



THE MAINE GEOLOGIST

THE NEWSLETTER OF THE GEOLOGICAL SOCIETY OF MAINE

OCTOBER

1988

VOL. 15 NO. 1

Society News:

GSM FALL MEETING

NOVEMBER 18, 1988

BOWDOIN COLLEGE - BRUNSWICK, MAINE

President's Message

I would like to thank the summer field trip leaders, Al Ludman, John Hopeck, and Alice and Joe Kelley for providing us with two delightful trips this August. On the bedrock trip, our first stop was the dam on the St. Croix River at Kellyland to see the superb exposures associated with the Norumbega Fault system. After that we traveled around much of eastern Washington County, looking at Larrabbe's famous dike and even wandering into the southern tip of THE COUNTY. It was a hot day. In addition to looking at the rocks, several folks were keeping their eyes glued for WATER - any cool, inviting stream, lake or puddle... About mid-afternoon on Saturday, near the end of Al's trip, we foolishly checked the thermometer at a small store somewhere in Drew Plantation - it read 110° F - in Maine? Incredible!

The Kelley's trip took us along the Lower Penobscot River Valley, from downtown Milford to Stockton Springs, stopping at several dam sites on the way. We were joined by Dave Sanger, an archaeologist from the University of Maine. At the Veazie Dam site, our third stop, Dave and Alice described the archaeological investigations that they have participated and plan along the Lower Penobscot River.

Archaeological surveys are now required by the federal government as part of the relicensing process for existing hydroelectric dams and proposed new facilities. These new requirements have been a real boon to the archaeological field in Maine, and have afforded an unprecedented opportunity to examine the Late Pleistocene/Holocene geological records at these sites, as well as reconstruct the river at various stages of its development. Dave had brought along some of the Indian artifacts uncovered in these excavations and encouraged us to examine them. At the same stop, Sam Kelley also provided us with an example of his bubble blowing skills. Needless to say, we were quite impressed.

For those of you who were unable to join us, you can obtain a copy of the

field trip guide from Bob Johnston for two dollars. Copies of the guide will also be available at the Fall Meeting.

The Annual Meeting was held at the University of Maine at Orono. The discussions and elections that took place at the meeting are summarized in the Secretary's report prepared by Peter Garrett and presented elsewhere in this newsletter. The attendance at the Annual Summer Meeting was on the light side-about 25 or so, not including kids and pets.

At the Annual Meeting, Arthur Hussey proposed changing the Annual Meeting date to the Fall, instead of the Summer, as it has been since the Society was first organized. A change in the annual meeting to the Fall would require modification of our present By-Laws. Although we have discussed this same issue in the not-so-recent past, we decided that Arthur's suggestion warranted further consideration by the Society. Due to the limited number of members present at the Annual Meeting we decided to postpone discussions until the next meeting. So... we will make a decision on this issue during the Fall business meeting of the Society. Please bring your thoughts and comments on this topic to the Fall Meeting.

While reviewing the By-Laws, I noticed the dues requirements also need to be up-dated to reflect the dues increase that we instituted several years ago. We have published a copy of the By-Laws in this newsletter and invite your suggestions for any additional changes that we should consider such as a dues increase, or suggested rewording of the By-Laws. Please READ these By-Laws so that an informed discussion can take place, and allow us to address these matters as expeditiously as possible.



IMPORTANT TOPICS OF DISCUSSION FOR THE 1989 FALL BUSINESS MEETING

At the Fall Meeting we will be discussing several important matters relating to the operation of the Society, and future projects and meetings. We hope that you review this list, and give these topics a little thought prior to our meeting. Topics of discussion will include:

1. A proposal that we change the date of the Annual Meeting to the Fall, instead of the Summer, as is presently required by our By-Laws.

2. Discussion of any other changes to the organizational structure, dues requirements or Society activities that are recommended by the Members. Bring your suggestions to the meeting. We will vote on these changes at this meeting and modify the By-Laws as necessary.

