

**Geological Society of Maine
2008 Spring Meeting**

Bowdoin College
will host the Spring GSM meeting:
Friday, April 11, 2008
Druckenmiller Hall, Bowdoin College
Brunswick, ME

Preliminary schedule:

Student Posters at 2:00 PM
Student Talks 3:30
Business meeting 5:00 - 5:30
Social (half-) hour 5:30 - 6:00
Dinner 6:00 - buffet in the main lounge
Speaker (TBA) at 7:00 PM

Abstracts due TUESDAY, APRIL 1, 2008
Submit to Dan Belknap Belknap@maine.edu
Must follow GSA format, 300-word
maximum. Be sure to include title, authors,
affiliation, name of department.

***PLEASE CHECK THE DATE ON YOUR
ADDRESS LABEL - THIS IS THE DATE
TO WHICH YOUR DUES ARE PAID UP.
MEMBERS MORE THAN TWO YEARS IN
ARREARS WILL BE DROPPED FROM
THE MAILING LIST.***

THE PRESIDENT'S MESSAGE

I want to thank Cyndi Robbins, Tom Brennan and the staff at Poland Springs for hosting the fall meeting of the Geological Society of Maine in the Poland Springs Maine Inn. As at previous fall meetings, Poland Springs provided wonderful facilities for the meeting and presentations and a sumptuous evening meal. Thanks to Keith Taylor, Tom Weddle and Bob Gerber who joined me as afternoon speakers. The mini-symposium included a variety of topics and the

talks are summarized elsewhere in this newsletter.

The fall meeting was dedicated to the memory of Dee Caldwell and Jack Rand with evening presentations by Marvin Caldwell and Carol White with anecdotal comments about Dee and Jack provided by others present. Since I am from away and did not have the chance to know them, Marvin's and Carol's presentations and the anecdotal comments made Dee and Jack much more real to me than just knowing of their body of work.

An education fund committee was formed at the fall meeting. The committee has met and is developing ideas associated with ways to augment and manage the current education funds, including the creation of monetary awards in addition to the spring poster and speaker awards. More information will be provided to the membership for review and comment as ideas progress and recommendations are made. A summary of the other business meeting activities are provided in the Secretary's Report.

Now is the time to start planning for the Summer 2008 Field Trip. Mark your calendars for the weekend of July 25 -27. Martha Mixon has been working diligently to put together a trip in the Mt Desert Island/ Acadia National Park Area. She has included some preliminary information and additional information will be sent via e-mail as it becomes available.

Remember that this newsletter is to distribute information amongst the membership. As such, contributions are requested from anyone who has news, a publication or related geological information they wish to share. As noted at our fall meeting, contribution deadlines are the first week of February, June and September for the Spring, Summer, and Fall newsletters.

Remember that your dues support this newsletter, the website, student awards, keynote speakers, and meeting and field trip expenses. I look forward to seeing you at the Spring meeting on Friday, April 11, 2008 at Bowdoin College.

Poland Springs has again graciously agreed to host the Fall meeting for 2008. This year's meeting and mini-symposium will be on Thursday, October 2. Consider this the first call to potential speakers; consultants, regulators and educators. Let me know if you are interested in speaking.

President Cliff Lippitt
clippitt@swcole.com

THE EDITOR'S MESSAGE:

Please read the announcement for the Spring Meeting on the front page, and note that student abstracts should be sent to me, at the e-mail address below, by April 1. Academic advisors – please encourage your students to participate – there are financial awards for best poster and talk.

Dan Belknap, Newsletter Editor (1998 – present)
<belknap@maine.edu> (207) 581-2159, FAX: -2202

GSM WEBSITE

www.gsmmaine.org

The GSM website contains copies of present and archived Newsletters, a calendar of events, and other items of interest to the Society, including the updated Bylaws. There are many important links to geology items in Maine and elsewhere. There is a page on Maine geology and the Photo of the Month. Let us know what you think.

