

# MWF News

Midwest Federation  
of Mineralogical and Geological Societies

January 2022 - Issue No. 608

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

Member of the American Federation of  
Mineralogical Societies



## PRESIDENT'S MESSAGE

Catherine Clevenz, MWF President

Happy New Year, Everyone!

Here we are, starting a new year and trying to make some new resolutions and plans for ourselves. I have so many that I don't know where to begin! I am sure many others feel the same way. Oh, sure, there are the "every year same old's" of exercise and healthy diet stuff that will die out by the end of February. I am talking about new resolutions!



I'm going to go through my boxes of rocks and decide which ones to keep and which ones to get rid of. Yep, all 40+ boxes and buckets that are sitting in my cold garage. In the dead of winter. Did I mention the cold? Well, it will help provide my exercise by moving the boxes to the table. Those. Heavy. Boxes. At least I

*(Continued on page 2)*

## WEBSITE CONTEST NOW ACCEPTING ENTRIES

Brad Zylman, MWF Website Competition Chair

Please consider entering the 2022 website contest this year. It's a great motivator to generate interest in your favorite club and to help draw new people. The deadline is very early this year, and hopefully, this will prompt all those webmasters to polish their web pages and get them submitted.

The judges will be looking for design aesthetics, as well as specific information outlined on the Score Sheet Guidelines that you can find here: [www.amfed.org/mwf/Federation/contests](http://www.amfed.org/mwf/Federation/contests). This is also where you will find the Entry Form for the competition.

The deadline for submission is **February 15, 2022**. (The headline on the website page gives last year's deadline, but the forms *are* this year's forms. This is the kind of thing that you'll want to clean up for the competition!) Send the entry form to me ([brad.zylman@mrm.com](mailto:brad.zylman@mrm.com)); I can also answer any questions you may have. Hope to hear from you soon!

## WHAT'S INSIDE?

AFMS Historian Finds a Christmas Wish.....	6
Deadline Calendar.....	2
Dues and Events Forms Information.....	6
Dues and Events Forms.....	7-8
Fossil Collector Asks, "Why Not?".....	9
Indian Mounds Juniors Strike Again!.....	3
Leonardo's "Virgin of the Rocks".....	10

Michigan Has a Great State Gem.....	5
New AFMS Juniors Chair Has Big Plans.....	2
President's Message.....	1
National Youth Poster Contest.....	4
Rockhounds of the Year Honored.....	3
The Spirit of Sharing.....	12
Website Contest Now Accepting Entries.....	1

**MWF OFFICERS**

President: Catherine Clevenz  
1334 Melvin Drive  
Toledo, OH 43615  
419-340-5276  
clevenz@gmail.com

1<sup>st</sup> VP: Mary Ann Ferguson-Rich 2nd VP: Cheryl Neary  
1166 Broadview 42 Jefferson Avenue  
Tallmadge, OH 44278 Patchogue, NY 11772  
330-630-9625 516-449-5341  
birdman035@hotmail.com ciervo.neary@gmail.com

Secretary: Donna Moore Treasurer: Sandy Fuller  
25235 N. Illinois Highway 97 8445 Grange Boulevard  
Cuba, IL 61427 Cottage Grove, MN 55016  
309-789-6501 651-459-0343  
mwfsecretary@gmail.com mwftreas@rock-biz.biz

**PRESIDENT'S MESSAGE, CONTINUED**

*(Continued from page 1)*

won't be cold after all of that movement! So, this can be a win-win situation!

Some of them will be for a new rock garden (mostly leaverites that I liked and picked up) and some I will keep for a display. What to do with the rest? I know! I can give the rest to Susan Stanforth for the next Silent Auction! Sorry, Susan!

Here's a resolution we would love for the clubs to keep: Making sure their membership payments are made by January 15<sup>th</sup>. The MWF offers many benefits, features, and resources for member clubs to use. Everything we have to offer can be found in the directory that was sent to your club.

Another good resolution to keep is to use safety precautions and equipment while rockhounding. If you go out rockhounding alone, let someone know your plans of where you will be and for how long you will be gone. Call them when you are finished and safely back. Make sure you have the proper shoes needed for secure footing, and gloves to protect your hands if needed. Most of all, have fun!

Happy Rockhounding!

