

The Granite State Geologist



Newsletter of the New Hampshire Geological Society

Suite 133 * 26 South Main Street * Concord, NH 03301
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President's Message

Greg Kirby

As this year comes to a close, I'm pleased to report the successes of the New Hampshire Geological Society's goals and outreach campaigns. First, the federal Application for Tax Exempt Status for NonProfit Organizations has been completed. Once this application is approved, the Society will no longer pay taxes for its savings. Also, donations to the Society may be deducted as a charitable contribution (membership dues and the costs of the dinner meetings are not deductible as a charitable contribution, but may be deducted as a business expense.)

On October 20, 1995, the Education Committee will be awarding two scholarships this year. The first will be an award of \$300.00 to a secondary school earth science teacher. This is the second award dedicated for financial assistance to help send a teacher to an earth science conference. Also, a new scholarship fund began this year. In January, we started a quarterly mineral raffle at the dinner meetings. Mineral specimens were donated by members and the proceeds of the raffle were designated for the acquisition of teaching aids and materials for earth science. Approximately \$90.00 has been raised so far. This money will be matched in part from our dues. We have earmarked \$200.00 to \$300.00 for a school to purchase materials.

There has been a substantial increase in membership involvement with the Program, Education, and Membership committees. I ask those that have volunteered to make themselves known to the committee chairs at the October meeting so that we can get a head start for 1996. For those who have time, I'm asking that you volunteer for these, as well as the Finance committee, to strengthen and advance the science of geology in New Hampshire. As always, Tim Allen can use material for the newsletter, *The Granite State Geologist*.

I wish to extend copious accolades to Tim Allen, Nelson Eby, Lee Wilder, Craig Durrett and volunteers too numerous to name for their help in 1995. Without their assistance these achievements would not have been possible. As next year approaches I foresee continued progress in the Society's outreach programs and committees. I look forward to our Education Committee awarding another scholarship or two(?) in 1996, and we now have five people to volunteer time to give presentations in the classrooms of New Hampshire. The Program Committee has several volunteers to present new tools in environmental geology, as well as bedrock and surficial geology of New Hampshire. In October we end the year with Richard Pendleton presenting new, soon to be published information on the surficial geology of the Penacook, NH quadrangle and the Holocene evolution of the Merrimack River.

See you in October!

The National Science Teachers Convention

Johanna Vienneau

Editor's Note: As part of its education and outreach program, last year the Society began offering a \$300 scholarship to New Hampshire teachers to assist them in attending a national or regional conference or meeting. Johanna Vienneau was our first scholarship winner. She gave a presentation to the Society at our April meeting. For those who were unable to attend, here is her report. The Society is currently soliciting applications from teachers for this year's scholarship award.

The two best words to describe a National Science Teacher Conference are: EXCITEMENT! and REJUVENATION! (capitals and exclamation points required.) The numbers are amazing: the numbers of teachers, good ideas, and exhibitors with freebies. It should be overwhelming but the adrenaline and continual quest for "one more good idea" feeds the spirit and moves the body. I don't know how the other 20,000 or so teachers did it, but I scheduled my days using the phonebook-thick guide to attend as many promising workshops as possible and still leave room to roam the vast exhibit hall. There literally was no time for lunch on most days.

Since a large portion of my expenses was being covered by the New Hampshire Geological Society, I focused on the Earth Science workshops. In one such workshop I particularly liked an earthquake activity. The idea is to pretend that there is an earthquake and that a local radio station is asking for people to call in with their experiences. Each student is given a slip of paper with one such experience to relate, for example a nurse calls from a local hospital and tells how the bottles were rattling and the gurneys shaking. The students then match this with a description on the Mercalli scale and write the appropriate number on the hospital on a map of the town. Ultimately the students will be able to find the epicenter of the quake. I will do this with my students next year and will ask any motivated students to rework the activity based on our town so that it will be even more realistic the following year.

In another workshop everyone was given some microfossils to view through a hand lens. Iowa truly does have more than just corn! What exquisite small fossils. They were placed on a millimeter grid and we drew them on a centimeter grid. I sketched several bryozoans and one beautiful brachiopod. Each participant received several small containers of crumbly shale with instructions on how to wash away the clay. My students and I did this successfully and all had fossils to study and draw. An excellent addition to my earth science lessons in mineral-rich but fossil-poor New Hampshire.