Webmaster, Mike Lerley mike@rentageekme.com

THE STATE GEOLOGIST'S MESSAGE

Technological Advances at the Maine Geological Survey

The past few decades have brought some wonderful technological advances that have exponentially expanded our access to information, increased organizational efficiencies, and improved our lives. The Maine Geological Survey has embraced these technologies and in several instances, aggressively advanced them in the pursuit of better service to the public. Here are a few highlights --

Communications: When I arrived here in May of 1987, the agency of 19 people was served by four phone lines. Our two secretaries received all incoming calls and had to redirect them to the appropriate staff, the result being that only four people in the office could converse by phone simultaneously. Sometime in the early 1990s, our old black handsets (did I mention that they were rotary?) were replaced with modern, beige touchtone models, each with an individual phone number. Needless to say there was no e-mail -- all the information that left the office had to go out via hardcopy mail. As we expanded our use of computers (see below), we eventually provided e-mail and web access for all staff; these have become our most efficient means of information dissemination.

Computers: Our first computer was a TRS-80 (with 8-inch floppy drive), acquired around 1982 for the primary purpose of compiling bibliographic information that formed the foundation for the new statewide geologic maps published in 1985. We advanced from there to a Burroughs system with a single central processing unit and a few terminals that was used for report writing and some rudimentary

database development. Our first PC, a Compaq, came on-line in the late 1980s and was used for our first in-house GIS ventures. Over the next several years, we acquired a few more PCs, even building them from parts when we ran into red tape at our purchasing office. By the mid-1990s all professionals had PCs on their desks and used them for word-processing, database development, analysis, and communications. Prior to this, our secretaries typed all reports and correspondence on standard typewriters, from manuscripts hand-written by all of us. Databases were paper, only, like the old Mineral Resources Data System. With improvements in network capabilities, we now have common, secure digital files and databases accessible to all.

Map production: For the first 150 years of the Maine Geological Survey, map production changed very little, being a pen-in-hand process. Sure, the pens got better, we got Leroy sets for consistent lettering, and eventually acetate-transfer lettering and patterning for maps, but production remained essentially a manual process. In the mid-1980s Walter Anderson witnessed the advantages of geographic information systems to geological issues elsewhere and began a successful campaign to bring this technology to Maine, often butting against bureaucracy that resisted this radical change. One of my first assignments was to scope out and spearhead a process to acquire modern GIS capabilities for the state, which was accomplished in 1990. In our first venture to produce digital geologic maps, using the Compaq and an 8-pen plotter, we had to monitor the plotting, often for hours for a single map, in order to replace pens as they ran dry. Through Walter's persistence at the Maine Low-level Radioactive Waste Authority, we acquired a high-powered workstation and truly put GIS to work for MGS. Over the past decade, we trained our Cartographers and other staff in GIS processing, and Marc Loisel built a menu-based GIS processing system that is the basis for our current map production. We reduced the production time for one map from weeks to days, and are building multi-use geological databases in the process. In late 2005, we converted all our maps to digital products that are available over the internet. Our transition to completely digital map processing was done with realignment of existing staff and no new positions. Efficient!

Outcomes: By embracing and advancing innovations, we have been able to do more with less. We are producing better, timelier, and more accessible geological datasets through these technologies. Concurrent with these changes, the MGS was also engaged in an inexorable process of budget reductions that is on-going today. Our 19 General Fund positions in 1990 are reduced to 10.6 today, with an additional 2.4 positions on other funds. Fortunately, with our ability to word-process at our desks, direct phone lines to staff, and digital map products on-line, we have been able to manage with reduced clerical staff. We are managing our map-production process with two fewer cartographic positions. Our financial management has been greatly streamlined through these technologies as well, allowing a position reduction there.

The Future: A fundamental question I ponder is whether future innovations will allow us to continue to provide quality services to the public with further reduced resources.

