



ON THE ROCKS



A Newsletter of the Michigan Basin Geological Society

2007-2008 Number 7

www.mbgs.org

March 2008

EVENTS

March 12, 2008: MBGS meeting will be at Michigan State University, Natural Science Building at 7:00 pm. The speaker is Dr. David Barnes presenting “**Addressing Climate Change through Carbon Capture and Geological Storage in Michigan**”. See talk details and location information below.

March 20, 2008: Michigan Geological Repository for Research and Education, Geosciences Department, Western Michigan University and the Michigan Oil and Gas Association jointly presents a one-day workshop with exhibitors focusing on “**Michigan Field Experiences—Focus on the Trenton-Black River**”. **March 20, 2008 from 7:30am to 4:30pm at the Soaring Eagle Inn (formerly the Holiday Inn), Mt. Pleasant, Michigan.** Itinerary and registration form are included in the newsletter.

April 9, 2008: MBGS Annual BBQ will be hosted at Western Michigan University Core Lab—details will be provided in the April Newsletter – but mark it on your calendars today.

Upcoming field trips:

Exciting field trips are currently being planned for 2008 and 2009. Pack your rock hammers and plan on joining us. Details of the May and August 2008 trips are included in this newsletter.

Niagara Gorge, Niagara Falls, NY, May 2-4, 2008 – Itinerary Included in Newsletter

Friday: Buffalo Geological Society’s Annual Banquet

Saturday: Hike into gorge and view power plant road cut to discuss Niagaran Stratigraphy

Sunday: Hike into 18 Mile Creek to review Devonian stratigraphy

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 of 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.

Yellowstone National Park, WY – Planned for 2009. We are requesting recommendations for leaders and lecturers for this trip.

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

Wednesday, March 12, 2008

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

Topic: “Addressing Climate Change through Carbon Capture and Geological Storage in Michigan”

By: **Dr. David Barnes**
Western Michigan University

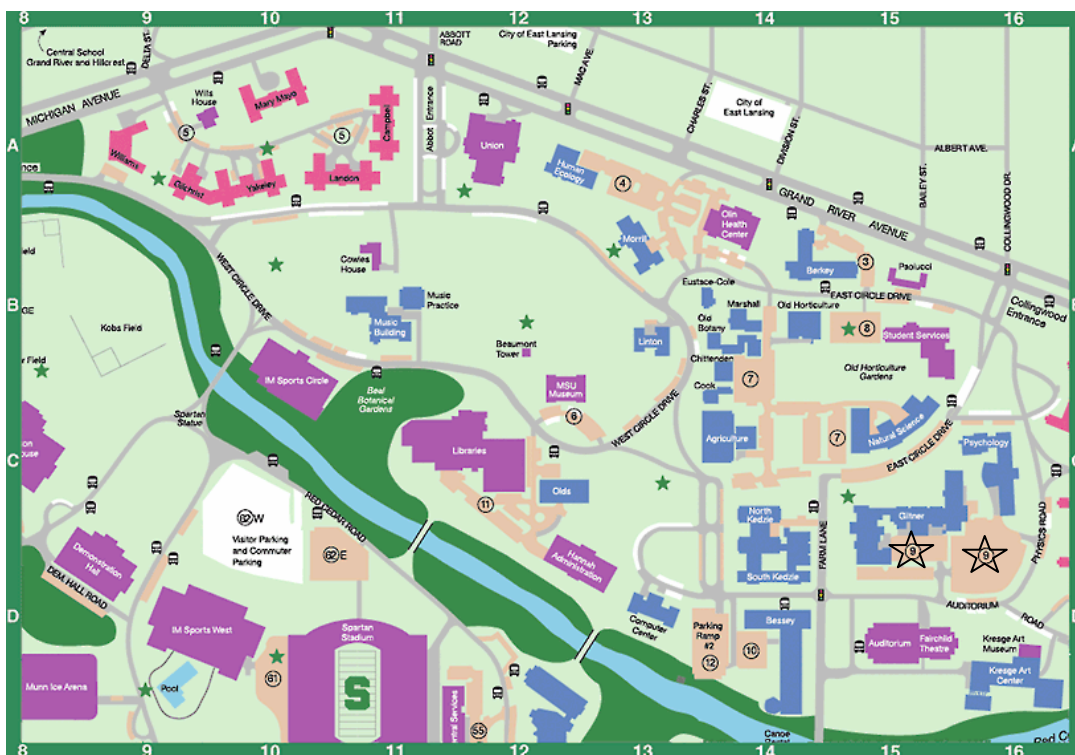
Dave Barnes has been a Geosciences Professor at Western Michigan University since 1986. He received his graduate training at the University of California, Santa Barbara, and worked in the Petroleum Industry in the early 1980's. He specializes in sedimentary rocks in the Michigan subsurface (and a few other things). He is interested and very active in addressing climate change issues through Green House Gas Emissions mitigation using Carbon Capture and Geological Storage Technology. We can do it here!

