



Eastern Indiana Gem & Geological Society

ROCK PICKINGS

June 2017

P.O. Box 1724 • Richmond, IN 47375 • eiggs.weebly.com • facebook.com/EasternIndianaGemGeologicalSocietyEIGGS

EIGGS Board Members

President

Mark Lisota
317-525-1418
mlisota@hotmail.com

Vice President

John LaMont
812-322-7809

Secretary

Mary Ann Morse
765-914-2672
jfmamorse@gmail.com

Treasurer

Dave Straw
765-966-4249
strawdl@aol.com

Show Chairman

Judy Burton
937-339-1966
jleeburton@woh.rr.com

Vendor Chairman

John LaMont
812-322-7809

Newsletter Editor

Lisa Morris
EIGGSnews@gmail.com

Memberships:

Annual dues
\$15 Individuals
\$20 Families

Please send dues to:

EIGGS
PO Box 1724
Richmond, IN 47375

6 Next meeting: Thursday, June 6, 6:00 p.m.

PRESIDENT'S MESSAGE

Hello, Rock Hounds:

Try the Hot Links

The newsletter now incorporates new hot links, which you can click to go directly to web sites where you can explore further coverage.

Including them has been a learning process, but they have a lot of potential. Look for the blue links in the newsletter.

Try the links and let me know what you think. E-mail EIGGSnews@gmail.com

Seventeen people showed up for our clean up day! Seventeen! We got a lot of projects done. Thank you to everyone who volunteered their time. It makes a difference.

Our summer cookout is our next meeting on Thursday, July 6. The cook out starts at 6 p.m. The club is providing burgers, dogs, soda and plates. Please bring a side dish.

Have a great summer everyone!

Mark



Editor's Note: I really enjoy putting together the newsletter, but folks, I need some help. Copyright laws prohibit copying from internet sources without permission, so the newsletter needs original content each month. Midwest Federation guidelines strongly recommend member articles and input. It would be great if you would share your interests and expertise by submitting articles you've written about rocks, trips, show recommendations, rock club memories, how you started collecting, etc. Contact me for other suggestions! Thanks!

▶ INSIDE THIS ISSUE

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Club picnic, July 6



Pitch-in dinner begins at 6 p.m.

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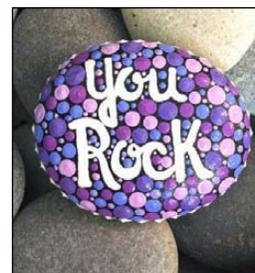
Club Clean-up Day



Nikki Merrill helps with club clean-up

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765 Rocks!



Check out this Facebook group

PAGES 8-10

County Fair winners



Congratulations to all fair winners

Members signed in

Mary Ann Morse, Erna Jacob, Mark Lisota, Angela Shaffer, Hailee Shaffer, Lisa Morris, Mona Jones, Estel Jones, Dave Straw, John LaMont, Deb Chagares, Alma Glisson, Deanna Smith, Melissa Killion, Matt Rudicil, Jeanette Lunsford, Judith Echano Medina, Libby Adams, Mike Ragen, Malessia Bowling, Phil Parker

Meeting was called to order by President Mark Lisota.

Notes

Mark passed around cards from Charlene Reidenbach's family and Kylei Klein, our 2017 scholarship winner.

Club Clean-Up Day

Work day – June 10, 9 a.m. – 2 p.m. We will be painting doors, cleaning the refrigerator, cleaning saws, cleaning garages, running the weed wacker, etc. Patrick will finish the wall around the air conditioner. The door to the small garage needs to be changed to open out rather than in. After it was kicked in a year or so ago, it was suggested that we get a security bar, but it really needs to be changed.

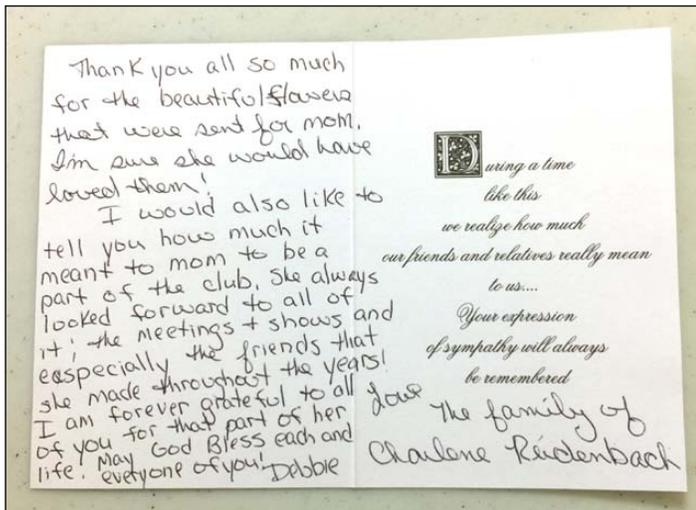
Wire Wrap Class June 11. Please sign up online.

MSHA Training

Reminder that a MSHA safety class was being offered June 3 in Wauseon, Ohio. It is necessary for anyone wanting to visit quarries, etc. The cost is \$30.

EIGGS Web Site

If you have not visited the EIGGS website, you should. It is greatly improved.



Bluespring Cavern Tour

Reminder that the club was organizing a group tour of the Bluespring Cavern - in conjunction with the Bedford show. (The group rate was not available since only six club members responded.)

Treasurer's Report

May expenses were \$357, including newsletter, utilities, dumpster, and shop expenses. \$120 was set aside for mowing at \$40 each time. Income was \$1,644, including dues, shop fees, and dealers for next year's show.

Construction Update

Women's bathroom is nearly completed

Mowing

We are paying \$40 – question whether it makes sense to buy a \$500 mower. Matt volunteered to mow on Sundays. He would bring his push mower until we get a riding one. Matt, Mark, and Dave will talk after the meeting.

Meeting was adjourned for a show-and-tell of "meaningful rocks."



↑ Thanks to the club members who participated in the June show-and-tell session featuring "meaningful rocks." Participants included Hailee Shaffer with a trilobite, Mary Ann Morse, Angie Shaffer, Matt Rudicil, Scott Gibson and Lisa Morris.
← The club sent flowers for Charlene Reidenbach's memorial service, and many club members attended the viewing and funeral. John LaMont and Charlene's family were grateful for all the support, stories, prayers and kind words.



EIGGS PICNIC SET FOR JULY 6, 6 PM



■ A recipe and directions for this cake can be found at <https://www.bettycrocker.com/recipes/firecracker-red-white-and-blue-cake/bbbeab8-2f8c-4aab-a837-a1a7fd7a7901>

Members and their guests are invited to the annual club picnic Thursday, July 6 at the clubhouse at 6 p.m.

Hamburgers, hot dogs, buns, condiments, drinks, paper plates and silverware will be provided by the club. Members are asked to bring side dishes, salads or dessert items to share.

There is a sign-up list posted in the EIGGS closed Facebook group. If you haven't joined the Facebook group, please do so. If you can't access Facebook group, don't worry: bring what you want -- there is always a great variety of items.



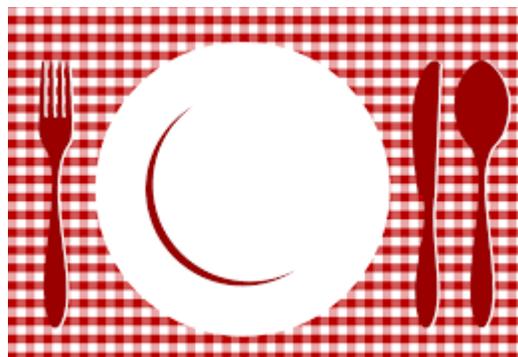
TROY PICNIC INVITATION: JULY 12, 6 PM

The Miami County Rock & Gem Club (Troy club) will hold its annual picnic at Mike Manning's house, Wednesday, July 12 at 6 p.m. Mike Manning has extended an invitation to all EIGGS members, too.