Robert G. Marvinney, Maine State Geologist:
<Robert.G.Marvinney@state.me.us>

GSM MEMBER NEWS

Please send member news to:

Carolyn Lepage, Member News Correspondent (1996-present) <clepagegeo@aol.com> or
PO Box 1195, Auburn, ME 04211-1195 or
Fax: (207)-777-1370; Phone: (207)-777-1049

MAINE SCHOOL SCIENCE VOLUNTEERS

Debbie Daggett, the volunteer coordinator for Maine School Science Volunteers, writes to ask for help with a unique organization that recruits scientists and places them as volunteers into middle -school classrooms in Maine. "This successful program is growing steadily and we presently have more requests for assistance than have scientists to fill the needs.

One of our most pressing unmet needs is for geologists. We are actively seeking a geologist to help students in sixth grade in Lisbon Falls identify minerals and explain how rocks are formed. The help of a geologist is also needed in a Yarmouth classroom.

Interested geologists can make a one-time commitment of a few hours or any commitment that is of interest. We greatly appreciate any and all offers of assistance. Would you, or perhaps a colleague be interesting in learning more about MSSV?

For more information about Maine School Science Volunteers, please check our website at <www.maine-ssv.org> or by using Google. MSSV president, Edmond Pelta can be reached by phone at 729-5721 and I can be reached at 375-8787 or by email at <ReadToSucceed@adelphia.net>.

If you would please forward this information to anyone who might be interested, we would be most grateful. Thank you very much for your thoughtful consideration."

Sincerely,
Debbie Daggett

GSM SECRETARY'S REPORT

Fall Meeting, October 19, 2007
Poland Spring Inn
41 Ricker Road, (off Route 26), Poland, Maine

This year's meeting was dedicated to GSM members Dee Caldwell and Jack Rand, two geologists whose lives and work have inspired many of us. Dee passed away on December 12, 2006. Jack passed away on March 15, 2007.

The meeting was hosted by Poland Spring, complete with complimentary dinner and open bar. This was the fourth consecutive GSM Fall Meeting hosted by Poland Spring, to whom we offer our warmest thanks. (*Note: I am always impressed with the restraint shown by our group in the face of free beer.*)

The meeting consisted of a mini-symposium with four speakers, followed by a short business meeting, a social hour, dinner and evening speakers. Approximately 45 people attended the meeting.

The mini-symposium speakers and topics were as follows:

- Cliff Lippit, of S. W. Cole Engineers: VRAP Investigation & Clean-up, A Case Study. The site was the former Bangor Steam Laundry, a drycleaners that had PCE and petroleum hydrocarbon contamination. Contaminants followed fill around a sewer line, which followed a historic stream bed shown on an 1875 Atlas of Penobscot County. The sewer line passed under several houses, generating air quality impacts in those houses. Geophysics, soil vapor investigations, and soil borings were completed to investigate and delineate the impacts. In situ bioremediation with a lactate-based bio barrier was effectively used to reduce downgradient impacts and bring air quality in the homes into regulatory compliance.

- Keith Taylor, of St. Germaine Associates: Groundwater Extraction, Surface Water Recharge, and the New DEP In-stream Flow Rule: Rangely Water District Case Study. The Rangely Water District's supply well is located in a sand and gravel aquifer adjacent to the South Branch of the Dead River in Dallas Plantation. In order to protect aquatic life in the stream, water withdrawals from the stream and nearby wells are restricted to 0.5 cubic feet per minute (cfm) when stream flows are below 17 cfm, a number which is calculated based on the size of the watershed. This restriction does not leave much room for growth for Rangely. In the absence of actual stream flow data for this location, St. Germaine and Associates used watershed characteristics to model median stream flows based on methodology developed by the USGS. Their study concluded the 0.5 cfm withdrawal limit is overly restrictive for protection of in-stream flow. In addition, field observations and data collected during the study showed there was not a consistent relationship between stream flow and the direction of aquifer recharge/discharge. Things such as frozen ground, stream pile-up behind a small bridge and aquifer recharge from a nearby small pond complicate the picture.

