



ON THE ROCKS



A Newsletter of the Michigan Basin Geological Society

2007-2008 Number 9

www.mbgs.org

May 2008

EVENTS

May 14, 2008: MBGS meeting will be at Michigan State University, Natural Science Building at 7:00 pm. The speaker is Craig R. Johnson from NTH Consultants presenting “Is The Detroit River International Crossing: The Implementation of a Precedent Setting Geotechnical and Geophysical Investigation to Evaluate Subsurface Geological Stability in an Area of Historical Solution Mining”. See talk details and location information below

Notes from the editor:

- There is a lot to report this month. First, May will be the last newsletter and MBGS monthly meeting for this period. The MBGS meetings and monthly newsletters will resume in September 2008. A summer edition newsletter will be sent to keep everybody up to date with MBGS happenings. Have a great summer and we hope you join us for our August Field Trip to Indiana (see details below).
- Please excuse our construction!! As you may have noticed, the MBGS web page is a little out of date. We are feverously working to resolve this issue. We should have the website back up to date in the near future. We apologize for any inconvenience.
- Exciting news!!! MBGS and the Michigan Geological Repository for Research and Education is sponsoring the 2010 AAPG Eastern Section Meeting in Kalamazoo, Michigan!! We are in need of volunteers to chair committees and to assist on committees. This is a great opportunity to work and meet others in our profession. A list of the committees and a signup sheet are included in the newsletter. Find a committee you are enthusiastic about and join us in showing the Eastern Section AAPG what a great host Michigan can be!!!
- Dr. Allan M. Johnson, retired professor at Michigan Tech, is on the Keweenaw National Park Advisory Commission and is working to get support to have a Douglass Houghton commemorative stamp issued by the U.S. Postal Service. He hopes that many Michigan geologists and others will write a letter to support the idea. Background information about Houghton and information on where to send letters in support are included in the newsletter. Please take a moment to send a letter to support this venture. Please mail support letters to:

Citizen's Stamp Advisory Committee
c/o Stamp Development
U.S. Postal Service
1735 North Lynn St., Suite 5013
Arlington, VA 22209-6432

Upcoming field trips:

Exciting field trips are currently being planned for 2008 and 2009. Pack your rock hammers and plan on joining us. Every participant must be a member of the Society. A membership application is included for your convenience. Details of August 2008 trip are included in this newsletter.

Southern Indiana Karst Stratigraphy and Spelunking in August 9-10, 2008 - Itinerary Included in Newsletter

Saturday: Spelunk caves in Bedford, IN area with Eastern Indiana Grotto guides.

Sunday: Return trip visits outcrops to discuss stratigraphy and karst features.

Copper Country, Houghton, MI in September 2008

4 day trip to include mine tours, rock collecting, mineral museum tour and evening lectures. Leaders and lecturers to include Bill Haller, Dr. Bill Rose and Dr. Larry Lankton.

Upcoming AIPG and Other Activities:

May 15, 2008: AIPG Chapter Meeting: "Addressing Climate Change through Carbon Capture and Geological Storage in Michigan" by David Barnes, Ph.D., Professor in the Geosciences Department at Western Michigan University.

Location: The Radisson Riverfront Hotel, Grand Rapids, Michigan.

Dinner: Choose from: Chicken Champagne, Fresh Whitefish, or London Broil. All entrees served with parsley red skin potatoes, fresh green beans almandine, house salad, warm rolls and butter and fruit pies.

Schedule: Cash Bar/Check-in 5:30 to 6:30 PM, Dinner: 6:30 Speaker: 7:30 to 9:00. Prize Raffle.

Cost: Students \$25.00, Members \$35.00, Non-members \$40.00.

RSVP by May 9, 2008: RSVP to Don Conway at dgconway@goslingczubak.com

Notice by e-mail is preferred, and please include AIPG in the subject line. Don can also be reached at (231) 933-5132. Reservations not cancelled by May 12th will be billed. Checks to AIPG-Michigan

Students attending the meeting and looking for full-time employment after graduation or a part-time summer position can bring several copies of their résumé. Leave one résumé at the sign-in desk upon arrival. Résumés obtained at the meeting are available to AIPG members seeking job candidates by contacting Kevin Lund, klund@g-eri.com

May 6-10, 2008: 54th Annual Meeting of the Institute on Lake Superior Geology. The conference will be at the Ramada Inn in downtown Marquette. Ted Bornhorst and John Klasner are Co-Chairs of the meeting. Technical presentations and field trips are part of the meeting. Additional information is available on the ILSG website at:

<http://www.lakesuperiorgeology.org/> .

