

PRESIDENT'S MESSAGE

by
Carolyn Lepage

As anticipated, the 1991 annual GSM field trip was a great one with something for everyone - good outcrops, excellent hand specimens to collect, spectacular views, and even a bean hole bean supper. I'd like to thank Lindley Hanson and Scott Sauchuk for putting together a varied and interesting itinerary, and Bob Johnston for handling the logistics. Copies of the guidebook are still available; contact Bob Johnston at 289-2801.

Plans are already afoot for the 1992 field trip. Steve Pinette and Bob Gerber will be leading a weekend "island cruise" in Penobscot Bay late next July. The format will be slightly different from the usual, with travel by boat instead of cars. Space is also likely to be limited. Please stay tuned for details.

Education has certainly been in the news lately, with a great deal of focus on training in the sciences. The GSM Education Committee's activities are timely. The committee may be asking GSM members to participate in presenting materials at local schools. I hope you will be able to lend a hand.

I was contacted at the end of the summer by the committee assembling a National Science Foundation proposal to implement systemic changes to improve math and science education in Maine schools. The group was interested in the input of practicing professional scientists. While my first-hand experience with today's public school system is extremely limited, I was able to pass along many of the concerns, suggestions, and solutions discussed at the GSM winter meeting. These included the lack of specific science course requirements for earth science teacher certification, a perceived "lack of comfort" on the part of many teachers required to teach science, as well as the GSM Education Committee's activities and the NSF-funded CREST program directed by the Maine Geological Survey.

We will be focusing on another timely topic at our Annual Meeting this fall. Bill Berry is putting together a program on

Geographic Information Systems (GIS) in the geosciences. The meeting will be held in the new Geology Department at the University of Maine Farmington. Details will follow.

GSM ANNUAL MEETING NOVEMBER 15, 1991

UNIVERSITY OF MAINE FARMINGTON

- 3:00 p.m. Developing Maine's Statewide GIS**
Dan Walters, Director State GIS Office
- 3:40 p.m. Integrating GIS into Ongoing Programs of the Maine Geological Survey**
Bob Marvinney and Marc Loiselle, MGS
- 4:10 p.m. Applications of GIS in Geology and Engineering**
Mark Jadcowski, James W. Sewall Company
- 4:45 p.m. Business Meeting and Social Hour**
- 5:45 p.m. Dinner**
UMF Cafeteria (\$6.25)
- 6:45 The Role of Geology in Siting Issues**
(including a demonstration of GIS hardware)
John Williams and Bill Duffy, Maine Low Level Radioactive Waste Authority

All afternoon sessions including the business meeting and social hour will be held on the third floor of Ricker Hall. The evening program at 6:45 p.m. will be held in the Academic Computer Center. Call Bill Berry at UMF for directions (778-1402).

ISLAND CRUISE 1992 GSM FIELD TRIP

The 1992 Geological Society of Maine annual field trip will be held July 25th and 26th, 1992. Bob Gerber and Steve Pinette will be leading the trip to several islands in Penobscot Bay. The trip will depart from Sylvester's Cove on Deer Isle Saturday morning and will not return to the mainland until early to mid-Sunday afternoon. Participants will be camping out on Eaton Island Saturday evening. Because travel will be by chartered boat, a fee will likely be charged to cover costs. Space will be limited to approximately 30 participants. Because of safety considerations, children will not be allowed on the trip. Additional details will be provided in subsequent meetings and newsletters.

UPDATE FROM MAINE GEOLOGICAL SURVEY

Dear Colleague:

Three months have passed since the state budget was approved and the time has allowed us to assess its impact on the Maine Geological Survey. I take this opportunity to bring you all up-to-date as of the first quarter of fiscal year 1992 (July 2, 1991 to June 30, 1992).

State funding for MGS programs and operations has been reduced by 40%. The reduction has been equally distributed through the following MGS core programs.

(1) Hydrogeology Division: The groundwater program consists of the significant sand and gravel aquifer mapping program and the bedrock groundwater characterization program. The aquifer maps and reports are used extensively by industry, municipalities, and state agencies for site evaluations, comprehensive planning, waste siting, and groundwater protection. The USGS Co-op supplemented the overall program and as a result of diminished USGS participation and matching funds, the MGS program will consist of seismic surveys and surficial geologic mapping which will be followed in successive seasons with the components supplied by the USGS. This will require at least 3 years of field work per study area by MGS staff instead of the previous 1 year.

