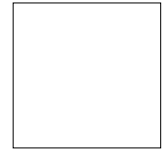


Michiana Gem & Mineral Society  
Jason Hefner, Editor  
229 East State St  
Etna Green, IN 46524



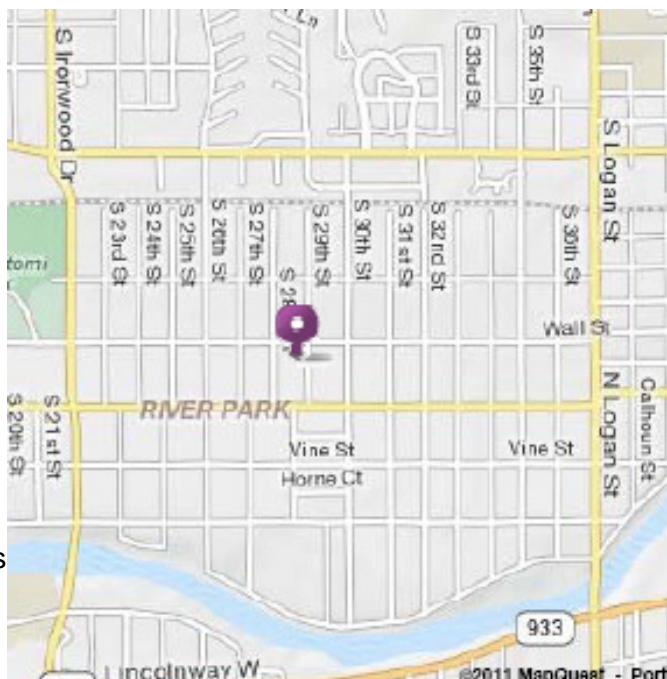
March 2024

Volume 64 Number 1



Pebble Painting - ETSY

**THE  
ROCKFINDER**



Michiana Gem & Mineral Society  
c/o Nancy Foreman  
58456 Kimberly Ct.  
South Bend, IN 46619

# THE ROCKFINDER

Volume 64 Number 1  
March 2024

The purpose of the Michiana Gem & Mineral Society is to promote the study and enjoyment of the earth sciences and the lapidary arts, and to share lapidary knowledge and techniques.

Michiana Gem and Mineral Society  
[www.MichianaGMS.org](http://www.MichianaGMS.org), is a not-for-profit organization affiliated with the Midwest Federation of Mineralogical Societies <http://www.amfed.org/mwf/> and with the American Federation of Mineralogical Societies [www.amfed.org](http://www.amfed.org)

The *Rockfinder* is usually published monthly except July and August.

Please note that all items for a given issue of the *Rockfinder* are due to the **Editor** no later than the 5<sup>th</sup> day of the previous month. This means that the due date for the March Issue will be February 5<sup>th</sup>. Advance items are appreciated. Material may be e-mailed to [hefner\\_family@hotmail.com](mailto:hefner_family@hotmail.com) or submitted via the U.S. Mail.

Editor:  
Jason Hefner  
229 East State St  
Etna Green, IN 46524

Permission is hereby granted to reprint any original *Rockfinder* articles as long as recognition is given along with the reprint.

REMEMBER – Items in The Rockfinder that are **BLUE & UNDERLINED** are links to the internet or email addresses. Just click on them for more information.



## Michigan Copper, by Keith Chip Allen

Jutting into Lake Superior, the Keweenaw is on the northernmost tip of Michigan's Upper Peninsula. Pronounced kee-win-awe, the peninsula was formed by ancient lava flows, giant ice sheets, and mid-continental rift. The region is also known as the Copper Country. The quest for red metal here pre-dates the Gold Rush. Fortunately, the mining history of the Michigan Copper Country has been well documented.

The state's copper deposits extend in a narrow band from the Michigan-Wisconsin border to the tip of the Keweenaw Peninsula and out into Lake Superior. The copper-bearing rocks are late Precambrian and mostly volcanic (basaltic lava flows) and sedimentary in origin. Into the lava flows of Keweenaw, Houghton, and Ontonagon counties percolating hot waters rising from great depths brought copper and silver in solution. As it cooled, the waters filled the fissures and the gas cavities (amygdules) of the lavas (trap rocks) with pure copper and silver, making the greatest deposit of native copper in the world. Copper was also deposited in the cracks in the Copper Harbor conglomerate.

