



News

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



GSM President, Dave Wilhelm

From the President's Desk...

Greetings, fellow members of GSM. Fall has arrived, and so has our lecture season. As I write this in mid-October before leaving for Rome & Sicily, we have already had three excellent lectures, including the Fall Banquet and Annual Meeting in September at U Garden Restaurant. Average attendance for those three was 96, with about 10 new attendees at each. So we are off to a great start. Thank you, **Steve Erickson**, for putting together another excellent program. As we approach winter, please review our lecture cancellation policy on the GSM web site. Let's hope this winter is far different than last, so we don't need to cancel or postpone any lectures.

Our field trip program for 2018 has pretty much ended, although I will schedule another tour of St. Anthony Falls Lab this fall if there is sufficient interest. Our last two field trips were fossil hunting near Rockford, Iowa, led by GSM members **Roger Benepe and Steve Willging**; and walking tours of downtown St. Paul, led by members **Steve Erickson, Kate Clover, and Roger Benepe**. Thanks to all these leaders for sharing your expertise with us. Look for articles elsewhere in this issue on both of these trips. You can find a summary of our full field trip schedule for 2018 (and many prior years) on our web site. Currently, we have no specific field trip plans for 2019, but rest assured that we will plan some. Please e-mail me or speak to me with any suggestions you might have.

September marks the start of our fiscal and membership years. We have already had a great number of renewals; thank you, as your membership dues are what make the lecture series and other GSM programs possible. If you have not already renewed, see Membership Chair **Joanie Furlong** or Treasurer **Dave Kelso** during one of our lectures. Or follow instructions on the web site for renewing by mail.

Have a great winter. I look forward to seeing many of you at our lectures.

Dave Wilhelm

Inside this issue:

Presidents message	1
Board Membership and New Members	2
Holiday Gathering	2
Member Spotlight	2
Notes from the Past	3
Walking Tour St. Paul	3
Mineral Club Show	5
Iowa Fossil Field Trip	5
Annual Banquet	6
State Fair thank you	7
Membership Form	8

[Visit us on Facebook!](#)



from the GSM archives:
Mesabi Iron Range, Fayal Mine, Eveleth, Mn., 1939



GSM

Officers:

- Dave Wilhelm, President
- Deborah Naffziger, Vice President
- Dave Kelso, Treasurer
- Dave Kelso, Secretary

Board Members: Dick Bottenberg; Kate Clover, Dan Japuntich, John Jensen; Theresa Tweet, Joe Newberg

Editors: Theresa Tweet; Mark Ryan; Harvey Thorleifson; Rich Lively

Programs/Lectures/Labs: Steve Erickson

State Fair: Dan Japuntich

Newsletter: Theresa Tweet/Mark Ryan

Video Library: David Wilhelm

Webmaster: Alan Smith

Membership: Joanie Furlong

Field Trip Coordinator: David Wilhelm

GSM Outreach: Joel Renner and Theresa Tweet

Geological Markers: Rebecca Galkiewicz

Lecture Recording: Joe Wright

Web Site: gsmn.org

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.

Please note the GSM change of address:

Send all GSM membership dues, change of address cards, and renewals to: Joanie Furlong, GSM Membership Chair, P.O. Box 141065, Minneapolis, MN 55414-6065; Membership dues are: \$10 Full-time students; \$20 Individuals; \$30 Families
GSM News is published four times a Year during the months of February, May, August and November. Deadline for article submission is the first of the month, before the date of publication. Newsletter contributions welcomed.

Newsletter contributions welcomed

Of interest to our GSM enthusiasts: While out and about enjoying your vacation time – when you visit a site that you find interesting, please consider sharing your experiences with us by writing up a few words and sending it to Theresa Tweet at phoenix8185@gmail.com. Thank you in advance!

New GSM Members!

Adam Poferi, South St. Paul

- Anne Briese, Burnsville
- Carolyn Sampson, Minneapolis
- Karen Mosso, St. Paul
- Gary Lorenz, Apple Valley
- P. Jane Stauffer, St. Paul
- Robert Randall Hall, St. Paul
- Nancy Rand, Minneapolis
- David Ondich, Minneapolis
- Gregory Beckstrom, Minneapolis
- Chris Cordes, Lutsen
- Rod Leas, Minneapolis

GSM Board Membership

The GSM Board consists of members who have a special interest in advancing the goals of our society, including lectures, field trips, and community outreach. The Board currently has nine members. Our bylaws limit the terms of Board members to four years, to encourage a turnover of perspectives and ideas. The Board typically meets quarterly, on the second Thursdays of February, May, August, and November, or a different date if conflicts arise. We typically meet from 7 to 9 PM at the Minnesota Geological Survey at 2609 W Territorial Rd, St. Paul MN 55114.