3. Possible publication of Bulletin #3, containing papers on hydrogeologic topics or projects of significance to Maine.

4. Reports from the Treasurer and Secretary.

5. Suggestions for the Winter (?) and Spring Meetings. Also suggestions for the 1989 summer field trip.

6. Discussion of new business

Although all this may seem overly serious and formal to some members, we are supposed to operate under a set of by-laws that were first developed and adopted by the Society in 1975, and again included when the Society was incorporated December 1977. It is probably time to formally review those By-laws and make sure that they fit the present needs of the Society. A copy of the By-Laws have been printed in this Newsletter for your perusal. We URGE all GSM members to attend the Fall Meeting - and participate in the Society's activities



??? BULLETIN NUMBER THREE ???

A few members have expressed an interest in the publication of a GSM Bulletin presenting papers relating to the hydrogeology of Maine. Maine has some rather interesting hydrogeological problems such as fractured bedrock aquifers, radon, numerous petroleum spills and low permeability in marine clays. Many practical studies involving the hydrogeology of Maine are contained in unpublished reports prepared by private consultants. Some of these studies and information are of great interest to the geologists and engineers who practice hydrogeology in Maine and New England. A GSM Bulletin might provide an opportunity for publication of some of this interesting work. Further discussion of this topic is planned for the Fall Meeting.

Treasurer's Note

Thanks to all who have or who are waiting patiently for their dues checks to clear the banks and catch up with them. The transition from one treasurer to another is nearly complete. If you are still waiting for a check to be returned I wish to let you know that all checks that I have received have been deposited during August. Some were dated March or April. If the expiration date on your mailing label does not reflect what you believe to be correct please drop me a note and I will set things straight. Please send all correspondence related to membership and dues payments to:

Geological Society of Maine
c/o Irwin Novak, Treasurer
Department of Geosciences
University of Southern Maine
Gorham, Maine 04038

Six copies of the Summer Field Trip guide are available at USM for sale at \$2.00 each. Send check made out to Geological Society of Maine to the above address.

GSM Treasurer's Report
Period Ending 08/31/88

Total Members	246	
Balance on hand 6/24/88		\$1475.47
Receipts:		
Dues and Application		
Fees	\$ 733.00	
Summer Guidebook		
Sales	60.00	
Now account		
interest	6.04	
Sales tax on		
Bulletins		
Annual Banquet		
at UMO	230.00	
Hydrogeology		
Symposium	\$3400.00	
Subtotal	\$4429.04	4429.04
Disbursements		
Letter Systems, Inc.	101.28	
Carbon Copy, Ins.	675.60	
Subtotal	776.88	776.88
Net Change		3652.16
Balance on hand 8/31/88		5127.63

Irwin Novak, Treasurer



Secretary's Report

At our annual meeting in Orono, some personnel changes were announced. Bob Johnston is retiring after two years as newsletter editor. He will be handing over the newsletter to Susan Weddle, who will continue in the tradition of keeping our little geological community posted. Ollie Gates and Steve Pollock will continue as GSM directors, while Andy Tolman is retiring. Joe Kelley and Archie Berry offered to fill vacancies as Directors. The slate of officers remains the same for this year. And of course Art Hussey remains postal chairman - what would we do without him?

Once again the issue of when to have the annual meeting and election of officers was raised. There are some who would like it switched to the Fall Meeting, which is usually better attended by the Maine contingent. But others contend that the summer field trip offers the greatest opportunity for everyone to have their say.

For those who wish to persist in this debate, it was suggested that we consider State of Maine rules, our own by-laws, the possibility of mail-in ballots, and the matter of what constitutes a quorum.

Reporting on the past and attempting to predict the future, President Carol White told us that the John Cherry symposium was a great success, grossing over \$5,000, and leaving us about \$2,000 in the kitty for getting the next symposium organized. If you have suggestions as to who you would like to see and hear, tell them to Carolyn Lepage.

The Spring Meeting, in contrast, was something of a bust, mostly because of the conflict with the GSA Meeting in Portland which so many of us attended, and at which many UMO students gave papers. In addition, it was noted, enrollment in the geological sciences is down: Bates only had one graduate last year.

NEIGC will be hosted this year by the University of New Hampshire in Keene, on October 13-14. Get in your reservations now, or forever miss it.

NEIGC in 1989 will be hosted by the University of Maine at Farmington. Surely there couldn't be a better host? Field trip leaders are needed, including those for coastal trips starting in the south and working their way north on Friday.