The bedrock ground water program involves collection of drilled water-well data and siting of the drilled well locations by field verification, as well as a research component of study of the bedrock groundwater system. The proposed cuts in overall MGS core programs and staff impacts the input of the data into the MGS computer database files and eliminates the research component of the program. To date, the well records in the MGS database files have been the most commonly requested information from communities beginning comprehensive planning efforts.

The MGS/USGS Water Co-op will be reduced by \$88,000 or 39%. This program is a 1:1 Federal/State match which brings the total reduction to \$176,000. The impacts are as follows:

Stream gaging program: (a) Two lower priority stream gages will be dropped from the network effective October 1, 1991; (b) Planned installation of three new-head water stream gages recommended after 1987 flood have been indefinitely postponed; (c) Seven drilled wells of the ground-water monitoring program will be dropped from the statewide network of 38 wells. The planned installation of additional wells has been indefinitely postponed. All water quality analyses of

network wells has been eliminated; (d) Development of a State Water-Use Data Base has been postponed; (e) Studies of low flows in rivers and streams have been indefinitely postponed; (f) The Significant Sand and Gravel Aquifers program will be reduced with considerable slippage in scheduled map production (see above).

(2) Marine Geology Division: The Marine Geology Division consists of coastal, estuarine, and offshore mapping and applied research. The budget reduction will set back schedules and map products for coastal mapping and the Marine Atlas program for Casco, Penobscot, and Eastport bays.

(3) Geologic Mapping and Mineral Resources Division:

The cooperative program with the USGS National Mapping Division has been eliminated resulting in the loss of \$20,000 in federal matching funds. This is a 1:1 federal/state matching program responsible for developing 1:24,000 scale topographic maps of the State and providing computerized 1:24,000 scale quadrangle maps. These maps have become widely used in state and local governments, and the computerized maps provide significant support to siting studies and comprehensive planning.

In order to ensure that the cooperative COGEOMAP geologic mapping program with the USGS (\$24,000 in federal matching funds) remains intact, other aspects of the basic mapping program have been reduced. The basic geologic mapping program provides the bedrock and surficial geologic information which provides the basic elements for groundwater resource characterization and sand and gravel aquifers mapping. This information is also extensively used in waste siting studies, comprehensive planning, and the assessment of significant mineral resources. More than 50% of the State remains to be mapped on even a reconnaissance level. We have eliminated several bedrock and surficial mapping projects in potential mineral-rich areas and high growth areas.

(4) Technical Assistance: All MGS divisions and technical staff deliver technical assistance and customer service to a wide variety of users. Due to the reduction in All-Other funds available for contracted mapping in our core programs, staff personnel are being redirected to conduct important field mapping. This redirection will result in a reduction of technical assistance to the public and other agencies, and an increase in the time needed to generate geologic reports on recent mapping activities.

As to office staff, the MGS head count went from 19 to 16. The three lost positions and their importance to the MGS programs are described as follows:

CLERK-TYPIST III

Functions: This was the principal public service position of the MGS, in charge of sales and distribution of MGS publications and geologic information. The clerk runs the public assistance and sales desk in the MGS office and is the principal phone receptionist. The position responds to inquiries and publication requests from the general public, consultants and industry, and government. The clerk is also in charge of preparing income statements, inventories, and orders for MGS publications.

Impact: A single secretary is now managing these responsibilities as well as the requirements of the position as the remaining MGS secretary. This situation existed in the late 1970's when a single person fulfilled the duties of secretary and sold about \$3,000 worth of publications. Demand for geologic information has skyrocketed since that time, with publications sales of 1991 topping \$70,000. Due to this tremendous increase, the loss of this clerical position seriously jeopardizes the ability of the MGS to maintain a high level of public service. Another result is that clerical work is now being performed by division supervisors and geologists, reducing the time they have available for geologic research.

CARTOGRAPHER

Functions: The cartographer is responsible for the production of geologic maps and publications. Duties include map drafting, digitizing geologic information into the computerized geographic information system, and photographic and map reproduction. This position was also in charge of the reproduction of publications sold to the public and helping the Clerk Typist III position maintain publication and map inventories.