**NEW AFMS JUNIORS CHAIR HAS BIG PLANS**

Lora Hall, Chair  
AFMS Junior Activities Committee

*[Editor's Note: Hall included the AFMS booklet, "How to Start a Juniors Program," with this article. If you are interested, send me an email at vjmwriter@yahoo.com, and I'll forward it to you.]*

As the new AFMS Junior Activities Chair, I thought I would take this opportunity to introduce myself.

I spent my early career as a Park Ranger for the National Park Service in natural and cultural education, and retired as the Chief of Resource Management at a little-known swamp in Arkansas. From the Blue Ridge Parkway to Craters of the Moon, I worked at seven different locations. The geological parks were my favorite; the swamps like Big Thicket fell much lower on my list.

I retired from the Park Service to be a mom and homeschooler for two awesome sons, who are now in college. I also manage my husband's optometry office. Other than serving my local club, the Hellgate Mineral Society, I volunteer for Missoula County 4-H in Montana as a historic firearms instructor and geology project leader.

I am reaching out to you to let you know of some recent changes in the AFMS Future Rockhounds of America (FRA) juniors programs. The Junior Activities Chair was previously held by Jim Brace-Thompson. I ask that folks be patient as I get up to speed as the Juniors Chair. Needless to say, it can be challenging to step into a position that was held by someone for two decades, and I want to thank Jim Brace-Thompson for twenty years of dedicated service.

We have an exciting year in store, including the launch of a brand-new interactive juniors' website! The website will highlight the wide variety of

*(Continued on page 5)*

*February Issue Submission Deadline Is  
January 4th!*

## ROCKHOUDS OF THE YEAR ARE HONORED FROM ARKANSAS TO OHIO

It's never too late to make your club's most outstanding member(s) feel great with a Rockhound of the Year Award. Just send a brief description of why your club is honoring this particular member or pair of members (like those below) to MWF ROTY Chair Jeannine Mielecki, jaynine9@aol.com. (You can also call her at 312-623-1554 for a mailing address.) Include your name and phone number, and the name of the club. You'll receive an MWF Certificate of Appreciation to present to your honoree(s), and the honoree's name and description will be published in both the MWF News and the A.F.M.S. Newsletter.



The **Spring River Gem and Mineral Club** (SRGMC) of Cherokee Village, Arkansas, proudly announces that **Linda and James O'Neal** are the recipients of the Rockhound of the Year award for 2021. Longtime members of SRGMC, the O'Neals are exemplary members. These two hardworking rockhounds are willing to go above and beyond to do whatever is needed to support and promote their club.

Linda is currently Vice President-elect and has served on the executive committee several times. James, a talented stonemason and handyman, is always ready to give a helping hand wherever needed, setting up, taking down, or repairing. The O'Neals are enthusiastic about the club and its mission, and faithfully work to support the Spring River Gem and Mineral Club and its members.

The success of every club is dependent on loyal volunteers. The Spring River Gem and Mineral Club is fortunate to have the O'Neals. Thank you, Linda and James O'Neal, for furthering our shared enjoyment of geology and all the wonders of the earth, and your continuous endeavors to promote our hobby.



The **Dayton Gem & Mineral Society** (DGMS) of Ohio commends **Joe and Gretchen Brafford** as 2021 Rockhounds of the Year.

Joe has held many positions from vice president, to treasurer, to field trip coordinator. As a program manager, Joe has scheduled a variety of people to speak, making the meetings fun, informative and well attended. Joe also has put together rock and

mineral trivia questions and contests many times for months when speakers were not available. He is an avid collector with an extensive collection that contains many specimens he personally collected while in the field.

In 2021, both Joe and Gretchen have spent countless hours updating the club bylaws for the first time since the inception of the DGMS in 1963. In addition, the Braffords have led the drive to get the DGMS registered as a nonprofit corporation by initiating and drafting a large portion of the 501(c) paperwork required. This will help the club save a significant amount of money.

The members of the DGMS salute the Braffords, who joined in 2005, for their many years of participation, devotion and effort to promote the club and thereby keep the membership growing. Joe and Gretchen Brafford, thank you for your hard work.

## INDIAN MOUNDS JUNIORS STRIKE AGAIN!

Hope, of the Indian Mounds Rock & Mineral Club in Michigan, recently earned the FRA Rockhound award. This award is given when a junior earns six badges, and "graduates" from a Future Rockhound to real rockhound status.



