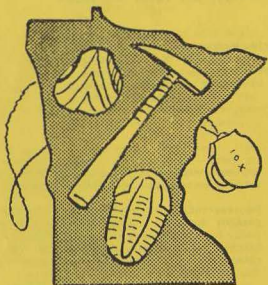


AUTUMN 1988



Geological Society
of Minnesota

NEWS

Geological Society of Minnesota



MINNEAPOLIS, MINNESOTA

FIRST



EDITORS:

GEORGE AND GOLDIE JOHNSON
5146 - 197th Avenue N. E.
Wyoming, Minnesota 55092

PLEASE FORWARD

LOWE, Dr. Alex & Marlys
2206 Caroline Lane
South St. Paul, MN 55075



Geological Society of Minnesota

1711 Marshall Avenue, St. Paul, Mn. 55104

OFFICERS:

Pres. Marian Marien
V.Pres. Fran Corcoran
Sec'y. Janet Mitchell
Treas. Ed Huppler

DIRECTORS:

Walt Blowers
Martha Collier
Bob Gunville
Goldie Johnson
Bruce Leiding

NEWSLETTER: AUGUST, SEPTEMBER, OCTOBER



GEOLOGICAL SOCIETY OF MINNESOTA ANNUAL MEETING

MONDAY EVENING, SEPTEMBER 26, 1988
Old Country Buffet
3000 White Bear Avenue
Maplewood Mall
(about 2 blocks south of I-694)

Dinner Buffet begins - 6:00pm (5:30 is O.K.too!) Cost: \$5.95 per person.
Evening program & business meeting begins-
7:30pm

EVENING PROGRAM

7:30pm Annual Meeting
-Introduction/Minutes
-Treasurer's Report
-Election of new board members
Nominees: Dorothy Kuether
J. Allen Cox

After the meeting, we hope to have a slide presentation of the Summer Field Trip events. (NOTE: Anyone who has slides we could use from any of the four field trips, please call Jan Mitchell (224-3242) any time.

Remember, we were organized on October 28, 1938, so we are one month shy of being 50 years young!

Also - your dues for the following year may be paid at the Annual Meeting. Walt Blowers, who is serving as our Membership Chairperson, will be at the meeting ready to re-sign up all our wonderful members.

Why not bring a friend along to join too! Let's make our 50th Year the best ever.

No reservation is needed. There is ample parking space in the parking lot. If you need transportation, please contact Jan Mitchell at 224-3242, and she will try to obtain a ride for you with other members of the Society.

Jan Mitchell, Secretary



From the desk of . . .

MARIAN MARIEN

As you read this newsletter, the State Fair will have just finished, our summer field trips will be finished and we are looking forward to the beginning of our fall lecture series. The State Fair Committee deserves many thanks for their work: Eva and Dick Selander, Bruce Leiding, Warren Mitchell, Dee Schmalz, Alex & Marlys Lowe and Dick Uthe. Also, special thanks to Walt Blowers for scheduling all the Geology Booth attendees.

Our field trip to Wyoming has drawn a lot of interest and the program at our Annual Meeting in September will be slides of this trip. Mary Kimball and Dick Uthe deserve accolades for their efforts in making this a memorable field trip.

Our first lecture this fall scheduled for October 10 by Gerry Webbers will "set the stage" - A JIGSAW PUZZLE CONTINENT - for our lecture series, which will be "Regional Geology of North America. We hope to see all of you at our Annual Meeting and at the lectures. It looks like it will be a great year.

NOBEL CONFERENCE
OCTOBER 4 and 5, 1988

GUSTAVUS ADOLPHUS COLLEGE
SAIN'T PETER, MINNESOTA

TUESDAY, OCTOBER 4, 1988

- 10:00 a.m. First Lecture - Lund Arena
JACK OLIVER
"Five Tectonic: The Discovery,
The Lesson, The Opportunity"
- 1:00 p.m. Second Lecture - Lund Arena
W.G. ERNST
"The Pacific Rim: Plate Tectonics,
Continental Evolution and
Geologic Hazards"
- 3:30 p.m. Third Lecture - Lund Arena
DAVID RAY GRIFFIN
"The Restless Universe"

