



# ***ON THE ROCKS***

*A Newsletter of the Michigan Basin Geological Society*



2018-2019 Edition4

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

December 2018

## **ANNOUNCEMENTS**

**MBGS Membership “Family Night” Dinner Meeting, December 12th, 2018:** Michigan Basin Geologic Society meeting will be hosted at Coral Gables in East Lansing, Michigan. Members are welcome to bring guests, this is a family friendly event. Chad Kotke, Michigan Department of Environmental Quality will present “Flooding Houghton, Michigan 2018”. Meeting starts at 5:30PM, dinner will be served at 5:45PM, and presentation will be after dinner. Menu: Caesar salad, roasted sliced breast of turkey with stuffing, mashed potatoes, baked spinach lasagna, broccoli, rolls/butter, soft drink or coffee/tea. \$25/plate. Cash bar will be available.

**RSVP to Jennifer Trout [jennifer.l.trout@wmich.edu](mailto:jennifer.l.trout@wmich.edu) by December 9<sup>th</sup>, 2018.**

## **2018-2019 Membership Dues**

It is time to submit the 2018-2019 MBGS membership dues. Annual membership is \$25 for members and \$10 for students. Please fill out the appropriate membership form (included) and mail in with payment.

## **MBGS Publications**

There are two (2) new publications available! See details in the newsletter on page 7.

## **MBGS FIELD EXCURSION**

**SPRING 2020 - GEOLOGICAL EXCURSION BY RAFT ON THE COLORADO RIVER THROUGH THE GRAND CANYON  
LEE’S FERRY TO WHITMORE WASH (PAGE, ARIZONA)**

A 7-day Grand Canyon rafting trip through Hatch includes: 188 miles of rafting from Lee’s Ferry to Whitmore Wash, pre-trip stay at Cliff Dwellers Lodge, helicopter ride & return flight to Las Vegas or Marble Canyon, and meals, beverages, camping gear and dry bags provided by Hatch while on the river. Contact Mark Wollensak at [wollensak@voyager.net](mailto:wollensak@voyager.net) to get more information or reserve your spot on this trip.

## **OTHER NEWS**

### **LED FIELD LENS AND MBGS LANYARD AVAILABLE**

The Michigan Basin Geological Society is offering geological field hand lens and lanyards. The field hand lens is a large 21mm lens with a 20X magnification. A pair of white LEDs provides illumination for all those darkened close-up viewing of rocks, minerals and fossils. A case is provided for the field lens with a key to remove the batteries. Batteries are included. The green lanyard has MICHIGAN BASIN GEOLOGICAL SOCIETY printed on one side of the 1" wide webbing. This lanyard is designed with a breakaway buckle clip and detachable keychain for versatile use and comfortable wearing. MBGS is offering the Lanyard/LED Hand Lens and Case combo for \$15 each and the Lanyard alone for \$5 each if picked up at a meeting or field trip. If you request to have your purchase mailed, standard costs for mailing container and postage will apply. Please contact Mark Wollensak at [wollensak@voyager.net](mailto:wollensak@voyager.net) to order.



**December MBGS Membership Meeting**  
**Chad Kotke, Michigan Department of Environmental Quality**  
*presenting*  
**“Flooding Houghton, Michigan 2018”**



**When:** December 12th, 2018. Meeting at 5:30 PM. Buffet dinner at 5:45PM, presentation after dinner.  
**RSVP to Jennifer Trout** [jennifer.l.trout@wmich.edu](mailto:jennifer.l.trout@wmich.edu) by **December 9<sup>th</sup>, 2018.**

**Where:** Coral Gables, 2838 E Grand River Ave, East Lansing, MI 48823, (517) 355-4470

**Cost:** \$25 per plate. Dinner included. Caesar salad, roasted sliced breast of turkey with stuffing, mashed potatoes, baked spinach lasagna, broccoli, rolls/butter, soft drink or coffee/tea. Cash bar will be available.

**Who:** MBGS Friends and family are welcome to attend this meeting. Feel free to bring a guest.

**Abstract**

On June 17<sup>th</sup>, 2018 areas around Houghton/Hancock received 3-7 inches of rain in a 6-hour period. This led to wide spread flooding, but the cause of the flooding was not well understood. Through the course of evaluating flood damage and impacts to area landforms and streams, erosion and depositional patterns became apparent. Many of the issues were directly related to historic impacts to the landscape due to the historical copper mines. We will look into the areas industrial history and past and present landforms and how these factors played into this catastrophic event.



