



ON THE ROCKS



A Newsletter of the Michigan Basin Geological Society

2009-2010 Number 6

www.mbgs.org

February 2010

EVENTS

Wednesday, February 10th, 2010: MBGS's February meeting will be held at Michigan State University, Natural Science building at 7:00 pm, room 204. The speaker is Dave Huey from Kennecott Eagle Minerals Company (Rio Tinto), presenting "The Eagle Nickel-Copper Deposit and Mid-Continent Exploration, Marquette County, Michigan." Location information is included in the newsletter.

Notes from the editor

- MBGS and the Michigan Geological Repository for Research and Education (MGRRE) are co-sponsoring the 2010 AAPG Eastern Section Meeting in Kalamazoo, Michigan, September 26 – 28, 2010. Many great field trips are being planned as part of the meeting; details for the trips are included in this newsletter.
- Geologists tend to visit geological interesting places in their free time and MBGS would like to hear about it! The April meeting will be the annual BBQ held at Western Michigan University in the Michigan Geological Repository for Research and Education (MGREE) Building. The presentation following dinner will be an open forum entitled "How I Spent My Summer Vacation". Any member interested in sharing to the group information/pictures about a place of geological interest they may have visited, please contact Mike Olson (mo@abletech.com) to reserve your time slot. Time slots are approximately 10 minutes and are going fast, so reserve your spot today!



MEMBER 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

FIELD TRIPS

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MBGS has many field trips planned this year, some in conjunction with the 2010 AAPG Eastern Section Meeting. Below are early details, watch the upcoming newsletters and the web page for registration information.

Presented by Michigan Basin Geological Society

TITLE: Pennsylvanian Stratigraphy of Grand Ledge, Michigan
WHERE: Grand Ledge, Michigan
WHEN: Sunday, September 26, 2010 as part of the Eastern Section AAPG Annual Meeting
COST: To Be Determined.
LIMIT: 25 Participants. AAPG ES meeting registration is required.



This field excursion, a familiar outcrop for most Michigan basin-trained geologists, will allow participants the opportunity to view and discuss one of the only extensive natural exposures of Pennsylvanian Strata in Michigan. The trip will also include a brief core workshop (at the Fitzgerald Park outcrop site) using samples collected near Mason, MI, a site of surface-derived DNAPL contamination in these shallow bedrock aquifer strata. These Upper Paleozoic strata are also the youngest exposed pre-Pleistocene rocks in the Michigan Basin and are important bedrock aquifers in the Tri-county area of central Lower Michigan. New stratigraphic findings from shallow subsurface cores provide additional insights concerning stratigraphic relationships in this important upper-most portion of the Paleozoic succession in Michigan. Dr. Dave Barnes (WMU) and students are actively studying the sedimentology and stratigraphy of these important bedrock aquifer units and will lead the trip. Environmental geoscientists and hydrogeologists are especially encouraged to participate.

Presented by Michigan Basin Geological Society

TITLE: The F3 Salt of the Michigan Basin, Detroit Salt Company, Detroit, Michigan
WHERE: Detroit, Michigan
WHEN: Saturday, September 25, 2010 as part of the Eastern Section AAPG Annual Meeting
COST: To Be Determined.
LIMIT: 40 Participants. AAPG ES meeting registration is required.

This field excursion will allow participants a rare and unique opportunity to witness and discuss the F3 Bed in the Salina formation from the Late Silurian Period at a depth of approximately 1,160 feet below the metropolitan area Detroit. The Detroit Salt Company mine has mined rock salt since 1906 making it one of the oldest underground room-and-pillar mines in the United States still in production boasting over 100 miles of roads. The mine tour will be lead by E.Z. Manos, Mine Manager and Vice President of the Detroit Salt Company.

Presented by Michigan Basin Geological Society

TITLE: The Kentland Impact Structure, Indiana
WHERE: Kentland, IN
WHEN: Friday, September 24, 2010 as part of the Eastern Section AAPG Annual Meeting
AGE LIMIT: 18
COST: To Be Determined.
DRESS: Sturdy boots, comfortable field clothes, hat, sun glasses, sun block & raingear just in case.
EQUIPMENT: Sample bag with rock hammer optional. There should be plenty of shatter cones lying around for the picking.
LIMIT: 40 Participants. AAPG ES meeting registration is required.

