak plate. The color of the streak can help identify the mineral. For example, malachite leaves a green streak.
7. **Associated Minerals**: Consider the minerals commonly found with the green rock. For example, peridot is often found in volcanic rocks alongside minerals like olivine and pyroxene.
8. **Location and Geology**: The geological context and location where you find the rock can provide clues. Certain green rocks are more common in specific geological settings. For instance, jade is often found in metamorphic rocks.
9. **Reactivity with Acid**: Some green minerals, like malachite, will react with dilute hydrochloric acid (HCl) by fizzing or bubbling. This can be a helpful identification tool.
10. **Special Properties**: Some green minerals have unique properties. For example, jadeite and nephrite have a distinctive smooth feel, and serpentine may have a slightly greasy texture.

It's always helpful to bring a hand lens, and basic tools like a streak plate and hardness kit to help you identify the rocks when rock hunting.

Pebble Pups News

The following two Pebble Pup field trips are announced for your consideration. Mark your calendars. Please register through Steven Veatch. I need the pebble pup name, which parent/guardian will be coming, and which trip you are coming on. There is no collecting on the first trip. Collecting is allowed on the second trip. Last year several pebble pups hit a lagerstatten (jackpot).

Ice Age Odyssey: Hiking through the Legacy of the Ice Age

Location: Brown Bridge Quiet Area

Theme: Exploring the Ice Age

Date: April 12, 2025

Time: 10 am to 12 pm

Description: Embark on a transformative journey with the "Ice Age Odyssey: Hiking through the Legacy of the Ice Age," a trailblazing expedition that unveils the remnants of a glacial epoch etched into the landscape. This immersive hiking program offers hikers the unique opportunity to traverse breathtaking terrains shaped by the colossal forces of the Ice Age. Led by knowledgeable guides well-versed in geological history, hikers will meander through stunning vistas adorned with ancient moraines, glacial valleys, and picturesque remnants of ice-carved landscapes. Along the way, adventurers will gain profound insights into the ecological and geological legacies left by the retreating ice, fostering a deep connection to the Earth's dynamic past. This hike promises not only a physical exploration but also a captivating narrative that unfolds with every step, leaving participants with a newfound appreciation for the enduring imprints of our planet's icy heritage.

Ancient Echoes Expedition: Journey into the World of Fossils

Location: Sabin Loop- Fossil Beach

Theme: Fossil Discovery Hike

Date: May 3, 2025

Time: 10 am to 12 pm

Description: Embark on an extraordinary adventure with the "Ancient Echoes Expedition: Journey into the World of Fossils," a thrilling hike that invites you to step back in time and explore the geological wonders of our planet. This immersive program guides hikers through a captivating landscape rich in ancient echoes, where fossilized remnants tell the tales of

prehistoric life. Led by seasoned experts in paleontology, the expedition combines the excitement of a scenic hike with hands-on fossil discovery, offering participants the chance to learn about ancient creatures. As the trail winds through breathtaking vistas, participants gain a deep appreciation for the geological history that shaped the world we know today. This hike is not just a physical journey but a profound exploration into the mysteries of Earth's past, fostering a connection between pebble pups and the awe-inspiring narratives concealed within the rocks and fossils of the landscape.

More from Steven Veatch

A Florissant Fossil for the White City

by

Steven Wade Veatch

The "Big Stump" at Florissant Fossil Beds National Monument, Colorado is one of the larger petrified stumps exposed in the Monument: it measures 3.6 meters tall and is 3.7 meters in diameter at breast height (Meyer, 2003). This solitary petrified stump is all that remains of a tree that was more than 60 meters tall when a volcanic mudflow (lahar) buried its base during the late Eocene.