Board meetings are open to all members of GSM. So, whether you are a new member of GSM or have been a member for many years, if Board membership is something that might interest you, or you are just curious to see what our Board does and how it works, we encourage you to attend a meeting. And, if you have a topic you would like the Board to consider, please contact Theresa Tweet at phoenix8185@gmail.com.

****2018 GSM Holiday Gathering****

Ed and Sandy Steffner will again be opening their doors to the GSM clan. The Steffners will welcome guests on Saturday, December 8th, at 3:30 PM for appetizers, and 5 PM for Pot Luck Dinner; for food plans and the address please contact Sandy at ssteffner41@gmail.com

**Member Spotlight;
Mary Helen Inskeep**

1. How long have you been a GSM member? I have been a GSM member since the Fall of 2010.

2. How did you get interested in geology? I've been interested in geology

(and especially in mineralogy) at least since I was 12. I started collecting small mineral specimens about then.

3. What do you dig about the GSM? I especially "dig": A.--the lectures, for their myriad interesting topics and convenient location, and B.--the opportunity to go on field trips, especially to places I wouldn't be able to reach on my own since I don't drive a car or do rough camping.



Mary Helen Inskip

Notes from the Past

The following appeared in the Winter 1993 edition of GSM News

Dinosaurs' Dawning

By Dwight Robinson

University of Chicago paleontologist Paul Sereno is one lucky fellow. In 1988, he stumbled onto the remains of one of the earliest dinosaurs while "mining" the badlands of Argentina for bones. This creature, dubbed *Herrerasaurus*, was a true theropod sporting a double-hinged jaw lined with large sharp teeth (to accommodate prey otherwise too large to swallow.) It was a prototype of the line that would end in *Tyrannosaurus rex* some 150 million years later. At 10 to 20 feet in length and 400 pounds, these creatures were probably quite assertive for their day.

Then along came *Eoraptor* or "dawn stealer" discovered less than a mile from *Herrerasaurus*. They were probably contemporaries but *Eoraptor* was only dog-sized and lacked flexible jaws, although in tooth and claw, it was every bit a carnivore. With such neighbors as *Herrerasaurus* lurking about, it very likely made up with speed and stealth what it lacked in size and flexible jaws. Sereno noted, "We're just a few steps away from the common ancestor of all the dinosaurs." These finds from some 230 million years ago support theories that the earliest true dinosaurs were small, carnivorous bipeds that could outrun, outmaneuver, "outtherapsid" and "outthecodont" most of the competition.

Walking Tour:

Minnesota Geology and Cultural History through Saint Paul Architecture

With snow falling on October 21, 32 hearty geology enthusiasts set out to explore the building stone in St. Paul's downtown. They were not disappointed! They saw a handful of the buildings constructed from stone quarried in Minnesota and learned how the building stones tell the cultural history of the city as well as the geological story of the region. Tours were led by Steve Erickson, Roger Benepe and Kate Clover.

The earliest building stone used in Saint Paul was the Platteville Limestone; it is the only naturally occurring building stone in Ramsey County. In the early days, it was quarried on the building site. Once the railroads were laid in the 1860s, granite, sandstone and dolomitic limestone (Kasota stone) plus Morton gneiss became options for building materials, both as structural and façade stone. These were also "fire resistant" materials that the city required following devastating fires that destroyed wood-framed buildings in the 1850s.

Here, we will mention just a few of the outstanding examples where Minnesota rocks are used as a building stone.

Platteville Limestone:

The oldest buildings we see in Saint Paul today were built from the Platteville limestone. The stone was abundant and was quarried onsite or nearby as downtown city streets were trenched to lay sewer and gas lines and then graded.

Between 1858 and 1865, the biggest quarries were located on Robert Street near 6th and 9th, then near Minnesota Street near 10th.

They all provided stone for nearby buildings. All the quarries produced lots of rubble too; this was crushed and used for fill and roadbeds. The basements of many old buildings also were built of the Platteville.