May 20, 2008: 4th Annual AIPG Michigan Section Golf Outing. The 18-hole golf scramble supports the Michigan Section's grants and scholarships program, and will be held at the Lyon Oaks Golf Course in Wixom. Registration begins at 8:00 am, with a 9:30 am tee time. Cost is \$115 per individual, or \$420 for a foursome. Additional information is available on the attached flyer.

June, 2008: Michigan Environmental Compliance Conference. This MDEQ-sponsored, day-long conference will be offered on three dates in June in Boyne Falls, Kalamazoo, and Livonia. For additional information contact Jim Ostrowski at 517-241-8057 or Email at ostrowskij2@michigan.gov

2007-2008 MBGS Officers

The Executive Committee meeting minutes are available on our website at 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

Location: Michigan State University
Natural Science Building, Room 204

Wednesday May 14, 2008

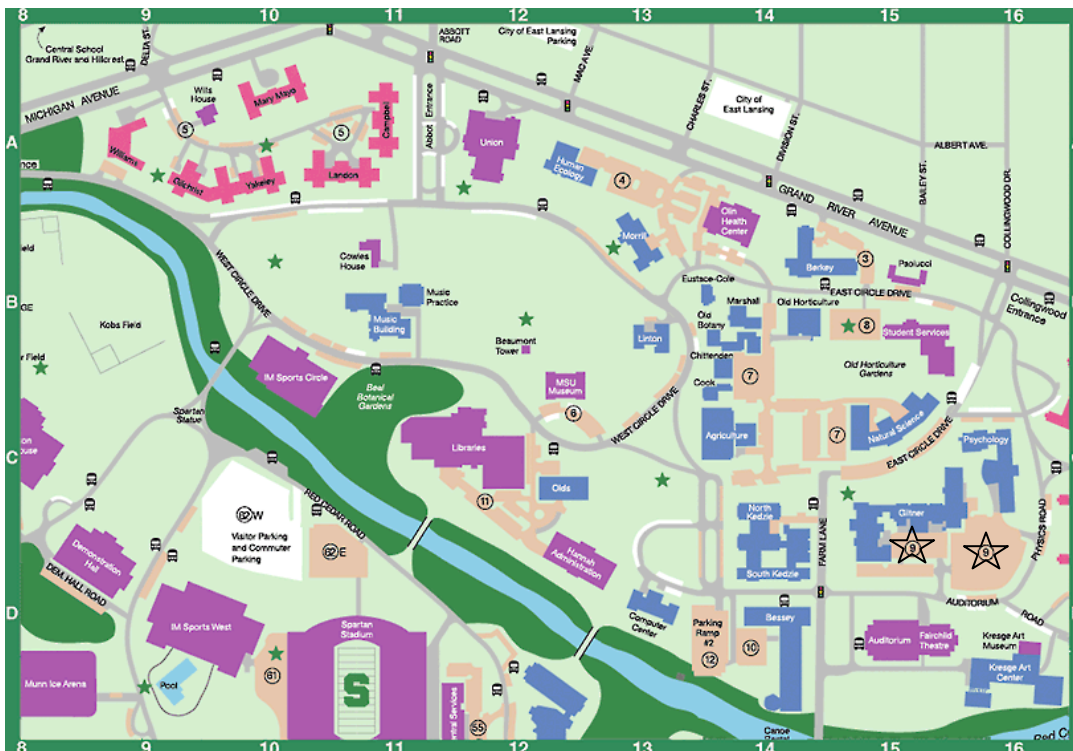
The talk will begin at **7:00 PM in room 204**.
Refreshments will be provided after the talk in the Natural Science Building
No charge for this meeting.