In addition, Gabriel, Julian, Audrey, Ana, Elena, Hope, Bella, Brianna, Brinley, and Monica earned badges for Collecting; and Lulu, Luke, Brianna, Garet V., Mathew, Brinley, and Mason earned Field Trip badges.

*Information and photo from the club's November 2021 newsletter, the Arrowhead News.*



## NATIONAL YOUTH POSTER CONTEST MIGHT MAKE A GREAT ACTIVITY FOR YOUR JUNIORS!

Lora Hall, AFMS Juniors Activities Chair

Announcing the Midwest Federation 2022 Youth Poster Contest, sponsored by the North Lakes Academy Rockhounds!

This contest is for kids and judged by kids. Michelle Cauley, third-grade teacher at North Lakes Academy in Forest Lake, Minnesota, designed this contest as a project for her class.

Unlike many AFMS and regional contests, this is open to all students, and is advertised at rock shops, libraries, and schools across the country. Students do not have to be members of an affiliated rock club or society, which allows the AFMS and MWF to reach out to families beyond our normal circles.

Below is entry and scoring information for anyone who may be interested in entering.

**DEADLINE:** Entries must be postmarked by **May 1, 2022**.

**ELIGIBILITY:** Any student in 1st through 8th grade. Entrants do NOT need to be in a rock club!

**THIS YEAR'S THEME:** "Did You Know: Dinos." Pick a favorite prehistoric dinosaur and create a poster telling us all about. OR create a "Top 10 Dinosaur Facts" poster and give us your favorite prehistoric facts!

**ARTWORK:** Artwork on posters can be pen, ink, crayons, magic markers, paint, print, photography, or any other artist's medium. Please note: If using pictures from a printed source, the source must be cited!

**ENTRY CATEGORIES:** Posters will be judged by grade level.

### CONTEST RULES:

- All entries must be presented on 12" x 18" paper.
- Include name, address, and school grade of participant on **BACK** of entry.
- No three-dimensional posters accepted.
- The title should be on the **FRONT** of the poster.

### SCALE OF POINTS:

- Originality and Art Work – 30 points
- Title / Theme Organization, Design, Spelling, Grammar – 10 points
- Information Provided – Facts and Details – 20 points

**PRIZES:** Ribbons and prizes will be awarded for first through fifth places in each grade. Overall Champions will also be selected and will receive a prize.

**SEND TO:** NLA Rockhounds  
c/o Michelle Cauley  
4576 232nd Street North  
Forest Lake, MN 55025

**QUESTIONS:** Contact Michelle Cauley by email, [mcauley@northlakesacademy.org](mailto:mcauley@northlakesacademy.org).

## DEADLINE CALENDAR

**Dues and insurance forms** for membership in MWF are due **Jan. 15, 2022**. Forms and information are on pages 4-6; if more information is needed, contact Sandy Fuller, [MWFtreas@rock-biz.biz](mailto:MWFtreas@rock-biz.biz).

Deadline for clubs wanting to enter the **MWF Website Competition** is **Feb. 15, 2022**. For more information, get in touch with Brad Zylman, [brad.zylman@mrm.com](mailto:brad.zylman@mrm.com), or see the article on page 1.

Deadline to send 2021 entries to the annual **MWF Bulletin Editors Contest** is **March 1, 2022**. For more information, contact Sharon Marburger, [mamamar7880@outlook.com](mailto:mamamar7880@outlook.com).

North Lakes Academy is sponsoring a nationwide **Youth Poster Contest** for students in grades 1 through 8; deadline for entries is **May 1, 2022**. See the article on page 7, or contact Michelle Cauley, [mcauley@northlakesacademy.org](mailto:mcauley@northlakesacademy.org), for more information.

**Rockhound of the Year Awards** may be submitted at any time for certificates and a mention in the MWF News. Contact Jeanine Mielecki, [jaynine9@aol.com](mailto:jaynine9@aol.com), and see the article on page 3.

## NEW AFMS JUNIORS CHAIR, CONTINUED

(Continued from page 2)

programs available within the FRA, including Rock Pals rock exchange, partnership ideas, and the new national youth volunteer award.

The biggest news is we now have a dedicated juniors email address! Please send email to [youth@amfed.org](mailto:youth@amfed.org).

