



GEOLOGICAL
SOCIETY OF
MINNESOTA

NEWS

FALL 2007
VOL. LXI, NO. 4
<http://www.gsmn.org>

CONTENTS:

Last Call - Renewals!	page 1
Adopt a Library	page 1
UNESCO Photo contest	page 3
Superior trails book review	page 6
New board member	page 6

**Adopt a library!
Distribute GSM brochures**

Are you a regular or even occasional user of your local library? Or even know where it is and pass by it now and then?

If so, GSM needs you!

The process is simple—sign up on the GSM list with your name and that of your local library. Then just pick up a packet of the new GSM brochures at a seminar, and place the brochures in the literature rack at your library.

Check on them periodically, and when the supply gets low, take some more and restock the rack. These brochures will help get the word out about the great programs that GSM puts on, and we hope they will encourage more people to join.

If you frequent more than one library branch location, you may sign up to adopt more than one.

Note: We are testing two different brochure designs, so be sure to take the ones for your area—either north metro or south metro, with 1-394 / 1-94 / Mississippi River being the approximate dividing line.

Also, your comments and suggestions about these brochures are welcome.

—Thank you!

**Membership Renewal - Last
Call**

If you have renewed, your mailing label will read "October 2008."

If you have not already done so, now is the time to renew to avoid interruption in your membership benefits.

A membership/renewal form is printed on page 7 for your convenience.

Lecture Schedule Reminder

Please note: The Jan. 28 lecture will be "Search for Diamonds in Minnesota" with Harvey Thorliefson from the Minnesota Geological Survey.

ANNOUNCEMENTS

Field trips are being planned for this spring, summer and fall, and the seminars, lab topics and speakers for next season will be penciled in on Sat., Jan. 26, 2008 at 10:00 a.m. Please contact any board member about location details if you would like to attend and participate in this meeting, or to pass along ideas.

Next board meeting:

Sat. Feb. 26, 2008 at 10:00 a.m.

GSM NEWS Editor: **Kathy Ahlers**
(763) 789-7143
ahler002[at]umn.edu

The purpose of this newsletter is to inform members and friends of the activities of the Geological Society of Minnesota. GSM NEWS is published four times a year: February 15, May 15, August 15, and November 15. GSM NEWS welcomes unsolicited Geology and Earth Science related articles (best: 300 words, up to 500 words long) and photographs.

Deadline for article submission is three weeks before the date of publication. Contact the editor if you have something to submit.

OUT-GOING OFFICERS:

Janet Hopper, President
Ly Preece, Vice President
Randy Strobel, Secretary
Ed Steffner, Treasurer

Directors in addition to the officers listed above are: Kate Hintz, Gerry Paul, Sandy Steffner, Joan Furlong, and Kathy Ahlers. New officers will be selected in at the next board meeting.

Send all GSM membership dues, change-of-address cards, and renewals to:

Geological Society of Minnesota
P.O. Box 390555
Edina, MN 55439-0555

Membership levels are:

\$10 Full-time students
\$20 Individuals
\$30 Families

website: <http://www.gsmn.org>

Additional donations are always appreciated!
GSM is a 501(c)3 nonprofit organization.

FROM THE PRESIDENT'S DESK

My term is up. The year has gone by very quickly. Now it will be Ly Preece's turn to head this group.

It is amazing to me that this organization is starting its 70th year. The board hopes that this will be a year of reassessing our purpose and rededicating ourselves to furthering the study of geology. Stay tuned for more on that in the new year.

I would like to thank this year's board and a few of the other active members for all their hard work. Katy Paul has cleaned up an enormous mess as the membership chair. Ed Steffner has done a lot of work keeping the books up to date. He and Sandy have opened their house to host numerous board meetings and parties. Randy Strobel has managed the video library very well and has taken exceptional notes of board meetings. Kathy Ahlers has done an exceptional job as the newsletter editor. Joan Furlong, Gerry Paul and Ly Preece have been invaluable additions to the board.

In addition I would like to thank several people without whom this club would cease to function: Doug Zbikowski heads the outreach committee and keeps the club looking outward. Steve Erickson organizes the lecture series. Bill Robbins quietly goes about making sure that everything that needs to get done, gets done, including organizing outstanding field trips. And Tom Schoenecker somehow organizes people and details so that our State Fair booth is successful.

See you at lectures in the new year.