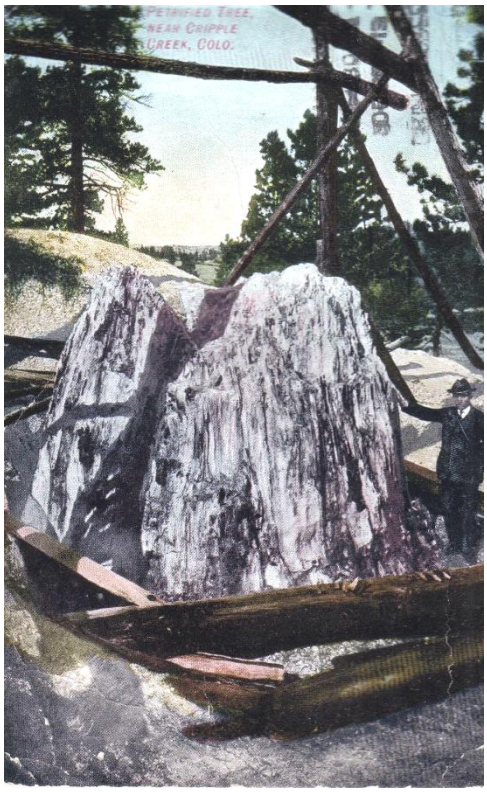


Figure 1. This postcard, ca. 1894, shows a wooden framework built around Big Stump. From the E. Simmons collection.

Big Stump is similar to the modern *Sequoia* (redwood) and is the type specimen described by Andrews in 1936 for *Sequoioxylon pearsallii*. An often-confusing aspect of paleobotany is that different organs (e.g., wood and leaves) that belong to the same living species are sometimes preserved isolated and unattached, in the fossil record. Therefore, it can be difficult to prove that they belonged to the same living species. For that reason they are sometimes given different names as fossils. At Florissant, *Sequoioxylon pearsallii* is the name assigned to the fossil wood and *Sequoia affinis* is the name

for cones and foliage. They likely belonged to the same species of tree when they were living, but this cannot be proven unless these organs can be found attached in the same fossil. Philosophies differ, however, and in 1953 MacGinitie placed *Sequoioxylon pearsallii* into synonymy with *Sequoia affinis*. (Synonymy in the fossil record refers to the situation where two or more scientific names have been applied to the same fossil taxon.)

The Big Stump has been depicted in early photographs and postcards that date back to the late 1890s. Geologist Arthur Lakes, on an early expedition to the area with paleontologist Samuel Scudder, marked the location of a "petrified forest" on his original watercolor map in 1878—the general area where Big Stump is situated.

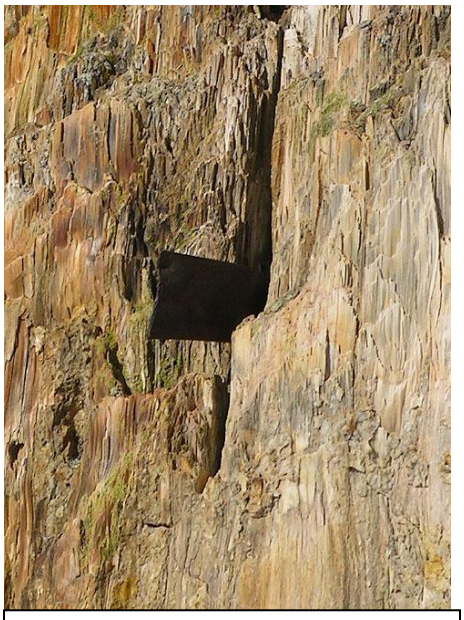


Figure 2. A broken and rusted saw blade remains wedged in Big Stump from an attempt to cut it into sections and ship it to Chicago for the World's Fair. Image date 2003 by S. Veatch.

There was once a local effort to send this incredible fossilized tree stump to the World's Columbian Exposition (The Chicago World's Fair) of 1893. A plan was made in 1890 to remove the stump, transport it to Chicago by rail, and then rebuild it at the fair. Fortunately, the attempt to remove Colorado's prized fossil was unsuccessful. As it happened, the workmen's saw blades became permanently wedged in the fossil wood. The plans to send Florissant's famous stump to the Columbian Exposition were then quickly abandoned.

The World's Columbian Exposition, one of the greatest cultural events of the nineteenth century, was named in honor of Christopher Columbus and celebrated the 400th anniversary of his arrival in the New World.