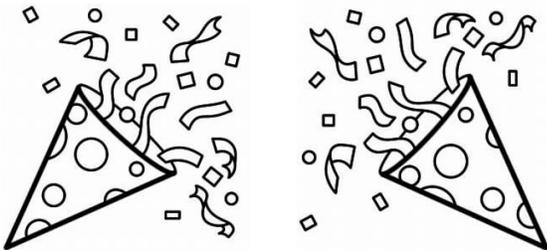
If you have clubs or societies using the FRA badge program, we have also made some changes to make it easier to request badges. There is now no need to copy or scan the completed check list sign-off forms and mail them in. Just email your request. Be sure to include:

- Juniors' name(s) and the badge(s) they completed
- Your club or society name
- Your name and preferred mailing address
- A phone number in case we have questions

Be sure to note if you need Rockhound patches (for juniors who've received six or more of the 20 possible FRA badges) or Rock Star pins (for juniors who've received all 20 FRA badges)!

Thank you for the opportunity to serve you and the youth of your regional federation, club, or society. Please feel free to reach out to me with questions at the email address above.

# Happy New Year!



# And thanks to all readers of the MWF News!

## MICHIGAN HAS A GREAT STATE GEM

Mathew, Junior Member, Indian Mounds Rock & Mineral Club (MI)

From the March, 2021 Arrowhead News

Chlorastrolite is also known as Isle Royale Greenstone or just greenstone, and it is the official state gem of Michigan. It is a variety of pumpellyite. In Greek, chlorastrolite means "green star stone" because it has small star-shaped crystals. These crystals often form a pattern that looks like a turtle shell.

Chlorastrolite was found first on Isle Royale, Lake Superior, by C.T. Jackson and J.D. Whitney. It is illegal to collect the stones from Isle Royale, but you can find them on the beaches of Lake Superior and on the mainland of the Keweenaw Peninsula. When chlorastrolite is found on the mainland, it is often found embedded in basalt. These mainland stones are often larger and darker than the island stones. The island stones are often smooth and polished from the waves. They often contain pink prehnite.



*Photo by Gary Katt of a chlorastrolite specimen he found and polished, from the March 2021 Arrowhead News.*

This mineral has a hardness level of 6, which means it is in the middle of the Mohs hardness scale. It is a bluish green color and its streak is also green. It has a glassy luster, and it fractures and splinters. According to Wikipedia, chlorastrolite occurs as amygdaloid structures and fracture fillings in basalt. When the water and wave action has worn away the basalt, it is found as beach pebbles and granules. It is made up of many different elements — calcium, magnesium, aluminum, silicon, hydrogen, and oxygen.

I like Chlorastrolite because it has a pretty pattern and a good-looking color. My research on this mineral has made me want to go to the Upper Peninsula and search for it.

### Sources:

Mindat.org/Chlorastrolite  
Wikipedia/Chlorastrolite  
National Gem Lab/Chlorastrolite

## DUES AND INSURANCE FORMS ARE DUE JAN. 15TH; BE ON TIME FOR INSURANCE DISCOUNT

Sandy Fuller, MWF Treasurer

The 2022 Midwest Federation forms for renewing club memberships are now available on our website ([www.amfed.org/mwf](http://www.amfed.org/mwf)) and in this issue of the Midwest Federation News on the following two pages. Look for them! Meanwhile, please alert club officers to collect information for the forms.

One important piece of information needed is the total number of individual adult and youth members during the year completed during 2021. These figures are used for dues and insurance calculations. The rationale is that your total membership, by the end of the year, is usually about the same, so you always pay the current year dues based on your past experience. The treasurer needs this information **before January 15** so our insurance can be activated on time.

In response to requests to restrict public release of personal contact information, the federation will only publish each club's public contact information. Please make sure that the mailing address is checked at least weekly and the phone number connects to a real person who can answer questions about your club. We still need direct-contact information that will be distributed on a need-to-know basis to federation leaders.

Clubs are encouraged to provide name, position and email address for additional officers, board members and members who would like to receive the MWF News. This information will only be distributed to our editor and secretary. This is a great way to make sure that all of your officers are "in the know."

Clubs who renew on time will receive a subscription to the juniors publication Mini Miners Monthly, distributed only via email. If you wish to have the Mini Miners subscription sent to someone other than your editor (first choice) or president (second choice), please provide a name, position and valid email address for that individual, and indicate that he or she is to receive the Mini Miners materials.