NEW ENGLAND INTERCOLLEGIATE GEOLOGIC CONFERENCE

OCTOBER 14, 15 AND 16, 1988

KEENE STATE COLLEGE

KEENE, NEW HAMPSHIRE

Contact - W.A. Bothner

Department of Earth Sciences

University of New Hampshire

Durham, New Hampshire 03824

Summer Fieldtrips

About 30 geologists assembled in the shopping mall of metropolitan Princeton, Maine, at 8:00 on Saturday, August 6, 1988 for the first day of the 1988 Geological Society of Maine field trip. The leaders, Al Ludman and John Hopeck of Queens College and the Maine Geological Survey, introduced us to their trip with a discussion of the bedrock geology of eastern Maine. The particular emphasis of this field trip was upon the types and ages of faulting in the area. John and Al have divided the faults into five classes distinguishable on the basis of age, type of displacement, general orientation, and whether folded or unfolded.

The first stop was an exposure of the Flume Ridge Formation (Siluro-Devonian?) in the St. Croix River near Princeton where minor faults related to the Norumbega Fault illustrated the nature of post-Acadian dextral strike-slip (Class IV) faults. They are characterized by the presence of gouge and calcite veining, weathering out as distinct notches. After a brief stop just off U. S. Route 1 to see some of the undeformed Carboniferous conglomerates preserved along one of the

Norumbega fault slices, we visited a most spectacular outcrop of the Baskahegan Lake Formation (Cambro-Ordovician) near the village of Danforth. Medium to thick bedded quartzofeldspathic wackes have been folded, with the development of spaced cleavage ("bread-slicer cleavage"). Pressure solution along the cleavage planes has produces conspicuous compositional banding (transposed fabric) frequently at right angles to true bedding. Similar fabric transposition was seen in an exposure of the Carys Mills Formation in an exposure near the village of South Bancroft. Deformation of both of these exposures is attributed to movement along the North Bancroft fault (Class III) fault, a high-angle Late Acadian fault characterized by initial normal, and then strike-slip movement. The lunch stop was along the Mattawamkeag River near the village of Bancroft (which curiously enough seems to be south of South Bancroft). The trace of the North Bancroft fault lies along the far shore of the river. Here we had the opportunity to eat lunch on the only exposure of the early Mesozoic Caraquet dike mapped by Dave Larrabee in the early 1960's. The dike shows no offset along the fault, limiting fault movement to the pre-Mesozoic. The Carys Mills Formation into which the dike has been intruded shows extensive deformation attributed to movement on the fault. The last stop of the day was a look at the terribly mangled Smyrna Mills Formation (Silurian) at Kingman, in the Class I Kingman Fault Zone, interpreted by Al and John to be a syn- to early post-depositional fault deformed during the Acadian Orogeny.

Despite the heat (90's with humidity to match) the trip was enjoyable, informative, and well organized. Al and John merit a strong vote of appreciation and thanks.

Art Hussey
Bowdoin College



Musings, Mysteries, and Multiple
Hypotheses
Report of the GSM Quaternary Fieldtrip,
7th August, 1988
by Peter Garrett

Led by the indefatigable Kelleys, (Joe commiserating with little Sam, who had periodic bouts of letsgohomeitis, and Alice in full-bloom with #2 and barely able to catch sufficient breath to address us), we toured parts of the lush lower Penobscot valley.

But we were musing about its pre-lush days and nights. Days when the ice was so thick it could carry the Katahdin eskers clear across the valley to disgorge their sandy loads into the Cherryfield delta. Or nights when, deep in murky marine waters around the melting ice, there were clams and scallops a-plenty, living in the bottom of kettle holes.

What we learned was not always "this is how it is", but rather "these are some of the ways we have been asking questions".

We learned that not only is the Penobscot the largest drainage basin in Maine; it drains almost a third of the state, you know. But it does so through a bedrock valley which is in some locations hardly as deep and generous in dimension as one would expect. Why not? Is it that the twenty or so glaciations which have been scraping stuff off Maine over the last 2 million years have changed drainage patterns radically? Is it that the Penobscot has followed several channels out to the sea, as it now does among the islands of its estuary? Or is it that buried bedrock channels now lie hidden beneath mounded surficial sediments, as is the case in the spectacular Marsh River valley south of Frankfort?

