The LITHNICS

Volume 63 Issue 2
April 2025

THE LITHNICS

A QUARTERLY PUBLICATION OF
THE MID-OHIO MINERAL AND FOSSIL CLUB
MANSFIELD, OHIO

CURRENT OFFICERS

PRESIDENT ..... Lawrence Hull
VICE-PRESIDENT..... Jim Baumgartner
PAST PRESIDENT ..... Tom Kottyan
RECORDING SECRETARY..... Pat Everly
TREASURER ..... Pam Kottyan
TRUSTEES..... Jason Larson + Joel Likins + Lawrence Hull

CURRENT COMMITTEE CHAIRS

DOOR PRIZE ..... Pam Kottyan
EDUCATION ..... Tom Kottyan
FIELD TRIPS .....
GORMAN CENTER LIAISON ..... Tom Kottyan
HISTORIAN ..... Jason Larson
HOSPITALITY ..... Joel Likins
MEMBERSHIP ..... Pam Kottyan and Jason Larson
SHOP ..... Walt Upchurch
SHOW ..... Tom Kottyan and Jason Larson
SPECIAL INTERESTS ..... Joyce Kish, Susan Mathews, Bryan Summer
VIDEO/BOOK LIBRARY ..... Carolyn Kelly
LITHNICS EDITOR ..... Bryan Summer
1290 Fairview Ave
Galion, OH 44833
bryansummer1@gmail.com

OUR CLUB

PURPOSE: The purpose of the Mid-Ohio Mineral and Fossil Club, is to create an interest in and study of the earth sciences and all lapidary arts and to afford an opportunity to share knowledge and working techniques with others.

MEETINGS:

General club meetings are at 7:00 pm on the first Monday of the month at:

Gorman Nature Center, 2295 Lexington Avenue, Mansfield, Ohio.

If the first Monday falls on a holiday we meet one week later.

Visitors are always welcome.

Special Interest Group (Classes) meetings are held September through May at 7:00 pm on the second Monday of the month. See Special Interest Chair, Mike McCullough.

CANCELATION OF A MEETING

If for any reason the club officers feel that a meeting should be canceled you will be notified by email as soon as possible. If Mansfield schools are closed so are we. If for any reason you don't feel safe to drive to a meeting, please, please stay home.

Annual dues are:

Adults	**$ 15.00**
Children under 16	**$ 5.00**
Family	**$ 20.00**

Dues are due Jan. 1st of every year. Whether you join in January, December, or any month in between, the cost is the same.
Everyone's dues are due again the next January 1st .

LITHNICS: Our quarterly newsletter.

Permission is hereby granted to use any original **LITHNICS** articles, whole or in part, as long as proper recognition is noted with the reprint.

Club members are encouraged to make contributions to the LITHNICS.

Contact: Bryan Summer (bryansummer1@gmail.com)

The Mid-Ohio Mineral and Fossil Club

Presidents Message

Hello everyone! We just made it out of another winter 🤔!!!. Spring is a great time of year to get out to those creeks, rivers and lakes and check out what old man winter broke out of the banks or washed up on shore! It's a great time to search since the snow and rain have cleared all of the Fall leaves away!!

Ohio is a great state because it's a short drive to many locations. Fossils can be found in the southern part of the state and petrified wood in the south east. The Great Lakes are to our north with all kinds of beaches and treasures. Indiana and Kentucky to our west have agates and geodes!!! Then you can display your new finds in your landscaping or your office or home !!!

There are a lot of mineral shows on the weekends where you can find treasures from all over the world. Don't forget our show will be coming up in June and the theme is Lapidairy Arts. Get your projects polished up to display in your showcase!! Our club always has excellent show cases on display!

Be safe when you go out traveling and collecting. Don't be like me as I totaled my truck on a rock trip a couple weeks ago!! Difficult to get all your treasures back home without wheels!! Can't wait to see and hear all the stories about your journeys at our April meeting!!!
That's all for now!

Lawrence Hull

Mid-Ohio Mineral and Fossil Club President

Upcoming Meetings – all meetings are at the Gorman Nature Center at 7:00 pm

Continue to watch for information about future meetings in your email.