Use the Events form to submit details of shows and events during the coming year. You may include a flyer, printed on white paper, as additional information. If this information is submitted with the dues, we will make sure it gets to the website, newsletter and directory coordinators. If it is submitted later, or separately, it is more likely to get overlooked.

Insurance will stay the same for 2022. Our current rate is \$4.50 per club member, and all members must be covered. Clubs that submit their dues on time (postmarked no later than January 15, 2022), may take a 25¢-per-member discount.

**Remember**, federation insurance policy will cover groups of clubs jointly sponsoring shows or events **only if** all of the sponsoring clubs are current federation members and all of the sponsoring clubs purchase federation insurance. Requests for insurance for these jointly sponsored events must include a list of all sponsoring clubs.

Questions about your MWF forms or dues? Call me at 651-459-0343, or send me an email to [MWFtreas@rock-biz.biz](mailto:MWFtreas@rock-biz.biz). Direct insurance questions to Sue Goedert at 616-337-1162, or email her at [sonbeams2000@yahoo.com](mailto:sonbeams2000@yahoo.com).

## AFMS HISTORIAN FINDS A CHRISTMAS WISH FROM SEVENTY-NINE YEARS AGO

Jennifer Haley, AFMS Historian

This poem was featured on the cover of Mineralogist Magazine in 1942. The magazine's headquarters was in Portland, Oregon; a national magazine, it published news of rock and gem clubs and of the federations of that time.

The poem was written by Grace Dearborn, a secretary for the Boston Mineral Club, who wrote monthly articles for the club. She was active in Girl Scout work and numerous civic clubs of Boston. She was widely known in the New England states for her

lectures on the earth sciences. There wasn't a title to the poem, but Grace wrote it as a Christmas wish for everyone who loves the rock-gem-and-geology adventure! Here it is, 79 years later.

Took a spin around the country.  
Object, Mineralogy.  
So many places to explore,  
So many folks to see.  
Renewed a lot of friendships,  
Brought back some minerals too.  
Some nice new gems, and one of them  
Is a Christmas wish for you.



# Midwest Federation of Mineralogical and Geological Societies Annual Dues, Insurance and Club Contact Information

(Use black INK. Please print, type or complete form on-line. Submit original.)

**CLUB NAME** \_\_\_\_\_ **STATE** \_\_\_\_\_

**2022 Club Dues** Use membership figures from year completed by December 31, 2021

**Number of Adult Club Members** \_\_\_\_\_ **X \$2.00 =** \$ \_\_\_\_\_.

**Number of Youth Club Members** \_\_\_\_\_ **X \$0.50 =** \$ \_\_\_\_\_.

How many MWF Membership Cards do you want? (Can't exceed number of paid members) \_\_\_\_\_

**2022 Club Insurance** (Optional, but if chosen, must pay for all members)

**Total number of members** \_\_\_\_\_ **X \$4.50 (\$4.25 for qualifying clubs\*) =** \$ \_\_\_\_\_.

(\*Renewals postmarked by January 15, 2022 receive a discounted insurance rate of \$4.25 per member)

**TOTAL DUES AND INSURANCE REMITTED:** \$ \_\_\_\_\_

(Make check payable to Midwest Federation)

**FORM, DUES, INSURANCE & EVENTS are DUE by JANUARY 15, 2021**  
Mail to: MWF, c/o Sandy Fuller, 8445 Grange Blvd, Cottage Grove, MN 55016

### Club Public Information for Directory & Website

Club mailing address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Info phone number \_\_\_\_\_ Website \_\_\_\_\_

Email \_\_\_\_\_ Facebook Name \_\_\_\_\_

Meetings Location: \_\_\_\_\_

Date & Time \_\_\_\_\_

Check following that apply to your club:  Kid friendly  FRA Club  Lapidary workshop  
 Field trips  Rock Show  Educational outreach

### Direct Contact Information for Mailings (THIS WILL NOT BE PUBLISHED)

**Individual (other than Treasurer) designated to receive official Federation materials:**

Name \_\_\_\_\_ Position \_\_\_\_\_ Phone \_\_\_\_\_

Email \_\_\_\_\_ Alternate phone \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Treasurer \_\_\_\_\_ Email \_\_\_\_\_ Phone \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

**Club Bulletin Name** \_\_\_\_\_

**Editor** \_\_\_\_\_ Email \_\_\_\_\_ Phone \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Please use separate sheet to list additional officers and members (name, position, email) who would like to receive federation newsletter and/or juniors materials via email.