WEDNESDAY, OCTOBER 5, 1988

- 10:00 a.m. Fourth Lecture - Lund Arena
DON L. ANDERSON
"Earth's Interior: The Last
Frontier"
- 1:30 p.m. Fifth Lecture - Lund Arena
J. TUZO WILSON
"Some Continents Which Greatly
Affect Surface Response to Mantle
Convection Beneath Continents"
- 3:30 p.m. Sixth Lecture - Lund Arena
DAVID M. RAUP
"Catastrophes and the History of
Life on Earth"
- 6:30 p.m. Nobel Dinner* - College Dining
Room
"Conversations at Nobel"
"The Future of the Earth
Sciences"
Introduction of topic by W.G.
Ernst with responses from
panelists

* Prepaid reservation and separate ticket required.

HOTEL/MOTEL LISTINGS

SAINT PETER MINNESOTA AREA

- | | | |
|--|--|--|
| La Rambe, MN
Countryside Motel
18.00-25.00
(612) 466-2041 | Viking Jr. Motel
21.00-30.00
(617) 931-3061 | Cliff Ryan Motel
18.00-21.00
(617) 339-1828 |
| Travel Host Motel
23.00-25.00
(612) 865-6246 | Markata, MN
Balfour Hotel
20.00-28.00
(617) 398-1821 | Holiday Inn
42.00-52.00
(617) 346-1234 |
| Saint Peter, MN
St. Peter Motel
19.00-27.00
(617) 961-2100 | Carleton Place
42.00-62.00
(617) 426-9222 | Budgetel
27.00-29.00
(617) 345-8900 |
| Southside Motel
25.00-28.00
(617) 381-4100 | Super 8 Motel
25.00-34.00
(617) 397-6141 | Viking Motel
26.14
(617) 389-4228 |

THE RESTLESS EARTH

NOBEL CONFERENCE XXIV
OCTOBER 4 and 5, 1988

REGISTRATION FORM

Mail to: NOBEL CONFERENCE XXIV
Gustavus Adolphus College, Saint Peter, Minnesota 56082
Registration requested by September 29, 1988

This registration is for: (please check)

- _____ College/University delegation (please list individuals in delegation and remit with registration)
- _____ High school delegation (please list individuals in delegation and remit with registration)
- _____ Gustavus student _____ Gustavus faculty or staff member
- _____ Gustavus friend or alumna/alumnus _____ Other individual

TUESDAY

12 noon	Lunch	College Dining Room	\$4.50/person	_____
5:30 p.m.	Dinner	College Dining Room	\$5.00/person	_____

WEDNESDAY

7-9 a.m.	Breakfast	College Dining Room	\$3.00/person	_____
12 noon	Lunch	College Dining Room	\$4.50/person	_____
6:30 p.m.	NOBEL Dinner	College Dining Room	\$10.00/person	_____

"Conversations at Nobel"

THIS REGISTRATION IS FOR:

Name _____

Address _____

City _____ State _____ Zip Code _____

Telephone (____) _____

Name of School _____

Telephone (____) _____

Indicate the number of complimentary tickets in space provided:

_____ lecture tickets

Tickets for lectures and reservations for meals may be claimed beginning at 8:00 a.m. on Tuesday at the Nobel Conference Registration Desk in Lund Arena. Enclosed is a check in the amount of \$_____ made payable to Gustavus Adolphus College for payment in full for all meal reservations.

Tickets for lectures in Lund Arena are complimentary, but are limited to 3,000. They will be honored until ten minutes before the scheduled time of the lecture.

THE RESTLESS EARTH

NOBEL CONFERENCE XXIV OCTOBER 4 and 5, 1988

GUSTAVUS ADOLPHUS COLLEGE
Saint Peter, Minnesota

ABOUT THE CONFERENCE

Plate tectonics emerged as the unifying theory for the earth sciences some 25 years ago. Based on convergent lines of geological evidence, a radical new view of the earth developed, one in which continents drift and new seafloor appears at oceanic ridges. This bold dynamic model has been spectacularly successful in explaining phenomena from the age and composition of the seafloors to the rise of mountain chains to the distribution of plant and animal life around the world. Earth science textbooks from grade school to graduate school have been rewritten to center on plate tectonics theory, and researchers from all fields of geology are drawn to consider how their specialties fit within the plate tectonics framework.

