Winter 2012 *Promoting public interest and educational support in the geological sciences* Volume 66, No. 4

The Geological Society of Minnesota News

Volunteer opportunities, field trips, lectures, and public service, since 1938

GSM Dates to remember:

November 26 — Lecture - Seeing Through the Mud

December 8 — Winter Board Meeting and Pot Luck Party

January 28 — Lecture - 75 years of Mn Environment

February 11 — Lecture - Aggregate Resources of Minnesota

February 15 — Spring 2013 newsletter

Dig It - At the Bell Museum! Starting November 10th!

Did you know... there are more living organisms in a shovel full of soil than human beings on Earth? Below your very feet lies a world of soil that for most people, is a mystery. Yet, the complex and variable mixture of minerals, air, water, decaying items and countless living organisms that make up soil, sustain virtually every form of life on Earth. Dig It! The Secrets of Soil takes visitors of all ages into the world of soil, answering questions about what it is and why it is so important to life on Earth. Soils are alive. They are born, they breathe, they age. Soils are everywhere. See for yourself - starting November 10!

http://www.bellmuseum.umn.edu/ForAdults/Exhibits/DigIt/index.htm

Upcoming Dig It! Events: Gallery Conversation with Prof. Terence Cooper; Thursday, December 6, 5:30 p.m., Free with museum admission.

Stop by the museum for the first gallery conversation in the Bell's latest exhibit, Dig It! The Secrets of Soil Gallery conversations offer an interactive and intimate tour experience of the exhibit. This evening, visitors will begin to look at soils in a a whole new way. **Professor Terence H. Cooper** in the University of Minnesota's Dept. of Soil, Water, and Climate has been teaching soils for 37 years, including teaching beginning soils, field study of soils and coaching the UM Soil Judging Team. He will discuss the importance of understanding soils in our everyday lives and how soil is a critical natural resource.

Upper photograph: GSM field trip to Minnehaha Falls, July 12, 1942

Inside this issue:

from the archives: A visit to the stone tower, Elk Mound, Wisconsin on a GSM Field Trip to Chippewa Falls, WI, August 1939.

GSM News

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Editors: Katy Paul and Harvey Thorleifson

The Geological Society of Minnesota is a 501(c) 3 nonprofit organization. The purpose of this newsletter is to inform members and friends of activities of interest to the Geological Society of Minnesota.

Send all GSM membership dues, change of address cards, and renewals to:
Joanie Furlong
GSM Membership Chair
P.O. Box 390555
Edina, MN 55439-0555

Membership dues are: $10 Full-time students; $20 Individuals; $30 Families

GSM News is published four times a year: **February 15, May 15, August 15, and November 15**. Deadline for article submission is the first of the month, before the date of publication.

Send all material to:
Katy Paul
keystone517@hotmail.com

New Members!

Coral Berge	St. Paul
David R. Eckmann	St. Paul
Pollie Evans & Brian Rongitsch	Menomonie WI
Mark & Deborah Favorite	Minneapolis
Judy Jones & Family	Bloomington
Joan Knuttila	Lakeville
Bonnie Myers	Winona
Paul Ness	Winona
Patrick Ryan	St. Paul
George Savanick	Apple Valley
Joe Samuelson	Stillwater
Myrlah Olson	Stillwater
Joel Renner	Inver Grove Heights

FROM THE PRESIDENT'S DESK

We are well into fall and old man winter is closing in, but that does not faze this group. There are still many things to do, with the annual holiday party on Dec 8th, and before that some more great lectures. This is also a wonderful time of year to get out and see the beauty of the geological structures around the state and locally without being obstructed by leaves. Plus no crowds! Fossil hunting can be fun and very productive at this time of year.

To this point we have had some wonderful lectures. The one on Fracking sand (A Hot Topic) was great; and Seeing through the Mud; and The past 75 years of the Minnesota Environment, promise to be interesting as well.

Don't forget that 2013 is our 75th Anniversary year. Thank you Steve for that reminder.