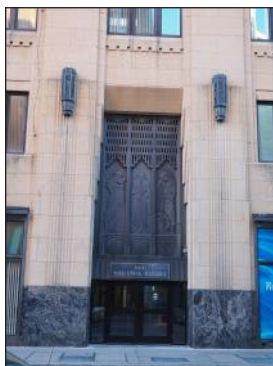


The Assumption Church on 7th Street dates to 1871. The limestone for this building was likely quarried on site and the stone is more precisely cut into blocks. Buildings of this style resembled others from that era.



The Original Coney Island on St. Peter Street is two, side-by-side buildings that date to 1858 and 1888. The fronts on both are now faced with brick, but the sidewall shows the original limestone. This building illustrates and preserves the scale of buildings from this era.

The Platteville stone is hard, gray in color and rough in texture and splits along bedding planes; however, it doesn't always shape into neat blocks.



The original Northern States Power Company (1937), now EcoLab, on the corner of 5th and Wabasha Streets, is clad with two beautiful Minnesota stones, Morton gneiss at the base and golden Kasota Stone

Other notable Platteville limestone structures include Fort Snelling (1820) and the Pillsbury A Mill (1881).

Dolomitic Limestone:

Kasota Stone (also known as Mankato Stone) is dolomitic limestone and is found in southeastern Minnesota along the Minnesota River near Mankato and Owatonna. It is yellow-pink to buff or fawn in color and has a uniform fine-grained texture that allows it to be cut into blocks or carved into decorative forms. It is used both as a structural and facing stone. Magnesium within the rock

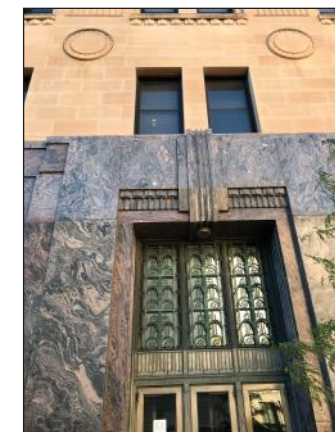
makes it more resistant to weathering than limestone. The first quarry opened in Mankato in 1858. After the

railroads were built, this stone was widely used. Quarrying operations continue today, and the stone is shipped worldwide

Morton Gneiss:

Morton gneiss is garish with pink and white swirls, elongated black blobs of amphibole minerals and large feldspar crystal. It looks fluid and dynamic, and is some of the oldest rock on earth at about 3.5 billion years old.

Its formation is complex. The gneiss is a metamorphic rock formed by intense pressure and temperatures deep underground. It began as gray granite, cooled slowly and later collided with a red granite. The two granites twisted and folded under intense temperature and pressure and slowly cooled. About 100 million years ago, geologic forces pushed the rock towards the earth's surface. Then when glacial Lake Agassiz melted about 11,000 years ago, the torrent of glacial meltwater



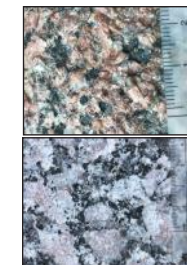
The Century Link building (1935) on Kellogg includes Morton gneiss at its base and Kasota Stone on the upper floors. This was formerly the Quest building and originally the Northwestern Bell Telephone Building.

flowing in glacial River Warren scoured the Minnesota River Valley and exposed the Morton gneiss.

This rock has been quarried near Morton and Montevideo, Minnesota in the Minnesota River Valley since the 1880s. Today it is quarried for countertops and gravestones, but it is not used much as a building stone today. It was popular as a building stone during the art deco era.

Granite:

The first granite quarry in Minnesota opened near Sauk Rapids in 1867. It supplied stone for corners,



These examples of granite from around St. Cloud show variation in grain size and color. They are from different bodies of granite.

steps and trimmings. Other quarries were opened between 1870 and 1885, quarrying both red and gray granites. Quarries still cut stone in and around St. Cloud.

Granite is a hard, strong igneous rock that cooled slowly deep below the earth's surface. From location to location, the size of the mineral grains varies, and this reflects the cooling rate of the magma. The slower the magma cooled, the larger the grains. Granite can be cut and polished and used for both exterior and interior applications.