--Janet Hopper ♦

Editorship Changing Hands

Thank you to everyone who has sent in articles and photographs over the last two years. It has been a pleasure to get to know you. Please continue to send your contributions to our new editor, long-time GSM member Judy Hamilton, as she takes on the editorial responsibilities for the newsletter. Judy's e-mail is [hamfrog\[at\]aol\[dot\]com](mailto:hamfrog[at]aol[dot]com).
--Kathy Ahlers

Welcome, new Geological Society of Minnesota members!

A hearty welcome to members who have joined this year:

Janine Atchison
Mark Bishop -Niagara Cave
Michael J. Bonsignore
David and Barbara Broberg
Eric Bunge
Tracy Ann Champagne
Thomas Cody
Michael Coleman
Stan & Karla Collins
Paul Corts
Dale Gunderson
Katherine and Ted Hullsiek
Jill and Doug Kurkowski
William Bruce Nelson
Joe Newburg
Alan Potter
Tom and Sandy Sakry
Leonard Sojka
Gabriel Stockinger & Emily Jekot
Adam Wilson
Carole R. Wyman

GSM is a 501(c)3 nonprofit organization. Paid memberships in GSM allow everyone to attend our seminars and labs free of charge even though we incur costs in providing honoraria to our speakers and presenters.

Membership dues also support the substantial fees associated with our annual State Fair outreach booth, informational brochures, newsletters, classroom presentations, and other educational activities throughout the year.

Thank you for your support! ♦

UNESCO Photo Contest for Youth: "The Changing Face of the Earth"

Deadline for Submissions:
January 31, 2008

UNESCO's International Geoscience Programme (IGCP) is sponsoring a photo contest on the theme of "The Changing Face of the Earth" to raise awareness among youth about the state of the planet. The competition is open to 15-20 year-olds around the world and there are 40 prizes to be won.

Each contestant is invited to submit a single color photo depicting her or his personal testimony of the Earth's rapidly changing landscape in a positive or negative way. The photo should illustrate one of the ten themes from the International Year of Planet Earth (see list). Photos may portray rural or urban scenes and should depict changes to the landscape caused by natural phenomena or resulting from human intervention.

Each of the winning contestants will receive a copy of two UNESCO books: *Explaining the Earth* and *The Changing Face of the Earth*. The names of the 40 winning contestants will be announced in the April 2008 issue of *A World of Science* and on UNESCO's science portal.

For more information, go to:
www.unesco.org/science/photo_contest_entry_details.shtml ♦

New board member

Dick Bottenberg has joined the GSM board of directors. Welcome, Dick!

Bacteria-killing clay added to modern natural-remedy arsenal

Gowned, and with her hair wrapped in a towel, the woman reclines. Her face—with the exception of the eyes—is smeared with a fine green mud. As the wet clay dries, it draws impurities from the skin. And when the dried clay is washed away, it takes with it the layer of dead skin cells from the surface, creating temporary rejuvenation.

Long used for cosmetic purposes, some French green clay has now been found by scientists to have true healing uses.

French clay that kills several kinds of disease-causing bacteria is at the forefront of new research into age-old, nearly forgotten, but surprisingly potent cures. Among the malevolent bacteria that a French clay has been shown to fight is a "flesh-eating" bug (*M. ulcerans*) on the rise in Africa and methicillin-resistant *Staphylococcus aureus* (MRSA), which was blamed for the recent deaths of two children in Virginia and Mississippi. "There are very compelling reports of clay treating infections, but that's anecdotal evidence, not science," said Lynda Williams, an associate research professor in the School of Earth and Space Exploration at ArizonaStateUniversity. Williams is coordinating three teams of U.S. researchers (at ASU, USGS, and SUNY-Buffalo) studying healing clays under a two-year, \$440,000 grant from the National Institutes of Health-National Center for Complementary and Alternative Medicine. Her ASU colleague, Shelley Haydel, is lending her expertise in clinical medicine to perform the microbiological research.

For thousands of years, people have used clay to heal wounds, soothe indigestion, and kill intestinal worms. Though the practice has declined in modern times, the recent rise of drug-resistant germs has scientists looking more closely at these

ancient remedies to learn exactly what they can do and how they do it.

"We're beginning to generate the first scientific evidence of why some minerals might kill bacterial organisms and others might not," said Williams.

In laboratory tests at ASU's Biodesign Institute, Haydel, an assistant professor in the School of Life Sciences, showed that one clay killed bacteria responsible for many human illnesses, including: *Staphylococcus aureus*, methicillin-resistant *S. aureus* (MRSA), penicillin-resistant *S. aureus* (PRSA), and pathogenic *Escherichia coli* (*E. coli*).