Despite the enormously predictive and explanatory powers of the plate tectonics model, some basic geologic phenomena remain profound mysteries. These include the composition and motion of the earth's mantle and core, the origin of the magnetic field, the history of continental crust, and the extent to which the course of the evolution of life on this planet has been contrained by the geophysical environment. Nobel Conference XXIV will address the adequacy of the plate tectonics model to explain these remaining mysteries and will consider the theory itself as a phenomenon of science in progress.



DON L. ANDERSON

Professor of geophysics, California Institute of Technology (1968-); director, Seismological Laboratory, California Institute of Technology (1967-); NASA Distinguished Scientific Achievement Award (1977); Arthur L. Day Medal, Geological Society of America (1967); president, executive committee, American Geophysical Union (1966-); fellow, American Academy of Arts and Sciences, Geological Society of America, National Academy of Sciences, Royal Astronomical Society; member, Board on Earth Sciences, NASA (1983-); Advisory Committee for Earth Sciences of the National Science Foundation (1985-); author of over 225 journal and book articles.



W.G. ERNST

Professor of earth and space sciences, University of California, Los Angeles (1960-); director, UCLA Institute of Geophysics and Planetary Physics (1987-); member, National Academy of Sciences, American Geological Institute; fellow, American Academy of Arts and Sciences, Geological Society of America; chair, Board on Earth Sciences, National Research Council (1984-87); author of over 90 articles for journals and books; author/editor of books including *Metamorphism and Plate Tectonic Regimes* (1975), *Petrologic Phase Equilibria* (1976), *The Geotectonic Development of California* (1981), *Energy: For Ourselves and Our Posterity* (1985) and *Cenozoic Basin Development in Coastal California* (1987).



DAVID RAY GRIFFIN

Professor of philosophy of religion, School of Theology at Claremont and Claremont Graduate School, Claremont, California; executive director of the Center for Process Studies at Claremont; founding president of the Center for a Postmodern World, University of California, Santa Barbara; series editor, SUNY Series in Constructive Postmodern Thought; editor, *Physics and the Ultimate Significance of Time* (1986), *The Resuscitation of Science: Postmodern Proposals* (1988), *Spirituality and Science: Postmodern Visions* (1988); author of over 50 journal articles; books include *God, Power, and Evil* (1978), *Process Theology* (1979), *God and Religion in the Postmodern World* (1988) and *Varieties of Postmodern Theology* (1988).



JACK OLIVER

Irving Porter Church Professor of Engineering and Professor of geological sciences, Cornell University (1971-); director, Institute for the Study of the Continents, Cornell (1985-); Walter Baer Medal, American Geophysical Union (1981); Virgil Kauffman Gold Medal, Society of Exploration Geophysicists (1983); member, National Academy of Sciences, National Research Council; honorary foreign fellow, European Union of Geoscientists; president, Geological Society of America (1987); chair, Working Group 6, International Lithosphere Committee (1985-); chair, U.S. Geodynamics Committee (1984-87); author of over 150 articles in journals, books and encyclopedias.



DAVID M. RAUP

Professor of geophysics, University of Chicago (1960-); Sewell Avery Distinguished Service Professor (1984-); member, National Academy of Sciences, Paleontological Society, American Society of Naturalists; editorial board, *Science*; editorial committee, *Annual Reviews of Ecology & Systematics*; advisory board, *Journal of Theoretical Biology*; author of over 120 journal articles and reviews; author/editor of books including *The Evolution of Complex and Higher Organisms* (1985), *The Nemesis Affair: A Story of the Death of Dinosaurs and the Ways of Science* (1986) and *Patterns and Processes in the History of Life* (1986).