- Monday, May 5 — 7:00 Meeting Gorman Nature Center
- Monday, June 2 — 7:00 Meeting Gorman Nature Center
- Monday, July 7 — 7:00 Meeting Gorman Nature Center
- Monday, August 4 — 7:00 Meeting Gorman Nature Center
- Monday, September 8 — 7:00 Meeting Gorman Nature Center
- Monday, October 6 — 7:00 Meeting Gorman Nature Center
- Monday, November 3 — 7:00 Meeting Gorman Nature Center
- Tuesday, December 2 — Annual Christmas Dinner Golden Corral 5 - 7

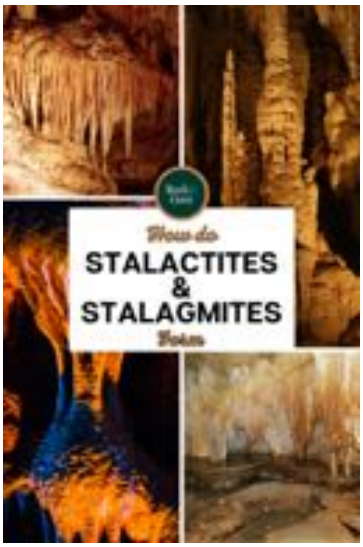
Area Events

Lowe Volk Park Rock + Fossil Day	April 12	10 - 2
Gorman Nature Center Rock + Fossil Day	May 10	11 - 3
Coshocton Flint Knappers Festival Spring	May 23 - 25	
Mid-Ohio Mineral + Fossil Club Show	June 7 + 8	(Richland Co. Fairgrounds)
Coshocton Flint Knappers Festival Fall	Aug 29 - 31	

Article 1

How Stalactites and Stalagmites Form in Caves

February 25, 2025



Getty Images/Blaine Reavis

How stalactites and stalagmites form is one of the most common questions asked by visitors to the limestone caves of the National Parks. The answer is found in a bit of basic but fascinating chemistry.

Stalactites and stalagmites form when surface water dissolves carbon dioxide from the atmosphere or soil to form carbonic acid. Percolating downward through limestone strata, this weak acid dissolves small amounts of calcium carbonate. When it reaches a cavern roof and contacts cavern air, this acid begins to lose its dissolved carbon dioxide just like a newly opened can of soda.

This loss of carbon dioxide decreases acidity causing the dissolved calcium carbonate to precipitate out of the solution. As water drips from cavern ceilings, this precipitation of calcium carbonate forms stalactites, which hang from cave ceilings like icicles. At the drip point directly beneath the growing stalactites, the same process causes stalagmites to build upward from the cave floor.

How Stalactites and Stalagmites Form Through Growth Rings

While cave visitors admire stalactites and stalagmites for their beauty, colors and fantastical shapes, scientists are more interested in their concentric growth rings which are similar to those of trees. This sequence of growth rings is visible when stalagmites and stalactites are cut in cross-sections and polished.

Thanks to a new ability to "read" these growth rings, stalactites and stalagmites are revealing their ages and providing additional insight into the geological and climatic conditions that existed at the time they formed.

Cave stalactites and stalagmites. Getty Images/Blaine Reavis

Because of variations in seasonal and drought cycles that control the abundance of surface water, growth rates are often uneven and erratic. Maximum growth occurs during peak availability of surface water in rainy seasons, periods of snowmelt or wet climatic cycles. But when water is in short supply or unavailable, growth rings may not develop at all.

Because of their faster growth rates, stalagmitic growth rings are thicker and more distinct than those of stalactites and have a greater scientific value. When water drips onto a stalagmite, the impact instantly "degasses" the water, sharply reducing acidity, accelerating the precipitation of calcium carbonate and creating large, well-defined growth rings. In the past, scientists visually counted annual growth rings to roughly estimate the age of stalactites and stalagmites. But researchers now employ a far more accurate radiometric dating technique.

Radiometric Dating

Uranium, which has a chemical affinity for calcium, is present in trace amounts in virtually all rocks, including stalactites and stalagmites. Being radioactive, uranium disintegrates continuously into an orderly "decay chain" of elements and isotopes, one of which is thorium. Unlike uranium compounds, those of thorium are not water-soluble.