Continued on page 5

## Up & Coming

**Next Meeting: March 24, 2024**

**Doors open at 1:30 pm  
Meeting starts at 2:00pm**

Place:  
Our Redeemer Lutheran Church  
29th & Wall  
South Bend, IN. (This is in River Park area)

## Board of Directors

President: Ross Fergerson  
574-850-6208

Vice-President: Stephanie Hughes

Secretary: Kathy Wallace

Treasurer: Lyn Zeiger  
574-259-5944

Liaison:

## Committee Chairs

Displays: Kathy Miller  
574-251-0255

Editor: Jason Hefner  
574-354-0478

Educational: Jesse Zeiger  
574-259-5944

Facebook: Holly Kraftor, Nancy  
Foreman, Jason Hefner

Field Trips: Jason Hefner, Ross  
Fergerson

Historian:

Hospitality:

Juniors: Kathy Chidister  
574-202-3864

Librarian:

Membership: Nancy Foreman  
574-233-9178

Programs:

Publicity: Josh Klosinski  
574-274-8714

Safety: Jennifer Hefner  
574-858-9837

Show Chair: Bob Chapa  
989-392-2501

Sunshine:

Webmaster: Joe Perry 574-295-9050

# January Meeting minutes

By Kathy Wallace,  
Secretary

**Meeting Minutes Date: January 28, 2024**

**Members in attendance** Adults\_\_35\_\_ Children\_\_0\_\_ New  
Members\_2\_\_ Guests\_2\_\_

**Call to Order:** Vice President Stephanie Hughes

## Pledge of Allegiance

**Welcome –** Stephanie Hughes

**PAST PRESIDENTS:** Diane Gram, Kathy Miller, Don Church, Bill  
Foreman, Jason Hefner

**Secretary report:** Nothing for December as it was our Christmas dinner.  
No minutes taken.

**Treasurer's report:** Lynn Zeiger / Motion made and seconded to accept  
report

In - \$235 dues  
Exp - \$435 variety of items  
Checking - \$21,5671.73  
Savings - \$7,392.03  
CD - \$30,200  
Total - \$59,589.13

**Parliamentarian:** Ross Fergerson  
Midwest Federation/  
American Federation/  
American Lands Access/

## Committee Reports

**Show & Tell/** Nick Pellus – some magazines brought in if anyone is  
interested in them & a Wooly mammoth tusk & a vertebrae from Montana

**Editor:** Jason Hefner /

**Educational:** Holly & Dennis Kraftor replacing Jesse Zeiger – Knox  
LaSalle Council Day Camp & Cub Scouts in Lafayette in June. Steam  
Show at Culver Schools with Glenn & Kathy Wallace

**Face Book:** Josh Klosinski – Nancy Foreman – Holly Kraftor/

Continued on page 4.



## AFMS President's Message — Roger Burford

AFMS President 2023-2024 excerpted from [Volume 77, Number 3 — April 2024](#)

I wanted to write a little this month about National Monuments and what they mean to us as rockhounds. I'm sure there are many of you out there who know much more than I about this subject, and I invite your input so I can do what I can to get a handle on this and start a national campaign with the purpose of keeping these areas open to rockhounding.

The United Nations has come up with this plan known as 30 by 30 that proposes that 30 percent of the earth's land and water would be preserved. Essentially it ends up with the US preserving all public lands in the western states. I spoke with Lori Colman while in Tucson about the issue in the mountains around Deming, New Mexico, which is the proposed Mimbres Peaks National Monument. This encompasses all of the mountains in Luna County surrounding Deming, the Florida Mountains, Cookes Range, Good Sign Mountains, and Tres Hermanas encompassing 245,000 acres. In this case they are being told that there will be no grazing, hunting, mining or flying over the monument. In Lori's case, she has some mines in the mountains which would be grandfathered in, but there would be no roads to get to the mines. The ranchers would also lose their businesses because of losing the grazing rights. The ranchers, rockhounds and miners were all blindsided by this proposal.