The dinner is pitch in. Individuals are asked to bring one side dish, salad or dessert and families are asked to bring two. Also, bring your own plates, silverware and drinks.

The rock shop will also be open, so bring checks or cash if you plan to purchase anything. The address is 3615 E State Route 55; Troy, OH.

Questions? E-mail Mike at manningsrockshop@gmail.com



SCHOLARSHIP WINNER KLEIN EXTENDS HER THANKS TO CLUB



Dear Gem & Geological Society,
Thank you, thank you, and thank you again for this amazing honor and opportunity! I cannot tell you how much it means to me to have been selected as the recipient for this scholarship. Science has always been a passion in my life and it is so thrilling to know that I will have an organization as wonderful as you to back me in my pursuing of higher education. It was such a pleasure getting to meet everyone of you that I did, and I hope our paths cross again soon. Once again, thank you so much!

Have a wonderful day and God bless!

Love,
Kylei Klein

■ Wayne County Fair 2017 Royalty: Ashley Terhaar - Miss Congeniality; Suzi Quigg - 2nd Alt; Kylei Klein - Queen; Cheyanne Bowman - 1st Alt; Aubrey Andecover - Teen; Kyleen Wilber - PreTeen; Taylor Lumpkin - Junior (photo courtesy of Wayne County Fair)

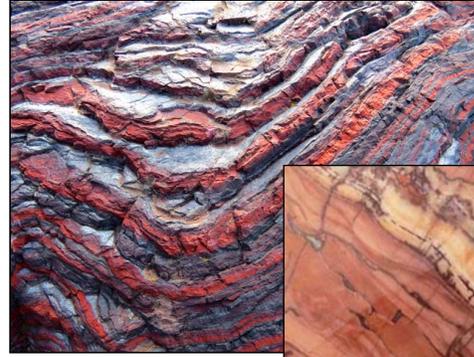


TENTATIVE ISHPEMING, MI TRIP PLANNED

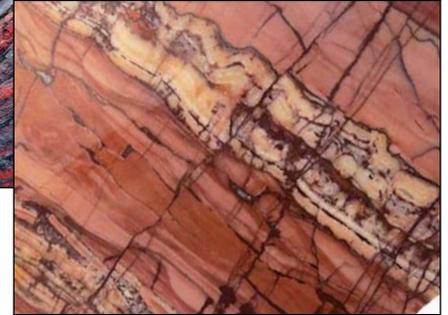
The Miami County Rock & Gem Club (Troy club) is considering a possible field trip to the Ishpeming Show in Michigan to collect Kona dolomite, hematite & jasper.

Contact Mike Manning if you are interested. 937-552-4705

Aug. 5—ISHPEMING, MI: Ishpeming Rock & Mineral Club, Ishpeming Elks Club; 597 Lake Shore Dr. Saturday 9:30-4:30. Free admission. There will be a kids' area, silent auction, hourly prizes, raffle, demonstrations. For show information, contact Ernest Johnson, 1962 W. Fair, Marquette, MI 49855, (906)-228-9422; e-mail: ejohnson@nmu.edu; Web site: www.ishpemingrocks.org



■ Jaspelite, or "banded iron," is a combination of jasper and hematite. It can be collected at Jasper Knob in Ishpeming, Michigan.



■ Pink patterned Kona dolomite can also be found in the Ishpeming, Michigan, area.



FLINT RIDGE FIELD TRIP UPDATE



■ A view of the easily accessible Ohio flint on the ground at Flint Ridge after the May rain. photo courtesy of Mike Manning

by Mike Manning

We had a great field trip to Flint Ridge, May 20! The weather was perfect. They were predicting a chance of rain, and we had just a few sprinkles. The previous days of rain had washed off the mud so we could see the flint easier. It was cloudy all day so it stayed cool. I was really pleased with the color of the flint and the crystals I got. I took another person with me (Maria Vega, from Greenville, who is interested in the club and taking lessons. We also met people from the Cincinnati Lapidary Club, Canton Club, & a couple from the Richmond Club.

If you plan to visit, be aware that it now costs \$7.50 to get in, but it is still 50 cents a pound for the flint.



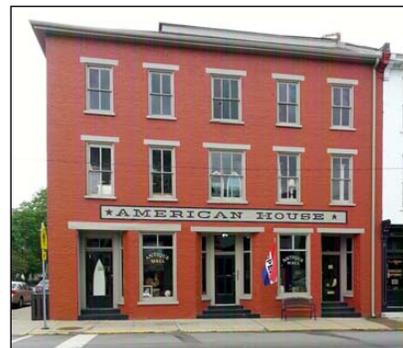
CENTERVILLE CRAFT FAIR OPPORTUNITY by Danny Spurgeon

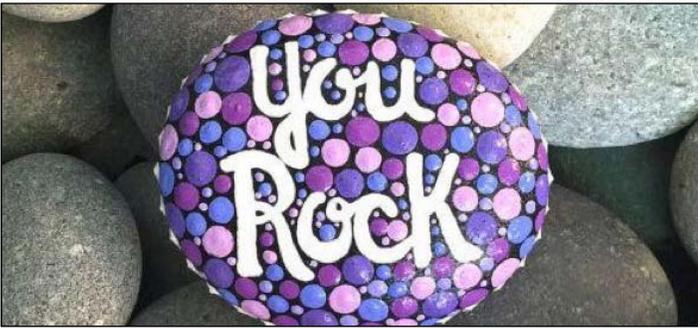
During the May Club meeting I mentioned that Centerville, IN, will begin having a monthly community festival in June, including antiques, farmers & flea market & hand-crafted goods followed by free concert in Maplewood Park.

It will be held on the 4th Saturday of each month from June through September. For those club members who are interested in a place to display and sell their hand-crafted items, space is available on the west side of North Morton Ave. in a fenced in lot directly across from the Centerville Park.

It costs \$10 to rent 10'x10' space for the day. The start time for the festival is 12 p.m. Set up is before that.

Information is available from Mindy Turner at American House Antiques. Phone 765-914-4228





😊 765 Rocks!

Have you seen the 765 Rocks! page on Facebook? If not, check it out their information below and their Facebook group. The group uses painted rocks to bring whimsy and joy into communities. They post photos of the rocks they hide, sometimes with hints on where to find them. When the rocks are found, the finders post photos, too. This summer people are even taking the rocks to their vacation destinations and seeing how far the rocks can travel. It becomes a community scavenger hunt and an activity to get kids and adults outside.

People are starting to hide rocks in Richmond, Centerville, Cambridge City, Connersville and the surrounding areas. Would anyone be interested in a rock-painting craft day at the club? It would be fun for the kids and grandkids in our group. If you are interested, let me know and I will arrange it. ELGGSnews@gmail.com



What Is This?

765 Rocks! is a community initiative created to spread joy and encourage creativity. You paint on rocks and hide them throughout the community for others to find. It started in Jay County and has spread to surrounding communities.

What Do I Need To Get Involved?

- Rocks (Find in nature or purchase. Home Depot has huge bags in the garden center)
- Acrylic paint or paint pens.
- Some people choose to spray paint the rocks before painting.
- Sealer
Krylon Acrylic Spray Sealer works great as does Rustoleum Clear Matte Spray Sealer. Many have also used a brush-on called "Triple Thick" for a high gloss finish.