J. TUZO WILSON

Professor emeritus of geophysics, University of Toronto (1946-); director, Ontario Science Centre (1974-); president, International Union of Geodesy and Geophysics (1957-1960); includes International Geophysical Year; Williston Medal, Geological Society (1978); Maurice Ewing Medal, American Geophysical Union (1980); fellow, Royal Society of Canada, Royal Canadian Geographical Society, Royal Society of London; honorary fellow, Royal Canadian Academy, Geological Society of London; foreign associate, National Academy of Sciences; honorary foreign member, American Academy of Arts and Sciences; author of over 200 journal articles and book chapters; books include *L.G.T.: The Year of the New Moons* (1961); *Unglazed China* (1972) and *Continents Adrift and Continents Aground* (1974).



26 Sep 88 Annual Fall Meeting - Old Country Buffet, Maplewood

REGIONAL GEOLOGY OF NORTH AMERICA

- 10 Oct 88 **Setting the Stage - A "Jigsaw Puzzle" Continent** (Room 170)
David Southwick, Minnesota Geological Survey
- 17 Oct 88 **LAB - Reading Topographical Maps**, Appleby Hall, U of M
(Room To Be Announced)
Dick Uthe, General College, U of M
- 24 Oct 88 **Canadian Shield - The Old Crystalline Core and Roots of Ancient Mountains** (Room 170)
David Southwick, Minnesota Geological Survey
- 7 Nov 88 **Appalachian Mountains - Back-Arc Sediments and Plate Collisions**
(Room 170)
Peter Huddleston, Department of Geology and Geophysics, U of M
- 21 Nov 88 **Eastern and Gulf Coastal Plains - Ribbon Sediments, Barrier Islands and Oil** (Room 170)
Robert Sloan, Department of Geology and Geophysics, U of M
- 12 Dec 88 **Central Lowlands, Great Plains, Canadian Prairies - The Quiet Platform** (Room TBA)
Robert Sloan, Department of Geology and Geophysics, U of M
- 9 Jan 89 **Rocky Mountains - Shifted Slabs and Crinkles** (Room TBA)
Shelby Boardman, Geology Department, Carleton College
- 16 Jan 89 **LAB - Reading Geological Maps**, Appleby Hall, U of M (Room TBA)
Dick Uthe, General College, U of M
- 23 Jan 89 **Colorado Plateau - An Island In the Storm** (Room TBA)
George Shaw, Geology Department, U of M
- 6 Feb 89 **Basin and Range - Tilted Blocks and Desert Valleys** (Room TBA)
Peter Huddleston, Department of Geology and Geophysics, U of M
- 20 Feb 89 **Columbia Plateau, Cascade Mountains - Flood Basalts and Exploding Volcanos** (Room TBA)
David Southwick, Minnesota Geological Survey
- 6 Mar 89 **Western Coastal Mountains - "Docking" Continents and Folded Landslides** (Room TBA)
Frederick "Rick" Schulte, Dept of Geology and Geophysics, U of M
- 27 Mar 89 **Alaska - Exotic Terranes Stacked Together** (Room TBA)
Jim Stout, Department of Geology and Geophysics, U of M
- 10 Apr 89 **Hawaii - A Classic "Hot Spot"** (Room TBA)
Jim Stout, Department of Geology and Geophysics, U of M
-
- 24 Apr 89 **Spring Banquet - Location TBA**

GEOLOGICAL SOCIETY of MINNESOTA



BEDROCK INFORMATION

Rock Units	Lithology
Formation	
CEDAR VALLEY	
MADGOKETA	
DUBUQUE	
GALENA	
DECORAH SHALE	
PLATTEVILLE	
WENDEGOTT	
ST. PETER SANDSTONE	
PART OF THE CHATELAIN GROUP	SHAKOPEE
	OMETA DOLOMITE
	JORDAN SANDSTONE
	ST. LAWRENCE
FRANCONIA	
IRONTON, SS	
GALESVILLE SANDSTONE	
EAU CLAIRE	
MT. SIMON SANDSTONE	
HINCKLEY	
FOND DU LAC	
HOEHOUS and META-MORPHIC Basement Rocks	

WANT TO INCREASE YOUR UNDERSTANDING OF GEOLOGY?

- History and the structure of the earth
- Surface features and movements
- Fossils and mineral resources
- Minnesota's place in earth history
- Human impact on geology

The **GEOLOGICAL SOCIETY OF MINNESOTA** presents professional, illustrated lectures for amateurs from all walks of life.