Topic: “The Detroit River International Crossing: The Implementation of a Precedent Setting Geotechnical and Geophysical Investigation to Evaluate Subsurface Geological Stability in an Area of Historical Solution Mining”

Craig R. Johnson
NTH Consultants

Location

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 Building.



"The Detroit River International Crossing: The Implementation of a Precedent Setting Geotechnical and Geophysical Investigation to Evaluate Subsurface Geological Stability in an Area of Historical Solution Mining"

**By: Craig R. Johnson
NTH Consultant**

Abstract:

The development of large scale infrastructure presents many geological and geotechnical challenges. During the development of the Detroit River International Crossing (DRIC) project, unique geological conditions were encountered and addressed through the implementation of a precedent setting multi-phase investigation.

The Detroit area is underlain by numerous evaporate geological sequences (halite deposition), which have been historically mined over the last 100+ years by room and pillar or solution mining methods. Historically, the majority of the salt was removed by solution mining, where fresh water was pumped down a borehole, lifted to the surface, and then evaporated to reclaim the salt. The increased removal of salt from adjacent wells often created large spans of unsupported rock when adjacent cavities coalesced to form galleries. Eventually, as observed in 1954 and the early 1970s, in Windsor, Canada and Grosse Isle, MI, respectively, the massive unsupported spans collapsed to the surface to form large sinkholes.

This talk serves to illustrate the steps taken to develop the program to investigate and clear an area to found the new DRIC crossing in an area believed to have been actively solution mined in the past. Challenges to implement this program include extensive rock drilling and a large scale geophysical investigation in a heavily urbanized area, adjacent to a major international shipping channel. The completed program included drilling 13 deep wells to facilitate the use and development of cross-well seismic imaging to determine pertinent rock characteristics, structure, and geology between boreholes. This is the first known use of cross-well seismic imaging outside of the oilfield environment, with spacing between boreholes often exceeding greater than 1,500 linear feet and source frequencies to 2,000 Hz. The program also included extensive wireline logging, borehole gravity surveys, vertical seismic profiling, and one of the longest continuous rock cores ever taken in the Michigan Basin.

Biography:

Mr. Johnson received his B.S. in Geological Engineering from Michigan Technological University with an emphasis in petroleum engineering and geophysics. He is currently a project engineer and the Subsurface Utility Engineering and Geophysics Team Lead for NTH Consultants, Ltd. in Lansing, Michigan, where he develops and implements small to large scale geophysical and geotechnical investigations. Prior to working for NTH, he worked for a small geotechnical firm in St. Paul, Minnesota and performed various roles, including the performance of various geophysical surveys, drilling engineer, and project manager for all investigation related services for the Flint Hills, Pine Bend Refinery and the City of St. Paul. His active areas of interest include surface wave geophysics, ground penetrating radar, and Michigan Basin Geology. In his spare time (when he has any!), he enjoys his family, carpentry, lathe turning, and gardening.

GET INVOLVED
Eastern Section of the
American Association of Petroleum Geologists
Radisson Plaza Hotel and Suites
Kalamazoo, Michigan
September 26 – 28, 2010

Cosponsored by the Michigan Basin Geological Society and the Michigan Geological Repository for Research and Education, a part of the Geosciences Department at Western Michigan University. If you have interest in a participating in a committee listed below – email Robb Gillespie at robb.gillespie@wmich.edu

General Chair	Robb Gillespie
Technical Program	G. Michael Grammer
Finance	
Exhibits	
Sponsorships	
Field Trips	Mark Wollensak, Lenard Espinosa
Workshops	Bill Harrison
Publicity	Arlene M. Anderson-Vincent
Registration	
Webmaster	
Judging	
Audio/Visual	
Graphics and Media	
Guest Programs	
Student Volunteers	
Coordinators	
Student Job Quest	
Meeting Coordinators	Kathy Wright

A GEOLOGICAL FIELD EXCURSION
Sponsored by
Michigan Basin Geological Society
SOUTH CENTRAL INDIANA SPELUNKING AND
GEOLOGY OF THE SALEM LIMESTONE,
BLOOMINGTON, INDIANA

Where: A block of rooms will be reserved at a hotel in Bedford, Indiana.