Let's Talk Rocks

- Be creative. Paint anything on your rock or be inspired by the shape!
- If you want your rock to be found and shared on the Facebook page, here are a few ideas for the back of your rock.
 1. Draw the Facebook "f" and write 765Rocks! on the rock
 2. Tag 765 Rocks! on Facebook
 3. Post a pic on 765 Rocks! on Facebook
- SEAL YOUR ROCK with sealer so your art doesn't run.

What If I Find A Rock?

- Snap a picture of you with your treasure
- Post the picture on the 765 Rocks! Facebook page
- Keep your rock or re-hide

How Can I Get My Community Involved?

- Invite everyone you know to the 765 Rocks! Facebook page. The more painters and planters, the more joy that is spread.



Now What?

- Go out and plant your rocks! Hide them anywhere, expecting someone will find it and smile.

Idea borrowed from Nashville... what community doesn't need a little joy?

FAQ- How can I find rocks in my town?

While on the group page, you can search for any town. Any post made in or with the name of the town in the post will pop up. You can search for whatever particular area/town you are in at that time.

Just a reminder that we want to keep the rocks outside! We don't want to make any stores or restaurants upset. Please make sure we aren't going on any private properties either. We want the fun to continue, so let's make sure we're not putting the rocks where they aren't supposed to be. Also please make sure the rocks you're using aren't from someone else's property. Thank you!

From the 765 Rocks! information page on Facebook



ON THE ROAD: FEDERATION CRAFT WORKSHOPS

by Valerie J. Meyers, MWF Bulletin Editor

Two regional federations of the AFMS are holding week-long workshops this summer and fall.

While members of those federations have top priority in making reservations, other members of AFMS and the general public are also invited.

The Southeast Federation will be holding three workshops at Wildacres Retreat in North Carolina near Little Switzerland. The dates are July 23-29, August 21-27, and September 18-24; the July workshop will coincide with five big gem and mineral shows in the area of Franklin, North Carolina.

Among the many topics at these workshops will be wire, metals and fire, chain maille, bench building, and soapstone and wood carving. For more information about these four workshops, go to <http://sfmsworkshops.com>.

The Eastern Federation will also be holding a workshop at Wildacres Retreat September 4-10. The speaker in residence will be Dr. Timothy Morgan, whose specialty is gemstones. Classes will include chain maille, faceting, intarsia, silversmithing, and wire wrapping. For more information, go to <http://efms-wildacres.org>.



Janice Wald Friedman

Janice Wald Freidman, <https://www.flickr.com/photos/wildacresretreat/16580837878/>

DO YOU HAVE SUGGESTIONS FOR EIGGS CLASSES OR WORKSHOPS?

Several new members have been asking about classes or workshops. Summer is busy for everyone, but fall is a great time to either teach or take a class.

In order to plan for classes, we need to know what you are interested in. What do you want to learn? What would you like to teach?

In the past year, Deb Chagares taught wire-wrapping, Danny Spurgeon taught two Viking weaving sessions, and Mary Ann Morse taught members to make gemstone trees.

Naomi Jones might be persuaded to teach a wire-weaving class or two. Perhaps Marty Lucas would teach club members to make tree of life pendants or Joy Ingerman could teach beading basics?

If there is a skill you would like to learn, please send a request to EIGGSnews@gmail.com, and we will try to find a club member to teach it.

If you have a skill you would like to share with the club, again, please e-mail EIGGSnews@gmail.com so that we can arrange for class times, supplies and registration.



Wire weaving



Tree of life pendant



Gem tree



Viking weaving



Wire-wrap



CLUB CLEAN-UP DAY HELD JUNE 10

Thanks to the 17 club members who were able to attend the work day



■ Tim Merrill



■ Mary Ann Morse



■ Judy Burton



■ Dave Straw



■ Hailee Shaffer



■ Erna Jacob



■ Angie Shaffer



■ Bobby Shaffer



■ Mike Ragan



■ Nicole Siliven; Mark Lisota



■ John Morse; John LaMont



■ Michael Barron; Melanie Bertsch

Thanks to the Clean-up Day participants: Michael Barron, Melanie Bertsch, Judy Burton, Erna Jacob, John LaMont, Mark Lisota, Nikki Merrill, Tim Merrill, Lisa Morris, John Morse, Mary Ann Morse, Mike Ragen, Angie Shaffer, Bobby Shaffer, Hailee Shaffer, Nicole Siliven, Dave Straw.

MEMBERS LEARN WIRE-WRAPPING SKILLS

Deb Chagares presented a workshop on wire wrapping stones Sunday, June 11. Six club members attended and made seven pendants. Be on the lookout for another workshop this fall.

1. Angie Shaffer.
2. Tim Merrill; Nikki Merrill.
3. Jean Blue.
4. Pendants: Top row, left to right: Nikki Merrill, Lisa Morris, Tim Merrill. Bottom, left to right: Erna Jacob, Angie Shaffer, Mona Jones, Angie Shaffer.
5. Mona Jones.
6. Deb Chagares.

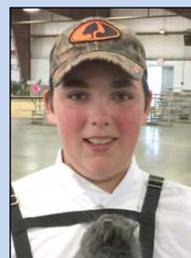


CONGRATULATIONS TO FAIR WINNERS

*** See the July issue for more information and photos of these winners, their awards and categories. ***



Congratulations to EIGGS club member **Johnathon Terhaar** whose wire-weave pendant and Viking knit chain earned a Grand Champion award at the Wayne County Fair. The piece went on to earn the Overall Basic Crafts Award and Johnathon will be advancing with it to the State Fair in August.



In addition to this winner in the jewelry/crafts division, club members also had success in the rabbit division, cattle division, photography and other craft areas. Congratulations to 4-H participants **Briana Jones, Dakota Jones, Faithe Jones, Israel Jones, Mikala Jones, Kylei Klein, Chase Siliven and Johnathon Terhaar.**



4-H GEOLOGY PROJECTS AT THE FAIR

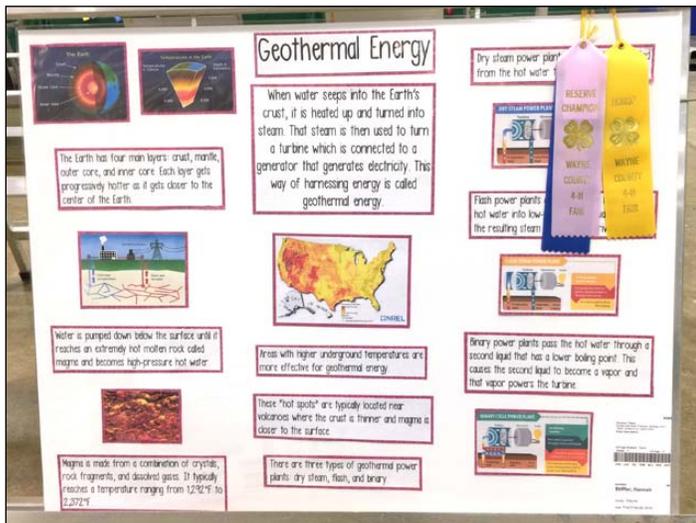
To promote an interest in geology and the earth sciences, EIGGS members participated in two Super Saturday events hosted by the Wayne County 4-H.

The goals were to promote a love of the earth sciences, help increase the numbers of students participating in the 4-H geology categories, and to promote our rock show and club.

Below are this year's geology projects at the fair. If you know any of these children, please encourage them. They are the future of our show and our club.



