



Mid-Ohio Mineral and Fossil Club

# The LITHNICS

Volume 61 Issue 1  
January 2023

# THE LITHNICS



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



## CURRENT OFFICERS

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VICE-PRESIDENT .....	Jim Baumgartner
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FIELD TRIPS .....	Brad Wagner + Jeff Murray
GORMAN CENTER LIAISON .....	Tom Kottyan
HISTORIAN .....	Jason Larson
HOSPITALITY .....	Joel Likins
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SHOW .....	Tom Kottyan and Jason Larson
SPECIAL INTERESTS .....	Joyce Kish, Susan Mathews, Bryan Summer
VIDEO/BOOK LIBRARY .....	Carolyn Kelly
LITHNICS EDITOR .....	Bryan Summer

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# 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:



<b>Adults</b>	<b>\$ 15.00</b>
<b>Children under 16</b>	<b>\$ 5.00</b>
<b>Family</b>	<b>\$ 20.00</b>

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



## Message from the President Tom Kottyan

Fellow Club Members,

Well, like it or not, we are into the winter now. It is time for inside work on those “special” projects. Whether it be reorganizing your mineral collection, starting a new interest within the many facets of rockhounding hobby, or making a new jewelry creation in silver, gold (if you are rich) or some other type of base metal. Expand your personal limits. I will be redoing my quartz and Mexican mineral collections. This entails cleaning, removing and improving, when possible, some specimens while reorganizing various minerals into new groupings for better viewing within the mineral cases. In general tastes change as you continue to collect throughout the years whether it be minerals, fossils, cutting material or jewelry. We all continue to grow and learn as we progress throughout the years. It is a life-long hobby. Have a good winter.

Club president, Tom Kottyan

*Tom Kottyan*

**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, January 2      7:00 Meeting Gorman Nature Center
- Monday, February 6    7:00 Meeting Gorman Nature Center
- Monday, March 6        7:00 Meeting Gorman Nature Center
- Monday, April 3         7:00 Meeting Gorman Nature Center
- Monday, May 1          7:00 Meeting Gorman Nature Center
- Monday, June 5         7:00 Meeting Gorman Nature Center
- **June 10 + 11            Mid-Ohio Mineral Show - Sat + Sun**
- Monday, July 10        7:00 Meeting Gorman Nature Center
- Monday, August 7       7:00 Meeting Gorman Nature Center
- Monday, Sept. 11       7:00 Meeting Gorman Nature Center
- Monday, October 2     7:00 Meeting Gorman Nature Center
- Monday, November 6   7:00 Meeting Gorman Nature Center
- Monday, December 4   5:00 Christmas Dinner at Golden Corral



## Special Area Events

- |  |              |
|--|--------------|
| 1. Lowe Volk Park Arrowhead Hunt           | TBD          |
| 2. Gorman Nature Center Rock + Mineral Day | TBD          |
| 3. Gorman Nature Center Artifact Day       | TBD          |
| 4. Flint Ridge Spring Knap-in              | May 26 - 29  |
| 5. Fossick Gold Days                       | June 17 + 18 |
| 6. Gold Rush Days                          | Sept 2 + 3   |
| 7. Flint Ridge Fall Knap-In                | Sept 1 - 4   |

## 2023 Mid-Ohio Mineral and Fossil Show June 10 - 11 Show Theme: Trilobites



# Scientists found a 6th Mass Extinction

By [Joshua A. Krisch](#)

Published November 15, 2022

A global drop in oxygen levels about 550 million years ago led to Earth's first known mass extinction, new evidence suggests.



Impressions of the extinct Ediacaran fossils: Dickinsonia (center) and the smaller anchor-shaped Parvancorina (left), in sandstone at the Nilpena Ediacara National Park in South Australia. (Image credit: Photo courtesy of Scott Evans)

The height of the Ediacaran period, about 550 million years ago, was a boom time for life in Earth's oceans. Petalonamids shaped like feathers sucked nutrients from the water, slug-like *Kimberella* grazed on microbial mats, and the ancestors of jellyfish were just beginning to make waves. But then 80% of life on Earth disappeared, leaving no traces in the fossil record.

Now, a new study suggests that these missing fossils point to the earliest known mass extinction event on Earth. These first communities of large, complex animals were killed by a steep global decline in oxygen - a finding that may have implications for modern ocean ecosystems threatened by human activities.

"This represents the oldest recognized major extinction event in the fossil record of animals," said lead study author Scott Evans, a postdoctoral researcher at Virginia Tech. "It is consistent with all major mass extinctions, in being linked to climate change."