As an added note—if you have not updated your membership **NOW is the time!!** Don't forget about the rock boxes… Christmas is just around the corner.

Looking forward to see everyone at the lectures and the potluck. Have a great late fall and winter!

Roger Benepe, GSM President

Walking in the Felsenmeer valley

Blue Hills Felsenmeer Natural Area, Rusk County, Wisconsin

GSM FIELD TRIP

September 22, 2012

Contributed by Dave Wilhelm

On September 22, 2012, Professor Kent Syverson led a field trip organized through University of Wisconsin Eau Claire to the Blue Hills Felsenmeer Natural Area in Rusk County, WI. About eight GSM members participated in the trip. This unique area has been studied by Dr. Syverson and his undergraduate geology students in the past seven years.

The trip started with a one-hour hike from the parking lot through fairly typical Wisconsin terrain shaped by the glaciers. It was a cool and somewhat damp morning, but the broadleaf trees were in the early stages of their fall colors, making for a very pleasant, scenic, and bug-free walk. The Natural Area is somewhat unusual in that it is completely unmarked; you need to know which branches to take in the walking trail to find it. It is unmarked to avoid drawing too much attention to it.

When we arrived at the Blue Hills Felsenmeer, we saw a feature dramatically different from the surrounding forested countryside. It is a steep valley 80 feet deep and 1000 feet long. It is completely lined with large angular quartzite boulders. Boulder diameters range from 4 inches to 3 feet and average around one foot. The valley walls slope at ~ 25 degrees. We enjoyed lunch from the rim of the valley looking in.

After lunch, Dr. Syverson led us to the open east end of the valley, from where we could explore the formation up close. Except for many lichens and ferns, there is no vegetation in the valley, except for a single valiant birch tree in the center of the trough at

the east end. (Dr. Syverson warned that whoever might harm that tree would have to answer to the "Felsenmeer Mafia".) Exploration of the valley took great care, both due to the large, jagged boulders and the fact that a light rain fell for a short while as we entered the valley. Walking on just two legs was strongly discouraged. Instead, we were told to scramble or "spider walk" with a least one hand always on the rocks to maintain balance.

The studies done by Dr. Syverson and his students tried to answer two questions, which research he shared with us as the day progressed (after suitable suspense):

1. What carved the valley? An abundant supply of energetic water was necessary to incise the Blue Hills Felsenmeer valley into the erosion-resistant quartzite. At present, there is essentially no drainage into the valley to account for any erosion. Their studies concluded that the glaciers were thick enough to supply the massive meltwater runoff needed to cut the valley. Although the valley could have formed by erosion under the glacier, no evidence they found requires such an explanation.

2. Is the Blue Hills Felsenmeer a true felsenmeer? The term felsenmeer comes from the German meaning 'sea of rock'. In a felsenmeer, freeze-thaw weathering breaks up the top layer of the rock, covering the underlying rock formation with jagged, angular boulders. However, a felsenmeer forms in place, on a fairly level surface; the material is not transported. The steep slopes of the Blue Hills Felsenmeer and the partial sorting of the rocks indicate that the rocks tumbled down after frost shattered them, so the formation is actually a talus, not a felsenmeer. (But would "Blue Hills Talus" sound nearly so exotic?)

GREAT JOB DONE BY ALL AT THE STATE FAIR!

Photo submitted by Judy Hamilton

Such positive feedback from the crowds, despite the hot weather and busy Holiday!

Again this year, we were successful, while educating young and old at our booth; we also gained new members.

Many thanks to our Volunteers - they should know that they have contributed a great deal!