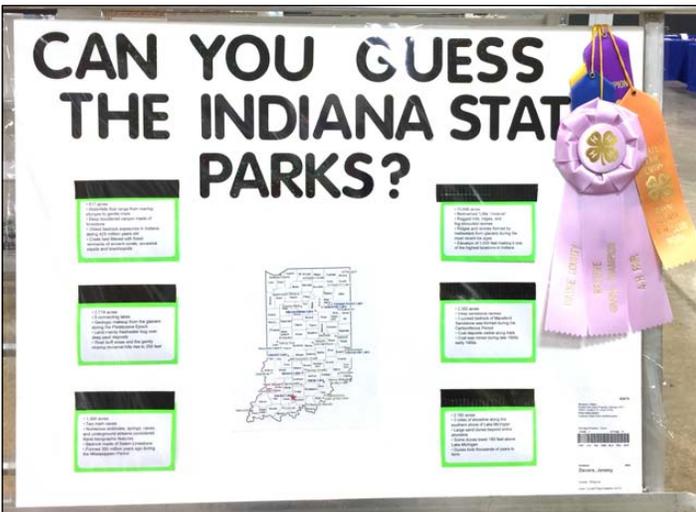
■ Levi Morgan, Level 1, grade 4.



■ Hannah Stiffler, Level 3, grade 11.



■ Abigail Lumpkin, Level 1, grade 3.



■ Jeremy Devers Level 3, grade 9.



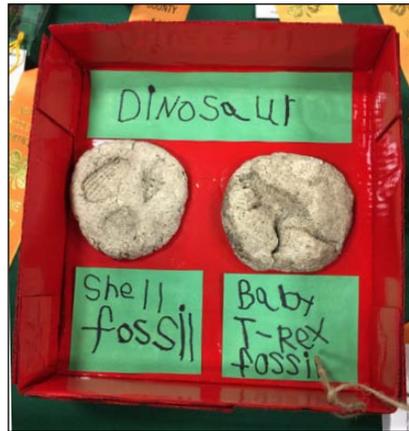
■ Cameron Scalzo, mini division, grade 1.



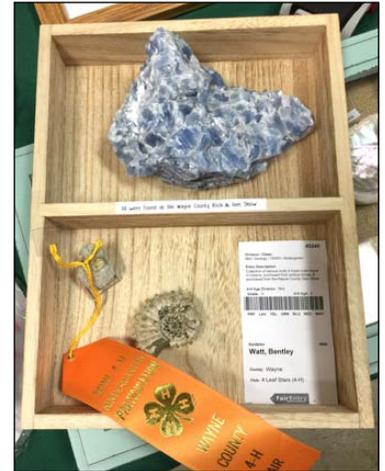
4-H GEOLOGY PROJECTS AT THE FAIR



■ Cameron Schober mini division, kindergarten.



■ Jesse Bowling mini division, kindergarten.



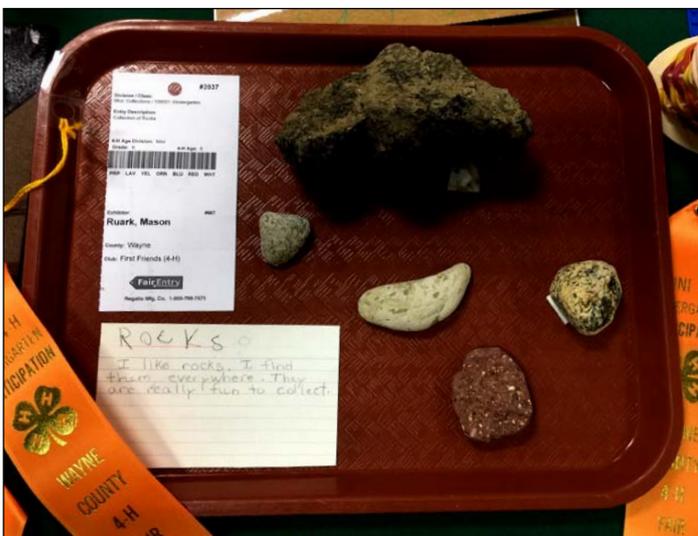
■ Bentley Watt, mini division, kindergarten.



■ Brycen Frazier, mini division, grade 1.



■ Shelby Thomas, mini division, grade 1.



■ Mason Ruark, mini division, kindergarten.



■ Tanner Whistler, mini division, kindergarten.

Do You Have Suggestions for EIGGS Events or Presentations?

Geode Night at the Miami County Rock & Gem Club (in Troy, Ohio) is always a club favorite. After their meeting, each member is given a geode, which Mike Manning then cracks open. A discussion follows which covers the formation of geodes and their internal structures.

The Troy club tries to incorporate an event or presentation after each of their monthly meetings. In the past year they've had presentations about mineral collecting in Michigan's Upper Peninsula, collecting fossil shark teeth, agates, fluorescent minerals, visiting the Quartzite show, and rock collecting out west.

They have also had presentations on onyx and other stones and a Fossil Night. They will have an upcoming jewelry-making presentation and a Novelty Night.

Recently our club has been having Show and Tell at meetings, and members are always encouraged to bring interesting pieces to show. If you have ideas for presentations or club activities, please let an officer know.



■ After cracking open a geode, Mike Manning hands it back to Judy Burton at the Miami County Rock and Gem Club meeting in Troy, Ohio. Members of the club plan a variety of events and presentations to coincide with their monthly meetings. If anyone has suggestions for EIGGS club events or activities, please let an officer know.



■ Once her geode was cracked open, Judith Echano Medina was happy to show the crystals that were found inside. Several Richmond club members are also members of the Troy club.

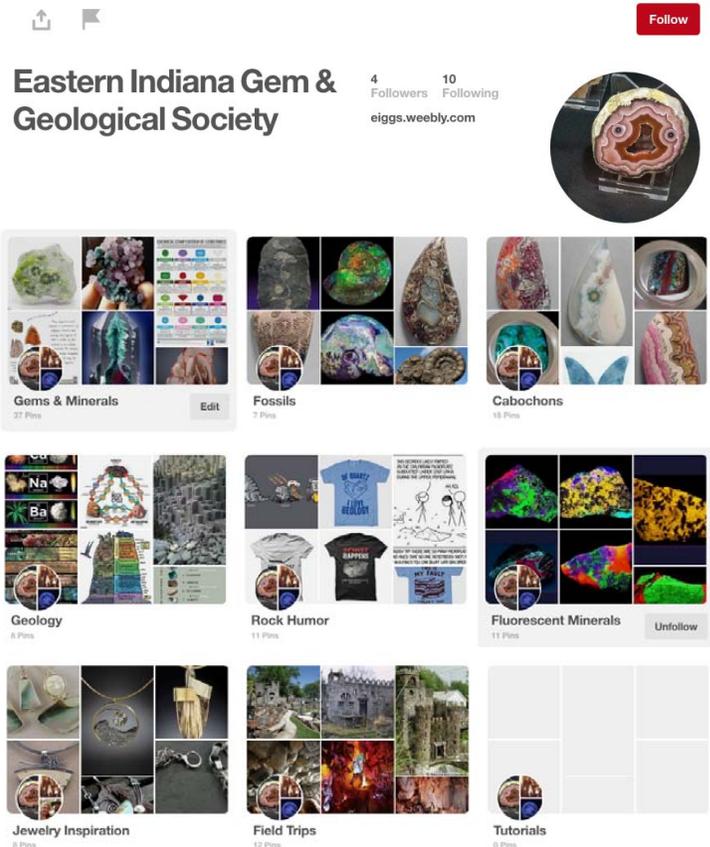
STAYING CONNECTED VIA FACEBOOK & PINTEREST

If you are a social media junkie, then please remember that there are a variety of ways to interact with your friends from EIGGS.

