



# ON THE ROCKS



## A Newsletter of the Michigan Basin Geological Society

2008-2009 Number 9

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

May 2009

### EVENTS

**Wednesday, May 13, 2009:** MBGS meeting will be held at Michigan State University, Natural Science building at 7:00 pm in room 204. The speaker is **Ron Erickson, P.G.**, from AECOM presenting “**Geology & Construction of the Soo Locks**”. See location information in newsletter.

### NOTES FROM THE EDITOR

- This will be the last newsletter for this year. Have a great summer and we will talk to you in September!!
- It is time to vote for the 2009 – 2010 MBGS Executive Committee. A ballot is included in the newsletter.
- MBGS is in need of a business manager. A description of the position is included. Please contact any of the current executive committee members if you have an interest in participating.

#### Duties of the Business Manager

##### Planning

- 1) Attend all Executive Committee and Society meetings
- 2) Secure a meeting place for the monthly Society meetings
- 3) Help secure donations from companies to be used as door prizes at meetings

##### Meeting Logistics

- 1) Order the number of meals based on the number of RVSP's received (for dinner meetings only)
- 2) Arrange and operate audio/visual equipment needed by speakers
- 3) Bring name tags to meetings

##### Scholarships

- 1) Send letter and notice detailing requirements and eligibility for MBGS scholarships to Geology Departments at State Colleges and Universities. The Executive Committee will determine the scholarship(s) amount.

- There are still a few spots left for The Copper Country Trip. Registration form and cost information are included in this newsletter. Dates are June 4-7, 2009.

## MEMBERS CORNER

This section will be used to share information submitted by members. Attend an interesting conference? Hear an exciting lecture? Please feel free to submit any information you would like to share to the membership to: Arlene at [aanderson-vincent@golder.com](mailto:aanderson-vincent@golder.com)

### The Core Display Receives Mention

MBGS's core display was used in an Earth Day Display for children. The kits were mentioned in The Lansing State Journal, submitted by Jen Jennings.

<http://www.lansingstatejournal.com/apps/pbcs.dll/article?AID=/200904230400/NEWS01/904220355>

### NASA Science News for April 30, 2009

A NASA spacecraft gliding over the surface of Mercury has revealed that the planet's atmosphere, magnetosphere, and its geological past display greater levels of activity than scientists first suspected. Submitted by Leonard Espinosa

[http://science.nasa.gov/headlines/y2009/30apr\\_mercury.htm?list1112653](http://science.nasa.gov/headlines/y2009/30apr_mercury.htm?list1112653)



MBGS has a **core display** available for use that visually demonstrates permeability/porosity. There are posters available for use with the core display. Contact Mark Wollensak at [wollensak@voyager.net](mailto:wollensak@voyager.net) to reserve this great educational tool.



The Annual Banquet meeting held at Western Michigan University in the Michigan Geological Repository for Research and Education Building was a great success! Thank you to everyone who helped put this event together.

**MBGS and the Michigan Geological Repository for Research and Education**  
**are sponsoring the**  
**2010 AAPG Eastern Section Meeting in Kalamazoo, Michigan**

**Date: September 26 – 28, 2010**  
**Venue: Radisson Plaza Hotel and Suites**



American Association of Petroleum Geologists

An International Geological Organization

We are in need of volunteers to assist on committees. This is a great opportunity to work and meet others in our profession.. Find a committee you are enthusiastic about and join us in showing the Eastern Section AAPG what a great host Michigan can be!!!

**Committees:** Technical Programs, Finance, Publicity, Registration, Awards, Judging, Field Trips, Short Course/Workshops, Video, Entertainment, Exhibits, and Sponsorship.

Please contact Robb Gillespie at [robb.gillespie@wmich.edu](mailto:robb.gillespie@wmich.edu) to get involved.

**Important Information:** Committee tasks/descriptions are found on the AAPG-ES website at the following link: <http://karl.nrcce.wvu.edu/esaapg/Esguide.pdf>

**Current Meeting Itinerary**

Sept 25<sup>th</sup> Sat: Field Trips  
Sept 26<sup>th</sup> Sun: Meeting Program  
Sept 27<sup>th</sup> Mon: Meeting Program, also icebreaker/social at Air Zoo in evening  
Sept 28<sup>th</sup> Tues: Meeting Program  
Sept 29<sup>th</sup> Wed: Field Trips

**Other Events and Happenings**

**May 12<sup>th</sup>, 2009**, AIPG Michigan Section 5<sup>th</sup> Annual Golf Outing, 18-hole Scramble, contact either Kevin Lund at [klund@g-eri.com](mailto:klund@g-eri.com) or at Bob Reichenbach [robert\\_reichenbach@sbcglobal.net](mailto:robert_reichenbach@sbcglobal.net)

## **2007-2008 MBGS Officers**

The Executive Committee meeting minutes are available on our website at [www.mbgs.org](http://www.mbgs.org)

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## **MEETING CANCELLATION POLICY**

Monthly meetings will be automatically cancelled whenever the National Weather Service issues a "Storm Warning" for the Lansing area. If driving conditions are poor but a "Warning" has not been issued please contact any member of the Executive Committee for the status of the meeting.