Thousands were employed in the development of 633 acres of fairgrounds and the construction of 200 buildings in Chicago's Jackson Park. Many of the fair buildings were located along constructed waterways fed by Lake Michigan. The Court of Honor buildings (14 main buildings) were

Figure 3. This ticket admitted the bearer into the World's Columbian Exposition in Chicago, a landmark event in American history and culture. From the Michele Veatch Collection.

covered in white stucco. Visitors, after seeing these white buildings, began to call this the White City. After three years of planning and building, and at a cost of twenty-eight million dollars, President Cleveland opened the fair on May 1, 1893. Ticket prices were 50 cents for adults and 25 cents for children.

Visitors to the Columbian Exposition enjoyed more than 65,000 exhibits and attractions. The fair contained many marvels and introduced Americans and the world to picture postcards, carbonated soda, hamburgers, and a gigantic wheel (built by George W. Ferris Jr.) that visitors could ride. The fair also introduced the nation to the Pledge of Allegiance and a new holiday—Columbus Day.

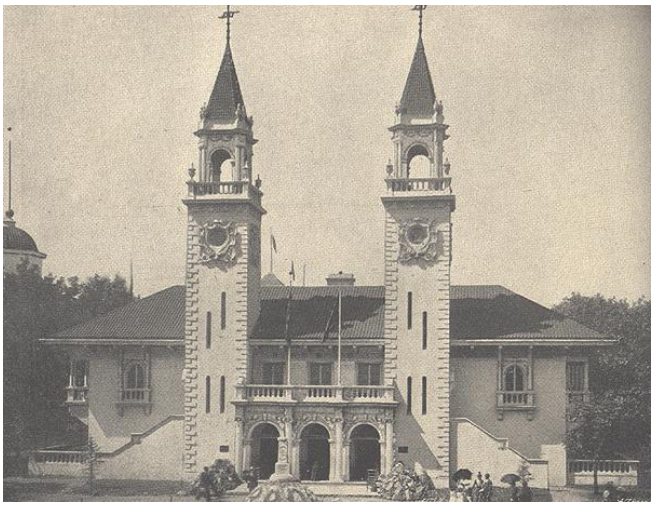


Figure 4. View of the Colorado building at the World's Columbian Exposition. Stacks of petrified wood appear to be on either side of the entrance to this building. Photo from the Michele Veatch Collection.

Most of the states and territories had exhibits at the fair, including Colorado. The Colorado building had a wide variety of displays from the Centennial State.[1] If Big Stump had been cut and quarried into sections, the Colorado building would have been a likely destination. Colorado Day was celebrated September 12 at the fair without Big Stump—Colorado's famous fossil remained at the Florissant Fossil Beds, intact. Although Big Stump did not make it to the Columbian Exposition, other Colorado fossils probably made it to the fair, perhaps even fossils from Florissant.

[1] Some photos of the Colorado building depict stacks of petrified wood by the entrance. Because the Big Stump didn't reach the Columbian Exhibition, I think this petrified wood is from Florissant. I contacted the Field Museum to see if they still had some of this petrified wood. The Earth science curator said they had some unidentified petrified wood in the basement. I went to the Field Museum, met the curator, and examined this petrified wood. It was not fossil wood from Florissant. The origin of this wood in the museum's basement is unknown. The wood in old photos of the Colorado Building might have come from Florissant and is no longer at the museum. We may never really know what became of the fossil wood in the photos or where it originally came from.

By its closing date on October 30, 1893, more than 27 million people had visited the White City. If Big Stump had been removed and displayed at the fair, this oddity of nature would have been lost. This magnificent fossil is now protected by the National Park Service, and visitors to the Florissant Fossil Beds National Monument can view Big Stump in its geologic setting.

Figure 5. Fortunately, Big Stump did not make it to the White City but remains for visitors to the Monument to enjoy. Image date 2003 by S. Veatch.

Acknowledgements

I thank Bob Carnein for improving this manuscript. I also benefited from many discussions of the Big Stump with park ranger Jeff Wolin. I dedicate this article to him.

References and further reading:

Andrews, H.N., 1936. A new *Sequoioxylon* from Florissant, Colorado. Annals of the Missouri Botanical Garden 23 (3): 439-446.

MacGinitie, H.D. 1953. Fossil Plants of the Florissant Beds, Colorado. Carnegie Institution of Washington Publication 599:1-198.

Meyer, H.W., 2003. The Fossils of Florissant, Smithsonian Books, Washington, D.C., 258 p.