Facebook: If you haven't joined the closed EIGGS Facebook group, please do so now. News about club events and classes is usually posted there first. Club members also post great tutorials, online deals, equipment sales, tips and life events. Look up the EIGGS group.

Pinterest: EIGGS has a brand new Pinterest account. If you are a Pinterest fan, you know how addictive it can be. There are a wide variety of boards to post to. <https://www.pinterest.com/EIGGSRichmond/>

Web site: Ummm... Have I mentioned eiggs.weebly.com lately?





ON THE ROAD: INDIANA STATE MUSEUM

MRL offers State Museum passes granting free regular admission

The Indiana State Museum in Indianapolis has a wide variety of exhibits, including a terrific interactive earth science display, complete with a large collection of fossils, minerals and even a moon rock.

If you have a Morrison-Reeves or Centerville library card, you can check out the display, and the rest of the museum for **FREE**. In order to do so, you will need to go to the library and check out an Indiana State Museum pass.

You may check a pass out for one week and each pass is good for four FREE admission tickets. Adult tickets are usually \$13, so this is a great deal. Additionally, the pass also gives card holders discounted \$5 parking.

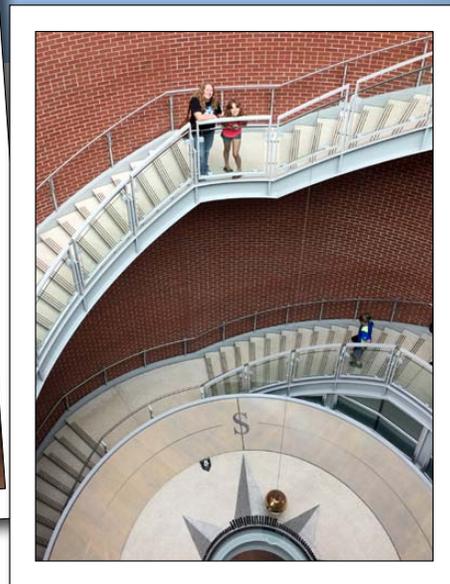
Visit www.indianamuseum.org for current displays and hours.



Indiana State Museum Library Pass Information



- One pass is good for up to four complimentary general admissions and validated \$5 parking in the White River State Parking Garage only.
- Special exhibits, programs and the IMAX Theater are not included for free.
- One pass may be checked out per library card at a time.
- Passes can be checked out for seven days. Pass checkout cannot be renewed.
- If the pass is not returned to the library, the pass will be deactivated so it cannot be used.
- Any tickets you get with the pass must be used the day you get them.



- Chase Silven and Hailee Shaffer simulate earthquakes at the Indiana State Museum.
- Fossil ferns are only a small part of the museum's large collection.
- Fossils and artifacts from Indiana are prominently featured.
- Angie and Hailee Shaffer admire the pendulum clock during at the Indiana State Museum.

FOSSIL PASSPORT

from <https://sites.google.com/site/whitewatervalleyfossilhunt/>

Long before woolly mammoths roamed the frozen plains, long before dinosaurs existed, Indiana was covered by a shallow sea teeming with life. The fossils found in the Whitewater Valley give us some idea of what life was like in Indiana 445 million years ago.

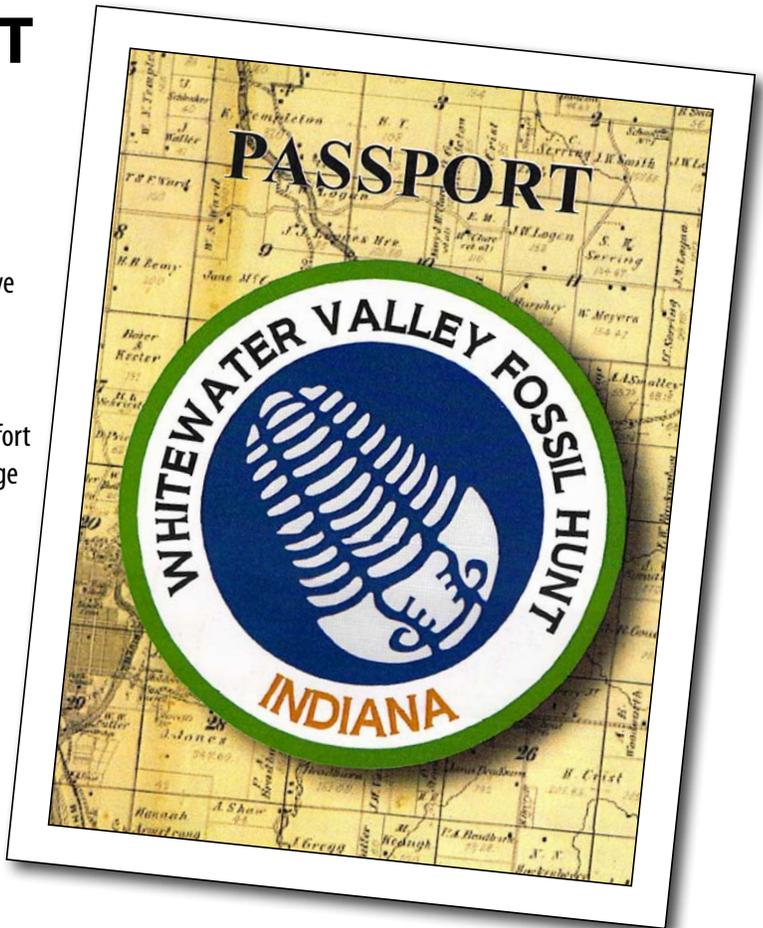
The Whitewater Valley Fossil Hunt is a free passport program designed to educate visitors about our fascinating past and promote experiential tourism in eastern Indiana. The project is a combined effort of the Wayne County Convention and Tourism Bureau, Earlham College Geology students, and interested volunteers.

To participate in the program:

Step 1 Pick up a Whitewater Valley Fossil Trail Passport at the Old National Road Welcome Center in Richmond, IN or at the Joseph Moore Museum on the campus of Earlham College.

Step 2 Explore the Whitewater Valley & collect at least five fossils.

Step 3 Bring your passport and fossils to the tourism bureau or the Joseph Moore Museum to receive your completion stamp and patch.

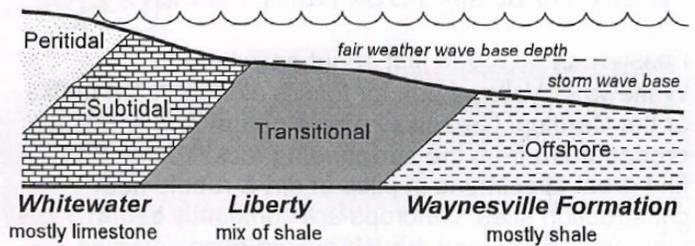
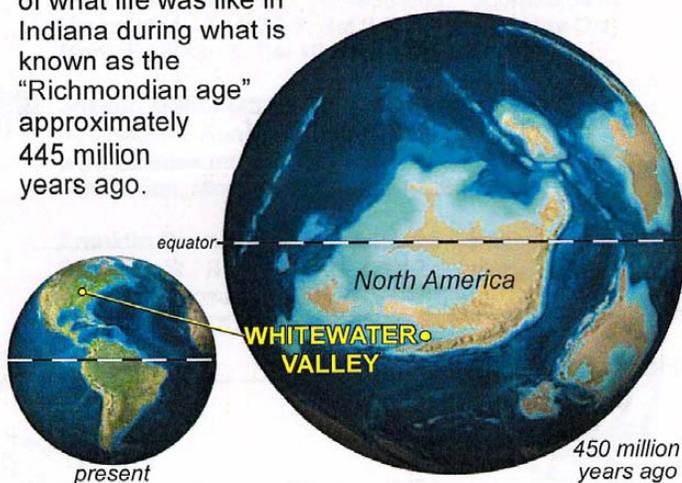


Travel back in time 445 million years...