## **MICHIGAN BASIN GEOLOGICAL SOCIETY PUBLICATIONS**

**Historical CD #1: Nine out-of-print publications from 1949 through 1965 and 1998, 2000, \$15**

**Historical CD #2: Four out-of-print publications from 1947, 1959, 1983 and 1991, 2001, \$15**

**Historical CD #3: Six out-of-print publications from 1948, 1952, 1990 - 1995, 2001, \$15**

**Historical CD #4: Six out-of-print publications from 1957, 1958, 1961, 1967, 1968 and 1970, 2004, \$15**

**Historical CD #5: Five out-of-print publications from 1971, 1989, 2001, and Oil & Gas Fields Vol. 1 & 2, 1969 & 1992, 2006, \$50**

**(NEW) Historical CD #6: Six out-of-print publications from 1946, 1953, 1963, 1966, 1978 & 1987 plus the Richfield Challenge, 1952 & Tom Knapp's MS Thesis, 2007 \$15.**

**\*\*Special Price\*\* - Historical CDs 1 - 6 \$85**

**NE Lower Peninsula Geological Field Conf.**, 2004, T. Black, M. Wollensak, On CD \$10

**Stratigraphic Lexicon for Michigan**, 2001, prepared by MBGS and published by DEQ, \$4

**(NEW) 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 \$35.

Price Includes postage, handling and any applicable sales tax. Orders for publications should be **prepaid in U.S. Funds** and addressed to:  
MBGS - Publications, P O Box 18074, Lansing MI 48901-8074

# MBGS Meeting

## Wednesday, May 13, 2009

**“The Construction and Geology of the Soo Locks”**  
**By: Ronald Erickson, P.G.**

Location: MSU, Natural Science Building  
The talk will begin at 7:00 PM in room 204.

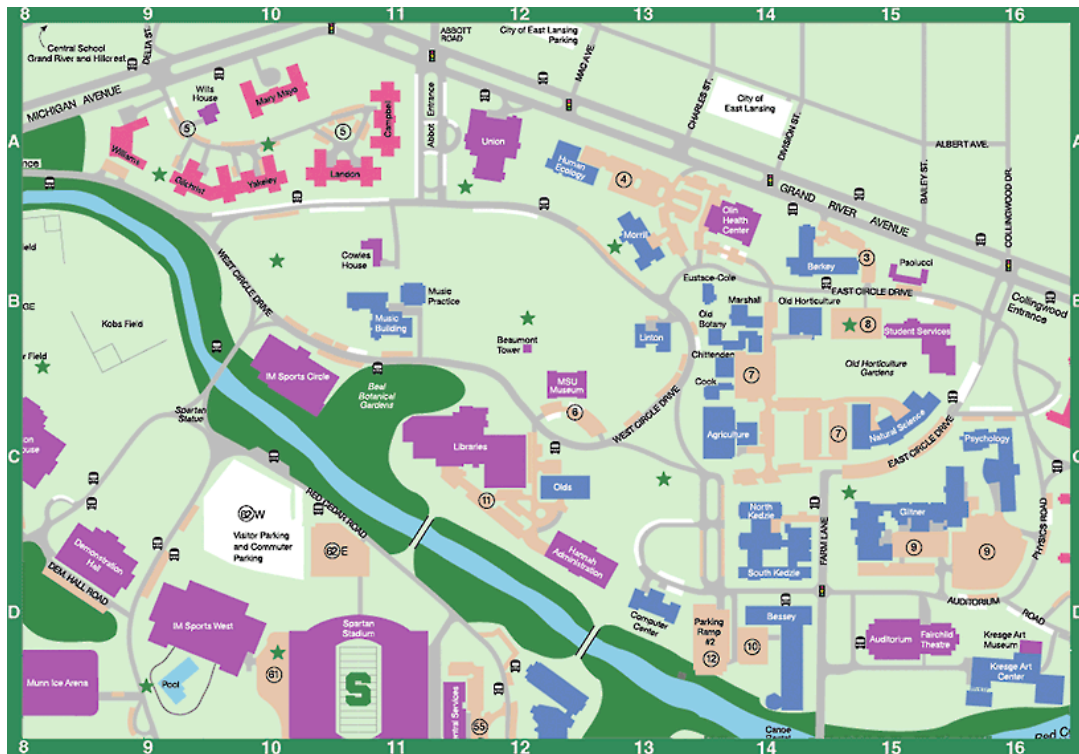
Refreshments will be provided after the talk in the Natural Science Building