This field excursion will allow participants the opportunity to examine the central uplift of a ~7km diameter impact structure with stratigraphy of 600m of vertical displacement from that surrounding the crater. Also, in addition to the ubiquitous shatter cones polymict breccia dikes, brittle quartz microstructures, and quartz planar deformation features are contained within the quarry. The mine tour will be lead by John C. Weber, Ph.D, Associate Professor of Geology at Grand Valley State University.

Presented by Michigan Basin Geological Society

TITLE: The Arkona Road Quarry
WHERE: Milan, Michigan
WHEN: April 2010, Date to be announced.
COST: To Be Determined.
LIMIT: 20 Participants.



This field excursion will allow participants an opportunity to discuss the Devonian geology at the Arkona Road (formerly Martin-Marietta Quarry) and to allow collection of noteworthy trilobites and brachiopods. The tour will be lead by Steven T. LoDuca, Professor of Geology, Department of Geography and Geology at Eastern Michigan University.



UPCOMING EVENTS

- **January 15th, 2010 - Ohio Geological Society, 12th Annual Winter Gala**, Ramada Plaza Hotel & Conference Center, Columbus Ohio, for more info contact Amy Lang, Amy.Lang@formanenergy.com or 614-717-9262, <http://www.ohgeosoc.org/>
- **March 2nd, 2010 – AIPG Section Meeting**, “The Detroit River International Crossing: A Precedent Setting Geotechnical and Geophysical Investigation to Evaluate Subsurface Geological Stability in an Area of Historical Solution Mining” by Craig R. Johnson, Nth Consultants. Location: University Center, Central Michigan University, Mt. Pleasant, Schedule: Cash Bar 5:30-6:30 pm, Dinner 6:30 pm, and speaker 7:30-9:00 pm. Cost: Student \$10.00, members \$35.00, non-members \$40.00. RSVP by February 26, 2010 to John Barkach at jbarkach@glec-tc.com or 248-489-0900, email is preferred, please include AIPG in subject line.
- **March 10th, 2010 – MBGS Monthly Meeting**, Uof M campus, Assistant Professor David Lund (U of M), Paleoclimatology – climate change – reconstructing the gulf stream during the Holocene
- **March 17-19, 2010 - OOGA Annual Meeting**, Hilton Easton, Columbus Ohio, www.ooga.org
- **April 14th, 2010 – MBGS Monthly Meeting**, Western Michigan Core Research Library, MBGS Annual BBQ meeting
- **May 11th, 2010 – Annual AIPG Golf Outing**, Lyon Oaks Golf Course, Wixom, Michigan, details are available at <http://mi.aipg.org/Golf/golf.htm>
- **September 11-15th, 2010 – 47th Annual AIPG National Meeting**, Orlando, Florida, details are available at www.aipg.org
- **September 26-28, 2010: AAPG Eastern Section Meeting**, sponsored by the Michigan Basin Geological Society and the Michigan Geological Repository for Research and Education. Contact Robb Gillespie for information via email at robb.gillespie@wmich.edu

2009-2010 MBGS Officers

The Executive Committee meeting minutes are available on our website at www.mbgs.org

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<http://www.mbgs.org/publications.html>

Prices include 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

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

- The Stratigraphy of Manitoulin Island, Ontario, Canada, June 19-20, 1954
- The Devonian and Silurian Rocks of Parts of Ontario, Canada and Western New York, June 22-23, 1951
- The Traverse Group of the Northern Part of the Southern Peninsula of Michigan, June 16-17, 1949
- Geology of Central Ontario, Canada, 1965
- The Devonian Strata of the London-Sarnia Area, Southwestern Ontario, Compiled by Erwin C. Stumm, Lewis B. Kellum and Jean Davies Wright, June 9-10, 1956
- The Ordovician Rocks of the Escanaba-Stonington Area, Led by R. C. Hussey , June 2-3, 1950
- The Niagara Escarpment of Peninsular Ontario, Canada, June 18-19, 1955
- Lower Paleozoic and Pleistocene Stratigraphy Across Central Wisconsin, Compiled by C. E. Prouty, Led by L. M. Cline, J. L. Hough and R. F. Black, 1960
- Classic Silurian Reefs of the Chicago Area, by Donald G. Mikulic and Joanne Kluessendorf , June 27, 1998