Rainfall Runway: Sculpting the Dunes' Sand into an Alluvial Fan

Steven Veatch

One can sometimes find interesting geology in unusual places. Here, it was in a collection of photographs taken in the summer of 1935, when a group of four adventurers, armed with a large format camera, bulky camping equipment, and a curiosity for the natural world, set out on a canoe trip along the winding Manistee River. Among the photographs was a brittle, typed account of the journey, its pages whispering tales of forgotten discoveries.

Their photographs, preserved in sepia tones that were hand-tinted, captured the river's scenic beauty and geology in stunning detail—from exposed dunes, layers of sandstone and clay, and an alluvial fan (Figure 3) to a waterfall that cascades gracefully over weathered sandstone boulders (Figure 5). Each image tells a story of Michigan's deep geological past. The group, from Camp Osoha of the Dunes,[2] documented their discoveries during their canoe trip with a mix of wonder and artistic flair. Their pictures reveal not only the timeless beauty of the landscape but also the camaraderie forged on the journey.

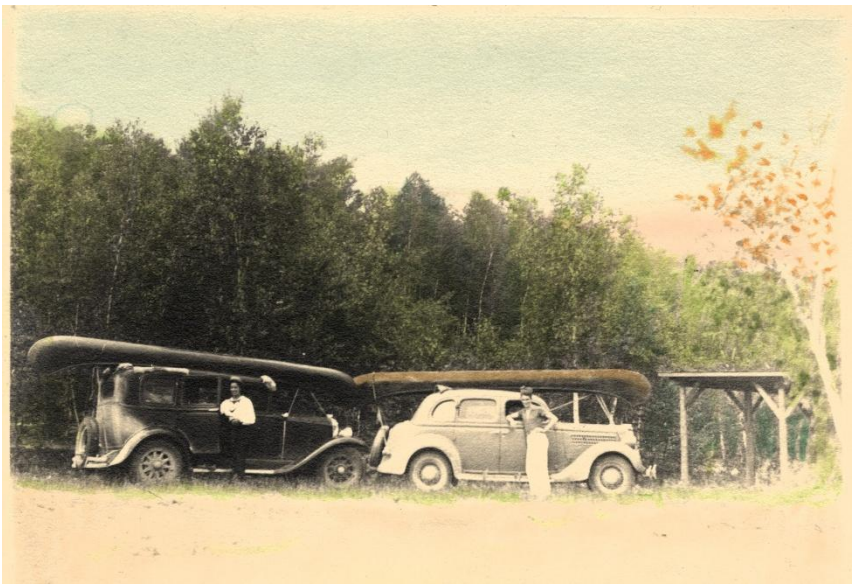


Figure 1. Four members from Camp Osoha, a girls' camp on the shore of Crystal Lake, Benzie County. The group traveled 190 miles on the Manistee River from August 26-September 3, 1935. This photograph was titled "Ready to Start." Photo date 1935 by Curry Russell. Benzie Area Historical Society 22158-3.

[2]Camp Osoha of the Dunes, located at the junction of Lobb, Shorewood, and South Shore roads three miles east of Frankfort, was established by Elizabeth Mattson in 1921. It was then operated by Dr. and Mrs. F. E. Putt who renamed the camp Crystalaire. Gus and Paula Leinbach bought Crystalaire in 1958. Dave Reid and Kathi Houston purchased Crystalaire in 1976. The camp was closed in 2008.

The four adventurers were employees of the camp and included the head counselor, an athletic young lady, Miss Katherine "Snookie" King, from Iowa; Miss June Shader, from Detroit; and impossibly red-haired Dudley "Dud" Mattson, who was the son of the owners of the camp and a college student at the University of Michigan. The photographer was sixty-two-year-old Mr. Curry Russell.[3] The person at the bow of each canoe stroked and kept a lookout for rocks and snags. The person at the stern "acts as captain, mate and wheelsman, and does the steering and dodging."[4]

Figure 2. Two 18-foot, 65-pound canoes are tied up along the banks of the Manistee River. It took 2-3 hours to set up camp, cut wood, build a fire, cook food (over an open fire), wash dishes, and make beds, so they always made camp early. This photograph was titled, "Elm Meadow Camp." Photo date 1935 by Curry Russell. Benzie Area Historical Society 22158-20.