It also killed *Mycobacterium ulcerans*, a germ related to leprosy and tuberculosis that causes the flesh-eating disease Buruli ulcer. This effect was first described in 2002, by Line Brunet de Coursou, a French humanitarian working in the Ivory Coast, Africa, who cured Buruli ulcers with daily applications of French clay she knew from childhood. Currently, advanced cases of Buruli ulcer can only be cured by surgical excision or amputation.

The new medicinal clay research was presented this fall at the Geological Society of America annual meeting in Denver. In the same session, there was a related presentation describing the work 100 years ago of Julius Stumpf, a German physician and scientist who used white clay from Germany to treat a deadly form of Asian cholera; diphtheria; gangrene; ulcers of the tibia; and the skin disease eczema.

Adapted from:
Infection Control Magazine 10/25/2007
"Drugstore in the Dirt: French Clay Found to Fight Certain Bacteria." ♦

Carbon Dioxide Underground Storage Feasible Using "Off-the- Shelf" Technology from Oil Industry

AUSTIN, Texas—Despite the sobering amount of carbon dioxide needing storage to reduce greenhouse gases, funneling the offensive chemical underground remains technologically possible for the oil industry, says Dr. Steven Bryant, associate professor of petroleum and geosystems engineering at The University of Texas at Austin.

His feasibility study proving the capability and documenting the technical requirements for storing carbon dioxide underground, as well as the parallels to current processes within the oil industry, appears in the September issue of the **Journal of Petroleum Technology**.

"The oil industry has decades of experience moving large amounts of gas underground and above ground," Bryant said. "In fact, capturing carbon dioxide from fixed sources, such as coal-fired and gas-fired power plants, and injecting it into geological formations mimics many of the processes already undertaken to produce fossil fuels."

Few other industries deal with fluid volumes of this size, he said. The industry could respond with an 'off-the-shelf' geological-storage service in a short time—a key advantage given the urgency of the problem.

"This is not to dismiss the very real difficulty of finding and developing the financial and human resources for such an enterprise, nor of building the necessary infrastructure," he said.

Now in his fourth year of investigating the key physical processes associated with sequestering carbon dioxide, Bryant has found that injecting carbon dioxide into formations deep within the Earth's crust is one of the few technologies that can be implemented rapidly enough and at a large-enough scale to mitigate greenhouse gas emissions. He directs the Geologic CO₂ Storage Joint Industry Project in the Center for Petroleum and Geosystems Engineering.

Bryant's research was featured in the Special Report on Carbon Dioxide Capture and Storage

released by the Intergovernmental Panel on Climate Change in spring 2007. The panel highlighted his findings for the "inject low and let rise" strategy of maximizing the secure, long-term immobilization of stored carbon dioxide.

"But doing this is going to require society—industry, government, consumers—to make a tremendous investment of resources, both financial and human," he said. "This challenge motivates the current goals of our Joint Industry Project: to train a new breed of carbon management engineers' to design, construct, operate, optimize and regulate large-scale carbon dioxide sequestration projects, and to carry out research that makes this technology as cost-effective and routine as possible."

Nevertheless, Bryant remains realistic about the prospects for his industry to create clean air.

"The public perception of the 'fairness' of the industry's role in geologic storage may distort or even overwhelm a rational evaluation of the challenges," he noted in the report. "Although it provides more than half of the energy needed to fuel the global economy, the oil and gas industry has never garnered much public sympathy for its efforts. Ironically, being uniquely qualified to help save the planet may not improve the industry's image."

Bryant holds the George H. Fancher Centennial Teaching Fellowship in Petroleum Engineering. His paper appeared as part of the Distinguished Author Series of the *Journal of Petroleum Technology*.

For more information contact: Becky Rische,
Cockrell School of Engineering, 412-471-7272.

Reprinted from:

<http://www.utexas.edu/news/2007/09/25/engineering/>

Reader commentary is welcomed on this and other issues covered in this newsletter. Please consider writing an opinion piece if you feel strongly about an issue.

--Ed.

Book Review

Walking Guide to the Superior Hiking Trail; Natural History, Scenery and Other Trail Features

by Ron Morton and Judy Gibbs.
Rockflower Press, 2006

Reviewed by Joan Furlong

I guess you could say the wind blew me to find Ron Morton and Judy Gibbs' book "Walking Guide to the Superior Hiking Trail".

During October of 2007, we were to take the vessel *Voyageur II* from Grand Portage to Isle Royale. However, seven-foot waves prevented the crossing until the next day.