The thorium in stalactites and stalagmites therefore formed after calcium carbonate was deposited. Measuring the relative amounts of thorium and uranium present in growth rings can thus reveal the age of stalactites, stalagmites, and entire cave systems such as Carlsbad Caverns — even caves that are millions of years old—to an accuracy of just a few hundred years.

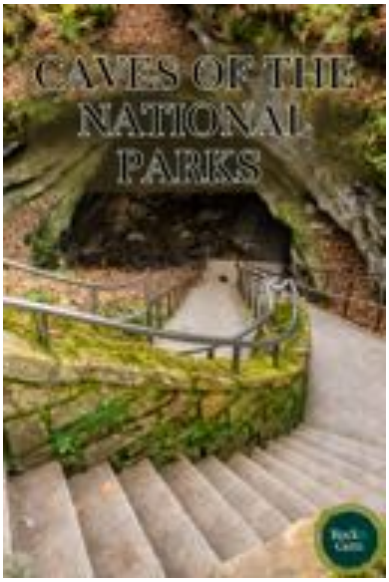
So, while the question of how stalactites and stalagmites form has a simple chemical answer, there is much more than meets the eye to these beautiful cave formations. *Story by Steve Voynick.*

Article 2

Caves of the National Parks

They are Among the Biggest and Best

February 26, 2025



Carlsbad Caverns was created by sulfuric acid (H2SO4) produced by hydrogen sulfide gas (H2S) rising upward from deep petroleum deposits. NPS

Caves of the national parks are some of the world's biggest and most interesting caves. Within its 189 national parks and monuments, the National Park Service (NPS) has documented more than 4,700 caves. Some are smaller than a basketball court, while others have hundreds of miles of twisting passageways.

Dark and mysterious, bewitching and beautiful, caves instill fear, spark the imagination, and delight the senses with their winding passageways, surreal stone features and subterranean grottos. The mystique of caves attracts everyone from explorers and scientists to tourists and the casually curious.

Defined as natural voids in the ground large enough for human entry and with depths that exceed the width and height of their openings, caves are classified by origin as solution, lava, talus, sea or lake, or ice.

Caves of the National Parks – Solution Caves

Solution caves, the most abundant type of cave, form by the dissolution of rocks such as limestone and marble. The solvent is usually carbonic acid, a weak acid that forms when atmospheric carbon dioxide dissolves in surface water, and then percolates downward through bedrock fissures.

Most solution caves form in limestone, a sedimentary rock consisting largely of calcite (calcium carbonate, $CaCO_3$). Because limestone dissolution and cave formation progress at an average rate of just one millimeter per year, the development of a cave can take hundreds or thousands of years or more.

Mammoth Cave

A solution cave in south-central Kentucky's Mammoth Cave National Park, is the world's largest cave, with 430 miles of surveyed passages. Natural development continues today on the cave's lowest level 350 feet below the surface.

Over thousands of years, this cave's thriving bat population has deposited large quantities of guano rich in nitrates that are easily converted to saltpeter (potassium nitrate), the key component of black gunpowder. During the War of 1812, Mammoth Cave provided much of the nation's saltpeter, which was mined by enslaved African Americans. When Mammoth Cave began attracting tourists after the war, these same African Americans became the nation's first underground tour guides.

Among Mammoth Cave's many unusual calcite deposits or speleothems are "cave flowers"—rosettes of long, hair-like gypsum crystals that grow on flat and curved surfaces, freestanding shapes called "ram's horns."

Carlsbad Caverns, Lechuguilla, Slaughter & Spider

Southeastern New Mexico's Carlsbad Caverns National Park is the home of Carlsbad Caverns and Lechuguilla, Slaughter and Spider caves. Carlsbad Caverns is a sprawling system of 119 interconnected caves, among which are some of the largest, longest and deepest in the world. Carlsbad Caverns is unusual because it was created not by carbonic acid, but by sulfuric acid derived from hydrogen sulfide gas that rose from deep petroleum deposits to dissolve in groundwater. Attractions include the 4,000-footlong, 250-foot-high Big Room, North America's largest underground gallery.