Animals have passed through the evolutionary crucible of mass extinctions at least five times. There were the Ordovician-Silurian and the Devonian extinctions (440 million and 365 million years ago, respectively), which killed off many marine organisms. Then, there were the Permian-Triassic (also known as the "Great Dying") and Triassic-Jurassic extinctions (250 million and 210 million years ago, respectively), which affected ocean vertebrates and land animals. The most recent mass extinction, about 66 million years ago at the end of the Cretaceous period, wiped out approximately 75% of plants and animals, including nonavian dinosaurs.

Whether one more mass extinction should be added to that list has been an open question among paleontologists for some time. Scientists have long known about the sudden decline in fossil diversity 550 million years ago, but it was unclear if that was due to a sudden mass extinction event.

One possible explanation could be that early trilobites — armored and often helmet-headed marine arthropods - began competing with Ediacaran fauna, causing the latter to die out. Another possible explanation is that Ediacaran fauna lived on, but the conditions necessary for preserving Ediacaran fossils existed only until 550 million years ago. "People recognized that there was a change in biota at this time," Evans said. "But there were significant questions about what the causes might be."

To answer those questions, Evans and his colleagues compiled a database of Ediacaran fossils that other researchers had previously described in scientific literature, sorting each entry by factors such as geographic location, body size and feeding mode. The team cataloged 70 animal genera that lived 550 million years ago and found that only 14 of those genera were still around 10 million years later. They noticed no significant changes in the conditions necessary for preserving fossils, nor did they find the sort of differences in feeding modes that would suggest that the Ediacaran animals died out due to competition with early Cambrian animals, like trilobites.

But there was one common thread among the organisms that survived: body plans with high surface area relative to volume, which can help animals cope with low-oxygen conditions. That observation, combined with geochemical evidence of a decline in oxygen 550 million years ago, suggests that the Ediacaran may have ended in a mass extinction event caused by low oxygen availability in the ocean. The researchers published their findings online Nov. 7 in the journal.

"We examined the selectivity pattern - what went extinct, what survived, and what flourished after the extinction," said study co-author [Shuhai Xiao](#), a professor of geobiology at Virginia Tech. "It turns out that organisms that cannot cope with low oxygen levels were selectively removed."

Why oxygen levels plummeted in the waning years of the Ediacaran remains a mystery. [Volcanic eruptions](#), [tectonic plate](#) movements and [asteroid](#) impacts are all possibilities, Evans said, as are less-dramatic explanations, such as changes in nutrient levels in the ocean.

Regardless of how it happened, this mass extinction likely influenced the subsequent evolution of life on Earth and may have implications for scientists studying how animal life got started.

"Ediacaran animals are pretty strange — most don't look anything like the animals we know," Evans said. "After this extinction event, we start to see more and more animals that look like ones around today. It may be that this early event paved the way for more modern animals."

The findings may also hold lessons about human threats to aquatic life. Various agricultural and wastewater practices have introduced nutrients such as phosphorus and nitrogen into marine and river ecosystems, thus increasing the amount of algae that decompose in the water and consume oxygen. The spread of "dead zones," where oxygen levels in the water are too low to sustain life, could pose similar challenges to modern animals.

"This study helps us understand the long-term ecological and geological impacts of oxygen-deficiency events," Xiao said.

### **Joshua A. Krisch**

Live Science Contributor

Joshua A. Krisch is a freelance science writer. He is particularly interested in biology and biomedical sciences, but he has covered technology, environmental issues, space, mathematics, and health policy, and he is interested in anything that could plausibly be defined as science. Joshua studied biology at Yeshiva University, and later completed graduate work in health sciences at Cornell University and science journalism at New York University.



**A photographic guide for the names that are used to describe opals.**

Geology.com

Author: [Hobart M. King](#), PhD, GIA Graduate Gemologist



## What Is Opal?

Opal is one of the world's most popular **gemstones** and the **birthstone** for the month of October. A nice precious opal can flash every color of the spectrum with an intensity and quality of color that surpasses the fire of **diamond**. The best opals command prices per carat that rival expensive diamonds, **rubies**, **sapphires**, and **emeralds**.

There are many types of opal found in deposits around the world. If you are just starting to learn about opal, here are three varieties that might surprise you: **Fire Opal** is known for its intense red, orange and yellow colors - the colors of a fire! **Boulder Opal** is opal with attached host rock. It can be surprisingly beautiful! **Common Opal** has color, pattern and beauty that can be anything but common. Who gave it such a common name?

Mineralogically, opal is a hydrous silicon dioxide with a chemical composition of  $\text{SiO}_2 \cdot n\text{H}_2\text{O}$ . It is amorphous, without a crystalline structure, and without a definite chemical composition (it contains a variable amount of water, as shown by the "n" in its chemical composition). Therefore opal is a "**mineraloid**" rather than a "**mineral**."