Sandy Steffner
State Fair Chair

Frack Sand Conference

On October 1-3, 2012, a conference on the silica sand resources of Minnesota and Wisconsin in Brooklyn Park MN, sponsored by the SME Twin Cities Subsection and the Precambrian Research Center at UMD, attracted over 350 participants. Over a dozen expert speakers comprehensively covered the topic, from geology to environmental protection. The Day Three field trip was delayed an hour as police required a fire truck to enable protesters to come down from the roof of one of the buses.

http://www.d.umn.edu/prc/workshops/SSworkshop.html

Geological Society of Minnesota

GSM WINTER SOCIAL EVENT
and
GSM BOARD MEETING AT 2:30 PM

Saturday December 8, 2012

Arrive and enjoy Hor d'oeuvres between 2:30 and 4:00pm; Buffet Potluck about 5:00pm

To be held at :

Sandy & Ed Steffner's home
9619 Briar Circle
Bloomington, MN 55437
952-831-5165

Please bring a food item to share as this is a Pot Luck Party. Punch, coffee, and soft drinks will be provided. To avoid too much of any item, please call or e-mail Sandy Steffner at:
ssteffner41@gmail.com
with what you plan to bring: salad, appetizer, dessert, hot dish or other. This is an invitation for all present board members, previous board members and officers, and all active members to attend the GSM Board of Directors meeting and the Pot Luck Party.

Directions to the Steffners' : Hwy 100 turns into Normandale south of 494. Head south on Normandale to 94th Street. Turn right onto 94th and take the first left onto Briar Rd. Continue to 96th Street (T in the road & at pond). Turn left onto 96th towards cul de sacs up on the left. Turn left into Briar Circle with our house being the first on the right. Hyland Place is the cul de sac on the right-behind us. OR - 35W South to 98th Street. West till you cross Normandale and make first right onto Briar Road - to 96th St (T in road) and make a right and then left onto our circle.) WATCH FOR WHITE BALLOONS.