Hanging from the roof of Lechuguilla Cave are the largest-known gypsum stalactites—20-foot-long, white stalactitic chandeliers that are named for the delicate sprays of colorless selenite crystals radiating from their tips. Until the 1980s, Lechuguilla was assumed to be small, but explorers have since found 145 miles of previously unmapped passages, some as deep as 1,600 feet.

Wind Cave

Wind Cave in southwestern South Dakota's Wind Cave National Park is named for the wind that blows through its entrance with changes in atmospheric pressure. Although this relatively dry cave has few stalactites and stalagmites, it is known for a wide variety of striking calcite speleothems with evocative names like gleaming "dogtooth" crystals, needle-sharp growths of "frostwork," nubby bumps of "cave popcorn" and, most notably, rare, honeycomb patterns of crystals called "boxwork."

Jewel Cave

Nearby Jewel Cave in Jewel Cave National Monument is named for the glittering calcite crystals that cover its walls. Although initially thought to be small like New Mexico's Lechiguilla Cave, recent explorations have revealed 192 miles of passageways, making Jewel Cave the world's third-largest cave.

Timpanogos Cave

Timpanogos Cave in Timpanogos Cave National Monument in Utah's Wasatch Mountains features numerous examples of fragile speleothems called helictites —sideways stalactites that form when capillary action causes calcite to precipitate as thin, horizontal or downward angled tubes. Timpanogos' other unusual speleothems are the imaginatively named "cave bacon" and "cave popcorn" structures, along with frostwork and beautiful formations of flowstone.

Lava Caves

Unlike solution caves, lava caves, or "lava tubes," form simultaneously with their host volcanic rock when volcanoes erupt and flows of surface lava melt downward into channels. Overflowing and splashing lava solidifies into walls that sometimes build into overhead crusts. When eruptions cease, molten lava drains from enclosed channels, leaving behind caves often adorned with lava stalactites called "lavacicles."

The National Park Service has lighted the interior of the Thurston Lava Tube in Hawaii Volcanoes National Park.Wikimedia Commons

Northern California's Lava Beds National Monument has North America's greatest concentration of lava caves. Of the park's 700 lava caves, 25 are open for self-guided or ranger-guided exploration. Winter tours of Crystal Ice Cave showcase exquisite white-ice formations gleaming against black-lava walls; summer tours highlight Fern Cave's Native American rock art and lush underground vegetation.

Idaho's Craters of the Moon National Park and Preserve encompasses the largest lava field in the lower 48 states. This 50-mile-long lava field consists of 60 individual flows from eight major eruptions. Five of the lava caves are open to the public, among them the 800-foot-long Indian Tunnel, which is accessible from both ends.

The Thurston Lava Tube is a popular attraction at Hawaii Volcanoes National Park on Hawaii's Big Island. Formed just 500 years ago, this 600-foot-long, 20-foothigh lava

cave features drips and waves that are the solidified remnants of lava that emanated from the Kilauea volcano.

Talus Caves

Talus caves are openings between heaps of large boulders. They form at the base of steep slopes when erosion triggers the downhill movement of large angular boulders. Talus caves, most common in the Appalachians and the mountainous West, are characterized by tight, twisting passageways and multiple entrances.

This talus cave is one of many in California's Pinnacles National Monument. Wikimedia Commons

In California's Yosemite National Park, Pleistocene glacial scouring and subsequent rockfall from sheer cliffs have built huge talus piles with caves as long as 300 feet.

California's Pinnacles National Park protects a rugged, 23-million-year-old volcanic field of rhyolitic rock. During the Pleistocene ice ages, massive ice sheets scoured huge boulders into narrow gorges to create massive talus heaps laced with dozens of caves.

Sea & Lake Caves

Lake caves sculpted by waves line the shore of Michigan's Painted Rocks National Lakeshore. Wikimedia Commons

Sea and lake caves are created along rocky shores and the headlands of oceans and large lakes by waves coupled with the abrasive action of waterborne sand. The shorelines of California's Channel Islands National Park and Point Reyes National Seashore, and Maine's Acadia National Park, are laced with dozens of sea caves.

At Michigan's Pictured Rocks National Lakeshore and Wisconsin's Apostle Islands National Lakeshore, wave action and repetitive cycles of freezing and thawing have sculpted sandstone shorelines into spectacular networks of lake caves featuring delicate arches, vaulted chambers and honeycombed passageways.