We also learned that the Penobscot is unique among Maine's major rivers in lacking a submerged paleodelta. Beyond the present mouths of the Merrimac, Saco and Kennebec, for instance, such paleodeltas mark the positions of the rivermouths at the maximum retreat of the sea following the Presumpscot flooding event. But the Penobscot estuary is extraordinarily bereft of sand. There are not beaches to speak of and no tracts of sand have shown up in seismic profiling across Penobscot Bay. Why not? Is it because so much sand was channeled to Cherryfield? Is it because quantities of sand were "sunk" into hollows in the bedrock beneath what now are bogs? Or is it that the Penobscot drains terrains which are largely low grade metamorphic, unlike its sister rivers to the south? In Veazie, standing on the closed town dump, now a park with a splendid view of the Veazie dam and its surrounding river terraces, we were invited to imagine ourselves Indians standing on this same spot and surveying the many encampments all around. This invitation came from none other than David Sanger, dean of Maine archaeology, who has reason to be very pleased with the progress of his endeavors over the last decade or so. The Historic Preservation Act has changed archaeology from a battle to find the money to partially dig one site here and there, into a well-funded drive to build a picture of Maine's past which is regional in scope. In particular we found out how we subsidize his efforts through payment of our electricity bills -- let me explain.

Bangor Hydro is soon to build a new generating station next the Veazie dam. But in order to complete their environmental review, they must first pay for a thorough investigation of how their project will affect historic sites. They may then excavate, or otherwise protect those sites, or simply not build.

The result of this mandate has been a fantastic surge in our knowledge of Maine's pre-European history. For instance, only a decade or two ago, only about half a dozen sites were known to Sanger along this stretch of the river. Now the list is up to 130. Furthermore, there is money to dig deeper, which is paying its dividends in revealing more of the goings on pre-

5,000 years BP (the first settlers in this area are now known to have come in around 11,000 years BP). Furthermore, there is money for collaborative research with sedimentologists such as Alice Kelley, which pays dividends both ways. And finally, there is an incentive to think big: "where shall we look next?" An interesting answer may be "to the wetlands", where treasures of Maine's past similar in kind to the famous Bog People of Denmark, or the many artifacts of ancient Ireland, (including the 1,000-year old cheese) may still lie preserved.

After lunch there were a couple of sites of geologic interest. One with huge foresets, but no topsets: these were presumed to be the deposits of the outlet of an esker tunnel, rather than the deposits of a delta fan which they otherwise resembled. Then there was a fossil-filled deposit of a clay-lined kettle-hole in the old regressive beach. This one provided good collecting for anyone with eyes.

Finally, there was Joe's coup de grace, which he unveiled for us in a roadside parking area. It consisted of side-scan sonar pictures of the "Penobscot Pits", which occur only in the channel between Searsport and Islesboro, and are up to 50 meters wide and about 25 meters deep. Such structures have never been seen buried on seismic reflection profiles, but are well known to fishermen in the area. Similar pits are unknown in other harbors, and are therefore not thought to have anything to do with prop-wash. Could they be due to gas eruptions? - it doesn't seem likely, because gas is known from all over the Gulf of Maine, and is certainly not restricted to this small area. Or are they whale feeding pits? - has any one of the cetacean communication scientists ever thought to ask?

Having exhausted all the obvious options, we focused on local history. Namely, that Bangor was, in the early 1800's, a bigger and more important port than Boston, because of the huge lumber-shipping trade that went on there. One of interesting tidbits which comes out of a study of those times is that there was so much sawdust produced (maybe 5-10 million cubic yards per year), that it once stopped the river right up. In fact there is still a law on the books saying the sawdust must be dumped "offshore", whatever that means. So what about these pits? How could they be related to the dumping of sawdust? All ideas should go to Joe. He's thinking of organizing a competition for the most imaginative, or maybe just the most. How else to use the method of multiple hypotheses without putting together the greatest possible pile?

"Let's go home", said Sam.
"Good idea", said Alice.



BYLAWS

(Adopted August 1, 1976)

THE GEOLOGICAL SOCIETY OF
MAINE

ARTICLE I

Name

Section 1. The name of the association shall be "The Geological Society of Maine" (GSM).