No charge for this meeting.  
Executive Committee Meeting will be held at 4:30 PM at  
Claddaugh’s Irish Pub in Lansing (members welcome)

**Please RSVP for this meeting to:**

Thomas Godbold  
Bus Ph: 517-241-1545, Fax 517-241-1595  
E-mail:godboldt@michigan.gov

Between 5pm & 6pm you can park in Lot 9 behind Giltner Hall and the Psychology Building (former Physics and Astronomy building) for free. Otherwise you can try your luck with the metered slots clustered around the Natural Science Building and the adjacent Student Services Bldg, no charge after 6:00pm.



## **Biographical Sketch**

Ronald L. Erickson, P.G.  
Senior Project Geologist  
AECOM, Lansing, Michigan

Mr. Erickson has worked for AECOM since 2005. He is the leader of the field and laboratory services group. He is an account manager for AECOM's IDIQ contracts with Chicago and St. Paul Districts, Corps of Engineers. Under this contract Mr. Erickson was the project manager for AECOM's recent geotechnical investigations for the dewatering cofferdams, which will be part of the construction of the new lock proposed for Sault Ste. Marie.

Prior to his employment with AECOM, Mr. Erickson was the District Geologist with Detroit District, where he was employed for over thirty years. In addition to his geology duties, Mr. Erickson was the Regional Technical Specialist (RTS) for geology for the Great Lakes and Ohio River Division, and its seven Districts. For this task Mr. Erickson worked with each of the other geologists, assisting them with their District's projects, and performing independent technical reviews of their projects.

Another assignment Mr. Erickson accomplished for Detroit District was as program manager for the district's dam safety program. In this capacity Mr. Erickson was in charge of the periodic inspection program, taught dam safety to the district dam operators, and conducted training of the periodic inspection team members.

During his tenure with the Detroit District, Mr. Erickson conducted numerous investigations for the various features of the new Soo Lock. These investigations consisted of drilling and sampling, rock coring and conducting test pit investigations to determine the engineering properties of the foundation materials of the new lock.

# MBGS Ballot 2009-2010

(If you cannot click on a checkbox, go to Tools, Protect Document, select Forms, then Ok.  
If you want to write in a Candidate, go to Tools and select Unprotect document  
and you will be able to enter text)  
Save your file when you are done and before you attach.

## Vice President

Mike Olson

\_\_\_\_\_ (Write In Candidate)

## Secretary

Jennifer Jennings

\_\_\_\_\_ (Write In Candidate)

## Business Manager

\_\_\_\_\_ (Write In Candidate)

## Treasurer

Tom Hoane

\_\_\_\_\_ (Write In Candidate)

Please respond by May15, 2008.

Send to:

MBGS

PO Box 18074

Lansing MI 48901-8074

Or email to: [hoanet@michigan.gov](mailto:hoanet@michigan.gov)

# A GEOLOGICAL AND HISTORICAL FIELD EXCURSION

Sponsored by the  
Michigan Basin Geological Society

## MICHIGAN'S COPPER COUNTRY GEOLOGY AND MINING HISTORY “A Step Back In Time”

Thursday, June 4<sup>th</sup> through Sunday, June 7<sup>th</sup>, 2009

Take an adventure back to the life and history of the copper miner and copper mining industry. The north western portion of Michigan's Upper Peninsula is known as Copper Country due to the rich native copper found in the northwesterly tilted Precambrian rocks of the Keweenaw Rift sequence. This field excursion will include evening lectures on the history of the mining industry and on the geology of the rocks creating the copper deposits. Of the two days of travel, one day will be dedicated to exploring the rich history of the mining community and industry and the second day will be exploring the rocks and mines where those miners worked. Additional highlights will include an evening tour of the Seaman's Mineralogical Museum and an afternoon guided tour of the Quincy Hoist, known for operating the world's largest steam hoist. Two local copper mines will be entered for tours and collecting may be provided at some of the local mine dumps.