The Manistee River is arguably Michigan's most beautiful river, boasting cool, clean water and stunning natural scenery around every bend. Figure 3

[3] Information about Curry Russell's life and career beyond his association with Camp Osoha and the 1935 canoe trip is limited. The available records primarily highlight his role in documenting this specific event.
[4] Curry Russell manuscript, undated. Benzie Area Historical Society 22158-55.

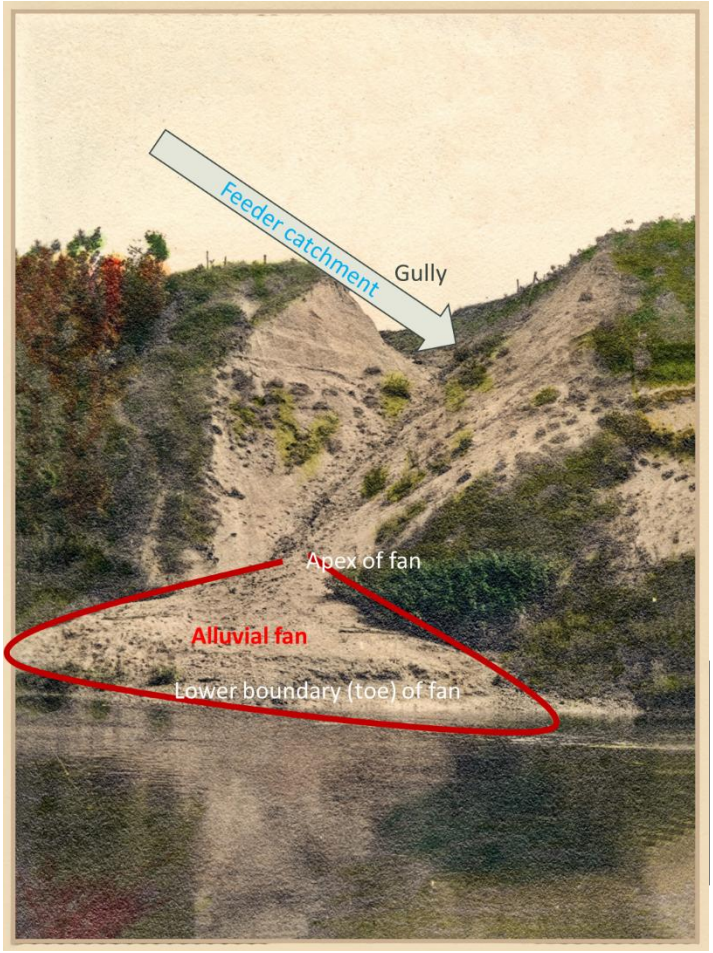
captures two geological agents at work at one site along the Manistee. The first geological agent is erosion: an intermittent flow of water has cut through an ancient sand dune along the bank of the Manistee. The second geological agent is deposition, and this process has produced an alluvial fan, a feature that forms when sediment-laden water flows from a steep area onto a flatter plain or basin. As the water slows down, it deposits sediment in a fan-shaped pattern. Coarser materials settle near the fan's apex and finer materials, like sand and silt, spread further outward.[5]

Figure 4 shows that water, possibly from a series of cloudbursts, formed a gully piercing a relict dune winnowed from outwash plains and concentrated by winds after the Ice Age. The gully periodically collected rainwater, forming fluctuating rivulets of sediment-laden water that ebbed and flowed seasonally. Reduced stream velocity at the dune's bottom meant less sediment could be transported, leading to a cone-shaped deposit from the smaller streams.[6] The photograph reveals that this feature was active at the time the photo was

Figure 3. View of a small semi-circular alluvial fan along the base of a sand dune taken during the 1935 canoe trip on the Manistee River. A sudden widening and shallowing of the channel, along with decreased flow velocity, reduced sediment transport capacity, leading to deposition. Photo date 1935 by Curry Russell. Benzie Area Historical Society 22158-26.