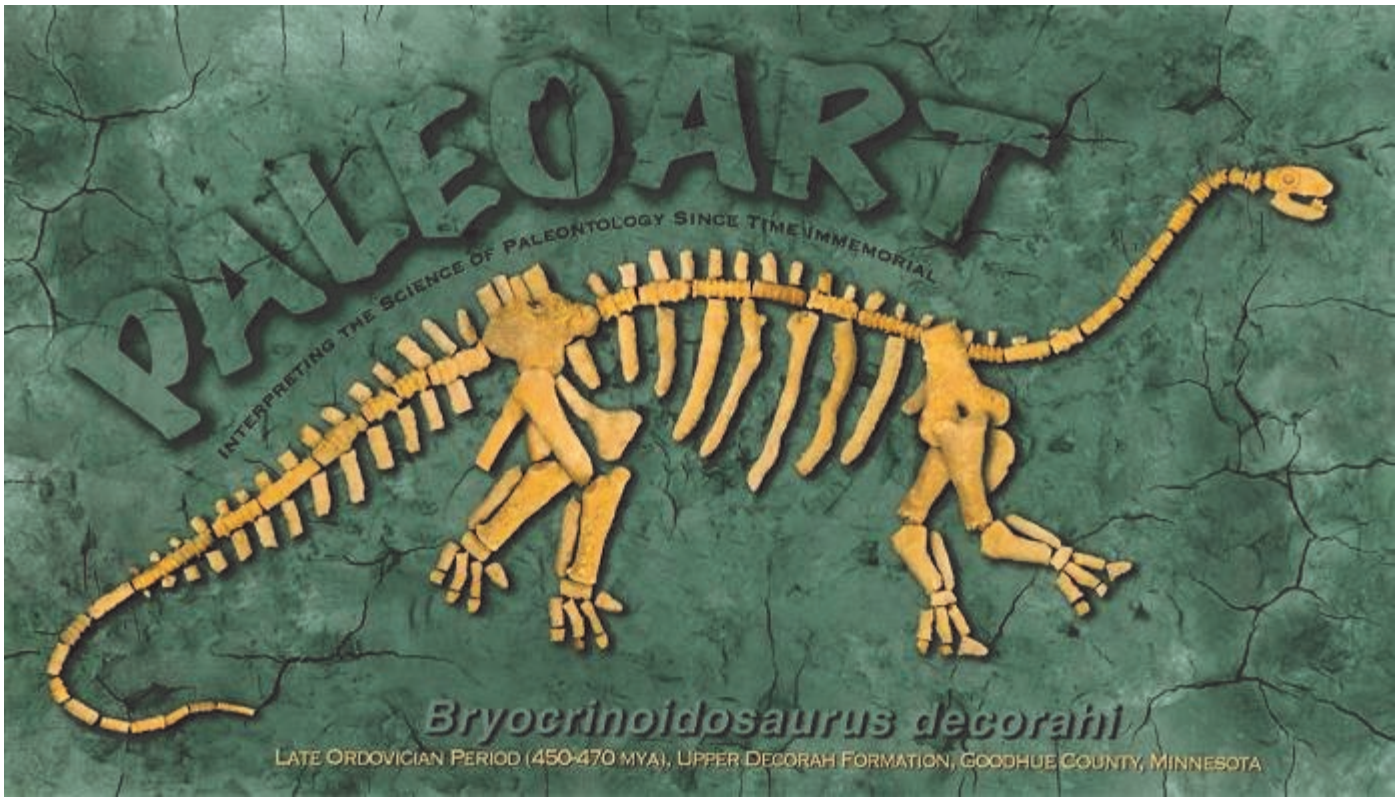
Midwest Ground Water Conference

The 57th Annual Midwest Ground Water Conference was held at the Earle Brown Heritage Center in early October. The conference provides an opportunity for hydrogeologists, geologists, engineers, students and others studying ground water resources to meet and exchange ideas that affect the Midwest and to summarize results of field and laboratory studies. This meeting took the place of the customary twice-per-year Minnesota Ground Water Association (MGWA) conference.

http://www.mwgwc.org/

Betty McCollum, Minnesota 4th District Congresswoman, was honored in Washington, DC, September 12, with the USGS Coalition's Leadership Award for her support of scientific programs within the United States Geological Survey. "We are pleased to recognize Representatives LaTourette and McCollum for their sustained efforts to champion the scientific programs of the United States Geological Survey. Their leadership in Congress has helped increase awareness of the USGS," stated Dr. Robert Gropp, chair of the USGS Coalition and director of public policy at the American Institute of Biological Sciences. Harvey Thorleifson, President of the Association of American State Geologists (AASG), presented McCollum with the award. Read more about McCollum's award at her official website.

From: University of Minnesota, Water Resources Center



Congratulations to GSM member **Mark Ryan** of Minneapolis, winner of first place in the adult category of the National Fossil Day 2012 Art Contest, put on by the National Park Service. Entries were judged by experts from museums and paleontology organizations in the Washington D.C. area. Mark created the above poster showing a dinosaur skeleton made out of invertebrate fossils found in Cannon Falls, MN. Well done, Mark!

National Fossil Day is a celebration organized by the National Park Service to promote public awareness and stewardship of fossils, as well as to foster a greater appreciation of their scientific and educational values. There even is a National Fossil Day Song!

National Fossil Day celebrates fossils as clues for understanding the history of life, past climates, and ancient landscapes; stresses that fossils are non -renewable resources in need of preservation; highlights the science-based management of fossils on public lands; encourages paleontologists to participate in outreach; establishes partnerships to promote the scientific and educational values of fossils; and promotes the paleontological resources, programs, services, and expertise of the National Park Service.

Mark your calendars — the next National Fossil Day is October 16th, 2013! Find out more at: http://nature.nps.gov/geology/nationalfossilday/art_contest_2012_results.cfm

Geologist inducted into Minnesota High Tech Association (MHTA) Hall of Fame

At a November 1st gala awards dinner at the Minneapolis Convention Center led by MHTA President Margaret Anderson Kelliher, Newton Horace Winchell (represented by Harvey Thorleifson) was inducted into the MHTA Hall of Fame. In 1972, Winchell founded what became the U of MN geology department, the Minnesota Geological Survey, and the Bell Museum. A great man in Minnesota history, and Custer's geologist in the Black Hills, he is Governor Dayton's uncle and is commemorated by a boulder monument at the Franklin Ave. Bridge adjacent to the Winchell Trail along the river bluff.