### **Itinerary:**

#### Thursday, June 4<sup>th</sup>, 2009:

Meet for dinner, 5:00 pm at Gino's Restaurant in Hancock, MI (optional)

Meet at Michigan Tech Univ. for 8:00 pm lecture by Dr. Larry Lankton, MTU, titled “Boom to Bust: The Life Cycle of a Great Mining District”

#### Friday, June 5<sup>th</sup>, 2009:

Meet at hotel lobby and depart for morning and afternoon of visiting and discussing mining history with Scott See, PhD candidate, MTU, and Bill Haller

A sandwich lunch is provided during noon break

Participate in a tour of Quincy Hoist and Mine to include the museum, video and guided tour of the surface structures, tram ride and underground mine tour.

Meet for dinner at suggested local restaurants in Houghton or Hancock Area (optional)

Meet at Michigan Tech Univ. for 8:00 pm lecture by Dr. William Rose titled “Geology of the Mid-Continent Rift, Keweenaw Peninsula, Michigan”

#### Saturday, June 6<sup>th</sup>, 2009:

Meet at hotel lobby and depart for morning and afternoon of guided tours and collecting at The Adventure and Caledonia Mines, a possible side trip to include Victoria Dam (time permitting)

A pasty lunch to be provided during noon break

Meet for dinner at suggested local restaurants in Houghton and Hancock areas (optional)

Meet at the Seaman's Mineralogical Museum for private guided tour starting at 8:00 pm

#### Sunday, June 7<sup>th</sup>, 2009:

Optional stops will be suggested for return trip (a small guide book will be included)

# MICHIGAN'S COPPER COUNTRY GEOLOGY AND MINING HISTORY FIELD EXCURSION

June 4, 5, 6 and 7, 2009  
REGISTRATION FORM

NAME: \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

**Cost per person: \$100 Registration deadline is *May 15, 2009***

**There is a limit of 30 registrants.**

**All participants must be members of the Michigan Basin Geological Society**

**Annual membership fee is \$25 and applications can be downloaded at**

**[www.mbgs.org/Membership-Application.php](http://www.mbgs.org/Membership-Application.php)**

**Send payment in US Funds with the registration form (and application if applicable) to:**

***Copper Country Field Excursion, Michigan Basin Geological Society***

***P. O. Box 18074, Lansing, MI 48901-8074***

The fee will include the following: Friday museum donations, Quincy Hoist and Mine tour fee and sandwich lunch; Saturday Adventure and Caledonia mine tour fees, pasty lunch and donation to the Seaman's Mineralogical Museum.

You will be responsible for: your lodging and meals (except for Friday and Saturday lunches), all your transportation to and from Houghton and during the field trip. Carpooling will be coordinated on Friday and Saturday.

You must be a member of the Michigan Basin Geological Society to participate. You can become a member by retrieving an application at our website <http://mbgs.org>. Registrations should be submitted no later than May 15<sup>th</sup>, 2009. Please call ahead to confirm openings are available.

A block of rooms have been reserved for the participants at the Holiday Inn Express, 1110 Century Way Houghton, MI 49931. You are responsible to make your own reservations by calling (906) 482-1066 direct. The base rate for a room is \$65/night and does not include taxes. Please let the hotel registration know you are with the Michigan Basin Geological Society to get the group rate. This rate is good only through to May 15<sup>th</sup>, 2009.

Boots with ankle support, safety glasses and a light jacket are recommended to participate in the Saturday mine tours. Helmets and headlamps are provided. Safety glasses are strongly encouraged if participating in any rock collecting activities.

If you have any questions, please contact Mark Wollensak at [wollensak@voyager.net](mailto:wollensak@voyager.net) or by calling (517) 719-8321.

## DESCRIPTION OF EVENTS

**Thursday Evening Lecture:** “Boom to Bust: The Life Cycle of a Great Mining District” presented by Dr. Larry Lankton, Michigan Technological University. This will tell the story of the Lake Superior copper district from its first mines in the 1840s to the closure of its last mine in 1995.

Dr. Larry Lankton is a Professor of History at Michigan Tech, where he has been on the faculty since 1981. His primary research topic has been the history of the Lake Superior copper mining district. He has published many articles and several books on this topic. With Charlie Hyde, in 1982 he co-authored Old Reliable: An Illustrated History of the Quincy Mining Company. In 1991 Oxford University Press published his Cradle to Grave: Life, Work and Death at the Lake Superior Copper Mines, and Oxford also published his Beyond the Boundaries: Life and Landscape at the Lake Superior Copper Mines, 1840-1875. Wayne State University Press, as part of its Great Lakes Book series, will publish Lankton’s forthcoming book: Boom to Bust: The Copper Mines and Copper Towns of Lake Superior, 1840s to 1990s.