- Tom Weddle of the Maine Geological Survey was a graduate student under Dee Caldwell at Boston University, and dedicated his talk to Dee and others who helped him in his early career as a geologist. Tom talked about the Quaternary stratigraphy of the Sandy River valley in New Sharon, Maine, his thesis area under Dee's supervision. This area contains some of the best exposures of glacial deposits in New England. Interest in the area began with Dee's investigation of a buried soil deposit with pollen and logs in it, which was dated

to >52,000 ¹⁴C years (published in an early Maine Geological Survey Bulletin in 1959) and was reported to occur stratigraphically between two tills. The interpretation of this stratigraphy is important to understanding the glacial history of New England. In 1985, from new exposures of the organic-bearing beds, Tom described a basal gravelly unit with fractures filled with diamicton, and an overlying fine-grained water-laid unit. The fine-grained unit was deformed and sheared, and contained wood and peat fragments. This organic-bearing unit may be allochthonous, deposited as a raft of pre-late Wisconsinan material carried in by advancing late Wisconsinan ice. Evidence for an earlier till and multiple glaciations was not observed. The buried soil with pollen and logs described by Caldwell is no longer exposed, most likely eroded by the April Fools Day Flood of 1987. The Sandy River till section that could be viewed from Route 2 at the bridge over the river is now encased in granite rip-rap. For details see GSA Bulletin volume 104, October 1992.

- Robert Gerber, of Stratex, LLC, presented a report prepared by himself and John Rand in the 1970s on the Sears Island Fault. The Sears Island fault was discovered and investigated as a part of the geologic studies for Central Maine Power Company's proposed nuclear power plant on Sears Island. This presentation was the first public release of the report. Bob presented the report in part to illustrate and honor Jack's investigative methodology, which always began with thorough background research and preparation. The background research included a literature search, preparation of a base maps, study of air photos, and establishment of survey lines and grids. This was followed by field mapping, then drilling, test pits and trenching. The study concluded the Sears Island fault was a pre-Cenozoic bedrock fault which caused deformation of the overlying lodgment till due to squeezing and/or arching of rocks in the fault zone during glacial unloading 12,800 to 13,500 years ago. The full report has been made available for download through the Maine Geological Survey's ftp site. It can be accessed through the following link: <ftp://ftp.state.me.us/outgoing/MGS>.

The business meeting began at 4:30. The following business was conducted:

- Newsletter. An announcement was made that deadlines for newsletter submissions are the first week of February, June and September for the Spring, Summer and Fall newsletters. With these deadlines, the newsletter should provide adequate notice of the Spring, Summer and Fall GSM meetings.
- Treasurers Report (provided elsewhere in this newsletter). We presently send newsletters to a list of approximately 350 members, only 42 percent of whom are current on their dues. Some arrears go back to 2003. A card will be mailed out and the list will be culled shortly thereafter.
- A committee has been appointed to develop recommendations for using and managing the funds that have been contributed in memory of Jack Rand and Dee Caldwell. Currently, donations to the Walter

Anderson Fund are used primarily for student awards for talks and poster sessions at the Spring meeting each year. The committee consists of Rob Peale, Tom Weddle, Carol White, Liz Champeon and Walter Anderson.

- The Nominating Committee is seeking nominations for the Fall 2008 election of officers for GSM. The nominating committee consists of Julia Daly, Marita Bryant and Pat Seaward. Julia, as the current VP, will rotate into the President's office, leaving a vacancy for VP. Anyone with interest in serving as a GSM officer, or in making a nomination, should contact the nominating committee. The officers of the organization include President, Vice-President, Secretary, Treasurer, Newsletter Editor, and Historian.
- A volunteer was solicited to represent GSM on the Consulting Professionals of Maine/DEP Taskforce. Keith Taylor of St. Germaine Associates will represent GSM on that Taskforce, taking over for Cliff Lippit.
- Announcement: GSM members Fred Beck and Alison Jones are organizing a 7-day rafting trip through the Grand Canyon, August 18-24, 2008, for GSM members and family/friends. See the last newsletter for details and costs. Those who have done this trip have described it as an essential experience for geologists, and the trip of a lifetime. (*I understand the trip is sold out, there is a waiting list, and a possibility of a trip being offered again next year.*)
- GSM Summer field trip: Recognizing that not all of us will be able to do the Grand Canyon trip, a closer-to-home GSM summer field trip is being planned. Mount Desert Island/Acadia National Park has been proposed as an area of interest. Contact Martha Mixon mmixon@acadiaenvironmental.com with ideas to flesh this trip out. Suggestions for alternative locales are also welcome.