**Calendar of Events Listing Information**  
**For Publication in MWF Directory, Website & Newsletter**  
 (Use Black INK! Please print, type or complete form on-line. Submit original.)

CLUB NAME \_\_\_\_\_ STATE \_\_\_\_\_

Show Chair \_\_\_\_\_ Email \_\_\_\_\_

-----  
Event Type: \_\_\_ Annual Show, \_\_\_ Rock Swap, \_\_\_ Other \_\_\_\_\_

Dates: \_\_\_\_\_ Days/Times: \_\_\_\_\_

Facility/Location Name: \_\_\_\_\_

Street: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_

**EVENT CONTACT INFORMATION (This will be published!)**

Contact Person's Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Email: \_\_\_\_\_ Club Website: \_\_\_\_\_

*Optional Information:*

Street: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

-----

**ADDITIONAL EVENT**

Event Type: \_\_\_ Annual Show; \_\_\_ Rock Swap; \_\_\_ Other \_\_\_\_\_

Dates: \_\_\_\_\_ Days/Times: \_\_\_\_\_

Facility/Location Name: \_\_\_\_\_

Street: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_

**EVENT CONTACT INFORMATION (This will be published!)**

Contact Person's Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Email: \_\_\_\_\_ Club Website: \_\_\_\_\_

*Optional Information:*

Street: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

-----

\* \* Please include event listings for January, February, March and April 2023. \* \*  
 Mail completed form with your dues. Questions? Call 651-459-0343

**DEADLINE FOR DIRECTORY INFORMATION IS JANUARY 15, 2022**  
**REMEMBER, this information, including contact information, will be published in the**  
**MWF Directory, posted on the MWF Website, and listed in the MWF News.**

**FOSSIL COLLECTOR ASKS "WHY NOT?" AND SMALL MUSEUM REPLIES, "PLEASE DO!"**

Charles Wooldridge, Lincoln Gem  
& Mineral Society (NE)  
From the May, 2021 Pick & Shovel

I spend a lot of time in Long Pine, Brown County, Nebraska, where I frequently walk local rivers and streams looking for agates, petrified wood, artifacts, and fossils. The area of north-central Nebraska is in the heart of the Sandhills and where Morris Skinner, Nebraska's most renowned paleontologist, spent five decades digging for fossils. The area is rich in megafauna fossils.



*The Heritage House Museum in Long Pine, Nebraska. Photo from the Long Pine Businesses & Recreation Facebook page.*

One day, I was talking to a local fellow. I mentioned that I like to hunt for fossils, and he stated something to the effect of, "I wish we had fossils like that around here." I wondered how many people grow up somewhere and haven't experienced, or were never shown, significant aspects of the world around them.

I have had my eyes to the ground searching for rocks, artifacts, and fossils for close to sixty years. Like others of you who are afflicted with this hobby, I have amassed a great deal of fossils, rocks, and other "thingamajigs." My philosophy towards fossils has been, if it has the slightest possibility of scientific significance, I show it to a paleontologist.

Most of the fossils I find come from gravel bars or other alluvial deposits that have no real scientific value; as such, I collect them and tell myself they are better in my collection where people can view them. The alternative is that they will continue to be ground to sand by the forces of nature. I like to show them, especially to children who are amazed to know that

elephants, camels, rhinoceri and most of the other animals that they see only in zoos or in books (or on the internet) once lived here, and many were giant.

In reality, not that many people see my collections. Once a year I may have a display at the local gem show, or, occasionally, I'll show someone my yard and basement, but frankly, not that often. So when this fellow in Long Pine made his comment, it dawned on me that there is a museum in town and I didn't remember them having any fossils. Maybe I could put a display together for them.

I approached the board of the Heritage House Museum in Long Pine and floated the idea by them. They were ecstatic. No one had thought to include pre-history. I thought, "WHY NOT?"



*Photo by Angie Debolt of Charles Wooldridge's fossil display at the museum.*

The Museum found an old gun cabinet and made a nice display case out of it. I gathered together an assortment of fossils from the area that I and a couple of friends had found. Another friend made labels with information and pictures of the various creatures. This provides me the opportunity to display my finds, helps to educate people, and clears some things out of my basement.