Impact: The loss of this position cut the MGS cartographic workforce by a third, leaving 2 cartographers. The increase in demand for geologic information has put an increasing strain on MGS cartographic resources. Cartographers are required to spend more and more time printing maps to meet public demand rather than making them. With one less cartographer it has become increasingly difficult to meet these time demands. We have attempted to maintain a high level of public service, but it has come at the expense of producing and publishing new information. The backlog of maps now stands at nearly 50 and continues to increase.

Our contracts and agreements with the federal government and other agencies require us to provide them with finished maps and reports. Our reduced staff is forcing us to delay the production of these maps and is jeopardizing the possibility of funding for future field programs.

GEOLOGIST POSITION - HYDROGEOLOGY (WATER USE)

Functions: The 114th Legislature established this geologist position. It was intended as part of the USGS Water Use Program designed to document water use in the state. This position would have collected water use information on a systematic continuing basis from large water users to track trends in the event of an emergency and prepared the information for use by the public, industry, and municipal, state, and federal agencies.

Impact: The impact due to the loss of this position is that at present the water use is estimated on a statewide basis every 5 years by the federal government. This approach is inadequate for estimating water use trends at the local level. As stated above, the USGS has postponed their side of this program.

Although projects have been postponed, eliminated, and federal funds lost, we did our best to maintain a functional level of program substance to justify core programs. I am especially troubled about the decline of the USGS/MGS Water Co-op Program and our ability to address water related concerns. I will do my best to bring these concerns to policy makers to restore MGS programs to FY90 levels. I will continue to keep you apprised of our situation and I continue to elicit your comments, recommendations, and support.

Walter A. Anderson
Maine State Geologist

DEP TASK FORCE UPDATE

by
Carolyn Lepage

Progress on the DEP Task Force report to the DEP Senior Management Team (Commissioner, Deputy Commissioner and Bureau Directors) was slowed somewhat by light attendance at its July and August meetings. A draft report containing suggestions for enhancing career paths and project management, as well as a pilot peer review program and progress on joint technical education efforts will be reviewed and revised by the Task Force at its next meeting in early October. The final report will be presented to the DEP Senior Management Team on October 21.

**GSM SUMMER FIELD TRIP
JULY 27 & 28, 1991**

The Geological Society of Maine's 1991 summer field trip took a look at the geology and geomorphology of the Carrabassett Formation and a look at some of the economic deposits found in central Maine. The field trip leaders were Lindley Hanson and Scott Sauchuk of Salem State College and Integrated Geosciences, respectively. Lindley had done her Ph.D. work in the area.

On Saturday morning the trip participants gathered at the Jo-Mary Lake Campground and traveled to Gauntlet and Mud Gauntlet Falls on the East Branch of the Pleasant River. Debris flows with draping massive sandstones are found overlain by interbedded pelites and thin sandstones. Rippled beds were visible in the sandstone beds and cyclic sedimentation was visible in the outcrops along the river. The Mud Gauntlet Fault is a 50 meter wide reverse fault that truncates the Gauntlet Falls turbidite section and repeats the massive sandstone deposits.

The lunch stop was beside the beehive ovens at the Katahdin Iron Works site west of Brownville Junction. Scott Sauchuk gave a brief overview of the history of the site with the beginning of the iron works in about 1836. Charcoal, made from the wood of nearby forests, was used in the process, and the ore was obtained from a nearby gossan. The group toured the area of the mined gossan at Ore Mountain and collected samples of the pyrrhotite deposit. This ore body was described as being one of the largest in the world. The Katahdin pyrrhotite body is located within a small, Devonian age mafic intrusion. The group toured the area of the mined gossan and collected samples of the pyrrhotite deposit.

The next stop on the trip and the last for the day was at the Merrill Slate Quarry in Williamsburg. This slate quarry opened in 1846 and mined slate for over 60 years. The quarry is over 300 feet deep and is filled with nearly 200 feet of water.

Day 2 of the field trip began at Big Wilson Stream and exposures of a lower slope or basinal-channel assemblage. Sandstone-rich turbidites with great Bouma sequences are exposed in the stream. Beautiful flute casts were collected by many of the field trip participants.