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

- Copper Country Field Trip, Michigan, June 20-22, 1947
- Geology of Mackinac Island and Lower and Middle Devonian, South of the Straits of Mackinac, June 12-14, 1959
- Tectonics, Structure and Karst in Northern Lower Michigan, August 1983
- Geology of the Pictured Rocks, Upper Peninsula, Michigan, July 11-13, 1991

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

- Pleistocene and Early Paleozoic of the Eastern Part of the Northern Peninsula of Michigan, June 18-21, 1948
- Stratigraphy and Structure of the Devonian Rocks in Southeastern MI and Northwestern OH, June 20-21, 1952
- Lower Ordovician and Upper Cambrian of Wisconsin , May 10-12, 1990
- Guidebook to the Precambrian Geology and Metallogeny of the Central Upper Peninsula of Michigan September 12-13, 1991

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

- Silurian Rocks of the Northern Peninsula of Michigan , 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 19-21, 1961
- Correlation Problems of the Cambrian and Ordovician Outcrops Areas, Northern Peninsula of Michigan 1967

- The Geology of Manitoulin Island, June 1968
- Devonian Strata of Alpena and Presque Isle Counties, Michigan, 1970

Historical CD #5: Five out-of-print publications from 1971, 1989, 2001, and Oil & Gas Fields Vol. 1 & 2, 1969 & 1992, 2006, \$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, 1989, 53 pp. by A. Kehew, L. J. Schmaltz, and W. T. Straw
- Geology of the Lake Erie Islands and Adjacent Shores, 1971, 65pp., maps, illus. by Jane L. Forsyth
- Glacial Geology of Southwestern Michigan, Landforms of the Lake Michigan Lobe, Southwestern Michigan, 2001
- AAPG Eastern Section Meeting Field Trip, 32 pp., maps, illus. by A. Kehew and A. Kozlowski

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.

- Guidebook for Ontario Geological Excursion to Kettle Point –Owen Sound – Waubaushene, June 21, 22, 23, 1946 by W. A. Roliff, C. S. Evans and J. F. Caley
- Guidebook for Ordovician Stratigraphy of the Cincinnati, Ohio and Richmond, Indiana Areas, June 12, 13, 1953 by W. H. Shideler and B. T. Sandefur
- Guidebook for the Stratigraphy of the Silurian Rocks in Western Ohio, May 31-June 2, 1963 by C. H. Summerson, Jane L. Forsyth, Karl V. Hoover and J. R. Ulteig
- Guidebook for Cambrian Stratigraphy in Western Wisconsin, May 21, 22, 1966 by Merideth E. Ostrom
- Geology of the Manitoulin Area, Special Papers #3, September 29, 30 and October 1, 1978 by J. T. Sanford and R. E. Mosher
- Middle Devonian Cratonic Carbonates and Shales in Southwestern Ontario, November 14, 1987 by Bruce Wilkinson
- The Richfield Challenge, A Review of the Richfield Developments in Michigan, 1952 by Gordon H. Hautan
- A Theory of Rogers City and Dundee Relationships in Central Michigan, Masters Thesis, 1947 by Tom Knapp

OTHER SPECIAL OFFERS

- **Historical CD Set - # 1 – 6 (detailed above) for a special purchase price of \$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 for publications and special offers 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, February 10th, 2010

**“The Eagle Nickel-Copper Deposit and Mid-Continent Exploration
Marquette County, Michigan”**

Presented by: David Huey, Kennecott Eagle Minerals Company (Rio Tinto)