There are small museums in almost every town or county. You might think about finding one and donating the things you have found. WHY NOT? It's a win-win situation.

## LEONARDO'S "VIRGIN OF THE ROCKS" REVEALS HIS GEOLOGICAL UNDERSTANDING



*Leonardo's Virgin of the Rocks, with remastered color, via Wikimedia Commons.*

Steven Wade Veatch, Colorado Springs Mineralogical Society from the May, 2018 issue of the society's Pick & Pack

via The Rockpile, March 2021, of the Midwest Mineralogical and Lapidary Society

*[This editor's note was placed in the article by the Houston Gem & Mineral Society's Backbender's Gazette: "I have replaced the use of da Vinci as a surname [in the original article] with Leonardo. . . referring to da Vinci as his surname is incorrect. He was illegitimate and was never officially recognized by his father, so according to the practice of the time, Leonardo had no surname. Da Vinci means 'from Vinci.' In the Renaissance, it was a common practice to refer to persons who had no surname by the name of their place of residence or origin."]*

Leonardo da Vinci (1452-1519), considered to be one of the greatest painters of all time, used his knowledge of geology to inform his art. Leonardo was also noted for his work in sculpture, anatomy, mathematics, architecture, and engineering during the Italian Renaissance (about 1330 to 1450).

From a geological perspective, Leonardo da Vinci's paintings present a realistic portrayal of nature.

In his *Virgin of the Rocks* (1483-1486), on display in the Louvre in Paris, the geological accuracy is striking (Pizzorusso, 1996).

The painting's subject is both the Virgin and the rocks. The Virgin sits in front of a grotto or cave. Various aspects of the grotto, according to geologist Ann Pizzorusso (1996), "are rendered with astounding geological accuracy. Leonardo has painted a rich earthscape of rock eroded and sculpted by the active geological forces of wind and water. Most of the rock formations . . . are weathered sandstone, a sedimentary rock."

What looks like basalt, an extrusive igneous rock formed by the cooling of lava, appears above Mary's head and at the top right of the picture. Leonardo even painted the columnar joints formed by the cooling of the rocks. Also, just above her head is a precisely painted seam between the sandstone and igneous formations, and a rock joint runs horizontally to the right of her head.



Art historians believe that the landscape in this painting is not an actual place, but one conjured up by Leonardo's experience, understanding of geology, and observation (Issacson, 2017).

A second version of the painting, also called the *Virgin of the Rocks* (1495-1508), is exhibited in the National Gallery in London. This painting fails to depict such a faithful rendering of geology as the one in Paris. Despite decades of analysis by scholars, there

*(Continued on page 11)*

**LEONARDO'S "VIRGIN OF THE ROCKS" REVEALS HIS GEOLOGICAL UNDERSTANDING, CONTINUED**

*(Continued from page 10)*

are doubts that it is an authentic Leonardo painting, but rather a copy of the original painting by another artist.

Leonardo da Vinci was ahead of his time in his understanding of geology, and he meticulously recorded his observations in notebooks and journals (Bressan, 2014). After his death, his notebooks ended up on the bookshelves in libraries and private collections throughout Europe, while other notebooks disappeared into history (Waggoner, 1996).

Leonardo wrote in one of his notebooks, the Codex Leicester, about the fossils he found as he walked the countryside. Leonardo recognized that fossils were the remains of once-living organisms and relics of former times and other worlds. He also observed that distinct layers of rocks and fossils covered large areas, and the layers were formed at separate times—not in the single biblical flood (Issacson, 2017). And centuries before Darwin, Leonardo conjectured through his understanding of rocks, fossils, and the slow processes of erosion and deposition that the world is much older than what church fathers proclaimed (Jones, 2011).

Since fossils are found in the mountains, Leonardo posited that the surface of the Earth has changed over time. For example, an ancient sea is now dry land (Jones, 2011). Leonardo concluded that as mountains formed, they lifted marine sediments—carrying fossil-bearing rocks skyward to become mountain peaks. Today, geologists know that tectonic plates and other geological processes form mountains.

In another of his notebooks, the Codex Arundel, now housed in the British Library, Leonardo describes graded bedding in layers of sedimentary rocks (Pedretti, 1998). He also had a basic understanding of the superposition of rock strata, where the oldest rocks in a sequence of sedimentary rocks are at the bottom. This concept would not be recognized until the second half of the 17th century when Danish geologist Nicolas Steno, carrying the light of learning, took up the subject in

1669, laying the foundation for modern stratigraphy and geological mapping (Capra, 2013).