Sandstone:

Around the Midwest and across the



Landmark Center, completed in 1902, is built from Sauk Rapids pink granite. This building originally served as the Federal Court House and the Post Office, Customs and other Federal Agencies were housed here. This beautiful building survived demolition in the 1970s, and today is owned by Ramsey County and serves as a cultural center for music, dance, theater plus a couple of museums. Its exterior includes conical towers, turrets and gables. The interior features beautiful woodwork and stonework plus a five-story courtyard with a glass skylight.

United States, brownstone was popular as a building stone between the late 1800s through the early 1920s, after which architectural tastes changed, and brownstone was replaced with lighter-colored stones and brickwork.

Brownstone, the trade name for brown-to-red sandstone, is stained red from iron. The rock was extensively quarried along the south shore of Lake Superior in Michigan, Wisconsin and also around



The eight-story St. Paul Building (Germania Bank) on the corner of 5th and Wabasha dates to 1890 and features deep red-brown Lake Superior sandstone with carved columns and pattern work. This stone is Jacobsville Sandstone from Michigan's Upper Peninsula.

Banning and Sandstone (near Hinckley) Minnesota. Quarries also operated on Basswood and Stockton Islands in the Apostle Island Group. Stone color varies from site to site, varying from red to brown. No sandstone quarries are in operation today.

Story and photos—Kate Clover

GSM at the Minnesota Mineral Club's Fall Rock Show

Over the October 20 and 21 weekend, GSM hosted a table at the Minnesota Mineral Club's Fall Rock Show in Cottage Grove. Our table included a collection of Minnesota rocks and minerals that served as conversation starters for visitors to our table. Of course, using the magnets to locate magnetite-bearing rocks fascinated people too. We also promoted our lecture

series, educational outreach programs, highway markers, plus other society events such as field trips.

Thanks to the volunteers who helped staff the table: Steve Erickson, Jane Stauffer, Mary Arenson, Janet Hopper, Paul Jansen, Ly and Deb Preece, and Kate Kleiter; as well as Kate Clover who organized the event.

Attendance at this show was close to 1700.

Thanks to the Mineral Club for offering us the opportunity to share our enthusiasm about GSM activities!



Jane Stauffer and Mary Arenson staffing the table

Kate Clover

Fossil Field Trip

Our trip to the Fossil and Prairie Park Preserve near Rockford, Iowa was a GSM field trip on September 29th, 2018.

I arrived at the Park Preserve about an hour late and decided to chat with GSM member, Nancy Rand and her granddaughter Mikenzie Woog while they were taking a break. I couldn't resist asking Mikenzie if she would show me items from her collection bucket. I was surprised and a little envious to see the great specimens she had found which included a wide variety of gastropods, brachiopods and bryozoa. Checking in with her a few hours later, she had added some impressive examples of crinoid, cephalopod fragments and many more of the previously mentioned items to her collection. Nancy shared that this was Mikenzie's first fossil hunt and field trip event with GSM and that she had an



Mikenzie's collection 1



Mikenzie's collection 2



Mikenzie's collection 3

intense academic interest in geology and paleontology. Considering this was her first designated fossil hunt, it was obvious she had keen eye

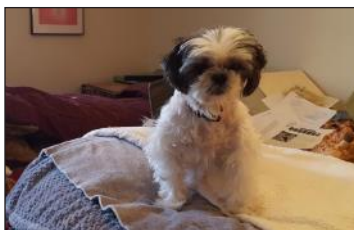


Brachiopods

and instinct for the collecting and identification of fossils. I've included some photos of her finds, cleaned and organized by her. Mikenzie's first fossil hunt was absolutely amazing and I hope her collection can be displayed for members to see sometime in the future.

I was also impressed at Dave Wilhelm's sharp eye picking up a large banding arc of brachiopods. I must have stepped over the cluster a half dozen times while climbing up and down the north side of the quarry, oblivious to them until Dave pointed them out.

This brings up some thoughts I had about the site in general. Ideally I would have liked a full day with the site, and because of the basic layout, I would endeavor to take advantage of the available natural light that is most welcome by those with aging of their eyesight. The main site appears 70 to 90 feet from the level of the county road, on the south side of the site, to the bottom. I recall thinking how exploring the west side would have better natural light in the morning, the north and south sides during midday while the east end is better lit by late afternoon. This would also provide more time to check out other interesting areas, including the Kilns. For those of us familiar with the Kilns at the Twin Cities brickyard, (located in the Lilydale Regional Park), it is just as wonderful to see the carefully preserved ones there in Ford County, Iowa.