After the business meeting, two speakers honored Jack and Dee with presentations about their lives and work. The presenters were Marvin Caldwell, widow of Dee, and Carol White, long-term friend and colleague of Jack. Following the presentations several in attendance offered anecdotes and reminiscences about the two long-term GSM members. A common theme for the presentations, anecdotes and reminiscences was appreciation for the mentoring - sometimes delivered with uncomfortable directness, often with wit and humor- and encouragement offered by Jack and Dee to other geologists in their early careers. The community of geologists we have in GSM reflects the spirit and dedication of Jack and Dee to their science, their friends and associates. May we all do so well.

Secretary, Martha N. Mixon
mmixon@acadiaenvironmental.com

GSM TREASURER'S REPORT

The Society currently has 344 members; unfortunately only 42% are up to date with their dues. In keeping with previously decided policy, we will drop any members more than two years in arrears at the end

of this calendar year. The present membership is distributed as follows:

Students:	49	
Associates:	29	
Regular:	259	
Institutional:	7	
TOTAL:	344	Total Paid Up: 145

Balance On Hand October 02, 2007

Anderson Fund Savings	\$ 1,206.15
Anderson Fund CD	\$ 5,567.70
General Fund Money Market	\$ 4,395.24
General Fund Savings	\$ 15.07
General Fund CD	\$ 5,329.43
General Fund Checking	\$ 157.93
Total	\$16,671.52

Income

Dues	\$ 1,309.00
Interest	\$ 142.77
Anderson Fund Donations	\$ 26.00
Other Donations	\$ -
Publication Sales	\$ 16.00
Subtotal	\$ 1,493.77

Expenses

Newsletters	\$ 401.85
Honoraria	-
Anderson Awards	-
Other Awards	-
Meeting Expenses	-
Donations	-
Postage	\$ 21.19
Wb Site	-
Refunds	-
Miscellaneous	-
Subtotal	\$ 423.04

Balance on Hand December 31, 2007

Anderson Fund Savings	\$ 1,435.65
Anderson Fund CD	\$ 5,629.25
General Fund Money Market	\$ 4,398.28
General Fund Savings	\$ 40.16
General Fund CD	\$ 5,388.91
General Fund Checking	0.00
Total	\$ 16,892.25

Respectfully submitted,
Rob N. Peale, Treasurer (2004 -present)
<Rob.N.Peale@maine.gov>

NEWS FROM THE CAMPUSES

[Your humble, harried editor apologizes for the fact that the Newsletter came out too late for this item to be timely – but it may give you some ideas for next year!]

University of Maine, Presque Isle

The Northern Maine Museum of Science is looking for your head! The museum's second annual PLANETHEAD DAY is scheduled for February 16th. The event serves two purposes, to celebrate the discoveries and research of space science and to recognize the research still needed to cure cancer.

The date is timed to celebrate the 78 year old discovery of Pluto, and promote the ongoing travels of the NEW HORIZONS spacecraft that will reach Pluto in 2015 (the museum is an education outreach participant for this program). We also seek to raise money for local cancer programs. The museum's Coordinator of Museum Outreach and Curator of Collections, Jeanie McGowan, is a cancer survivor.

Participants to the event either have their heads shaved or don elastic swimming caps which are then painted as a planet. A barber and an assemblage of planethead painters will be available for the occasion. Astronomy and cancer organizations also will have displays.