Executive meeting starting at 4:30 PM at Claddagh’s Irish Pub in the Eastwood Towne Center in Lansing, Michigan. Please contact Thomas Godbold if you have any questions.

Thomas Godbold
P.O. Box 30256
Lansing, MI 48909-7756
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E-mail:godboldt@michigan.gov

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.



Michigan PTTC Satellite at the
Michigan Geological Repository for Research and Education,
Geosciences Department, Western Michigan University
and the



MICHIGAN OIL AND GAS ASSOCIATION

Jointly present

**Michigan Field Experiences—
Focus on the Trenton-Black River**

A one-day workshop with Exhibitors

March 20, 2008, 7:30am to 4:30pm

At the Soaring Eagle Inn (formerly the Holiday Inn), Mt. Pleasant, Michigan

Program:

7:30-8:20—Registration, continental breakfast, time to visit exhibitors

8:20-8:30—Welcome

8:30-9:00—Jennifer Jennings and Mark Snow, Michigan Department of Environmental Quality (MDEQ), Office of Geological Survey, Permits and Bonding Unit, will discuss current work to update drilling unit maps and other spatial information. Using Geographic Information Systems (GIS), paper maps of the past are converted to computerized format, making this information and other industry data easily and efficiently accessible. Jennings received her BA and MA in geology from the State University of NY at Buffalo. She previously managed waste at the General Motors facilities in Michigan. Snow earned his BS in geology from Michigan State University; past work includes land surveying and environmental consulting. Each has been at the MDEQ for two years.

9:00-9:30—Warren Baumann, petroleum geologist, will use field data to show methods of locating and producing behind pipe reserves in abandoned Devonian fields such as the Isabella 18 Field. High product prices warrant testing and producing once uneconomical pay zones and reopening shut in reserves. Warren holds a BS and MS from the University of Wisconsin-Milwaukee in geology and geophysics. He began his career in 1980 with UNOCAL, in West Texas. Warren has worked for several large independents in Michigan since 1981 and became an independent consultant 8 years ago.

9:30-10:00—Michael Mesbergen, engineer, Muskegon Development Company and **Timothy Maness**, geologist, Maness Petroleum Corp., will discuss the geologic and production characteristics of the Berea Sandstone in Williams Field, Bay and Midland counties. Muskegon produced excellent results with its water flood in the southern end of the field and Summit Petroleum has recently formed a unit to flood the northern end. Tim will illustrate the geologic controls on trapping and reservoir extent, while Mike will detail the engineering of Muskegon's water flood and production response. Mike received a BS in chemical engineering from Michigan Technological University in 1974 and has worked as a production engineer for Muskegon Development Company since 1993. Tim has geology degrees from Lake Superior State and the University of Kansas and has worked the Michigan Basin for over 20 years.

10:00-10:30—Break

10:30-11:00—John D. Collins will present high-rate/high-volume fracture stimulation at Sterling Field, Arenac County. This field has been on production for decades from the Traverse, Dundee, Richfield, and Sour Zone. In 2007, Northshore drilled three new wells at Sterling. Two wells were completed in the Richfield and Sour Zones through multiple sets of limited-entry perforations. They were fracture stimulated at high injection rates with 9,000-10,000 bbls. of slick water combined with sand proppant. After testing, these wells are now successfully on production. John received his BS in petroleum engineering from Mississippi State University in 1978 and was with Unocal for 27 years, working on the Gulf Coast. He joined Northshore Petroleum LLC in 2006 as vice president of engineering. Co-author **Mark W. Andreason** received his BS and MS in geology from the University of Texas--Austin in 1985. After 5 years at the Texas Bureau of Economic Geology and 16 years at Unocal,

Mark founded Northshore Petroleum, LLC in 2006 to focus on exploration and development in the Michigan Basin. He is the company's CEO and EVP Exploration.