Little Girl

Overall this was a wonderful trip that I would love to repeat in early to late summer seasons. Thanks to GSM organizers and members, Roger Benepe, Steve Willging and David Wilhelm for the arranging, accommodating and providing helpful guidance along with the education that made this a more valuable experience.

Just a note: I also want to thank Nancy Rand who volunteered to dog-sit with my Shih Tzu (Little-Girl) while I explored the large pit. She loves these road trips

and found a friend right away as she picked up on Nancy's safe, nurturing energy: not to mention the warm lap and delicious treats Nancy was kind enough to share her.

William Stoltz

Geological Society of Minnesota's Annual Banquet: 9/17/2018

The evening began with a delicious buffet provided by the U Gardens, with further enjoyment to follow through the good conversation that surrounded us at our tables.

Then business began as usual beginning with the election of new members to the Board of Directors. The three members whose terms will expire in 2018 are: John Jensen, Dan Japuntich and Theresa Tweet. To these members, the GSM would like to say thank you for your four years of ideas, insight and service. The GSM would also like to say "thank you" and "welcome", to our new Board members: Wolf Bielefeld, Roxy Knuttila and Frank Janezich. All were voted in unanimously and their terms will begin on January 1, 2019.

Kate Clover announced the need for volunteers to staff tables at the Minnesota Mineral Club's meeting for the weekend of October 20-21 (read a recap of the event in this Newsletter). Joanie Furlong handled new and renewed memberships. Ted Chura donated a Rock-Box to our event and this went to Vern Schaaf - thank you Ted. David Wilhelm announced future Field Trips, and Roger Benepe spoke of the upcoming "Iowa Fossil Trip" and guaranteed that the participants would find fossils. Thanks to Joel Renner for agreeing to serve as the new



Annual Banquet speaker Dr. Greg Brick

GSM OutReach Coordinator. He will replace Joy G. who is leaving the state for a new job.

Finally, our guest speaker Greg Brick, PHD was introduced to present his talk on the "Caves of Minnesota". Here are just a few of the over two-dozen caves that Dr. Brick covered:

Reno Cave is a small cave located near the town of Reno. Fissures from vertically running rainwater in the dolomite columns make it appear to resemble sandstone

pillars. One unusual characteristic about the Reno Cave is that a section of the wall contains a remarkable petroglyph - a face carved in relief.



Fountain Cave illustration

Fountain Cave can boast the earliest image of a cave in Minnesota from an illustration dated from 1850. It is believed to be one of the longest caves in Minnesota and owes its existence to the erosion of the Platteville Limestone by the stream. The cave was buried quite deliberately by the highway department and later, "In 1923, a railroad spur servicing the Ford Motor Company plant in Highland Park was built right over the spot, meaning that the "upper entrance" to the cave, if ever humanly enterable, was now sealed" (Minnesota Caves, 45). With a natural curiosity in a cave's structure, Greg tried to find the caves' original entrance by way of the sewer system with no success.

The third cave was Yoerg Cave in St. Paul. The 1840's brought a huge influx of German immigrants to Minnesota who brought with them a recipe for a lager beer. Lager beers need consistent, colder temperatures to ferment and store properly so they won't go bad. All went well with the Yoerg Brewery until Prohibition (1920-1933) when it became illegal to produce, sell and transport alcoholic beverages. The Yoerg Brewery

survived by becoming the Yoerg Milk Company. After Prohibition ended, the Brewery went back to beer production. Unfortunately, this lasted only until the larger beer corporations were able to push the smaller breweries out of business.

Dr. Brick had copies of his new book "Minnesota Caves; History and Lore with him for sale and he stayed on-hand to sign them. It was a terrific talk containing much about Minnesota caves', their history and physical makeup.