Welcome to tropical INDIANA

Long before woolly mammoths roamed the frozen plains, long before dinosaurs existed, Indiana looked a lot like the Bahamas do today.

During the late Ordovician, much of North America was covered by a shallow sea teeming with life. Indiana was located south of the equator. The fossils found in the Whitewater Valley give us some idea of what life was like in Indiana during what is known as the "Richmondian age" approximately 445 million years ago.



The 3 Richmondian rock formations found in the Whitewater Valley are at the top of an alternating sequence of shale and limestone found throughout the area around Cincinnati.

The **Waynesville Formation** is the oldest. It is mostly shale from a muddy, offshore environment. The fossils found there are delicate & unbroken.

The **Liberty Formation** is a mix of shale and limestone. It was deposited in a transitional environment reached by storm waves, but untouched between storms.

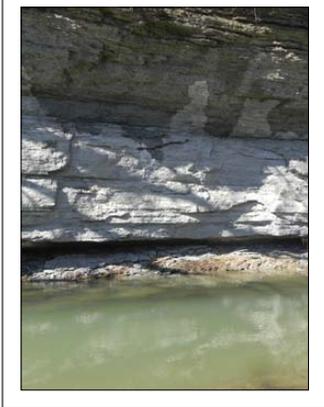
The **Whitewater Formation** is mostly limestone, indicating it was deposited in relatively clear, shallow water. It contains lots of fossils that show evidence of being battered and broken by wave action.



ON THE ROAD: RICHMOND FOSSIL HUNTING

The Richmond Convention & Tourism Bureau suggests the following sites for local fossil hunting:

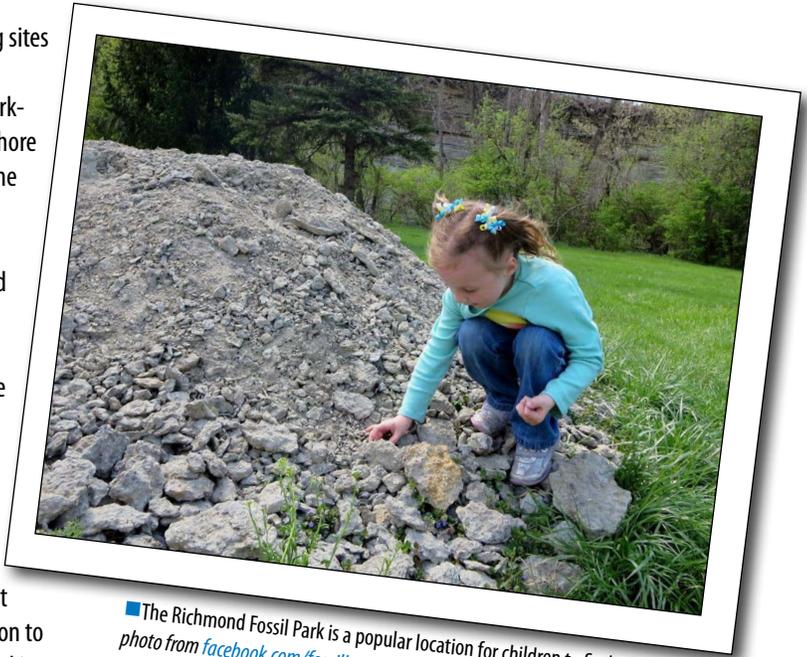
Richmond Fossil Park (on Bridge Avenue, just west of Sim Hodgkin Parkway in Richmond) Collect fossils from the rubble pile and on the near shore of the creek. A nice outcrop of the Whitewater Formation is visible on the far side of the creek.



Whitewater River Valley Gorge Trail (between Test Road and Waterfall Road, Richmond) Collect loose fossils along the trail or in the stream bank at the base of Thistlethwaite Falls.

Thistlethwaite Falls In the early 1800s, Timothy Thistlethwaite blasted a new channel in the West Fork of the Whitewater River to direct the water over this rock formation to provide more waterpower to his nearby sawmill. This waterfall is located just south of Waterfall Road across from Springwood Park.

Fairfield Causeway Road (just west of Brookville Lake, Brookville) The Waynesville (eastern outcrop) and Liberty (western outcrop) formations out-



The Richmond Fossil Park is a popular location for children to find fossils. photo from [facebook.com/fossilhunt](https://www.facebook.com/fossilhunt)

crop along the south side of the Fairfield Causeway Road. Park near the lake and walk up the hill. Watch out for traffic and do not climb on the outcrops.

FOSSILS THAT CAN BE FOUND IN THE WHITewater GORGE

BIVALVES - Bivalves like clams, scallops, and oysters had shells that dissolved soon after burial. Fossil bivalves are typically impressions of the shells in mud or casts created when mud filled an empty shell.



BRACHIOPODS - Many different kinds of brachiopods are found in the Whitewater Valley. The fossils have two ridged, hinged shells with a small hole in the shell near the hinge. A stalk protruded through this hole and fastened the animal to the sea floor. Brachiopods ate by filtering food from the water.



BRYOZOA - These twig- or net-like fossils were home to thousands of tiny animals. It is common to find fossils covered in a thin mesh of bryozoa. Bryozoans fed on microscopic organisms and plants by projecting tentacles with tiny moving filaments into the water through the holes in their external skeletons.



CEPHALOPODS - squid-like animals that lived in chambered cone-shaped shells. Nautiloids reach up to 15 ft in length and feed on smaller creatures they caught in their tentacles.



CORALS - Both horn-shaped and encrusting, colonial corals are found in the area. Colonial corals have star-shaped pores which are much larger than those of bryozoa. Like modern corals, these animals did not move, but captured food from seawater.



encrusting coral on a brachiopod

CRINOIDS - Related to modern starfish and sea urchins, crinoids are sometimes referred to as 'sea lilies' since they look like flowers that were attached to the sea floor by a flexible stalk. Crinoids fed by filtering food from the sea water with their feather like arms. They were fairly delicate and tended to break apart when the organism die, so typically only individual stem segments are found.



GASTROPODS - Like bivalves, most snails shells were not preserved, so the fossils found are mostly shell fillings or impressions. Fossil snails, like their modern cousins, crawled around the bottom scraping algae and other small food particles from rocks and plants.



TRILOBITES - Trilobites are extinct, bug-like scavengers that found food in the sea floor muds. Like modern insects and crabs, trilobites shed many jointed skins as they grew. These fragile skeletons were easily broken apart by waves, so usually only pieces are found.





ON THE ROAD: RICHMOND FOSSIL HUNTING

from josephmooremuseum.wordpress.com/

Richmond is our town, but did you know that it's given its name to a section of geological time? The Richmondian age lasted from about 449 to about 445 million years ago, during the Ordovician Period.