A climb up Borestone Mountain (567 m) was the next stop on the trip. It is a hornfels mountain composed of the Carrabassett Formation, contact metamorphosed by the nearby

Onawa pluton. Both the sedimentary and metamorphic facies of the Carrabassett were seen on the hike up the mountain. The boundaries of the contact aureole were visible from the top, as well as beautiful views of the local geomorphology.

The Portland-Monson Slate Company's Burman Quarry #6 in Monson was the last stop of the day. John Tatko, the current quarry operator, lead a tour of the facility and exhibited some of the milled pieces of slate.

**GSM BUSINESS MEETING MINUTES
Summer Meeting - July 27, 1991
Lazy Larry's Campground, Abbot**

The GSM Business Meeting was called to order by President Carolyn Lepage at about 5:30 p.m. The first item of business was the status of the hydrogeology bulletin (GSM Bulletin 4). It is anticipated that it will be printed this fall. The DEP Task Force will be assembling a report on the past year's accomplishments and future goals to be presented to the DEP Commissioner and Bureau Directors this fall. Next year's field trip will be held the last weekend of July and will tour several islands in Penobscot Bay. Bob Gerber and Steve Pinette will be the trip leaders. Given the necessity of transportation by boat, space is likely to be limited and advance reservations required. Sign-up will probably begin at the fall meeting.

A nominating committee consisting of Bob Johnston, John Creasy, and Pat Seaward was formed. The slate for new officers will be presented for a vote at the Annual Meeting this fall. The University of Maine Farmington will host the annual meeting at their new location in late October or early November.

Pat Seaward reported that the newly formed Education Committee will be focusing its efforts on the grade-school level teachers. They plan a pilot program and workshop on topographic maps and will compile specific activities at the committee's August 27th meeting. Oliver (Ollie) Muff announced the formation of a New England section of Computer-Oriented Geologists. Contact Ollie at 865-6138 for more information. The meeting was adjourned for dinner at Lazy Larry's bean hole bean supper.

**NOMINATING COMMITTEE'S LIST
OF GSM OFFICERS**

President:	Ollie Gates Wiscasset
Vice President:	Steve Pinette MDEP
Secretary:	Marita Bryant Bates College
Treasurer:	Marc Loiselle MGS

MGS EDUCATION PROJECT IS UNDERWAY

The Maine Geological Survey has hired Duane Leavitt, an earth science teacher from Leavitt Area High School in Turner, to coordinate the first year of the CREST project (Curriculum Resources for Earth Science Teachers). CREST is funded by a three-year grant to MGS from the National Science Foundation's Teacher Enhancement Program. The goals of the project are to (1) improve teacher training through participation in research projects with professional earth scientists; (2) develop curriculum materials for teacher enrichment and classroom use; and (3) facilitate communication among teachers through interactive TV broadcasts and other means.

During the summer of 1991, CREST placed 10 secondary school earth science teachers from around Maine in six-week paid internships with state, federal and private sponsors. The interns then used their experience to generate lesson plans that Duane is incorporating into an activity book for statewide distribution to middle school and high school teachers. Other projects on which Duane is working this fall include videotapes on topics such as ground water and Maine's surficial geology.

CREST is designed to help prepare Maine's students to handle the geologic and environmental challenges of the 21st century, and to understand the fundamental importance of earth resources in everyday life. If all goes well, means will be found to continue the CREST effort in our schools beyond the three-year period of the NSF grant.

EDUCATION COMMITTEE UPDATE

We have a very enthusiastic committee! We have been meeting monthly for most of the summer toward compiling activities to teach topographic map topics to elementary school teachers. We have chosen the elementary teacher training effort because the consensus is that this is the area most ignored by educators.

Nationally, professional organizations are putting their efforts toward curriculum changes and motivating secondary and post-secondary students to pursue careers in the geosciences.

We will be offering our workshops to a few selected school districts to pilot the project. Using the experience, we will streamline our efforts and be able to expand the presentations throughout the state. We intend to provide each teacher attending our workshops with a packet of materials, including activities covering several

topographic map topics, maps covering their town, and other resource materials. We plan to provide this service at no cost to the school districts.