11:00-11:30—Pierre Collee, petroleum engineer, will present a typical application for frac and well design combined with microseismic. Pierre will discuss techniques and procedures to monitor fracture geometry live. This creates the opportunity to modify the frac job while pumping. Successive pumping can then be modified for size and/or rate to reflect actual measured conditions. Case studies will illustrate the effectiveness of Halliburton's ExactFrac technology. Pierre received his BS from the School of Mines and MS in engineering from Liege University. Formerly he worked with TotalFina and Baker Hughes in reservoir characterization and asset management using complex and horizontal drilling and completion technologies, including stimulation. He is the product manager for microseismic at Halliburton.

11:30-12:00—Allen Modroo, Geophysicist-Exploration Manager, Core Energy LLC, will present examples of "flower structures." He believes these features can be building blocks for reef growth and allow hydrothermal fluid movement and hence "saddle dolomite" throughout the Michigan Basin in Devonian through Ordovician or older strata. Results of recent drilling on these 3D seismic-defined targets will be presented as well as Allen's thoughts on additional dolomitized targets within the Basin. Allen graduated in 1975 with a BS in geology from Michigan Technological University and has over 33 years experience in oil and gas, holding positions in exploration and consulting throughout the United States and Canada. He helped form M&M Exploration Partners, a local exploration company, and is now a partner-manager with Core Energy LLC.

12:00-1:15—Buffet lunch, time to visit exhibitors

1:15-1:45—John Clark, Corona Resources, LLC, and **Lee Kurtzweil**, Bay Geophysical, Inc., will discuss 3-D seismic design, logistical considerations, and applications. This technology has been widely used in the past fifteen years to substantially increase success rates in exploration. John received his BS in geophysics from Colorado School of Mines in 1976 and has 31 years experience in oil and gas and shallow seismic. He has worked throughout the continental US and Gulf Coast. Lee has been involved with 3D seismic acquisition and design since the early 1980's and has over 25 years experience in seismic exploration and is the president of Bay Geophysical.

1:45-2:15—G. Michael Grammer, Associate Professor, Department of Geosciences, WMU, and principal at Michigan Geological Repository for Research and Education (MGRRE), will discuss recent research activities that have focused on the reservoir characterization of Niagaran pinnacle reefs and the application of sequence stratigraphic principles to better understand Trenton and Black River production in Albion-Scipio. He received his PhD at the University of Miami, FL and specializes in the application of high resolution sequence stratigraphy to enhance production of carbonate reservoirs. He has been an AAPG Distinguished Lecturer, has led several AAPG field courses and has published extensively on carbonate reservoir characterization issues, including as lead editor of AAPG Memoir 80 "Integration of Outcrop and Modern Analogs in Reservoir Modeling", winner of the R.H. Dott Sr. Memorial Award from AAPG as the best special publication published in 2005. His industry-related experience includes senior research positions with Texaco and ChevronTexaco working carbonate reservoir characterization issues in various parts of the world, most notably with super-giant fields in the former Soviet Union.

2:15-2:45—Chuck Knox, Geologist and Historian with St. Joe Valley Exploration will discuss the world's first giant oil and gas field, the Lima-Indiana. Producing from the Trenton Formation, the 1884 discovery well was drilled in Findlay Ohio. Two years later, the field extended to Kokomo Indiana. By 1910 the field was largely abandoned. This is the field that provided Standard Oil of Indiana with the crude to become the largest refining and producing company of the era. Here industry pioneers including Edward Orton, A. J. Phinney and I.C. White formulated modern theories on the origin of petroleum and natural gas, the dolomitization of limestone as a reservoir, and the separation of natural gas, oil and water in the reservoir due to their specific gravity. Documentation from more than 100,000 successfully completed wells provides a legacy of great value to geologists working the Trenton today.

2:45-3:00—Break

3:00-3:40—Taury Smith, New York State Oil and Gas Geologist and head of the Reservoir Characterization Group at the New York State Museum, will discuss the origin of Trenton-Black River hydrothermal dolomite reservoirs. Taury will discuss the structural setting, results of geochemical and fluid inclusion analysis, and the process and timing of hydrothermal dolomitization. Taury received his B.S. in Geology from Temple University and his Ph.D. from Virginia Tech where he worked on Chesterian sequence stratigraphy of the Illinois Basin with Fred Read. Graham Davies and Taury Smith recently published a paper on hydrothermal dolomitization in AAPG Bulletin that won Wallace Pratt Award for best paper published in AAPG Bulletin in 2006. The same paper

also received the Medal of Merit from the CSPG for the best paper published on the Petroleum Geology of Canada.