**Biography**

Chad worked for 4 years in the private sector completing hydrologic studies. Chad also provided emergency response support which included the recovery efforts of the 2003 Columbia Space Shuttle Disaster.

Chad currently works for the Department of Environmental Quality’s Nonpoint Source Pollution (NPS) program in the Water Resources Division; he’s been with the program for 15 years. Chad’s key function in the Department is to act as a NPS grant administrator and a statewide technical resource regarding fluvial geomorphology issues facing the State. Chad provides training to DEQ staff as well as guidance to permit staff, the public and local, state and federal agencies. Topics include mass movement, drainage and stream processes on the landscape, and engineering design principles to address erosion and depositional issues.





## UPCOMING EVENTS

**December 6, 2018:** MI-AWWA in partnership with MWEA, 2018 Cyber Security in the Water Sector Workshop, <https://mi-water.site-ym.com/events/EventDetails.aspx?id=1138503&group=>

**December 11<sup>th</sup>, 2018:** MDEQ Environmental Compliance Workshop for the Automotive and Scrap Metal Industries, [https://www.michigan.gov/deg/0,4561,7-135-3308\\_3333-480140--,00.html](https://www.michigan.gov/deg/0,4561,7-135-3308_3333-480140--,00.html)

**December 11<sup>th</sup>, 2018:** USEPA, Michigan Mapping Workshop, Livonia, Michigan, <https://trainex.org/classdetails.cfm?courseid=1787&classid=7936>

**December 12<sup>th</sup>, 2018:** MBGS Monthly Meeting. This will be a dinner meeting, family, friends and spouses welcome. Chad Kotke of the MDEQ will be present on the flooding in Houghton. Coral Gables - 2838 E Grand River Ave, East Lansing, MI 48823. Meeting starts at 5:30, buffet will be served at 5:45 - Caesar salad, roasted sliced breast of turkey with stuffing, mashed potatoes, baked spinach lasagna, broccoli, rolls/butter, soft drink or coffee/tea. Presentation will be after dinner. Cash bar available. RSVP to Jennifer Trout [jennifer.l.trout@wmich.edu](mailto:jennifer.l.trout@wmich.edu).

**March 15-17, 2018:** Michigan Gem and Mineral Society Show, Jackson, Michigan

**May 3-5, 2019:** 60th Anniversary Rock and Mineral Show "Rockrama". Kalamazoo County Expo Center. Information is available at: [www.kalamazoorockclub.org](http://www.kalamazoorockclub.org)

**May 19-20, 2018:** AAPG Annual Conference and Exhibition, San Antonio, Texas <https://www.aapg.org/events/conferences/ace>

**June 10-11, 2019:** AIPG Michigan Section's Environmental Risk Management Workshop at the Ralph A. MacMullen Conference Center in Roscommon, Michigan. Call for Abstracts coming in November 2018.

**October 11-13, 2019:** Michigan Mineralogical Society, "The Show" Greater Detroit Gem, Mineral, and Fossil Show. Information is available at: [www.michmin.org](http://www.michmin.org).

### MDEQ Calendar of Training and Workshops

[http://www.michigan.gov/deg/0,4561,7-135-3308\\_3333---,00.html](http://www.michigan.gov/deg/0,4561,7-135-3308_3333---,00.html)

**MICHIGAN BASIN GEOLOGICAL SOCIETY OFFICERS**  
**2018-2019**

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# MICHIGAN BASIN GEOLOGICAL SOCIETY PUBLICATIONS 2018

*The following list details the contents of each available CD-ROM.*

*This list is also available on-line at <http://www.mbgs.org/publications.html>*

*Prices include postage, handling and any applicable sales tax.*

*Orders for publications should be prepaid in U.S. dollars and addressed to:*

***MBGS — Publications, P.O. Box 14044, Lansing, MI 48901-4044***

## **HISTORICAL PUBLICATIONS DISK 1**

### **Nine out-of-print publications – Cost - \$15**

- The Stratigraphy of Manitoulin Island, Ontario, Canada, June 1954
- The Devonian and Silurian Rocks of Parts of Ontario, Canada and Western New York, June 1951
- The Traverse Group of the Northern Part of the Southern Peninsula of Michigan, June 1949
- The Devonian Strata of the London-Sarnia Area, Southwestern Ontario, June 1956
- The Ordovician Rocks of the Escanaba-Stonington Area, June 1950
- The Niagara Escarpment of Peninsular Ontario, Canada, June 1955
- Lower Paleozoic and Pleistocene Stratigraphy Across Central Wisconsin, May 1960
- Geology of Central Ontario, Canada, May 1965
- Classic Silurian Reefs of the Chicago Area, June 1998