Our next meeting will be held in Augusta on Saturday, October 26, 1991 at 10:00 a.m. At that time we will be compiling groups of activities to demonstrate map presentation, scale, measurement, contours, etc. If you have any activities you would like to have included, or if you would like to join our group, contact:

Pat Seaward
P.O. Box 174
Wilson Pond Road
North Monmouth, ME 04265
933-4992

In Memoriam

John (Pete) Wilshusen of Colonial Park, Pennsylvania, died September 23, 1991. He was former associate state geologist and chief of the Environmental Geology Division of the Pennsylvania Geological Survey. Among many other professional memberships, he was a member of the Geological Society of Maine and a Maine state certified geologist. He wrote "Geologic Hazards in Pennsylvania" and "The Geology of the Appalachian Trail in Pennsylvania" and was an Appalachian Trail enthusiast. Contributions in his memory may be made to the Appalachian Trail Conference, P.O. Box 807, Harpers Ferry, WV, 25425-9988.

GSM TREASURER'S REPORT

Period Ending 8/31/91

Balance on Hand 3/31/91	
\$3663.17	
Receipts	
Dues & Application Fees	\$648.00
Registrations	\$ 67.00
Publication Sales	<u>\$115.15</u>
	\$830.15
Disbursements	
Letter Systems	\$257.45
Postage	\$112.81
Campground Charges	\$ 56.00
Newspaper Ad (Taxes)	\$ 40.05
Augusta Print Shop	<u>\$ 14.45</u>
	\$480.76
Net Change	\$349.39
Balance on Hand 8/31/91	
\$4012.56	

Total Members: 317

Submitted by Michael E. Foley, Treasurer

**Congress Debates "National Geologic
Mapping Act"**

by
Walter A. Anderson
Maine State Geologist

Over the past several years the Association of American State Geologists (AASG) has been working with the U.S. Geological Survey in developing legislation that will provide funding and a framework for a comprehensive national geologic mapping program. Through much discussion, drafting and redrafting of language, and lobbying, this collaboration between AASG and USGS has culminated with the introduction in Congress of the "National Geologic Mapping Act of 1991". The bill (H.R.2763 and S.1179) is slated for debate early in this session of Congress. This bill authorizes a national geologic mapping program with the USGS as the lead federal agency working in association with the 50 states. The key element of the program is the State Geologic Mapping Component, calling for co-equal matched state and federal funds, starting at \$15 million per year and stepping up to \$25 million in the fourth year. This multi-year program will result in complete detailed geologic map coverage of the nation within 25-35 years, depending on the level of funding.

We in the geologic community know the importance of detailed, high quality geologic maps to such study areas as mineral assessment, geologic hazards, and facilities siting. In the latter category, millions of dollars are currently being spent on the search for safe radioactive waste and solid waste disposal sites, a large portion of that going to geologic investigations. Studies of this nature will become more common as Maine continues to deal with waste siting issues. Approximately 10 percent of the state is mapped at the detailed scale required for these analyses. The existence of complete detailed geologic maps, both bedrock and surficial, of the State would greatly expedite future studies and reduce their costs.

Members of AASG, including myself, have begun petitioning our legislators in Washington for support of this bill. Most seem receptive and Rep. Olympia Snowe has signed on as a co-sponsor. More letters to Congress from any of you in the geological community or from the society as a whole would be beneficial to the cause of geologic mapping.

**NWWA FOCUS CONFERENCE
EASTERN REGIONAL GROUND WATER ISSUES
October 29-31, 1991
Portland Marriott at Sable Oaks
South Portland, Maine**

The NWWA will convene its annual eastern hydrogeological conference in South Portland, Maine, on October 29-31, 1991, at the Portland Marriott at Sable Oaks (opposite the Maine Mall; phone 871-1800). Both the Maine Department of Environmental Protection and the Maine Geological Survey are co-sponsors of the meeting. In response to the number of abstracts submitted, there will be two concurrent sessions over the three days. In addition, poster presentations will be on display all day Wednesday with authors available from 5-7 PM for discussion. As usual, the conference has a varied number of topics, and this year most are of a technical nature. One session on Thursday will focus on ground water management issues. Students are encouraged to attend since the meeting is the only one of its type where such a broad range of hydrogeology and environmental careers is represented. Student registration is \$100.00 and professional registration is \$395 for NWWA members and \$445 for non-members; this includes lunch and refreshments for the three days. Call Tom Weddle at MGS (289-2801), Bruce Hunter at MDEP (289-2651), or Chris Miller at NWWA (614-761-1711) for information.