Last year's Planet Head Day had about 30 planetheads, including the university President, two other university administrators, community members, university students and children. The children in particular wanted to have their heads painted as either Earth or Pluto. All planets and several moons were represented. A four-minute video from last year can be seen on youtube

<<http://uk.youtube.com/watch?v=shZP7A6Y9yY>>.

Museum director Kevin McCartney has set this year's goal to at least 50 planetheads. Contact Kevin for particulars. He can put you up overnight if you are traveling a distance.

"McCartney, Kevin " <kevin.mccartney@umpi.edu>

Now Available from the MGS – Former GSM President Lisa Churchill-Dickson's long-awaited book on Maine fossils:

Maine's Fossil Record The Paleozoic

by

Lisa Churchill-Dickson

500 pages

(175 black-and-white fossil photos)

Price (hardcover):

\$40.00 plus \$2.00 sales tax

Price (softcover):

\$30.00 plus \$1.50 sales tax

MEMBERSHIP DUES STATEMENT

The GEOLOGICAL SOCIETY OF MAINE, INC. (often referred to as **GSM**) 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 dialog 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 three times a year. The Society year runs from August 1 to July 31. Annual dues and gift or fund contributions to the Society are tax deductible. There are three classes of memberships:

\$12.00 REGULAR MEMBER	Graduate geologists, or equivalent, with one year of practice in geology, or with an advanced degree.	PLEASE NOTE NEW FEE SCHEDULE AS OF August 1, 2003
\$12.00 INSTITUTIONAL MEMBER	Libraries, societies, agencies, businesses with interests in or practicing geology and related disciplines.	
\$10.00 ASSOCIATE MEMBER	Any person or organization desirous of association with the Society.	
\$ 5.00 STUDENT MEMBER	Persons currently enrolled as college or university students.	

THE GEOLOGICAL SOCIETY OF MAINE ANNUAL RENEWAL / APPLICATION FOR MEMBERSHIP

Regular Member	\$12.00	\$ _____	Name _____	Make checks payable to: Geological Society of Maine Rob Peale, Treasurer Maine Dept. Environmental Protection, State House Station 17 Augusta, ME 04333-0017
Institutional Members	\$12.00	\$ _____		
Associate Member	\$10.00	\$ _____	Address _____	
Student Member	\$ 5.00	\$ _____		
Contributions to GSM		\$ _____		
(please write gift or fund on check)				
TOTAL ENCLOSED		\$ _____	_____	

Email Address _____

(GSM funds include the Walter Anderson Fund____, the Education Fund____, and discretionary gifts____as noted by contributor)

2008/2009 SOCIETY YEAR BEGINS AUGUST 1 - PLEASE SEND DUES TO TREASURER.

The DATE on your mailing address refers to PAID UP DUES DATE

THE GEOLOGICAL SOCIETY OF MAINE

c/o Daniel F. Belknap, Newsletter Editor
Department of Earth Sciences
111 Bryand Global Sciences Center
University of Maine
Orono, ME 04469-5790 <belknap@maine.edu>



THE MAINE GEOLOGIST is the Newsletter of the Geological Society of Maine, published three times a year, in mid-winter, summer, and early fall, for members and associates.

Return Service Requested

Correspondence about **membership** in the Society, **publications** and **dues** should be mailed to:
Rob Peale, Department of Environmental Protection
State House Station 17, Augusta, ME 04333-0017 <rob.n.peale@maine.gov>

Items for inclusion in the **Newsletter** may be directed to:
Daniel F. Belknap, Dept. Earth Sciences, University of Maine,
Orono, ME 04469-5790 <belknap@maine.edu>

President	Cliff Lippitt,	S.W. Cole, Inc.
Vice President	Julia Daly,	UMaine Farmington
Secretary	Martha Mixon,	Acadia Environmental
Treasurer	Rob Peale,	Maine Dept. Environmental Protection
Newsletter Editor	Dan Belknap,	University of Maine
Directors	Tom Weddle (06-10),	Maine Geological Survey
	Liz Champeon (04-08),	S.W. Cole, Inc.
	Lisa Churchill-Dickson (05-09),	Registered Professional Geologist