3:40-4:10—S. Parker Gay, Jr., Applied Geophysics, Inc., Salt Lake City, Utah, will discuss the control of basement faulting on Black River-Trenton oil and gas production in Michigan, New York, and West Virginia. First he will emphasize the importance of basement fault control on later geological events in general - a new field of structural geology called "reactivation tectonics." He will show the basement faults under the Albion-Scipio field that can be seen on magnetic maps subjected to modern processing techniques - faults whose existence was hypothesized by geologist Garland Ells in 1962. An important Black River-Trenton field in W. Virginia, the Cottontree gas field, and its relation to basement faults will be discussed, and a brief look will be taken at some of the New York state Black River-Trenton production. Gay graduated from MIT with a degree in geology and received his MS in geophysics at Stanford University. He worked many years as a mining geologist/geophysicist prior to switching to the oil industry in 1982, where he has subsequently gathered hundreds of examples of basement fault control on later faulting and stratigraphy in the sedimentary section.

4:10-4:30—William B. Harrison, Professor Emeritus, and Director of the Michigan Basin Core Research Laboratory, will describe Trenton-Black River cores, samples and data archived at the Lab, part of the Michigan Geological Repository for

Research and Education (MGRRE) at WMU. These samples and data are significant resources that can help in exploration and development of new and existing T-BR reservoirs. For many of the 56 Michigan T-BR cores archived in-house, MGRRE also has thin sections, porosity and permeability analyses and other analytical/engineering well data. These cored wells include wildcats and producers from 5 different fields. We also have individual lease production data for the first four years in the Albion-Scipio field. Several sets of historic scout tickets, drillers' reports and wireline logs are on-site. From the lower two tiers of counties, we have mounted drill cuttings and well sample sets from nearly 600 wells. Hundreds of mudlogs and chromatographic cuttings analyses, gas chemistry, bottom hole pressure and temperature data complete this exhaustive data set. Bill is also a principal at MGRRE and has authored dozens of papers on Michigan geology during the last 30+ years.

Workshop fee: For early registrations, paid by March 10: \$145 for MOGA members and \$179 for non-MOGA members. For all registrations received after March 10, it's \$179. That includes the continental breakfast, lunch, refreshments, and your workbook.

Sorry, we can't "save" seats without payment.

Booth fee: \$300 and that includes one person who can also attend the workshop.

Cancellations: We'll refund in full for cancellations received by March 10. After that, we'll refund if a paid participant takes your place.

For engineers and others who need verification of PDH hours: At the end of the workshop, you will get a certificate with a printed schedule showing to 6 PDH credits.

Location: Soaring Eagle Inn (formerly the Holiday Inn), 5665 E. Pickard Road, Mt. Pleasant, MI 48858. For rooms, call (800) 292-8891, and ask for PTTC rates. Maps at <http://www.hiresort.com/M-Maps.htm>

To register with a credit card by phone, please call Kathy Wright at (269) 387-5486 or Linda Harrison at (269) 387-8633. To register by e-mail, contact linda.harrison@wmich.edu.

To register by street mail or fax, please use the form on the next page. Our FAX number is: (269) 387-5513.

Workshop Registration Form

Michigan Field Experiences—Focus on the Trenton-Black River

March 20, 2008, 7:30am to 4:30pm

Soaring Eagle Inn (formerly the Holiday Inn), Mt. Pleasant, Michigan

NAME _____ (For your name tag)

Second registrant _____ (For name tag)

COMPANY _____

STREET OR MAILING ADDRESS _____

CITY _____ **STATE** _____ **ZIP** _____

PHONE _____ **E-MAIL** _____

(Please print e-mail)

Engineers: Do you need a PDH certificate? _____

_____ **Reserve a booth**

Workshop fee: For early registrations, paid by March 10: \$145 for MOGA members and \$179 for non-MOGA members. For all registrations received after March 10, it's \$179. That includes the continental breakfast, lunch, refreshments, and your workbook.

Sorry, we can't "save" seats without payment.

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Cancellations: We'll refund in full for cancellations received by March 10. After that, we'll refund if a paid participant takes your place.