## President's Message

Sandy Fuller, MWF President  
excerpted from [April 2024 - Issue No. 631](#)

Volunteers are the backbone of our and many other organizations. In fact, they represent a unique part of American culture, in that like-minded people come together around common interests and work together to do good.

Volunteerism connects people from all walks of life, without regard to race, age, religion, or sex, to achieve a common goal. Better yet, studies show that those who volunteer feel more socially connected and have a greater sense of purpose in life. More recent studies suggest physical benefits of reduced risk of hypertension among those who volunteer.

Did you know that the folks involved in rockhound clubs serve without compensation? At all levels of the organization, including the American Federation of Mineralogical Societies, volunteers provide the workforce. In many cases the individuals holding office or contributing in some other way started out by saying, "I can't do that!" from previous folks who held the position and cooperation from the group, they discover that they can.

When I first joined a club, I was asked to provide leadership for the banquet. They told me how there were people willing to do this and that but no one willing to assume the overall responsibility.

Continued here [April 2024 - Issue No. 631](#)



### Purpose of the AFMS

To promote popular interest and education in the various Earth Sciences, and in particular the subjects of Geology, Mineralogy, Paleontology, Lapidary and other related subjects, and to sponsor and provide means of coordinating the work and efforts of all persons and groups interested therein; to sponsor and encourage the formation and international development of Societies and Regional Federations and by and through such means to strive toward greater international good will and fellowship.

[www.amfed.org](http://www.amfed.org)



### Purpose of the MWF

To promote interest and education in geology, mineralogy, paleontology, archaeology and lapidary, and to sponsor and provide means of coordinating the work and efforts of groups interested in these fields.

[www.amfed.org/mwf](http://www.amfed.org/mwf)

# January Meeting minutes continued from page 2

**Face Book:** Josh Klosinski – Nancy Foreman – Holly Kraftor/

**Field Trips:** /

**Historian:** Jim Daly/

**Juniors:** Kathy Chidaster/

**Membership:** Nancy Foreman / Nancy is working on adding new members to website and she said there are 113 families/singles signed up

**Programs:**

**Safety:** Jennifer Hefner and Julie Wieger /

**Show Chair:** Bob Chapa

**Sunshine:** - / Sympathy card / Get Well card to

**Webmaster:** Joe Perry / is updating calendar and email addresses

## **Old Business**

Nothing

## **New Business**

Stephanie made business cards with our logo & info to hand out to anyone interested. She also told all to like our FB page to get more people interested in joining.

**Adjournment – Motion made and seconded**

**Program:** Dennis & Holly did a presentation of school programs to promote interest in rocks & minerals

**Next Meeting:** Sunday, February 25

# February Meeting minute, by Kathy Wallace

Meeting Minutes - Date: 2/25/2024

Members in Attendance: Adults - 36 Children – 0 New Members - 0 Guests - 3

Call to Order: President Ross

Pledge of Allegiance

Welcome: President Ross with introduction of new members and guests

PAST PRESIDENTS - Kathy Miller

Secretary Report - Read and approved.

Treasurer's Report - Lynn Zeiger Checking -\$20,626.09, Savings - \$7,392.03, CD -\$30,200.00, Total - \$58,218.12

Parliamentarian - Ross Ferguson All memberships are in and paid. Ross stopped in Tuscon & talked to the Midwest Federation

Midwest Federation -

American Federation -

American Lands Access -

## COMMITTEE REPORTS

Show & Tell - Nate brought in Indian artifacts, Ross brought angel agates, Dennis brought jewelry he made, and Vic brought in a large ???? rock. He was trying to get it identified, but no such luck.

Editor - Jason Hefner – no report

Educational - Holly & Dennis Kraftor

Facebook - Josh Klosinski - Nancy Foreman - Holly Kraftor - Stephanie Hughes

Field Trips - Tentative date for another geode picking is Saturday, May 11. South Dakota trip is scheduled for June 1, 2 & 3. Ross has emailed the info to all and also said that the Fort Wayne division was invited to join us but they are going in July and we are invited to go with them if anyone is interested.