## **HISTORICAL PUBLICATIONS DISK 2**

### **Four out-of-print publications – Cost - \$15**

- Copper Country Field Trip, Michigan, June 1947
- Geology of Mackinac Island and Lower and Middle Devonian, South of the Straits of Mackinac, June 1959
- Tectonics, Structure and Karst in Northern Lower Michigan, August 1983
- Geology of the Pictured Rocks, Upper Peninsula, Michigan, July 1991

## **HISTORICAL PUBLICATIONS DISK 3**

### **Six out-of-print publications – Cost - \$15**

- Pleistocene and Early Paleozoic of the Eastern Part of the Northern Peninsula of Michigan, June 1948
- Stratigraphy and Structure of the Devonian Rocks in Southeastern MI and Northwestern OH, June 1952
- Lower Ordovician and Upper Cambrian of Wisconsin, May 1990
- Guidebook to the Precambrian Geology and Metallogeny of the Central Upper Peninsula of Michigan, September 1991
- Diamond Bearing Kimberlite and Related Geology in the Upper Peninsula of Michigan, April - May 1993
- Karst Geology of Northeast Lower Peninsula, Michigan, April 1995

## **HISTORICAL PUBLICATIONS DISK 4**

### **Six out-of-print publications – Cost - \$15**

- Silurian Rocks of the Northern Peninsula of Michigan, June 1957
- Cambrian Geology of Parts of Dickinson and Iron Counties, Michigan, June 1958
- Geologic Features of Parts of Houghton, Keweenaw, Baraga and Ontonagon Counties, Michigan, May 1961
- Correlation Problems of the Cambrian and Ordovician Outcrops Areas, Northern Peninsula of Michigan, June 1967
- The Geology of Manitoulin Island, June 1968
- 1970 Field Excursions - Pleistocene, Devonian, Precambrian, May 1970

## **HISTORICAL PUBLICATIONS DISK 5**

### **Five out-of-print publications – Cost - \$50**

- Oil & Gas Fields Symposium, Volume 1, April 1969, 200 pp., maps, illus., second printing with updates
- Oil & Gas Fields Manual of the Michigan Basin, Volume 2, 1992, 520 pp., maps, illus.
- Glacial Geology of Southwestern Michigan, September 1989
- Geology of the Lake Erie Islands and Adjacent Shores, 1971
- Glacial Geology of Southwestern Michigan, Landforms of the Lake Michigan Lobe, Southwestern Michigan, September 2001

## **HISTORICAL PUBLICATIONS DISK 6**

### **Eight out-of-print publications – Cost - \$15**

- Guidebook for Ordovician Stratigraphy of the Cincinnati, Ohio and Richmond, Indiana Areas, June 1953
- Guidebook for Ontario Geological Excursion to Kettle Point –Owen Sound- Waubesa, June 1946
- Guidebook for the Stratigraphy of the Silurian Rocks in Western Ohio, May - June 1963
- Guidebook for Cambrian Stratigraphy in Western Wisconsin, May 1966
- Geology of the Manitoulin Area, Special Papers #3, September - October 1978
- Middle Devonian Cratonic Carbonates and Shales in Southwestern Ontario, November 1987
- The Richfield Challenge, A Review of the Richfield Developments in Michigan, 1952
- A Theory of Rogers City and Dundee Relationships in Central Michigan, Tom Knapp Master's Thesis, 1947

## **HISTORICAL PUBLICATIONS DISK 7**

### **Six out-of-print publications – Cost - \$15**

- Silurian Rocks of the Southern Lake Michigan Area, 1962
- Studies of the Precambrian of the Michigan Basin, 1969
- The Geology of the Marquette District: a Field Guide, May 1977
- Ordovician and Silurian Geology of the N. Peninsula of Michigan, 1980
- Special Paper #4: Ordovician and Silurian Rocks of the Michigan Basin and its Margins, 1985
- Upper Keweenaw Rift-Fill Sequence, Mid-Continent Rift System, Michigan, September 1988

## **HISTORICAL PUBLICATIONS DISK 8**

### **Four out-of-print publications – Cost - \$15**

- Niagaran Stratigraphy: Hamilton, Ontario, 1972
- Silurian Reef-Evaporite Relationships, 1974
- Special Papers #1: Middle Devonian Stratigraphy and Depositional Environments in the Michigan Basin, 1974
- Sedimentology and Paleogeography of the Pennsylvania Strata of Grand Ledge, Michigan, May 1989
- Paleozoic Geology of the Central Upper Peninsula of Michigan, August 2014