We ended up at The Superior Trading Post in Grand Marais bumming around. We found this book and our day was planned for us.

Ron is a geology professor at University of Minnesota in Duluth. Judy is a naturalist and educator. In their book they break the trail up into 32 sections. As you stroll along, they point out highlights of the trail. Their descriptions include the geology encountered along the trail.

We did the Brule River hike, about which they write, "The rhyolite lava flow, pale red in color due to trace amounts of the iron oxide mineral *hematite*, contains small crystals of tabular-shaped, cream colored feldspar (4-7%) and square to round glassy quartz (2-5%). The rock is pitted where the feldspar has weathered out. The rhyolite has a hackly or rough-textured weathered surface and is called the Devil's Kettle Rhyolite." The book gave an understanding of the area which really enhanced the day.

Rockflower Press now has a second book out, "From Gooseberry Falls to Grand Portage, A Walking Guide to Minnesota's North Shore State Parks", published 2007. This also is available at most local book stores along with REI and most of the state parks. I'm sure we will get that one too. Happy Trails! ♦

Geology Town Hall Meeting

All GSM members are invited to the first Geology Town Hall Meeting. Date of the meeting is still being finalized, but will be a half day in the early spring.

Also invited are all people connected with geology in their work or recreational lives:

- Consulting engineers
- Interested laypeople
- College instructors and professors
- Undergrad and graduate college students
- Earth science teachers
- Other physical science teachers (physics, chemistry)
- Elementary school teachers
- Science museum personnel
- Rock climbers
- Volkssport participants/hikers
- Stone carvers/sculptors
- Geocachers
- Miners/prospectors
- Spelunkers (cave explorers)
- Meteorologists
- Astronomers/planetary scientists
- Survey members (USGS, Minnesota Survey)
- State agency personnel (lands, waters, education, travel and tourism, etc.)
- Members of rock and mineral clubs
- Scout leaders
- Anyone who has been to Antarctica
- Naturalists
- Environmentalists
- 3M employees
- Deep-ocean explorers
- Members of nonprofits connected with geology

We will come together to explore ways in which we all might collaborate to raise public awareness about geology in Minnesota, and to use geology as a gateway science to engage young people in the excitement of scientific exploration and discovery. Light refreshments are planned for during breaks.

Outcomes will depend on the attendees and the ideas generated.

U of M Geology Dept. Seminars

Most Thursdays during the school year at 3:30 p.m., the University of Minnesota geology department hosts a free seminar in Room 210 Pillsbury Hall on the East Bank campus. Often quite technical in nature, these seminars represent the cutting edge of one or another portion of the science. However, an educated layperson can get something out of it. (The discussion session that follows also can be quite informative.)

E-mail Sharon Kressler in the department to be put on the e-mail notification list. Details for 2008 seminars were not finalized as this newsletter went to press.
kress004[at]umn[dot]edu



GUATEMALA CITY, Guatemala - A 330-foot-deep sinkhole killed at least two teenagers as it swallowed about a dozen homes in September and forced the evacuation of nearly 1,000 people in a crowded Guatemala City neighborhood. Officials blamed the sinkhole on recent rains and an underground sewage flow from a ruptured main.
<http://www.ordena.com/digg/sinkhole.html>
(suggested by Roger Knutson)

Geological Society of Minnesota
P.O. Box 390555
Edina MN 55439-0555

Membership Renewal - October 1, 2007 to September 30, 2008

\$10 Student

\$20 Individual

\$30 Family

\$50 Sustaining

\$100 Supporting

\$250+ Guarantor

NAME(s) _____
(as you would like it/them to appear in the GSM Directory)

ADDRESS _____

PHONE () _____ E-Mail _____

Watch for an e-mail invitation to attend the...

GEOLOGY TOWN HALL MEETING 2008
organized by the Geological Society of Minnesota
(GSM)

How might all of us involved with geology here in Minnesota join together to
promote science learning?

Are there any new ventures that GSM is uniquely situated to
lead/organize/coordinate?

Gather your ideas!

A Saturday afternoon this spring (date not finalized at press time)
1 - 4:00 p.m. with light refreshments on breaks
Metropolitan State University
St. Paul Campus (see more info on page 6)



Geological Society of MN
P.O. Box 390555
Edina, MN 55439-0555



FIRST CLASS MAIL

Harvey Thorleifson
Minnesota Geological Survey
2642 University Ave. W
St. Paul, MN 55114-1057

55114-1057 0001