Historian -

Hospitality - none

Juniors - Kathy Chidaster - No Juniors present but she is setting up new kids area for any juniors off the entrance way.

Membership - Nancy Foreman - She reminded new members to sign up to work at the show in August.

Programs - Glenn & Kathy Wallace were at the Culver STEAM show on Saturday, February 24, representing MGMS with approx. 120 kids & 80 adults attending.

Publicity - Josh to get information to our Facebook page with pics, etc.

Safety - Jennifer Hefner & Julie Wieger - Wear boots for field trip to SD along with plenty of water, sunscreen, and a good hat

Show Chair - Bob Chapa - Emailed all to see if they want to be at the show again this year and the contracts have been sent out. Ross said to get the volunteer sheets out in April/May so people can sign up early.

Sunshine - Sympathy card to/ Get Well card to: None.

Continued next page

## February meeting minutes, from previous page

Webmaster - Joe Perry - Scanned some magazine articles and added them to our website for all to see.

OLD BUSINESS - Fixing up our website, do we want to sell stuff (hats, t-shirts, etc.) on the web?

NEW BUSINESS - Dennis & Holly brought the show displays and Josh to handle taking care of them. Our by-laws state we have to have 3 events, but Ross has signed up 3 people from different areas to cover that.

Ross told all not to use the church's restrooms anymore and don't just drop off stuff in our area and not tell Ross. Too much clutter!

Dan will be in Indianapolis for the geo fair and he said the Dinosaur museum is to open on May 2.

Ross suggested changing the times of the August show to be from 10-7 on Friday and Saturday and 10-5 on Sunday. Motion approved and seconded.

Ross talked with Dr. Burns from ND and he is looking at all colleges that have Earth Science post-graduate students only to possibly receive our Scholarship of \$2,000. We are giving two scholarships of \$2,000 each.

Ross also said there is a jeweler's bench and a cabinet/desk that are free in our back room.

Adjournment - Motion made & seconded.

Program - Dennis & Holly will give geology program if no one else has anything.

Next Meeting - Sunday, March 24

## Pictures from January STEAM event by Kathy Wallace





## Culver STEAM event, from previous page



## Michigan Copper , from page 1

Here's a brief timeline for Michigan Copper Country.

7000 years ago, the earliest known metalworking in North America begins when Native peoples start mining copper on the Keweenaw Peninsula. Digging pits and using heavy stones to break waste rock away from copper masses, they fashion bracelets, beads, tools, fishhooks and other items for trade. Objects made of Keweenaw copper have been found in archeological sites across the continent.

Alexander Henry, in 1771, makes the first English attempt to mine copper on the Keweenaw Peninsula near the Ontonagon River. At the time, the nearest English settlement is nearly 300 miles away at Sault Saint Marie and the region is completely undeveloped and mostly unmapped. Poor planning cripples Henry's adventurous spirit, and in the spring of 1772 his mine collapses after producing little copper.

While leading an expedition, in 1820, through the Upper Peninsula, Michigan Territorial Governor General Lewis Cass visits the Ontonagon Boulder, a large piece of float copper along the Ontonagon River.

Michigan becomes the 26th state in 1837, admitted into the Union. The Upper Peninsula is added to Michigan after the state relinquished its claim to land around Toledo, Ohio.

In 1840, Douglass Houghton, state geologist of Michigan, publishes a report on the geology of the Upper Peninsula and describes the Keweenaw's copper deposits. Despite his appeal for caution, a land rush would soon start as investors, miners and entrepreneurs attempt to acquire copper-rich real estate.

The Pittsburgh and Boston Mining Company, in 1844, begins mining near Copper Harbor. The operation is abandoned in 1845 after a \$28,000 investment, but only \$2,968 returned. Though the company produced little copper, it was the first serious American mining attempt.

The Cliff Mine near Eagle River opens in 1845. It is the first large-scale, profitable mine on the Keweenaw Peninsula. Before it closes in 1870, Cliff Mine rewards its investors with \$2,519,000.