Our lecturers share their enthusiasm for all aspects of geology from the "Big Bang" up to the present . . . and beyond. Lectures are free and open to the public.

- * We share a common interest in geology.
- * Expertise is strictly optional!

WE MEET: OCTOBER-APRIL
7:30 p.m. **MONDAYS**
University of Minnesota
Minneapolis Campus
Physics Building

DETAILS:
Star Tribune (Sunday edition)
Outdoor Calendar Listings
Pioneer Press Dispatch
Weekend FYI Lecture Listing

IN ADDITION, WE OFFER:

- 33 geological markers throughout Minnesota
- Lab sessions for hands-on learning experiences
- Metro mini-tour guides of geological features
- Annual exhibit at the State Fair

MEMBERS ENJOY:

- Guided field trips - state-wide and national
- Fall annual meeting and spring banquet
- Quarterly newsletter
- Annual roster of members
- Opportunities to meet others who share your interests

YOU ARE INVITED TO JOIN US!!

OFFICIAL ADDRESS: Geological Society of Minnesota
1711 Marshall Avenue, St. Paul, MN 55104
(612) 644-6429

Approx. Max. Thickness in Feet, Meters

305/93

70/21

35/11

230/70

95/29

35/11

18/5

195/47

240/73

170/52

115/35

65/20

190/58

45/18

95/29

195/60

315/96

MEMBERSHIP:

Our Membership year begins on October 1.

Individual	\$ 15	<input type="checkbox"/>
Couple	\$ 20	<input type="checkbox"/>
Sustaining	\$ 30	<input type="checkbox"/>
Supporting	\$ 50	<input type="checkbox"/>
Guarantor	\$100	<input type="checkbox"/>
Student (Full Time)	\$ 5	<input type="checkbox"/>

SEND TO: Walt Blowers (612)645-3553
2040 Laurel Avenue
St. Paul, MN 55104

GEOLOGICAL SOCIETY of MINNESOTA



Name _____ Phone _____

Address _____ Zip Code _____



Our membership year of 1988-1989 will begin October 1, 1988. We again need your dues as early as possible so that the GSM may continue to meet its expenses for lecturers, program printing, rosters, newsletters, the State Fair booth, and other activities and services. Without your dues, these things would not be possible.

Because of increased expenses, the Geological Society of Minnesota voted at last spring's banquet meeting to impose a modest increase in the annual membership dues:

Regular Members - Individual	\$15.00
Couples Membership	20.00
Full-time Students Membership	5.00
Associate Members	7.00
Sustaining Members	30.00
Supporting Members	50.00
Guarantor Members	100.00

Our dues are still a bargain considering the lecture series, lab sessions, and field trips.

This year, as in the past, you will have an opportunity to become a member, or to renew your membership, at the annual meeting on September 26. Early payment of dues saves time and money for reminders.

It is you who have given the Society fifty years of life, and for that you are to be congratulated. With your continued membership and support we shall enjoy another fifty.

We wish to extend our sincere thanks to Bob Handschin who has served as Membership Chairman for many years. We hope that he will continue to offer his advice and guidance in the years to come.

Walt Blowers, Membership Chairman

* * * *

Needed:

PROJECTION EQUIPMENT

The GSM Board hopes to purchase projection equipment for use at our lecture series this year. For a long time we have been using borrowed equipment, which can be difficult at times. What we need are the following:

- A Slide projector and accessories
- A light pointer
- An overhead projector

It is estimated that these items will cost just under \$900.00. Careful research on brands, accessory equipment we need, and costs, has been done, so that what we would buy would fill our needs at the best possible price.

Donations from you, our members, toward the purchase of this equipment would be tax deductible, would make the obtaining of this equipment possible, and would be greatly appreciated.

If you want to make a donation to GSM for this purpose, send your check to our Treasurer, Ed Huppler, 2495 Canterbury Drive, # 123, Little Canada, MN 55117. Please make your checks payable to the Geology Society of Minnesota and indicate that your contribution is for the purchase of projection equipment for GSM.