When: Saturday, August 9th and Sunday, August 10th, 2008

Who can participate: Membership of the MBGS is required to participate in the excursion.

Cost: To be determined.

Recommendations: Spelunking involves physical activity such as walking through ankle deep water, crawling and getting muddy. The cave(s) to be explored are primarily walking caves and not commercial caves. A helmet and headlamp are provided. Clothing such as coveralls, leather gloves, old tennis shoes or boots and knee pads are highly recommended. Claustrophobic participants are cautioned.

Participation Limit: A limit of 40 participants will be imposed. To pre-register, email Mark at wollensak@voyager.net and request to be added to the pre-registration list.

Registration Deadline: Registrations will no longer be accepted after Friday, July 18th.

What is Provided: To be determined. Expect the registration fee to include written materials (geological background and road log) at a minimum.

Your Responsibilities: Costs for room Saturday night, transportation (we will assist in arranging carpooling), all meals during the trip.

Trip Leaders: Brian Leavell and several experienced members of the Eastern Indiana Grotto have offered to lead our participants into Donohoe Cave on Saturday, August 9th. Additional information and registration form will be provided in the May newsletter.

Saturday - Donohoe Cave: The trip will depart Lansing at a specified meeting place early on Saturday morning. The drive to Bedford, Indiana is approximately 6 hours. The caravan will meet in Bedford for lunch and to meet with the Eastern Indiana Grotto for equipment and instruction. Donohoe Cave was carved within the Ste. Genevieve Limestone and St. Louis Limestone, Blue River Group, Mississippian Period. This cave was chosen for both its ease of passage and quality of cave formations. The round trip cave tour takes approximately 2-3 hours depending on the group size. Additional caves may be organized if time and interest allows.

Sunday - Bloomington Area Limestone: Todd Thompson, with the assistance of Brian Keith and John Rupp, of the Indiana Geological Survey, have agreed to spend the Sunday morning to present to the participants the Mississippian Salem Limestone section on the north side of Bloomington, Indiana. We will visit a quarry overlook for discussion. Roadcuts and outcrops will also be visited and discussed in greater detail.

Douglass Houghton Facts

Birth – September 21, 1809 in Troy, NY, 4th child of Judge Jacob and Mary Lydia Douglass Houghton.

Family – Brothers: Alured, Alexander, Richard and Jacob Jr. & Sisters: Lydia and Sarah.

Childhood – Fredonia, NY from age 3.

Education – Fredonia Academy. College – attended Rensselaer Polytechnic Institute in Troy, NY; specialized in geology, chemistry, botany; graduated with a Bachelor of Arts diploma in 1829.

Career: 1829-30: Assistant Professor at Rensselaer Scientific School following his graduation. Taught chemistry and natural sciences.

November 1830: Accepted offer by prominent Detroiters to deliver a series of highly popular and successful public lectures in chemistry and natural history.

1831-32: Served as physician/botanist on Henry Rowe Schoolcraft's 1831 and 1832 expeditions in the Northwest Territory through the upper Great Lakes and to the headwaters of the Mississippi River. Inoculated hundreds of Native American Indians against the dreaded smallpox disease on these expeditions.

1832-36: Practicing physician in Detroit. Houghton, known as 'the little doctor' (5'-5" tall) was well liked.

1833: Marriage to Harriet Stevens of Fredonia, childhood friend and graduate of Fredonia Academy, in Detroit. They had two daughters: Hattie Douglass in 1838 and Mary in 1840.

1835: Temperance Society – Houghton was one of the founders in Detroit. Young Men's Society – Houghton organized this society in Detroit and served as the first President