**ENVIRONMENTAL MODELING SERIES
October 22, 1991
Augusta, Maine**

The DEP Task Force, consisting of representatives from the public and private sector, is presenting the environmental modeling series to provide a technical exchange between the DEP, municipalities and consultants on environmental modeling. Part 1 is an overview and will be held on Tuesday, October 22, 1991 from 8:30 a.m. to 4:15 p.m. It will be held in the Pine Tree State Arboretum Building, Hospital Street, Augusta (across from the DEP). Cost is \$10 per person and includes lunch. The overview session will include sessions on waste load allocation modeling and leachate generation modeling. Registration checks should be made payable to "Maine Section ASCE" and sent to:

Mr. Thomas Gorrill
DeLuca-Hoffman Associates, Inc.
778 Main Street
Suite 8
South Portland, ME 04106

MEMBERSHIP DUES STATEMENT

The GEOLOGICAL SOCIETY OF MAINE, INC. is a non-profit corporation established as an educational Society to advance the professional improvement of its members; to inform its members and others of current and planned geological programs in Maine; to encourage continuing social contact and dialogue among geologists working in Maine; and to further public awareness and understanding of the geology of the State of Maine, and of the modern geological processes which affect the Maine landscape and the human environment.

The Society holds three meetings each year, in the late fall (Annual Meeting), early spring, and mid-summer (usually field trips). A newsletter, THE MAINE GEOLOGIST, is published for all members four times a year (more or less), approximately on a quarterly basis starting in September. The Society year runs from August 1st to July 31st. Annual dues and gift contributions to the Society are tax deductible. There are three classes of memberships:

- \$7.00 REGULAR MEMBER Graduate geologists, or equivalent, with one year of practice in geology, or with an advanced degree.
- \$6.00 ASSOCIATE MEMBER Any person or organization desirous of association with the Society.
- \$4.00 STUDENT MEMBER Persons currently enrolled as college students.
- \$2.00 APPLICATION FEE A one-time fee to all new members, payable when applying for membership.

ANNUAL RENEWAL/APPLICATION FOR MEMBERSHIP
THE GEOLOGICAL SOCIETY OF MAINE

Regular Member \$7.00/year \$ _____
 Associate Member \$6.00/year \$ _____
 Student Member \$4.00/year \$ _____
 Application Fee \$2.00 one time \$ _____

TOTAL ENCLOSED \$ _____

NAME _____
(Please print or type)

ADDRESS _____
(Permanent mailing address & zip code)

Please make checks payable to: THE GEOLOGICAL SOCIETY OF MAINE, INC.
 c/o Michael Foley
 Maine Geological Survey
 State House Station 22
 Augusta, ME 04333

1991/92 SOCIETY YEAR BEGAN AUGUST 1 - PLEASE SEND IN YOUR DUES

THE GEOLOGICAL SOCIETY OF MAINE
 c/o Arthur M. Hussey, II, Department of
 Geology, Bowdoin College, Brunswick, ME
 04011.

THE MAINE GEOLOGIST is published four times a year, more-or-less, in early Fall, mid-Winter, Spring, and maybe Summer, for members of the Geological Society of Maine, a non-profit educational Maine corporation interested in all aspects of the geology of the state of Maine.

Correspondence about membership in the Society should be mailed to Michael Foley, Maine Geological Survey, State House Station 22, Augusta, ME 04333.

Items for inclusion in the newsletter may be directed to Susan Corderman Weddle, 11 Beech Drive, Brunswick, ME 04011.

President Carolyn Lepage
 Vice President Arthur Hussey
 Treasurer Michael Foley
 Secretary Robert Johnston
 Newsletter Editor Susan Corderman Weddle
 Postal Chairman Arthur Hussey

Directors Joe Kelley
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Nonprofit Organization
 U.S. Postage

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Permit No. 20
 Brunswick, Maine 04011
 Address correction
 requested

Mike Foley
 Oct 1991
 Maine Geological Survey
 State House Station 22
 Augusta, ME 04333
 Exp. Date: 4/89