Ice Caves

Caves with ice as a major feature fall into two categories: Ice caves are caves that contain some ice year-round, while glacier-ice caves exist within masses of glacial ice. Ice caves trap frigid winter air and remain cold enough to retain ice formations even in summer. Lava caves that double as ice caves are found in Idaho's Craters of the Moon National Park and Preserve, New Mexico's El Malpais National Monument, California's Lava Beds National Monument and Arizona's Sunset Crater National Monument.

This glacier-ice cave in Alaska's Wrangell-St. Elias National Park and Preserve formed when creeks melted out passageways through glacial ice. Wikimedia Commons

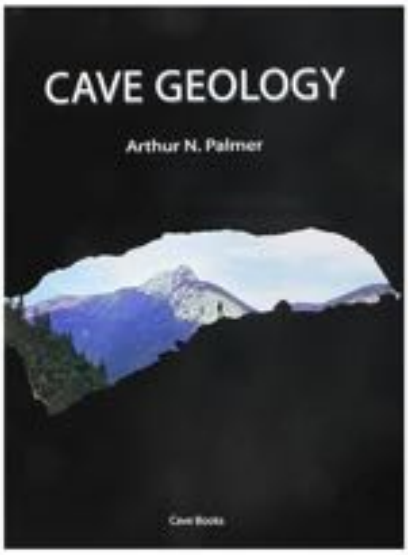
Glacier-ice caves originate when creeks flow into glaciers through moraines to melt voids with ice roofs and walls, and bedrock or sediment floors. Eerie, bluish light filtering through translucent, overhead ice imparts a surreal beauty to glacier-ice caves.

Ice caves are caves in rock that retain ice year-round; this ice cave is seen at California's Lava Beds National Monument. Wikimedia Commons

Alaska’s national parks are famed for their many glacier-ice caves. Creeks continuously melt out new glacier-ice caves within Root Glacier in Wrangell-St. Elias National Park and Preserve, the world’s largest glacier system. Other Alaskan national parks with glacier-ice caves are Katmai National Park and Preserve, Kenai Fjords National Park and Glacier Bay National Park and Preserve.

Story by Steve Voynick.

Geology Books



Cave Geology Paperback – February 22, 2017

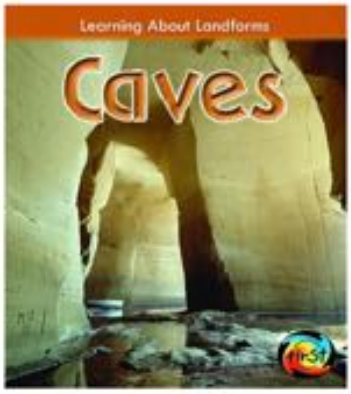
by Arthur N. Palmer (Author)

4.8 ★★★★★ 28 ratings

4.7 on Goodreads 32 ratings

See all formats and editions

Cave Geology is the definitive book on the subject by an internationally recognized authority. It can be easily understood by non-scientists but also covers a wide range of topics in enough detail to be used by advanced researchers. Illustrated with more than 500 black-and-white photographs and 250 diagrams and maps.



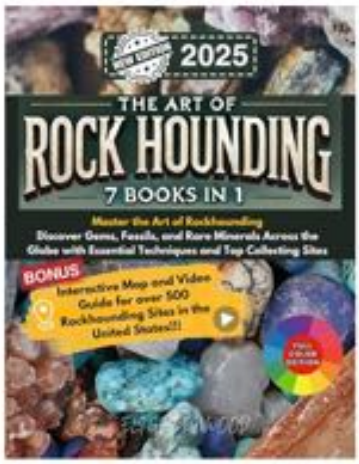
Caves (Learning about Landforms)

Paperback – February 1, 2014

by Ellen Labrecque (Author)

4.3 ★★★★½ 25 ratings See all formats and editions

Read Caves to learn all about these exciting, beautiful, and unique landforms. Discover the different cave types, how caves are formed, and what living things can be found in and around caves.