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

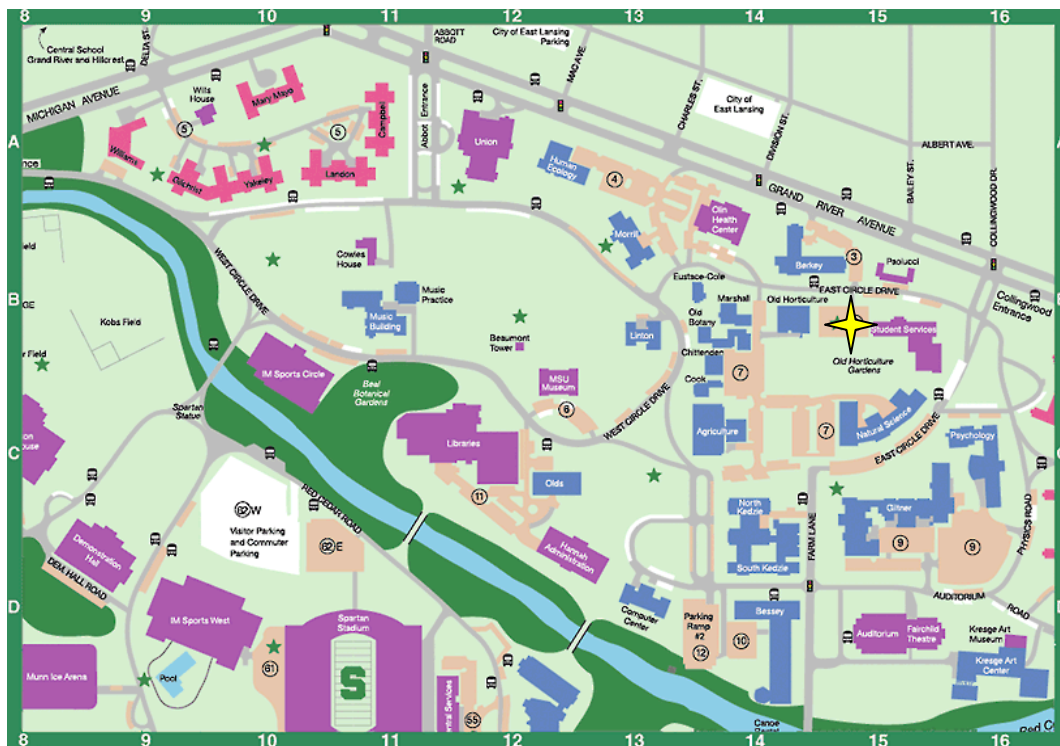
Refreshments will be provided after the talk in the Natural Science Building room 207

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

Dave Huey is an Exploration Geologist for Kennecott Eagle Minerals Company (Rio Tinto) working on the Eagle Project in the Upper Peninsula of Michigan. Prior to working on the Eagle Project, Dave served at a number of positions within the environmental consulting, drilling, and real estate fields working throughout Michigan and the Midwest.

He received a Bachelor of Science Degree from Western Michigan University in 2004 and is currently working on a Masters of Engineering (Mining Engineering) at Missouri University of Science & Technology (Rolla).

Abstract

The Eagle Nickel-Copper Deposit and Mid-Continent Exploration Marquette County, Michigan

Kennecott's discovery of the Eagle nickel-copper deposit in 2002 marked the culmination of more than a decade of exploration work by Kennecott in the Baraga Paleoproterozoic sedimentary basin. The discovery hole, YD02-02 completed in July 2002, intersected 84.2m of massive sulfide mineralization averaging 6.3% Ni and 4.0% Cu. The resource estimate for the Eagle deposit at start of 2005 was 4.1 million tonnes at 3.57% Ni, 2.91% Cu and 0.1% Co with minor Au and PGE credits.

Increasing demand for metals in today's world, the highly prospective geology of the Lake Superior region, and discovery of the high grade Eagle deposit (and others) lead to the formation of the Mid Continent Exploration program. At least four other exploration companies are currently working in the Upper Peninsula today.

Dave will host a presentation covering the Eagle Project and his company's further exploration efforts in the central-western Upper Peninsula. Mining methods, ore grades, and area geology will be discussed along with information regarding a proposed ballot initiative that would seriously (and detrimentally) affect resource extraction in Michigan.