Leonardo never published his theories. He only wrote his observations in his notebooks, which ended up scattered or lost. For more than three hundred years, his notes were not part of the progression of science. It was left for future scientists to rediscover Leonardo's observations on the vastness of geological time, sedimentary layering, and the significance of fossils, and to make these discoveries part of science.

Leonardo da Vinci's endless curiosity and boundless creativity made him the quintessential Renaissance man. He was a keen observer of nature whose interest led him to paint nature not only beautifully, but accurately.

#### Works Cited:

- Bressan, D. (2014, April 17). The Renaissance's Contribution to Geology: Landscape Painting. Retrieved from Scientific American: [blogs.scientificamerican.com/history-of-geology/the-renaissances-contribution-to-geology-landscape-painting](https://blogs.scientificamerican.com/history-of-geology/the-renaissances-contribution-to-geology-landscape-painting)
- Capra, F. (2013). *Learning from Leonardo: Decoding the Notebooks of a Genius*. New York: Berrett-Koehler.
- Issacson, W. (2017). *Leonardo da Vinci*. New York: Simon & Schuster.
- Jones, J. (2011, November 23). Leonardo da Vinci's earth-shattering insights about geology. Retrieved from The Guardian: [www.theguardian.com/artanddesign/jonathanjonesblog/2011/nov/23/leonardo-da-vinciearth-geology](http://www.theguardian.com/artanddesign/jonathanjonesblog/2011/nov/23/leonardo-da-vinciearth-geology)
- Pedretti, C. (1998). *Il Codice Arundel 263 nella British Library*. Florence: Giunti.
- Pizzorusso, A. (1996). *Leonardo's Geology: the Authenticity of the Virgin of the Rocks*. Leonardo, 440.
- Waggoner, B. (1996, January 3). *Leonardo DaVinci*. Retrieved from University of California Museum of Paleontology: [ucmp.berkeley.edu/history/vinci.html](http://ucmp.berkeley.edu/history/vinci.html)

Valerie J. Meyers, Editor  
Midwest Federation of Mineralogical and Geological Societies  
vjmwriter@yahoo.com  
Post Office Box 13456  
Overland Park, KS 66282-3456

Non Profit Org  
U.S. Postage  
PAID  
Fiatt, IL  
Permit No. 1

\*\*\*\*\*  
**It is MWF policy that its name and logo may not be used for commercial purposes.**  
**Please notify the Secretary of any violations.**  
\*\*\*\*\*

## THE SPIRIT OF SHARING PERSISTS ALL YEAR AMONG ROCKHOUNDS

Ellery Borow, AFMS Safety Committee Chair

*[Editor's Note: Mr. Borow wrote this letter to the editor and readers of the MWF News.]*

Thank you for letting me share with you and your readers my thoughts about the passions that rock, mineral, fossil, and lapidary artists have and freely share with, well, everyone they can.

Please note the key word just mentioned – "share." Need some extra 220 tumbling grit? Sure, I've extra you can have. Oh, did not find any of that pinkish flint during the last field trip? You can have some of what we found. Need help moving that table for the extra meeting refreshments? We can lend a hand.

Want to learn about cabbing? Sure, come on over to my shop and we can have some fun . . . I've got some great new slabs we can play with and maybe get some nice cabs. Need help with the new safety committee demonstrations? May I help with that? Goodness, this is the most sharing hobby I have ever known!

There certainly are other hobbies so sharing, but this one seems to have sharing as one of its core values. The MWF people sure do exemplify that nature. They share their time, experiences, effort, ideas, tools, inspirations, goals and passions with all they do. They share their aspirations as well. It's good to feel the welcoming. Thank you.

It is true, the hobby has power of passionate people. It also has the power of sharing, of caring, of encouraging, of supporting, of giving, of being thankful in the joy of giving.

One thing to mention in this time of COVID-19 is the spirit of reaching out to help even more – help in food pantries, testing coordination, mask making, helping run errands for those who cannot, helping in innumerable ways with their communities. It's wonderful to hear of so many people helping one another, each to the best of their abilities and safety comfort level.

Oh, and thank you for sharing your newsletter with me. Please stay safe and remain rockhound strong.