[5] Terence C. Blair and John G. McPherson, "Processes and Forms of Alluvial Fans," *Geomorphology of Desert Environments*, 2009, 413–67.
[6] Harvey, A M. *Introducing geomorphology: A Guide to Landforms and Processes*. Dunedin Academic Press, 2022.

taken, as there are small channels and swales on the surface of the alluvial fan and deposited sediments that spread out across it.[7]



Curry Russell's manuscript mentions another geological feature close to where the M66 bridge crosses the Manistee River near Smithville.[8] Near that location was a carrot farmer's operation where the canoe party stopped and "bought carrots, drank a few beakers of fresh, sparkling mineral water by his riverside spring." Groundwater flowing through permeable sandy and gravelly till (common in Michigan's glaciated landscape) likely feeds the spring, which is near the surface. The spring would likely

[7] Paul R. Bierman and David R. Montgomery, *Key Concepts in Geomorphology* Austin: Macmillan Learning, 2020.
[8] M66 was later realigned, and the bridge was moved a number of feet to the east of the old bridge where the canoers came ashore for a drink of spring water and a carrot.

stay active because of the local water table that induces the water to flow out, creating a small stream.

Figure 5. A waterfall tumbles over rocks and flows into the Manistee River. This photograph was titled “The Lost Waterfall." It appears that this tributary hasn’t been able to keep up with the Manistee’s downcutting—probably due to the hard sandstone. Photo date 1935 by Curry Russell. Benzie Area Historical Society 22158-42.

As the sun dipped low on the horizon, casting golden ribbons of light across the rippling waters of the Manistee River, the four adventurers pulled their canoes to shore one last time. They stood in silence, the symphony of the river—its rushes, whispers, and gurgles—filling the air. Their journey had been one of shared discoveries, of laughter echoing through canopied forests, and of quiet moments where the wild beauty of the river stirred something ancient and enduring in their hearts. As they packed their gear and exchanged weary but contented smiles, they knew the Manistee had left its mark on them—a thread of wildness woven into their souls. And though the journey had ended, the river’s voice would stay with them, a reminder that adventure is not just the path taken but the bond it forges and the stories it leaves behind.

In my hands, the old photographs felt like a bridge across time, their images whispering stories of ancient landscapes and forgotten discoveries. The historic photos captured moments of

geological wonder. Each image and passage deepened my connection to those campers who had come before, their curiosity mirroring my own. As I traced their footsteps through the ink and image, I realized that discovery is never truly finished; it only waits for new eyes to uncover its secrets once more.

Acknowledgments:

The author thanks Bob Carnein for improving this manuscript and Shelly Veatch for assisting with the fieldwork for this manuscript.

References and further reading:

Bierman, Paul R., and David R. Montgomery. *Key Concepts in Geomorphology*. Austin: Macmillan Learning, 2020.
Blair, Terence C., and John G. McPherson. "Processes and Forms of Alluvial Fans." *Geomorphology of Desert Environments*, 2009, 413–67. https://doi.org/10.1007/978-1-4020-5719-9_14.
Harvey, A M. *Introducing Geomorphology: A Guide to Landforms and Processes*. Dunedin Academic Press, 2022.
Russell, C. (n.d.). typescript, Benzie Area Historical Museum Archives. 2024.46.22158-55

Extinction: Fossils of A Vanished Future

They ruled the world once,
lumbering giants beneath a fiery sun,
that trampled ferns
with their colossal strides.

No one mourned their passage:
A death simply by a massive rock and chance.
As the world burned, the sky turned to ash.
Next the Earth froze.
What remained was cold silence;
the stillness of a kingdom gone.

Now we walk on this earth,
masters of fire and thought,
builders of cities that stretch to the sky—
where we weave our dreams into metal and glass.
But listen closely—the oceans rise
like ancient prophets while nature
whispers warnings.

We are the asteroid now,
the architects of our own destruction.
Not by fire from the sky,
but by the slow smothering of our planet.

Will we fall as the dinosaurs did,
victims of a fate we cannot outrun?
Or will we rise, learning from the bones of beasts
and the spotlight of our science?

The dinosaurs left no poets,
no songs, no warnings carved on stone.
When we vanish will there be silence once more?
Or will the Earth find a new voice,
one that hums with life that does not know us,
does not need us, and does not contemplate
what we could have been?

—By Steven Wade Veatch

The final moments of a T. rex during the start of the end of the Cretaceous extinction event. Image created by the author using AI.