### Opal Can Be Fragile!

Opal is a wonderful stone for earrings, pendants, and brooches. These items of jewelry normally do not receive significant abrasion and impact during wear. Opal is softer and more easily chipped than most other popular gemstones. It has a hardness of about 5.5 to 6.0 on the **Mohs hardness scale**.

When used in a ring, the best designs have a bezel that fully protects the stone - instead of being placed in a prong setting that exposes the stone to impact and abrasion. Opal rings are beautiful and many people enjoy them. If you decide to wear an opal ring, it is best removed during activities when impact or abrasion might occur.

### Physical Properties of Opal

Although opal has a composition that includes  $\text{SiO}_2$ , its physical properties are very different from quartz. Opal also has water, which reduces its specific gravity, gives it a lower hardness, and makes it much more brittle.

Some opal also has an internal structure that consists of regularly packed spheres, which enables it to behave like a diffraction grating and separate light into its component colors - similar to what is done by a prism. This phenomenon is known as "play-of-color". Together, these properties enable it to be a gemstone, albeit a fragile one.

### Play-of-Color and Opalescence

Opal is a very common material, found throughout the world. Most opal is "**common opal**" or opal that lacks the colorful flashes known as "play-of-color". Some people use the name "potch" for this type of opal.

Most common opal has an unremarkable appearance and is almost invariably overlooked in the field. It is often assumed to be **quartz** or a variety of chalcedony - but a surprising amount of common opal exists.

The rare specimens of opal that exhibit a play-of-color are known as "**precious opal**". If the play-of-color is of high quality and large enough to cut, the material can be used to produce valuable gemstones.

If you examine a specimen of precious opal under bright light, play-of-color can be observed in three situations: 1) when the stone is moved, 2) when the light source is moved, or, 3) when the angle of

observation is changed. The video near the top of this page illustrates the beautiful "play-of-color" in an **Ethiopian Welo opal**.

The word "opalescence" is often misused. Some people believe that "opalescence" and "play-of-color" are the same, which is not true. The common definition given for opalescence is "the pearly luster of common opal". In truth, most common opal does not have a pearly luster, even when it is polished.

### **Sources of Opal**

**Australia** became an important source of precious opal in the late 1800s. Numerous discoveries in the early 1900s gave the country firm leadership of the world's opal production that was not challenged for over a century. Famous mining areas in Australia include: Coober Pedy, Mintabie, Andamooka, Lightning Ridge, Yowah, Koroit, Jundah, Quilpie and others.

Opal production in **Mexico** also began in the late 1800s. Mexico is best known for its fire opal in bright yellow, orange and red colors.

A series of opal discoveries in the 1990s made **Ethiopia** an important producer of precious and fire opal. Will growing production in Ethiopia challenge Australia for the world's leadership position?

Other countries that produce precious and fancy varieties of common opal include: Hungary, Indonesia, Brazil, Peru, Honduras, Guatemala, Nicaragua, Slovakia,



## Our Club's Craft Program

Our Club's craft program is headed up by Joyce Kish, Nancy Matthews, and Bryan Summer. We are planning to start classes again in February at Gorman Nature Center.



Wire wrapping "Tree of Life" at our December 17 Class

### Craft Events Calendar

1. February TBD

## Ohio Rockhound

A useful website focusing on Ohio minerals, including collecting sites.

1. Mark J. Camp, [Roadside Geology of Ohio](#) (2006).
2. June Culp Zeitner, [Midwest Gem, Fossil, & Mineral Trails: Great Lakes States](#) (Rev. ed., June 1999 – first published in 1955).
3. June Culp Zeitner, [Midwest Gem Trails: Field Guide for the Gem Hunter, the Mineral Collector, and the Tourist](#) (3d. Rev. ed., 1964 – originally published in 1956).
4. James Martin Monaco & Jeannette Hathway Monaco, [Fee Mining & Mineral Adventures in the Eastern U.S.](#) (2d ed. 2010).
5. Kathy J. Rygle & Stephen F. Pedersen, [Northeast Treasure Hunter's Gem & Mineral Guide](#) (4th ed. 2008).