Section 2. The name of the society may not be used, nor any reference to it made in any advertising, promotion, solicitation, or the like, without prior written permission of the society.

ARTICLE II

Purpose

Section 1. To further the public awareness and understanding of the geology of the State of Maine, and of the modern geologic processes which affect the Maine landscape and the human environment;

Section 2. To develop and encourage continuing social contact and dialogue among geologists working in Maine;

Section 3. To advance the professional improvement of its members;

Section 4. To inform members and other interested persons of current and planned geologic programs in Maine.

Section 5. To provide a financial base to publish and distribute a periodic Newsletter, to cover matters of technical and general interest, and to announce future society meetings.

Section 6. To receive and administer gifts, bequests, and devises from person, firm, or corporation to the GSM.

Section 7. To perform acts instrumental in the furtherance of the foregoing purposes, including the owning, leasing, or otherwise dealing in real estate in order to further said purpose.

ARTICLE III

Non-Profit

Section 1. This society shall be non-profit. All assets shall belong to the GSM and shall not inure to the benefit of any member or group of members of the society.

ARTICLE IV

Membership

Section 1. A member shall be defined as any person who is interested in furthering the goals of the society and who fulfills the requirements of section 1a, 1b, or 1c.

1.a. Those persons who hold a Bachelors degree in geology and engaged in the practice of geology for at least one year, or who have a Masters degree in geology, in lieu of the one year requirement, or who have demonstrated by trade a degree of geological professionalism, regardless of academic training, shall be designated as "Regular Members".

1.b. Those persons who demonstrate an interest in the geological sciences and who are desirous of association with the society, but do not meet the requirements of sections 1a or 1c, shall be designated as "Associate Members".

1.c. Those persons currently enrolled as a student in any college or school of higher learning who are interested in the field of geology and are desirous of association with the Society, shall be designated as "Student Member".

Section 2. There will be no Maine residency requirement for any of the three categories of membership.

ARTICLE V

Dues & Fees

Section 1. There will be an initial application fee of \$2.00 for all new members; said fee will help to defray Newsletter publication costs.

Section 2. Annual dues will be assessed all members as follows:

Regular Members	\$5.00/yr
Associate Members	\$4.00/yr
Student Members	\$2.00/yr

ARTICLE VI

Annual Meeting

Section 1. An annual meeting of the members of the Society shall be held during the summer, between June and September, of each year, for the purpose of electing councilors, receiving financial reports, and for the conduct of such old business as may come before the meeting. The date and time of the meeting shall be determined by the executive council. The secretary of the Society shall be responsible for providing sufficient notification of the meeting to all members.

Section 2. Other meetings may be called by the President or Executive Council when deemed necessary.

2.a. Several periodic meetings will be scheduled each year; time and place of said meetings to be designated by the President of Executive Council.

Section 3. At each annual meeting the membership shall elect four officers to a one-year term, and one councilor to a three-year term of office (Article VII Sections 106 and Article VIII). A slate of officers and councilors shall be recommended to the membership by a nominating committee prior to the annual meeting.

ARTICLE VII

Officers

Section 1. The officers of the Association shall be as follows:

- a. President
- b. Vice-President
- c. Secretary
- d. Treasurer

Section 2. The officers shall be elected by the membership at the annual meeting to serve one year terms of office.

Section 3. President - The president shall be responsible for conducting the affairs of the Society and for executing the policies established by the Executive Council. He shall appoint the chairman of the committees as provided in Article VIII and shall serve ex officio as a member of each committee, including the nominating committee.

Section 4. Vice-President - In the event of the absence or disability of the President, the Vice-President shall perform the duties of the President, and when so acting, shall have all the powers of that office. The Vice-President shall perform such other duties as assigned to him by the Executive Council or by the President.

Section 5. Secretary - The Secretary shall be responsible for recording the activities of the Society; recording names of officers, councilors, and committee members; giving notice of all meetings of the Society, the executive council, and committees; keeping the minutes of the meetings of the members and the Executive Council, and cause them to be recorded in a book kept for that purpose; and conducting such correspondence as may be required.