**Friday Evening Lecture:** “Geology of the Mid-Continent Rift, Keweenaw Peninsula, Michigan” presented by Dr. William Rose, Michigan Technological University. The Keweenaw Peninsula and Isle Royale are one of the most extensive exposures of the volcanic rocks of the Proterozoic Mid Continent Rift, probably earth’s earliest subaerial continental flood basalt sequence. About 400 lava flows erupted in a supereruption and ponded an elongate rift basin 1097 to 1095 ma. Some of the flows are hundreds of feet thick and took more than 1000 years to solidify (magma oceans). Conglomerates and fluvial subaerial redbed sandstones occur within and above the lavas. The rift subsided during eruptions creating a synclinal basin which was later up thrust and compressed by the Grenville orogeny. Native Copper mineralization is a unique and spectacular feature of the Keweenaw, the result of a very extensive hydrothermal system which permeated the rift layers and mineralized porous conglomerates and lava flow tops. The rift rocks were buried by Paleozoic rocks which were eventually nearly completely eroded, and now the Proterozoic rift deposits are covered only by Pleistocene glacial deposits.

Dr. William Rose is a volcanologist/professor who has worked on active volcanoes in Central America and other active regions for more than 40 years. He leads one of the world’s leading volcanological research groups at Michigan Tech, where he has taught since 1970.

**Saturday Evening Tour:** Seaman Mineralogical Museum is the Mineral Museum of Michigan and a Keweenaw National Historical Park Heritage Site. One of the finest collections of minerals in North America is on display at The Mineral Museum of Michigan. Be awed by the artistic beauty of nature's creations. About 8,000 mineral specimens are on display and the total collection consists of more than 30,000 specimens. The museum features the world's best collection of crystallized native copper and native copper in crystallized calcite. Among the specimens on display are numerous examples of the finest specimen of an individual mineral species. The museum contains one of the finest collections of North American celestite and native sulfur. Special exhibits include native silver, datolite, Lake Superior agates and greenstones (chloraastrolite- the gemstone of the state of Michigan). A well represented suite of worldwide mineral are also on display.

A guided tour of the museum will be provided by Dr. Theodore Bornhorst, Professor of Economic and Engineering Geology, Michigan Tech University.

**Friday Field Excursion to the Mining History of the Copper Country:** Scott See, MTU PhD candidate, and Bill Haller will guide the participants to local museums and sites of historical importance during the morning and afternoon. Included in the trip will be a tour of the Quincy Mine and will include a video, a tour of the surface structures, tram ride and entry into the underground workings. The Quincy Mine was owned by the Quincy Mining Company and operated between 1846 and 1945, although some activities continued through the 1970s. When the mine ceased production in 1945, the Quincy Number 2 shaft was the world's deepest shaft, at 9,260 feet (2.82 km or 1.75 miles) along the dip of the deposit. To raise and lower ore and workers into this shaft, the world's largest steam-driven mine hoist was built in 1918 and housed in the Quincy Number 2 Hoist House.

**Saturday Field Excursion to the Adventure Mine and Caledonia Mine:** The Adventure Mine operated from 1850 to 1920 and is one of the best preserved mine sites of its age. Like almost all of the mining locations of the Copper Country, the Adventure was opened on existing prehistoric excavations located on Adventure Bluff. These prehistoric workings date to about 5,000 years before present and were very extensive. The mine consisted of five shafts; four were inclined at 45 degrees to follow the ore body and one was vertical. The deepest of these shafts, the No. 3, contained 13 levels and extended down 1300' following the ore body. The site tour will consist of a 30 minute abbreviated historic surface tour including mine openings and shafts, prospector pits, old mine foundations and prehistoric mine workings (approx. 5000 years before present). The underground tour will enter by the No. 1 shaft and see solid pieces of native copper weighing hundreds of pounds left behind by earlier miners. Participants will walk through the largest rooms of the mine and past shafts to lower levels.

The Caledonia Mine is privately owned by Red Metal Explorations and operated for specimens. The mine is set in the side of a mountain overlooking the beautiful valley of the Flintsteel River. Exceptional exposures are provided in the mine to see and discuss the mineralized Knowlton and Butler Series flow top lodes. Red Metal Explorations acquired the mineral rights in 1985. The No. 4 Caledonia adit was reopened for a currently active program of exploration. The copper that is recovered by Red Metal Explorations is prepared and sold as specimens. The largest single piece removed to date weighed 1360 kg (3000 lbs). Other specimens recovered by Red Metal Explorations include native silver, datolite, calcite, epidote, adularia and native copper crystals.