A family's visit to the North Dakota oil patch

By Lisa Peters

Last July my family and I traveled to Williston, North Dakota – the town at the heart of the latest oil boom. It was a crazy place. In the mornings, oilfield trucks rumbled away from the motel parking lots, at noon Halliburton employees filled the cafes, and at night natural gas flares punctuated the prairie sky.

The trucks carried everything from portable homes for workers to dismantled drill rigs. It took me a week to identify the fracking trucks. They looked a little like Bugs Bunny's carrot machine – a dense, mysterious thicket of pipes and instruments – on wheels.

Oil has a long, frustrating history in North Dakota because the money formations are deep -- two miles beneath the surface, and the oil is locked up in tight layers. But two new technologies – horizontal drilling and hydraulic fracturing – have turned things upside down. Today every horizontal, fracked oil well in western North Dakota pumps oil and plenty of it.

My family booked Williston motel rooms five months before our trip because the oil companies reserve many of the hotels completely. My husband and brother claimed they wanted to stay in the man camps – bare-bones living quarters for oil workers – but that was mostly just man talk.

Our motel, as it turned out, was sketchy enough. For well over $100 a night, this is what we got: a hairdryer that fell off the wall, a bathroom door that didn't close, a radio that didn't work, and hallway carpeting with a long trail of something that looked like slug slime. But, to the motel's credit, the Wi-Fi signal was great and the coffee was OK.

I stayed on after my family left and during my week in Williston, I visited a drill site. The 'geologist' on site wasn't actually a geologist, but he had been trained to guide the horizontal drilling through the 28-foot thick Middle Bakken formation. It didn't appear to be an easy task. He had to monitor four computer screens showing the steady, real-time record of drilling progress. The drill crew was expecting to finish soon, and after that the well would be fracked by a different crew.

My family also visited an oil well on land my grandfather used to farm. One of the oil company's workers was on-site checking instruments, so we corralled him for a tour. He told us the pumps bring up more than oil; they also bring up brackish water and natural gas. He showed us where the water and gas were separated from the oil. Some of the gas was flared off, and that was typical -- there aren't enough pipelines in the area.

Some of the longtime residents resent the disruption of their quiet lives; others are more accepting. I found a correlation – not perfect, but nearly so – between a person's status as a mineral rights owner and their attitude about the boom: if they're getting oil royalties, they tend to accept the chaos; if they aren't, they don't.

News in Geoscience Education from Carleton College

Cathryn Manduca, Director of the Carleton College Science Education Research Center (SERC) has co-authored **Earth and Mind II**, a geology textbook that explores the distinctive ways geoscientists perceive, analyze, and explain the workings of the earth system. The book addresses topics such as thinking about space, time, natural systems, and the importance of fieldwork for teaching and learning. Manduca and her co-editor, Kim Kastens, say that the goal in writing the book was to reach the next generation with new methods and clearer information. "Our ability as a society to deal effectively with these problems depends on raising a next generation of citizens, scientists, and decision makers who can think more insightfully about Earth and environment than did their parents and grandparents." The book is available now in the Geological Society of America (GSA) Bookstore at http://rock.geosociety.org/Bookstore/. As Director of SERC, Manduca and her team work on a variety of projects that support improvements in undergraduate education and geoscience education, including organizing workshops for faculty, developing web resources, and researching learning by geoscientists.

2012 140th Anniversary wrapping up!

On March 1, 1872 the Minnesota legislature approved an Act to provide for a geological and natural history survey of the state. And so were born the University of Minnesota Department of Geology, the Minnesota Geological Survey, and the Bell Museum.

Happy 140th Anniversary!

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