* * * *

FIELD TRIP NEWS

O O O O O O O O O HIGHLIGHTS O O O O O O O O O

Several cards were received from our members who were participating in the 10-day Wyoming field trip led by Mary Kimball and Dick Uthe. It was a great experience for all the travelers.

Dick and Mary reported that they were "scouting out another section of Wyoming" for another possible field trip in the future. We hope to hear more about the trip and see the slides at our annual meeting.

Conrad Nelson reported from the banks of the Gros Ventre River in Teton National Park. He and Fred Hallberg camped along the bank of the river while on their way up to Yellowstone National Park. Fred had worked there in 1924 and hadn't been back since. They were both looking forward to the visit. We'll have to wait until they get back to get some news of the fires in the park.

Other field trips of shorter duration were: St. Cloud Granites; North Shore Volcanics; River Falls, Wisconsin (Rock Elm) Astrobleme.

STATE FAIR AGAIN A HIGHLIGHT - -



even at half the size the STATE FAIR BOOTH was a GREAT SUCCESS. The 28th edition of the GSM State Fair booth attracted many fair-goers. Featuring the "Regional Geology of North America" with an attractive map and leaders to National Parks where geological events may be observed, the display was artfully constructed. Enlargements by Jeff Garry of photos taken on our field trips attracted much attention as well as the piece of morion gneiss and basalt containing thomsonite.

Again many thanks to Eva Selander, Chairperson of the Exhibits Committee, and her committee of Dick Selander, Dee Schmalz, Dick Uthe, Warren Mitchell, Grace Leiding, Alex and Marlys Lowe. We are also grateful to Jeff Garry whose enlargements showed the fair-goers that GSM members not only attend lectures but are interested enough in the history and structure of the earth to go and see for themselves and have a good time doing so.

Also many thanks to Walt Blowers who took over from Bob Handschin the job of arranging and scheduling the booth attendants. A super job was done by Walt and the attendants.

Besides the display one of the objectives of each State Fair event is to promote GSM membership. This year a special printing of the 1988-89 GSM program was given to those interested in becoming members. We wish to thank Fran Corcoran for an outstanding job on the 1988-89 program.

Paul Stor, professor emeritus of sciences at Concordia

Paul W. Stor, 91, professor emeritus of biology and chemistry at Concordia College, St. Paul, died, Monday, July 25, 1988.

He joined the Concordia faculty in 1922. In addition to teaching, he coached basketball and baseball and was athletic director. Paul was ahead of his time in many ways and spoke out about preventing air pollution as early as 1948.

Paul led a fund drive to build the Lutheran Medical Center and the athletic complex at Concordia and started biology and chemistry scholarships for students. He retired in 1968 and received an honorary doctorate from the college in 1976.

Paul was a very active member of GSM and is known for his interest in the ginkgo tree which he tried to preserve and propagate in the Minnesota area. He singly set up a booth at the State Fair promoting a number of historical and biological subjects.



* * *
- - Bob Handschin reports that he is slowly recovering after a long illness that has kept him from actively participating in recent GSM events. Bob has been our membership chairperson for the past several years and has been lining up the attendees at the State Fair booth in the past years. He has done an outstanding job in these areas. We wish Bob a speedy recovery and hope to see him around soon.

LECTURE PROGRAM FOR 1988-89:

NEXT YEAR'S PROGRAM: The lecture series for the 1988-1989 program has been established. The theme will be centered on the Regional Geology of North America. This series should be of interest to non-members as well as our present members. Here is our opportunity to introduce friends and prospective members to the physiographic regions of our continent.

Two labs are also being planned and will be centered around topo and geologic map reading.

Outstanding speakers have been obtained, and we all are looking forward to the next season of lectures.

MINI TOUR BROCHURES: The brochure for the mini tours is getting under way. These brochures will be placed on a kiosk located in the I-94 Information Center near Hudson, Wisconsin.

PUBLIC INFORMATION: Notices for the lectures have been published in the Twin Cities Sunday newspapers, the Minnesota Daily, Minnesota Public Radio and the Minnesota Monthly. Calls of interest have been received as far away as Louisiana regarding our lectures by their reading our publicity.