1837: State Geologist – Houghton was appointed to this position by Governor Stevens T. Mason, in January 1837 when Michigan entered statehood. Houghton undertook and directed field surveys of Michigan in 1837, 1838, 1839 and 1840 with his assistants. The 1840 survey was done along the south shore of Lake Superior and Isle Royale in Michigan's Upper Peninsula. Houghton remained on this survey after his assistants had returned to southern Michigan, during which time he discovered and mapped additional native copper occurrences on the Keweenaw Peninsula including Eagle River. Upon his return he wrote his momentous report which led to the first major mining rush in the US and the development of the native copper deposits of the Keweenaw Peninsula also referred to as, 'Michigan's Copper Country'. The mining rush began immediately after the former Indian lands were transferred to the U.S. Government in March 1843 following the Treaty of La Pointe on Madeline Island in 1842. Over the next century and one half, this district produced 13.5 billion pounds of copper from hundreds of underground mines in what are now Keweenaw, Houghton and Ontonagon counties. This area now comprises the Keweenaw National Historic Park Calumet and Quincy districts and its 19 official cooperating Heritage Sites. Isle Royale is also a National Park with headquarters in Houghton, Michigan.

1842-43: Mayor of Detroit – Houghton was elected as the Mayor of Detroit for two one-year terms beginning in 1842 when he was still occupied with geological field duties.

1844-45: Federal Surveyor – Houghton's plans to combine the linear survey of Michigan with the Geological Survey were approved by the Federal Government which is first time this had been

done. Houghton was the Project Leader for this work in the western Upper Peninsula of Michigan in 1844 and 1845. The project was very successful and of great benefit to Michigan and the United States.

1844: Iron ore discovery – Under Houghton’s supervision, U.S. Deputy Surveyor William Austin Burt, discovered a massive cliff of iron ore in September of 1844 one mile south of the east end of Teal Lake in Marquette County, Michigan which eventually became the Jackson mine and later the City of Negaunee. Burt in 1836 had patented his revolutionary sun compass which enabled accurate land surveys to be made over magnetic terrain which is prevalent in many areas of the western UP. As a comparison, this invention in the first half of the 19th Century was as significant as global positioning system technology is today.

1845: Death – On October 13, 1845 while working on wrapping up the combined survey on the Keweenaw Peninsula, and under pressure to complete his contract on time, Houghton met with and left instructions with Sam Hill, one of his deputy surveyors some 5 miles west of Eagle River. Heading back the weather turned from mild with a gentle offshore breeze to a northwest gale and high seas. Houghton, at the helm, urged his voyageurs and passengers to continue rowing their Mackinac boat towards Eagle River. Too late, he told his crew to head for the shore over a rock reef near shore. The boat capsized in a towering wave. Houghton and his two passengers were lost. His crew of two mariners managed to make it to shore. Houghton’s water spaniel, Meeme, managed to swim to shore and survived. Houghton’s remains were found the next spring on the beach six miles from the drowning site near Eagle River. They are interred in Elmwood Cemetery in Detroit.

Additional Information – No photographs of Douglass Houghton exist. Alvah Bradish, his brother-in-law, and noted portrait painter of his time, painted one portrait of Houghton. After his death, Bradish painted several more portraits of Douglass Houghton using his earlier live portrait. Huge paintings of Houghton by Bradish show him at Pictured Rocks on the Lake Superior shore near Munising in his field garb with a rock hammer and with his favorite dog, Meeme at his feet. One is in the House of Representatives in the Michigan State Capital Building, another hangs in the Seaman Mineral Museum at Michigan Technological University in Houghton.

Probably the best illustration showing young Houghton in his natural element is the painting done by Robert A. Thom in 1965 for the Michigan Bell Telephone Company, “A History of Michigan in Paintings”. Here, Houghton is seen kneeling on the west bank of the Eagle River in Eagle River, Michigan with a rock hammer in his right hand critically examining a craggy, hand-sized native copper specimen in his left. His constant companion on field excursions, water spaniel, Meeme faces the viewers in this well-done rendition. This image could possibly be suitable for postage stamp use.

Sources: Rintala, Edsel K., (1934) Douglass Houghton – Michigan’s Pioneer Geologist, Wayne University Press, Detroit, 119 pgs.; Wallin, Helen (1966) Douglass Houghton – Michigan’s first State Geologist 1837-1845, updated in 1970, 1977, 2004 in Pamphlet 1, Geological and Land Management Division, MDEQ, Lansing, Michigan, 21 pgs.; Robert Thom’s 1965 painting of Douglass Houghton with a native copper specimen on Eagle River in 1840 and his Water Spaniel, Meeme.