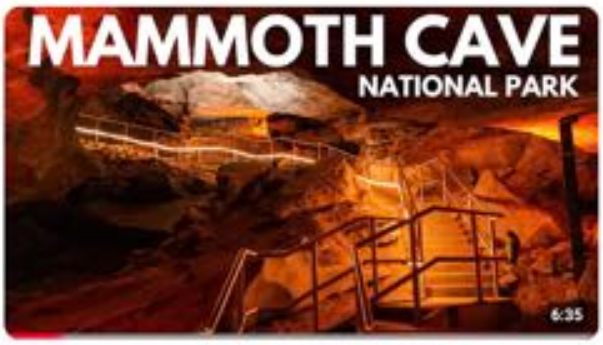
THE ART OF ROCK HOUNDING 7 BOOKS IN 1: Master the Art of Rockhounding: Discover Gems, Fossils, and Rare Minerals Across the Globe with Essential Techniques

Paperback – Large Print, October 18, 2024

by Eli Greenwood (Author)

4.4 ★★★★½ 28 ratings See all formats and editions

YouTube



Mammoth Cave National Park in Kentucky: Taking the Historic Tour

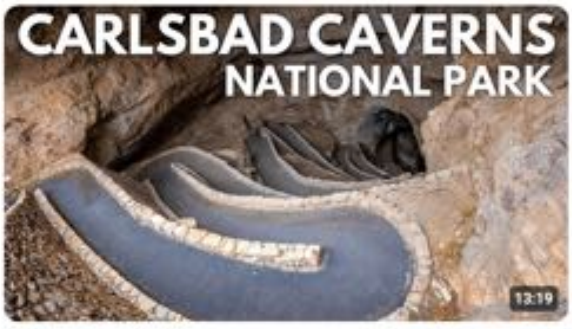
207K views • 3 years ago

Through My Lens

Mammoth Cave National Park is home to the world's longest cave system at over ...

4K

9 chapters Intro | Opening | rotunda | Broadway | Giants Coffi...



Carlsbad Caverns National Park in New Mexico: Exploring the Big Room & Natural Entrance

221K views • 3 years ago

Through My Lens

Carlsbad Caverns National Park is New Mexico's most popular national park and a...

4K

13 moments The Big Room | Natural Entrance | The Dark...