## Amazing YouTube Videos

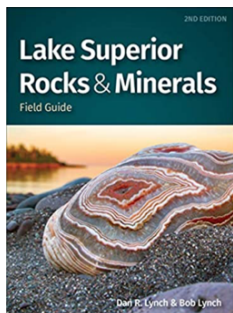
All of the featured videos this month are by the Ohio Department of Natural Resources

1. Ohio's Scenic Geology by Ohio DNR
2. Ohio Flint by the Ohio DNR
3. Geology of Raven Rock Arch by Ohio DNR
4. Ohio State Symbols - Isotelus by Ohio DNR
5. Ohio Rocks Resources by Ohio DNR



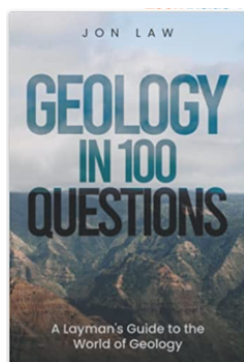
6. Ohio Rocks Fossils by Ohio DNR
7. The Geologist Toolkit by Ohio DNR
8. Kelly's Island Glacial Grooves

## Geology Books



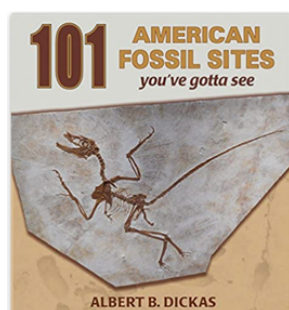
**Lake Superior Rocks & Minerals Field Guide** (Rocks & Minerals Identification Guides) Paperback – November 16, 2021  
by Dan R. Lynch (Author), Bob Lynch (Author)

**This must-have guide for Michigan, Minnesota, Wisconsin, and Ontario features full-color photographs and information to help readers identify rocks and minerals.**



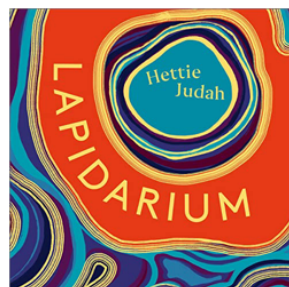
**Geology in 100 Questions: A Layman's Guide to the World of Geology** Paperback – December 9, 2022

Geology in 100 Questions: A Layman's Guide is a comprehensive introduction to the fascinating world of geology. Written in an accessible, engaging style, this book provides a detailed overview of the key concepts, theories, and processes that shape the Earth's surface and its interior.



**101 American Fossil Sites You've Gotta See** Paperback – Illustrated, March 10, 2018  
by Albert B Dickas (Author)

Examining in detail at least one amazing fossil site in every state, Albert Dickas clearly explains the critters preserved in the rocks, from sharks and rhinoceroses to trilobites and horn corals.



**Lapidarium: The Secret Lives of Stones**



Audible Audiobook – Unabridged  
Hettie Judah (Author), Nina Wadia (Narrator)

A fascinating history of stones and the surprising ways they have—and continue to—shape, influence and inspire us, in a beautiful volume.

# Happy New Year To All **Geologists**



PhD Graduate    Field Geologists    Associate Prof.    Non-Geologists

## Interesting Web Sites

1. Mineralogy4kids
  - a. <https://min4kids.org>
2. Minerals by Name
  - a. [http://www.galleries.com/Minerals By Name](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>

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

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

### January

**25-5**      **TUCSON, ARIZONA:** Wholesale and retail show; JOGS International Exhibits; Tucson Expo Center, 3750 E Irvington Rd

**February**    No Shows in our area.

### March

**17-19**      **JACKSON, MICHIGAN:** Annual show; Michigan Gem and Mineral Society; Jackson County Fairgrounds - American 1 Event Center, 128 W. Ganson; Fri. 10-6, Sat. 10-5, Sun. 11-5;

**25-26**      **CANTON, OHIO:** Annual show; Stark County Gem and Mineral Show; Stark County Fairgrounds, 305 Wertz Ave; Sat. 9-5, Sun. 10-5

## April

- 14-16 DANVILLE, INDIANA:** Annual show; American Gem, Mineral And Jewelry Shows LLC; Hendricks County Fairgrounds, 1900 E Main St; Fri. 10-6, Sat. 10-6, Sun. 11-4
- 22-23 CUYAHOGA FALLS, OHIO:** Annual Show; Akron Mineral Society + Summit Lapidary Club; Emidios Expo Center, 48 E Bath Rd, 2028 Tallmadge Rd; Sat. 10-6, Sun.10-5
- 29-30 TROY, OHIO:** Annual show; Miami County Gem & Mineral Club; Miami County Fairgrounds, 650N. Co. Rd. 25-A; Sat. 10-6, Sun. 10-4

## May

- 5-7 KALAMAZOO, MICHIGAN:** Annual show; Kalamazoo Geological and Mineral Society; Kalamazoo County Expo Center, 2900 Lake Street; Fri. 4-8, Sat. 10-6, Sun. 10-5

### [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 [Web Site \(https://www.mwfed.org\)](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](http://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

**October** - To be added at a later date

**November** - To be added at a later date

**December** - Annual Christmas Party at Golden Corral Buffet

**Don't Forget to Check Out our Website for Club Information**  
[www.rlls.webs.com](http://www.rlls.webs.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](mailto:bryansummer1@gmail.com)

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