Section 6. Treasurer - The treasurer shall have custody of the Society funds, shall keep full and accurate accounts of receipts and disbursements and shall deposit all funds and other valuable effects in the name and to the credit of the Society in such depositories as may be designated by the Executive Council. Under the direction of the President, he shall prepare and annual report accounting for all transactions and describing the financial condition of the Society. He shall prepare an annual budget for submission to the executive council and to the Society at the Annual Meeting. On disbursements of funds over three hundred dollars (\$300.00) the President shall countersign the checks. Otherwise the Treasurer shall be the sole signator of checks for disbursement of Society funds.

ARTICLE VIII

Executive Council

Section 1. The Executive Council shall be composed of the four elected officers plus three additional councilors elected from the membership of the Society. At the first annual meeting one councilor will be elected to serve until the second annual meeting, one shall be elected to serve until the third annual

meeting, and one shall be elected to serve until the fourth annual meeting. At each annual meeting after first, one councilor shall be elected by the membership to a three-year term of office.

Section 2. The executive Council shall provide the general direction and control the affairs of the association. In addition to the duties customarily performed by the Council it shall:

1. Transact all business necessary and proper for the efficient management of the Society.

2. Establish dues and fees, payment schedules, and any reimbursements deemed appropriate.

3. Confirm membership and terminate members who resign from the society or who, given good cause, are voted out of the society by a two-thirds vote of the executive council.

4. Fill vacancies on the Executive Council.

5. Appoint a By-Laws committee from the Executive Council and membership at large to make recommendations for changes to these By-Laws for consideration by the members at the annual meeting or a special meeting for said purpose.

6. Appoint a nominating committee from the Executive Council and membership at large to make recommendations for officers and councilor to be nominated at the annual meeting.

7. Appoint committees from the Executive Council and/or membership at large to address specific areas of concern to the society, including but not limited to the following:

- a. Program Committee
- b. Public Relations Committee
- c. Fund Raising Committee
- d. Publications Committee

The Executive Council may from time establish other permanent or temporary committees to carry out particular activities as they deem necessary.

ARTICLE IX

By-Laws

Section 1. The By-Laws of the Society may be altered or repealed by affirmative vote of two-thirds of the Society membership present at any scheduled meeting of the Society. Any question as to the proper interpretation of the provisions of these By-Laws shall be resolved by majority vote of the Executive Council.

ARTICLE X

Liability and Grievances

Section 1. No officer, council member, committee member, or other member working in the name of the society shall be held liable as a result of Society activities.

Section 2. Grievances concerning any aspect of Society activities shall be referred to the Executive Council for consideration.



NAGT/NE 1989

On April 28, 29, and 30 of 1989, the New England Section of the National Association of Geology Teachers (NAGT/NE) will host its annual meeting at the University of Southern Maine (USM) in Gorham. Co-sponsoring the event with NAGT/NE will be the Geoscience Department at USM, and the Maine Geological Survey (MGS), Department of Conservation, Augusta, Maine.

Historically, Friday evening centers around registration and refreshments, with informal entertainment; the Saturday program consists of lectures, seminars and workshops; and Sunday is reserved for field trips.

The theme of this meeting will be environmental education and current geological issues. It is our hope that teachers gain background information for classroom use which will help heighten student awareness of how environmental geology affects their daily lives.

Some of the topics we wish to cover include hydrology and how it is affected by oil, gas, and hazardous materials; low and high level radioactive waste; sludge and ash spreading; and coastal geology and management.

As a citizen or a professional, are you involved with your town's Conservation Commission, Planning or Zoning Board, or other related group? Or are you a consultant with a case study that could be used by teachers for a pilot project? or are you a teacher who already has an activity that involves your students actively in the political aspects of environmental planning? If you answered 'yes' to any of the above questions, would you be willing to share that with teachers at NAGT/NE 1989?

If so, please contact us at the Maine Geological Survey, State House Station #22, Augusta, Maine 04333.

Thank you,
Pat Seaward, MGS

ADVISORY COMMISSION ON RADIOACTIVE WASTE

On August 18th, in the Maine State House, the Maine Advisory Commission on Radioactive Waste met to hear a review of the Bottle Lake Pluton Investigations. The work discussed at the meeting was only preliminary and the contractors working on the projects may be asked to present their finalized results to the full Commission at a later date. Walter Anderson, Maine State Geologist and Robert Marvinney, Program Coordinator, introduced the contractors and gave a project overview to the Commission and interested citizens.