In 1856, The Quincy Mining Company begins work on the profitable Pewabic lode. Quincy soon becomes an important copper mine, and earns the nickname "Old Reliable" for its nearly constant profits.

In 1858, Surveyor Edwin J. Hulbert finds an ancient copper cache that leads him to the mineral-rich Calumet conglomerate lode. By 1864, he secures financing for two mining companies: the Calumet Mining Company and the Hecla Mining Company. Hulbert is replaced by Alexander Agassiz in 1867 who will serve as president of the consolidated company until his death in 1910. The Calumet & Hecla Mining Company forms in 1871 after the Calumet and the Hecla mining companies merge. In just one year, C&H produces 16.2 million pounds of copper and pays \$2,400,000 to its stockholders.

On September 7, 1879 a fire breaks out in C&H's Osceola mine, spreading more quickly and producing more smoke than workers anticipate. The fire claims the lives of 30 men and boys. While this remains the deadliest single accident in the history of Keweenaw mining, men continue to be killed or seriously injured from cave-ins, misfired explosions, and other mining accidents almost daily.

On July 23, 1913 backed by the Western Federation of Miners, workers strike after company managers refuse to discuss demands for better pay and working conditions. A chief concern is the introduction of a "one-man" drill which will shrink the workforce. The Michigan National Guard arrives in the Copper Country to maintain order.

Continued next page

## Michigan Copper, from previous page

A shout of "FIRE!" causes a panic during a Christmas Eve 1913 party at the Italian Hall in Calumet. The crowd rushes down the steep stairway to the doors. Unable to exit fast enough, those at the bottom are crushed by those on the top. Though there was no fire, 74 people, including 60 children, die in the calamity.

In 1914, Marked by episodes of violence and public division, the strike ends in April, almost a year after it began. Workers return to the mines on the companies' conditions. Though the companies feel victorious, copper mines in the Western U.S. are now established as the primary domestic copper producers.

By the closing bell on October 29, 1929 known as Black Tuesday, the Wall Street Stock Market loses \$14 billion in value, bringing the loss for the week to \$30 billion - ten times more than the annual budget of the federal government at the time. Many industries, including area copper mines, close during the Great Depression that follows. Even with relief efforts sponsored by the federal government, the downturn in industry persists until the outbreak of World War II in 1939.

After over 80 years of activity, Quincy Mining Company temporarily closes down 1933. With little demand and low copper prices, other Keweenaw companies also suspend operations or dissolve. Only C&H and the Copper Range Mining Company continue underground mining. After copper prices rise in 1937, Quincy will resume mining at shafts No. 6 & No. 8.

Quincy, the oldest active mine in the Keweenaw, stops mining operations in 1945, after a government contract for copper expires and the demand for copper for war purposes ends. Soon only C&H and Copper Range remain.

C&H closes in 1968. Since the Korean War, C&H's profits from its mines were small, but it continued to keep some small operations open while waiting to find another big lode. Earlier this year C&H was bought out by Universal Oil Products.

Between the mid-1840s and 1968, Keweenaw Peninsula mines produced an estimated 10.5 billion pounds of copper.

With his signature of approval on October 27, 1992, President George H.W. Bush creates Public Law 102-543, establishing Keweenaw National Historical Park.

My favorite copper is Kingston Conglomerate Native Copper. Kingston Conglomerate is a mosaic of rich chestnut and shining copper. It comes from the Kingston Mine, located on the Keweenaw peninsula in the upper peninsula of Michigan. The mine itself has been closed since 1969, making the supply of this material very limited.

Besides the native Copper, the black specks are Felsite pebbles. Felsite is a very fine grained volcanic rock containing feldspar and quartz. The matrix base is basalt - vesicular basalts that have filled with many minerals. Copper mineralization occurred during the late Mesoproterozoic, at 1.05 to 1.06 billion years ago. The Portage Lake host rocks (basalts and interbedded conglomerates) are 1.093 to 1.097 billion years old.



# Michigan Copper

photos by Keith Chip Allen

## Bedrock Geology: Copper-bearing rocks of the U.P. Copper Harbor Conglomerate & Portage Lake Volcanics