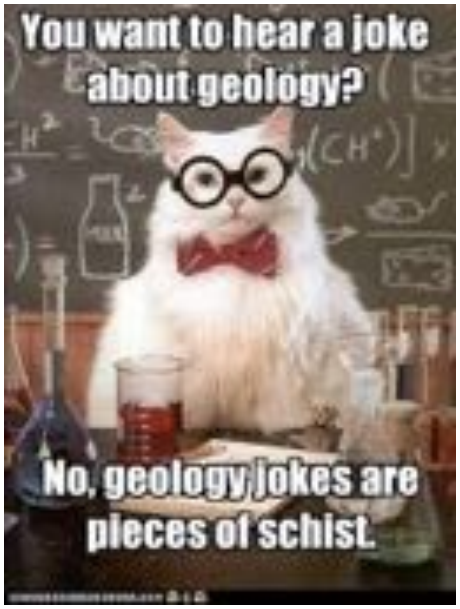
15 MOST BEAUTIFUL CAVES

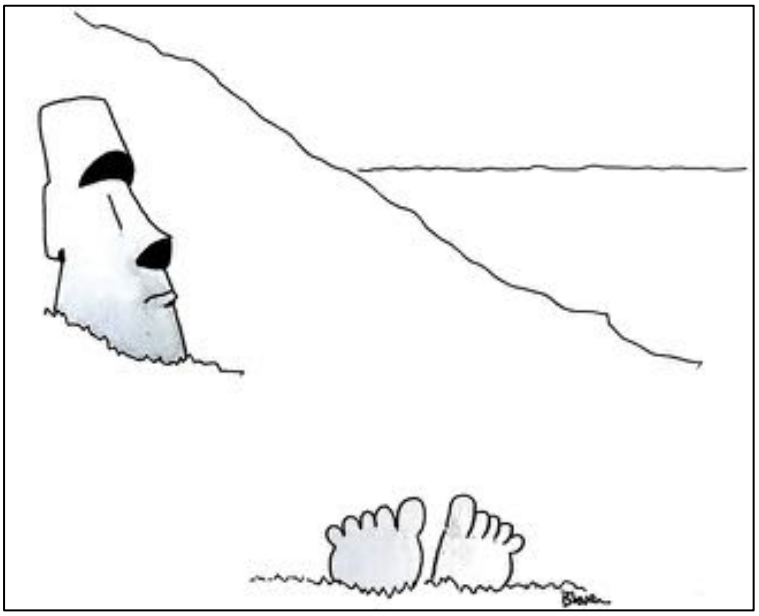
1.2M views • 4 years ago

Top Fives

Hidden in the nooks and crannies of the Earth, are the most beautiful cave system...

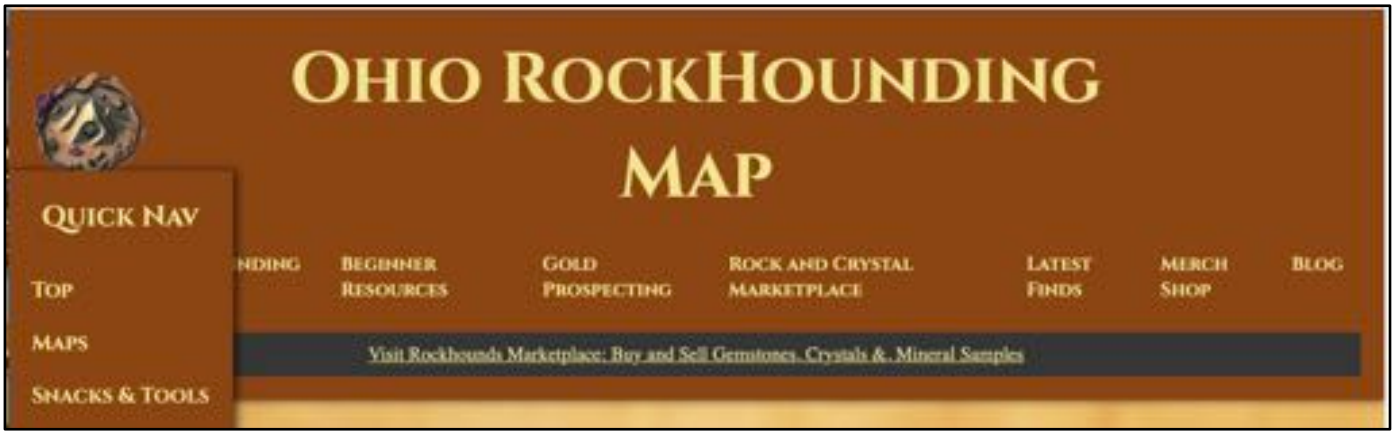
6:03 ... full of stalagmites stalactites and various other formations it's around 79...





Interesting Web Sites

1. Mineralogy4kids
    a. https://min4kids.org
2. Minerals by Name
    a. http://www.galleries.com/Minerals_By_Name
3. Ology - the science website for kids from the American Museum of Natural History
    a. https://www.amnh.org/explore/ology?channel=earth
4. Fascinating Geology for Kids
    a. https://littlebinsforlittlehands.com/geology-for-kids/
5. Geology for Elementary Schools
    a. https://study.com/academy/topic/geology-for-elementary-school.html
6. Elementary School Science
    a. https://www.elementaryschoolscience.com/lesson-plan-intro-rocks-minerals



2025 Rockhound Holidays (Rock + Gem Magazine)

People often say there's a holiday for everything, and they're right. The good news is there are some fun holidays for Rockhounds to enjoy and celebrate.