How are you paying? (Please check one payment type)

____ **By Credit Card:** (please circle one card type) **Visa** **MasterCard ***

Card No. _____ Exp. Date _____

*Sorry, we can't take Discover or American Express.

PLEASE NOTE: Your credit card will show the charge was made by Western Michigan University.

____ **By check**—made payable to “WMU Geosciences Department” and mail it to:

Workshop--Harrison
Geosciences Department
Western Michigan University
Kalamazoo, MI 49008-5241

A GEOLOGICAL FIELD EXCURSION

Sponsored by
Michigan Basin Geological Society
and Buffalo Geological Society

STRATIGRAPHY OF THE NIAGARAN GORGE AND EASTERN LAKE ERIE SHORELINE

Where: Holiday Inn, Buffalo-Amherst, 1881 Niagara Falls Blvd., Amherst NY. A block of rooms has been set aside for the MBGS. Call 1-716-691-8181 to make your own reservation.

When: Friday, May 2nd, Saturday May 3rd and Sunday May 4th.

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

Cost: To be determined.

Recommendations: Hiking down into and return up the gorge along unpaved trails and paths may be strenuous at times. Leather hiking boots or lightweight hikers providing ankle support are recommended. Rain gear is suggested if inclement weather.

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, April 18th.

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

Your Responsibilities: Costs for room Friday and Saturday nights, transportation (we will assist in arranging carpooling), all meals other than Saturday lunch.

Friday Night Banquet and Lecture: The Buffalo Geological Society's Annual Banquet takes place on Friday, May 2nd at the Holiday Inn Buffalo-Amherst. The participants are invited to join their function. Attached is the banquet registration form and lecture announcement. Please join the banquet and lecture.

Trip Leaders: At this time we have the interest of Dr. Carlton Brett, University of Cincinnati and Dr. Gordon Baird, SUNY @ Fredonia to lead the trip along with some of their students both on Saturday and Sunday. Biography on the leaders will be provided in the April newsletter.

Saturday - Niagara Gorge: The trip will start at the Earl W. Brydges Art Park where trails enter the Niagara River gorge. Lunch will be provided at the park for the MBGS participants. The section to be viewed is the Clinton and Medina Groups of Silurian Age consisting primarily of sandstone, shale and marine limestone. Additional stops may be organized. The stops are subject to change.

Sunday - 18 Mile Creek: 18 Mile Creek offers a view of the Middle and Upper Devonian section along the shores of western Lake Erie (Moscow and Ludlowville Formations). The soft shales are known for being highly fossiliferous containing trilobites, gastropods, corals, crinoids, brachiopods, pelecypods and cephalopods.

**BUFFALO GEOLOGICAL SOCIETY
ANNUAL BANQUET**

FRIDAY, MAY 2, 2008

THE HOLIDAY INN, 1881 NIAGARA FALLS BLVD.
AMHERST (BUFFALO), NEW YORK

Cost: \$20.00 PER PERSON 6:30 PM CASH BAR 7:00PM DINNER

Mark your calendars now for an enjoyable evening of good food with good friends at the BGS Annual Banquet and installation of officers.

The cost of the banquet is \$20.00 per person. Reservations and payment must be made no later than April 18, 2008

Name: _____

Address: _____

Payment can be made at any regular meeting or by check. Make checks payable to:

Buffalo Geological Society

Mail payment and form to: **Judy A. Russell, 719 Edgewater Drive, Amherst, New York 14228**

Please plan on bringing items to donate for use as door prizes at the banquet. Thank you.

PLEASE NOTE: Payment must be made in advance, as we have to guarantee the number that will be attending.

Speaker will be Dr. Rick Batt, who will present:

**"Fire Mountains, Flowing Ice, and Catastrophic Floods:
a wander through the Pacific Northwest"**

Join us as Dr. Rick Batt shows us some of the scenery and geology of the Pacific Northwest. Last summer Rick and Robin made a 10,500 mile road-trip to explore a part of the US known for its magnificent scenery and complex geology. After visiting national parks in North Dakota, Montana, and Wyoming on the way out west, they explored parts of Idaho, Washington, Oregon, and northern California before returning home through the Black Hills and Badlands of South Dakota. Highlights of interest include the effects of glaciers, evidence for giant catastrophic floods in the Channeled Scablands and southern Idaho, a visit to the deepest canyon in the United States, and of course some of the several active volcanoes of the Cascade Range, including Mt. St. Helens that erupted in 1980 and is still active today.

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.