## **HISTORICAL PUBLICATIONS DISK 9**

### **Five out-of-print publications – Cost - \$15**

- Geology and the Environment: Man, Earth and Nature in Northwestern Lower Michigan, 1973
- Special Papers #2: The Belle River Mills Gas Field: Productive Niagaran Reefs Encased by Sabkha Deposits, Michigan Basin, 1977
- Geohydrology of Carboniferous Aquifers of the Michigan Basin, September 1994
- Sedimentology, Paleogeography and Geochemical Weathering of the Pennsylvania Strata of Grand Ledge, Michigan, September 1994
- Geological and Historical Field Trip to the Keweenaw Peninsula: A Tribute to Douglass Houghton: "Michigan's Pioneer Geologist," Field Guidebook, September 2016

## A DIGITAL PUBLICATION

**Northeast Lower Peninsula Geological Field Conference, 2004, T.J. Black and M.S. Wollensak, 133 pp, illus., maps, digital presentations and posters (available on CD-ROM only). Cost - \$10**

- Road Log and Stop Descriptions by T.J. Black, D. Baxter and M.S. Wollensak
- Methane Gas Venting at Hemlock Lake, by T.J. Black
- The Glaciated Landscape in the Grand Traverse Bay Region of Michigan and the Nature of the Greatlakean Advance of the Laurentide Ice Sheet in Michigan, USA, poster by S.C. Lindstrom
- Thunder Bay Marine Sanctuary Sink Hole Investigations, poster by T.J. Black
- Evaluation of Relationships Between Hydrogeologic Environment and Petroleum Hydrocarbon Remediation in Quaternary Glacial Sediments, presentation by Lisa M. Botcher and Arden D. Davis
- Log Curve Amplitude Slicing of the Traverse Group in the Pentwater Field, Oceana County, Michigan, by Albert S. Wylie, Jr.
- Traverse Group Stratigraphy in the Michigan Basin - A Detailed Review, by Albert S. Wylie, Jr.

## SPECIAL OFFERS

- Stratigraphic Lexicon for Michigan, 2001, prepared by MBGS and published by DEQ, **Cost - \$4.**
- Robert E. Mosher Geological Studies A lifetime of geological research on Silurian Rocks with John T. Sanford. The disks are organized chronologically and include field work in North America and Europe. 2007, 2 CDs **Cost - \$35.**
- Historical CD Set - #1– #9 and 2004 NE LP Geological Field Conference (detailed above) for a special purchase price of **\$125 (best price for all).**

<b>Site Name</b>	Using Google Earth to Explore Plate Tectonics
<b>Site URL</b>	<a href="https://serc.carleton.edu/sp/library/google_earth/examples/49004.html">https://serc.carleton.edu/sp/library/google_earth/examples/49004.html</a>
<b>Site Author</b>	Laurel Goodell
<b>Description</b>	"Students are introduced to Google Earth, and then start by exploring the major physiographic features of the continents and seafloor. They then use a kmz file, compiled by the author, which includes layers showing seafloor age, locations and depths of 20 years' worth of large earthquakes, USGS dynamically updated near-real time earthquakes, volcano locations, "hot-spot" tracks with age dates, and the Bird (2003) plate boundary model. A guided exploration of these data serves as an introduction to plate tectonics - including the general characteristics of plates and plate boundaries, and the use of seafloor age and "hot spot" tracks to determine long-term average rates of plate motion."
<b>Site Name</b>	EarthViewer: An Interactive Tool For Exploring The Science Of Earth's Deep History
<b>Site URL</b>	<a href="https://www.hhmi.org/biointeractive/earthviewer">https://www.hhmi.org/biointeractive/earthviewer</a>
<b>Site Author</b>	BioInteractive
<b>Description</b>	"What did Earth look like 250 million years ago? Or 1 billion years ago? Or 4.5 billion years ago? What was the climate like in the deep past? Find the answers with <a href="https://www.hhmi.org/biointeractive/earthviewer">EarthViewer</a> , an interactive tool for exploring the science of Earth's deep history. From molten mass to snowball earth, EarthViewer lets you see continents grow and shift as you scroll through billions of years. Additional layers let you and your students explore changes in atmospheric composition, temperature, biodiversity, day length, and solar luminosity over deep time."

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1	ANNUAL STUDENT MEMBERSHIP DUES for 2018-2019	10.00	\$ 10.00
		SUBTOTAL	\$ 10.00
		TAX	\$ -
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		FREIGHT	\$ -
			\$ 25.00

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