Old Rock Day – January 7
National Jewel Day – March 13
Geologists Day – April 6
Earth Day – April 22
Nickel Day – May 16
Dinosaur Days – June 1
National Caves & Karst Day – June 6
World Oceans Day – June 8
International Drop a Rock Day – July 3
International Rock Day – July 13
National Pet Rock Day – September 7
Collect Rocks Day – September 16
National Fossil Day – October 15

Upcoming Events and Rock Shows – (Ohio and close to Ohio)

Check the Midwest Federation of Mineralogical + Geological Societies for Calendar Updates

APRIL

5-6 Columbus Rock & Mineral Show Rhodes Bldg., Ohio Expo Center, columbusrockandmineral society.org Sat 10-6, Sun 10-5 717 E. 17th Ave., Columbus, OH

26-27 CUYAHOGA FALLS, OHIO: Akron Mineral Society & Summit Lapidary Club; Emidios Expo Center, 48 East Bath Road; Sat. 10-6 Sun 10-5 Adults $6, Seniors (55+) & Students $5, Children (7-14) $1, Scouts in Uniform Free; 38 quality vendors

26-27 TROY OHIO Show: Miami County Gem & Mineral Club; Miami County Fairgrounds, 650 N. Co. Rd. 25A; Sat. 10-6, Sun. 10-4; Adults $3, free admission for children under 18; Website: mcgamc.org

26-27 CINCINNATI GEOFAIR SHOW - New Location: Butler County Fairground Event Center
Sat 10 - 5 and Sun 11 - 5 1715 Fairgrove Avenue Hamilton, Ohio 45011

MAY

2-4 KALAMAZOO, MICHIGAN: Kalamazoo Geological Society; Kalamazoo Expo Center, 2900 Lake Street; Fri. 4-8, Sat. 10-6, Sun. 10-5. $5 admission 12 and under are free with paid adult; 45+ dealers, silent auction, kids activities, geode cracking, daily door prizes, something for everyone; Website: kalamazoorockclub.org

17-18 NORTH OLMSTED, OHIO: Parma Lapidary Club; Soccer Sportsplex, 31515 Lorain Rd; Sat. 10-6, Sun. 10-5; $6 Adults and free for children under 12, and free for Scouts in uniform; 30 dealers specialized in geological, gemological, & paleontological sciences. Minerals, gems, fossils, beads, & handcrafted jewelry gifts. Website: https://www.parmalapidaryclub.com/rock-a-rama

23 - 25 Flint Knappers - Coshocton Fairgrounds 724 South 7th Street Coshocton, OH

JUNE

7+8 Mid-Ohio Mineral and Fossil Club Annual Show. Fairhaven Hall, Richland County Fairgrounds, 750 N Home Rd, Mansfield, OH 44904 Sat 10 - 6 and Sun 11 - 5

Our Club's Craft Program

We will send out information about craft classes as we get them planned and scheduled.

MIDWEST FEDERATION OF MINERALOGICAL & GEOLOGICAL SOCIETIES

New Website: https://www.mwfed.org

New Juniors Website: https://www.mwfed.org/juniors

FUTURE ROCKHOUNDS OF AMERICA

(American Federation of Mineralogical Societies)

Lora Hall, AFMS Youth Director

youth@amfed.org

Future Rockhounds of America (FRA) is a whole lot more than just the badge program! The new FRA website is packed FULL of lots of resources for activities with kids and teens in YOUR club - Any Midwest Federation Club. Features like **Rock Pals, the Junior Volunteer Award, Contests and rock-related activities for Kindergarten-12th grade kids** can make your club attractive to families and increase your membership. Check out the links below for ideas, and visit www.juniors.amfed.org/rock-mineral-activities for more!

The Midwest Federation of Mineralogical + Geological Societies

You can check out all the Shows and Events in our Midwest Region (Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska) at the Midwest Federation of Mineralogical + Geological Societies https://www.mwfed.org

The U.S. Geological Survey Youth and Education in Science (YES) Team.

Revamped their web presence to better assist with online and home learning.

The new USGS learning from home portal for lesson plans and activities, grades K – 12.
www.usgs.gov

Students of all ages can always tap into the USGS Resources for Teachers for over 140 years of USGS research in the natural sciences in the form of lesson plans and activities, maps, podcasts, online lectures, videos and animations, and much more. Browse thousands of ideas for using these resources in elementary, secondary, university, and informal education settings

Meeting Minutes

January 2025

February 2025

March 2025

Don't Forget to Check Out our Website for Club Information:

http://www.midohiomineralandfossilclub.com

The Lithnics

If you have any club news, articles you would like share with members, updates on your committee, etc. please email info to:

Bryan Summer – bryansummer1@gmail.com

The Lithnics is Published Quarterly

January 1, April 1, July 1, October 1