Theresa Tweet

Dear MN State Fair Volunteers,

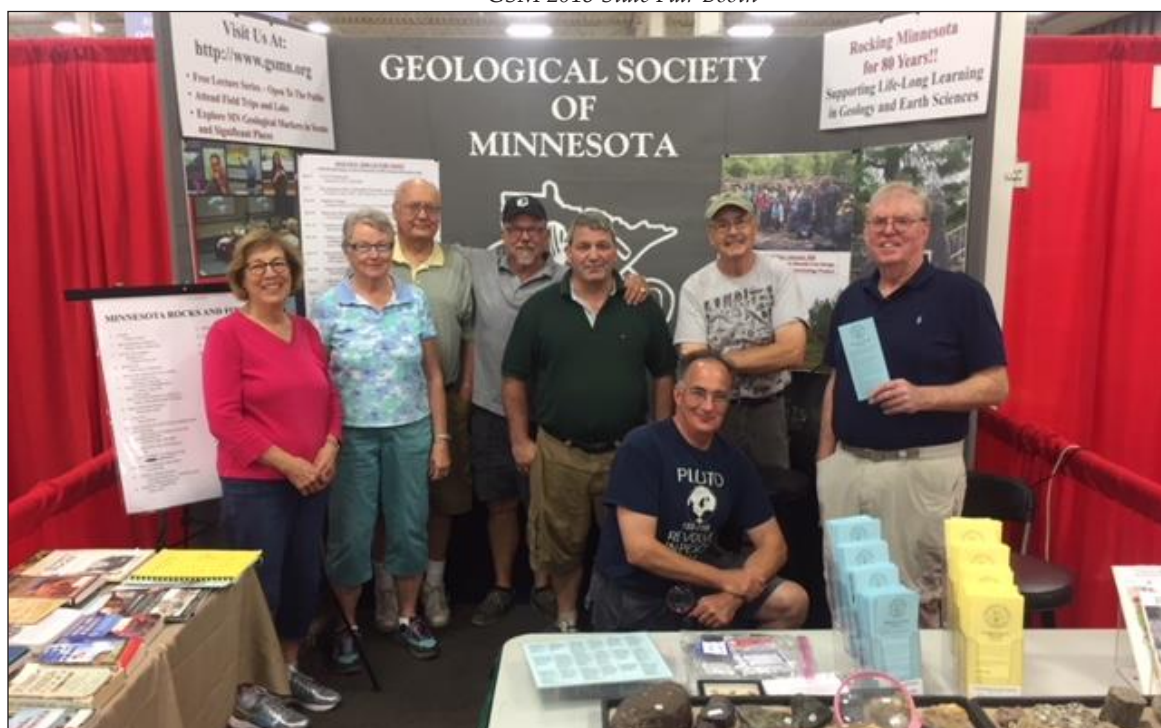
It has been an honor being the State Fair Committee Chair again this year! I would like to personally thank all of the volunteers for representing GSM this year at the State Fair. Everyone showed up on time with very few changes of personnel or times. The State Fair Committee booth set-up and take-down went flawlessly. The booth was kept clean and functional by all of you. We gave out a record number of over 2000 brochures, which Ed Steffner got for a discount price! I think that our visitors showed a real interest. Thanks for your comments on improvements, which we tried to accomplish. If you have ideas to further improve the booth and our delivery, please email me: Dan Japuntich.

Thanks so very much from the 2018 GSM State Fair Committee!

Dan Japuntich, Dick Bottenberg, Rebecca Galkiewicz, Edward Steffner, Sandra Steffner, Patrick Pfundstein, Roger Benepe, (Plus Ted and Grace Chura)

Dan Japuntich

GSM 2018 State Fair Booth



MEMBERSHIP RENEWAL REMINDER

Our fall membership renewal is on the horizon. Everybody will be up for renewal this fall when the new lecture series starts. Renew by mail or wait until the lecture series starts and renew in person. The membership year begins September 1. For those newly joining after April 1 and before September 1, membership will be good through September 2019. (New members joining between April 1 and August 31 get those months free!) If you wish to mail in your dues please include the information below. Membership renewal September 1, 2018 to September 1, 2019

Name(s): ---- _____

Address: ----- _____

Phone: ----- _____ E-mail(s): _____

Please make check payable to: GSM

Please mail to:

Membership Levels

Geological Society of Minnesota

() Student -----\$10

P.O. Box 141065,

() Individual----\$20

Minneapolis, MN 55414-6065

() Family -----\$30

() Sustaining----\$50

() Supporting---\$100

_____ Membership fee

_____ Tax-deductible contribution (GSM is a 501(c) 3 nonprofit educational organization)

_____ Total included



P.O. Box 141065, Minneapolis, MN
55414-6065

FIRST CLASS MAIL