Marc Loiselle, representing Caswell, Eichler, and Hill, Inc., talked about their fracture trace study. Lineaments, mapped using 1:40,000 scale black & white aerial photos, were plotted onto a 1:100,000 base map using a GIS system. The abundance of lineaments indicate that the area is extremely fractured. Work is ongoing to correlate those lineaments with regional structures.

The bedrock geology of the area was mapped by John Hopeck of Queens College. He has mapped faults and fractures in the pluton for the last three field seasons. Two major fault sets have been defined: a northeast-trending fault set appears to be stronger in the region than the other which is northwest-trending. The northeast-trending faults appear to have developed after the emplacement of the granite. Penetrative fracturing of the granite in the Bottle Lake Pluton has taken place.

Professor William Doll, of Colby College, talked about his work on gravity measurements of the Bottle Lake Pluton area. He is attempting to define the shape of the granite body. With over 200 data points gathered in the pluton he is able to predict that the pluton is 5-10 kilometers thick. In coordination with the seismic reflection work the shape of the pluton can be better defined.

John Costain, from Virginia Polytechnical Institute, presented his work on the seismic reflection line through the Bottle Lake Pluton. He declared that the Bottle Lake Pluton line shows one of the best seismic sections in the United States. The data shows faults of possible Mesozoic Age and a major fault that penetrates the bottom of the crust.

The combined work of all the geologists will result in an excellent definition of the Bottle Lake Pluton in three dimensions. When the data are presented to the full Advisory Commission on Radioactive Waste at the end of the year it should be quite an educational package.

MEMBERSHIP DUES STATEMENT

THE GEOLOGICAL SOCIETY OF MAINE, INC. is a non-profit Maine 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, early spring and (with the Annual Meeting and sometimes field trips) in mid-summer. 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 annual memberships:

- \$7 REGULAR MEMBER - Graduate geologists, or equivalent, with 1 year of practice in geology, or with an advanced academic degree in geology
- \$6 ASSOCIATE MEMBER - Any person or organization desirous of association with the Society
- \$4 STUDENT MEMBER - Persons currently enrolled as students in college who are interested in geology
- \$2 APPLICATION FEE - A one-time fee to all new members, payable when applying for membership

ANNUAL RENEWAL or APPLICATION FOR MEMBERSHIP - THE GEOLOGICAL SOCIETY OF MAINE

NAME _____ (Please print or type)	Regular Member \$7 per year \$ _____
ADDRESS _____ (permanent Mailing Address)	Associate Member \$6 per year \$ _____
_____	Student Member \$4 per year \$ _____
_____	Application Fee \$2 One-time \$ _____
_____	<u>TOTAL ENCLOSED</u> : \$ _____
Zip code _____	

Please make checks payable to:

THE GEOLOGICAL SOCIETY OF MAINE, INC.

88/89 SOCIETY YEAR STARTED - AUGUST 1st - PLEASE SEND IN YOUR DUES

THE GEOLOGICAL SOCIETY OF MAINE
C/O Arthur M. Hussey, II, Department of
Geology, Bowdoin College, Brunswick,
Maine 04011.

THE MAINE GEOLOGIST is published four
times a year, more-or-less, in early
Fall, late Fall, late Winter, and maybe
June or July, for members of the
Geological Society of Maine, a non-
profit education Maine corp-oration
interested in all aspects of the geology
of the State of Maine.

Correspondence about membership in the
Society should be mailed to Irwin Novak,
Department of Geo-sciences, University
Southern Maine, Gorham, ME 04038.
Items for inclusion in the newsletter
may be directed to Robert A. Johnston,
Maine Geological Survey, Depart-ment of
Conservation, Station #22, Augusta, ME
04333.

President	Carol White
Vice President	Carolyn LePage
Treasurer	Irwin Novak
Secretary	Peter Garrett

Director - 1988	Andrews Tolman
Newsletter Editor	Robert Johnston
Postal Chairman	Arthur Hussey

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address correction requested