Our town looked very different 449 million years ago! It was so close to the equator that it was warm and humid. It was at the bottom of a shallow sea that covered most of what is now the midwestern United States. There were large mountains to the east, with volcanoes like those now found in Japan. These types of volcanoes are formed as an ocean plate subducts, or moves underneath, a continental plate. When the ocean plate moves down into the Earth's mantle and melts, the magma rises through the continental plate to form volcanoes.

The Richmondian ocean was full of life, but we would not recognize most of the creatures living there, such as shelled animals called brachiopods (Greek for "arm-foot"). (see chart on page 6) Even though brachiopods are related to mollusks like clams or scallops, their bodies are quite different: clams' shells are symmetrical and they have a left and right shell that are shaped the same, but brachiopods have a top and bottom shell that are shaped differently. The rocks around modern Richmond have fossils from many different brachiopod species, including *Hebertella*, *Hiscobecus* and *Rafenesquina*.

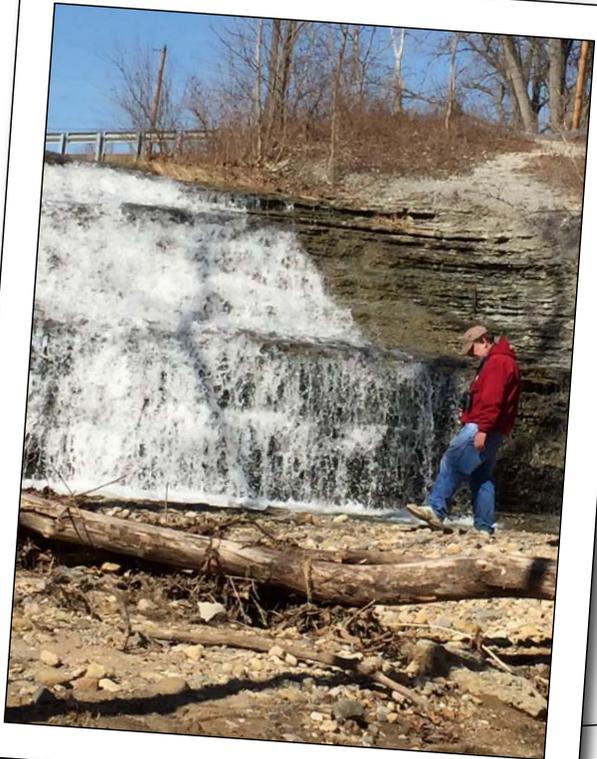
Corals, bryozoans and crinoids were also common in the Richmondian ocean. (see chart on page 6) Corals first became common in this area during the Richmondian. Most of the coral reefs in today's oceans are formed by many individual corals (a relative of jellyfish!) living in colonies together. The Richmondian horn corals were solitary, with "horn" the home of a single animal. The Richmond Fossil Park contains many fossils of the horn coral *Grewingkia*.

One animal that looked very similar to today's colonial corals, and their fossils have many small openings where the individual animals lived were the bryozoans ("moss-animals"). Bryozoans may look a lot like corals, but they are actually more closely related to brachiopods.

The strangest looking of the Richmondian's ocean creatures – they looked like an upside-down starfish on a stem – are the Crinoids ("lily-forms"). The stem kept their arms off the bottom so that they could catch food from the water. Crinoid stems are very common in the rocks of modern Richmond.

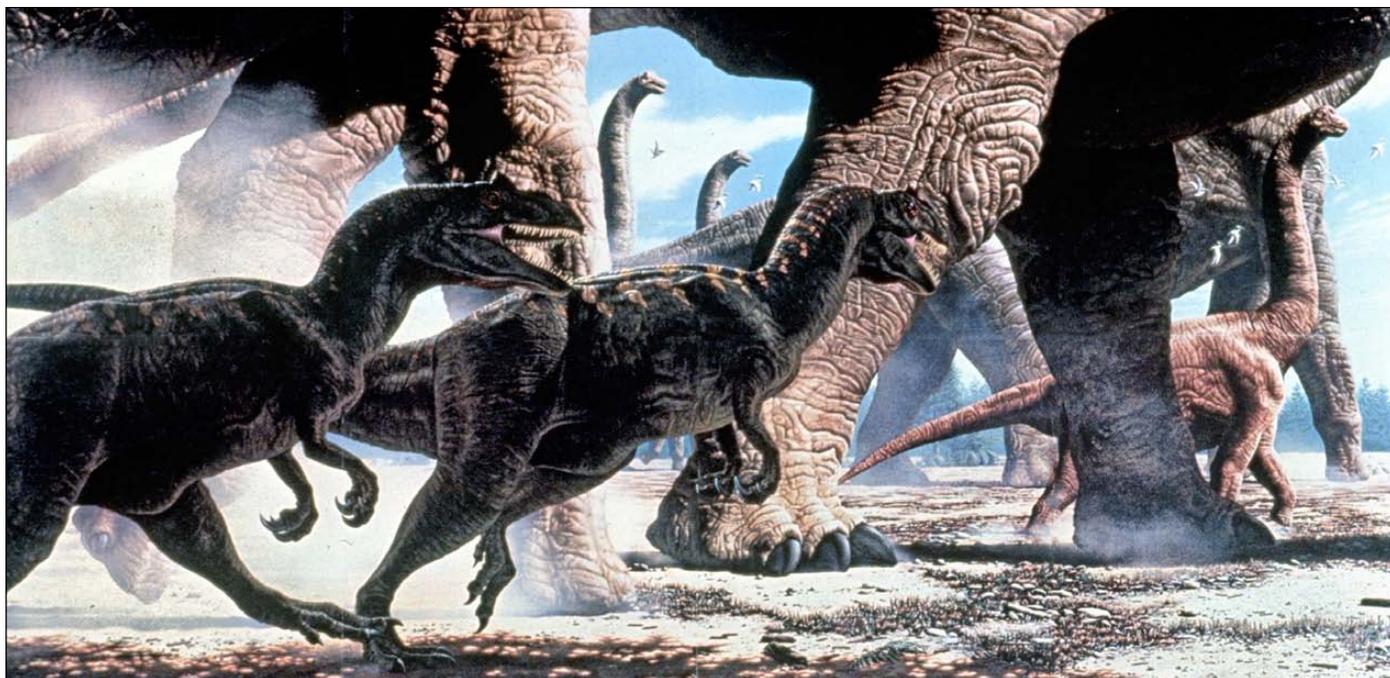
The top predators of the Richmondian ocean were nautiloids, distant relatives of today's squids. They had shells that looked like torpedo cases and could be anywhere from a few inches to eight feet long. A hungry nautiloid could eat anything it wanted!

The astonishing animals that lived here so long ago are called the Richmondian Fauna, and their fossils are very common in the rocks around modern Richmond.. To learn more about nearby fossil-hunting sites, visit the Joseph Moore Museum and get your fossil passport!



- At the base of the Thistlethwaite Falls club member Gary Geyer looks for fossils.
- Student groups participating in the Whitewater Valley Fossil Hunt look for fossils near Thistlethwaite Falls. *photo from facebook.com/fossilhunt*
- This is an example of fossils that can be found in the road cut debris pile in the Richmond Fossil Park.
- Rock from local road cuts is delivered to the Richmond Fossil Park on Bridge Avenue just west of Sim Hodgkin Parkway. For children, this is a safe alternative to searching along busy roads.

Dinosaur Fossils are not Found in Indiana



Dinosaurs are familiar extinct animals, but few people realize how extensive and varied in size these creatures were. Animals diversified rapidly in the Mesozoic Era, giving way to massive lizards and giant dinosaurs. Roaming the landscape of a supercontinent known as Pangea, dinosaurs thrived in North America.

About 65 million years ago, a mass extinction occurred that killed many prehistoric animals at the end of the Cretaceous period. This event, believed to be caused by an asteroid impact in the Yucatan Peninsula, is the largest extinction event in geologic history. Dinosaurs, flying and gliding

reptiles, most marine reptiles, most shelled cephalopods, and other invertebrates vanished. Today's reptiles, such as lizards, turtles, snakes, alligators, and crocodiles, are distant relatives of dinosaur species. The closest living descendant to dinosaurs today are birds, which evolved from feathered dinosaurs that escaped the extinction event.

Although dinosaurs probably lived in Indiana, the bedrock and sediments that would have contained their remains have long since been removed. The youngest bedrock in Indiana is far too old to contain dinosaur fossils. Kansas and New Jersey are the nearest known localities of dinosaur remains.

UPCOMING SHOWS

<http://eiggs.weebly.com/other-upcoming-shows.html>

Aug. 5—ISHPEMING, MI: Annual show; Ishpeming Rock and Mineral Club, Ishpeming Elks Club; 597 Lake Shore Dr.; Sat. 9:30-4:30; Free Admission; Ishpeming Rock and Mineral Clubs 42th Annual Gem and Mineral Show. There will be a kids' area, silent auction, hourly prizes, raffle, demonstrations. Cracker Barrel session Saturday evening at 7pm; live mineral auction, raffle, program; contact Ernest Johnson, 1962 W. Fair, Marquette, MI 49855, (906)-228-9422; e-mail: ejohnson@nmu.edu; Web site: www.ishpemingrocks.org

Aug. 18-20—SOUTH BEND, IN: Annual show; Michiana Gem and Mineral Society, St. Joseph County 4-H Fairgrounds; 5117 South Ironwood Rd., Esther Singer Building; Fri. 12-7, Sat. 10-6, Sun. 11-5; Adults \$3, Students ages 6-12 \$3, Children under 6 free; Michiana Gem & Mineral Society 54rd Annual Jewelry, Gem, Mineral & Fossil Show and Sale. Gem, fossil, mineral and jewelry dealers, lapidary arts demonstrations, exhibits, Kid's Korner, and silent auction; contact John Davis, (574)-232-8823; e-mail: sumu95@hotmail.com; Web site: www.michianagms.org

Sept. 8-10—GREENFIELD, IN: Annual show; 500 Earth Sciences Club, Hancock County 4-H Fairgrounds; 620 N. Apple Street; Fri. 10 a.m-7 p.m, Sat. 10 a.m-7 p.m., Sun. 10 a.m.-4 p.m.; Free admission; Dealers and swappers in fossils, minerals, gems and jewelry and lapidary equipment plus silent auctions, door prizes and much more. Kids activities, demonstrations, educational displays and programs for all. Contact Cheryl Hamilton, 3507 Luewan Dr., Indianapolis, IN 46235, (317)-897-3369; e-mail: clhamilton1951@gmail.com

Sept. 15-17—HOLLAND, MI: Annual show; Tulip City Gem & Mineral Club, Soccer Stop Sportsplex; 5 River Hills Drive; Fri. 10-8, Sat. 10-7, Sun. 11-5; Adults/Seniors \$3, Students/Children free; 48th Annual Show: "Geodes – Hidden Treasure". Crack your own geode! Collect special rocks, fossils, jewelry and beads by visiting dealers, artisan market, silent auction and club sales. View special displays by Seaman Mineral Museum and area colleges. Enjoy Kids Games, Sluice, Fluorescent Tent and club members' personal displays. Interact with the Lapidary Arts demonstrators. You will find common, strange and precious treasures to take home! ; contact Sue Goedert, PO Box 2082, Holland, MI 49422, (616)-452-7843; e-mail: sonbeams2000@yahoo.com; Web site: www.tulipcity.org

Sept. 16-17—HOWELL, MI: Annual show; Livingston Gem and Mineral Society, Hartland Education Support Service Center (Old Hartland High School); 9525 Highland Road; Sat. 10-6; Adults/Seniors \$3, Students \$1, Children under 12 free; contact Ed Oiler, MI; e-mail: edleathercraft@gmail.com



■ Victoria Stone; Bedford Show; Bruce Caminiti

Sept. 29-Oct. 1—INDIANAPOLIS, IN: Annual show; Treasures Of The Earth Gem & Jewelry Shows, Indiana State Fairgrounds - Agriculture/Horticulture Building; 1202 East 38th Street; Fri. 10-6:00 pm, Sat. 10-6, Sun. 11-5; Adults \$5 (Good all 3 days), Children Free under age 16; Jewelry makers, goldsmiths and silversmiths from all over the U.S. who can reconstruct, repair, design or make original jewelry from customer-selected gems, stones, opals and crystals. Wire wrap, wire sculpture, stone beads, pearls, stone setting, amber, opal, mineral and fossil dealers. Hourly door prizes including a Ring with a precious stone that will be given as a Grand Prize. Demonstrations and classes.; contact Van Wimmer - Show Director, 5273 Bradshaw Road, Salem, VA 24153, (540) 384-6047; e-mail: van@toteshow.com; Web site: www.toteshow.com

Sept. 30-Oct. 1—NASHVILLE, IN: Annual show; Brown County Rock & Mineral Club, Brown County History Center; 90 E. Gould Street; Sat. 10-6, Sun. 10-6; Free Admission; The 2nd Annual Brown County Rock & Mineral Show presented by the Brown County Rock & Mineral Club. There will be demonstrations of wire-wrapping, gold-panning, flint-knapping, etc. There will be vendors from all over the Midwest with everything from gems to geodes to fossils to healing stones. ; contact Rhonda Dunn, P. O. Box 2023, Nashville, IN 47448-2023, (812)-320-6237; e-mail: ra-dunn1972@aol.com; Web site: <http://browncountyrock.webs.com/>

October 20-22—FORT WAYNE, IN: Annual show; Three Rivers Gem & Mineral Society, Allen County Fairgrounds; 2726 Carroll Rd; Fri. 10-6; Adults \$5, Seniors \$3, Students \$1, Children under 12 free; Theme: "Crinoids: Indiana's Most Famous Fossil" Attractions: gem, fossil, mineral and jewelry dealers, lapidary arts demonstrations, Viking Knit classes, exhibits, geode cracker, gem sluice, kid's games, dinosaur models, door prizes, silent auction, fluorescent room, touch 'n feel table. ; contact Russell Greim, 7619 CR 68, Spencerville, IN 46788, (260)-403-0450; e-mail: 3riversshow@gmail.com; Web site: http://3riversgem_mineral.tripod.com/annualshow/



ROCK and MINERAL CLUB
64 Years & Still Collecting
1953-2017

42nd ANNUAL Upper Peninsula Gem and Mineral Show



Saturday, August 5, 2017

9:30 am -4:30 pm (Eastern Daylight Saving Time)

Ishpeming Elks Club

597 Lakeshore Drive, Ishpeming, Michigan

Dealers - Kids Area - Silent Auction - Crackerbarrel

Displays - Gems - Minerals - Fossils - Jewelry

There will be working demonstrations throughout the day
along with **HOURLY** door prizes.



FREE Admission • Door Prizes



Field Trips: Friday, Sunday and Monday



Space available by **RESERVATION ONLY** for selling or swapping.
Outside \$30/space - inside \$55 per 8 lineal feet

Sponsored By: The Ishpeming Rock and Mineral Club
For more information showinfo@ishpemingrocks.org
www.ishpemingrocks.org



NOT RESPONSIBLE IN CASE OF ACCIDENTS

See Reverse 