There is more to a national convention than workshops. I was able to renew acquaintances with several teachers. I also had a pleasant chat with my college advisor that I hadn't seen in 17 years (he even remembered my maiden name!). I attended my first Rock Swap, a fun fundraiser for the National Earth Science Teachers Association. About 150 lovely rock and mineral specimens were displayed, each with its own paper bag in which to place raffle tickets. There was the excitement of gambling and the camaraderie of shared interests as each ticket was pulled and specimen won. I was lucky to win a fist-sized crystal of Hanksite. The tag claimed that it was donated from someone in the Bureau of Mines. I visited their booth soon afterwards and learned of how large crystals are unearthed during the mining of borax and are left as a waste product.

The National Middle Level Science Teachers Association sponsored both a breakfast and a luncheon. At the breakfast each teacher received a brand new plastics kit full of recycled plastic pellets, plastic lumber, a two liter bottle before it is blown up, and excellent lesson plans. I have used the kit this year and we had lots of fun testing the different pellets to determine what number plastic each kind was. Does the pellet float or sink in water? in oil? in alcohol? Does a small bit of plastic on a hot copper wire turn the flame green or stay orange? These hands-on activities hold student interest so well. At the luncheon the guest speaker was Bill Nye (the Science Guy!) He was very entertaining sharing stories of his background and details of his television show.

The exhibit hall was huge. It took several visits just to cruise through locating the various exhibitors I wanted to spend time with. NASA had many free beautiful posters--my favorite is of the comet Shoemaker-Levy striking Jupiter. They also had several free CD-ROMs full of images of our solar system. Carolina Biological always has free live critters. My classroom now has a hermit crab and a Madagascar hissing cockroach. I also picked up several free tektites and had to guess what they were. They looked like molten glass to me. The collector was there to explain that they were small pieces of the moon, thrust into space during meteor bombardment. Eventually these are pulled to Earth and virtually melted as they plunge through our atmosphere. He had

collected them in a some tropical Asian country where they are plentiful. NOAA had free videotapes. There were lots of free pins. And there things to buy as well: irresistible science toys, books signed by the authors. My husband, also a science teacher, and I filled our small station wagon to capacity.

I want to leave you with one last image. A spacious convention center and a brand new hotel, bursting with teachers running from workshop to workshop, forming little knots as they meet old friends. I can picture lawyers doing this. I can picture doctors doing this. But one thing that teachers do that I cannot picture any other profession doing: we sit on the floor in the hallways because there simply are not enough chairs. We sit surrounded by our bags of booty happily figuring out where our next workshop is located. Thank you so much for awarding me the grant that allowed me those four marvelous days in Philadelphia.

We regret to inform you that NHGS member James David Hume died August 2, 1995 as a result of injuries sustained in an automobile accident.

Slate of Candidates, NHGS Board of Directors 1996

For President:

Gregory Kirby.

BS, 1985, Geology and Geophysics, University of New Orleans. 1986-87, Graduate Studies, University of New Orleans. 1987-1991, Geologist/Project Manager, Various private consulting firms. 1991-Present, Geologist/Project Manager, NH-DES. 1992-Present, Member NHGS. 1993 to Present, Member GSA, Friends of Pleistocene. 1993-94 Vice President, Board of Directors, NHGS. 1994-95 President, Board of Directors, NHGS. 1993 to present, Program Committee Chairman, NHGS. 1992 to present, Merrimack Conservation Commission.

For Vice President:

Nelson Eby.

BA, MS, Geology, Lehigh University. PhD, Geology, Boston University. Faculty member in the Department of Earth, Environmental, and Atmospheric Sciences, U. Mass Lowell, since 1970. Charter member of NHGS. I've been interested in New Hampshire geology for a number of years and have done a fair bit of work on the White Mountain Magma Series. I am currently Vice President of NHGS and my portfolio includes educational outreach and public awareness programs.

For Secretary:

Ken Milender.

BS, 1982, Geology, Tufts University. MS, 1987, Geological Sciences, University of Wisconsin. 1987-1990, Hydrogeologist, GZA. 1990-1992, Hydrogeologist, Fuss & O'Neill. 1992-1995, Hydrogeologist, NH-DES, Water Resources Division. 1995-present, Senior Hydrogeologist, Atlantic Geoscience Corporation. Member of NGWA, AEG, AIPG.

Leland (Lee) A. Wilder.

BA, Geology, 1964, University of New Hampshire. MEd, 1993, Administration and Supervision, University of New Hampshire. Board of Directors, NH Science Teachers Association-one of his major functions here is to organize and lead field trips and workshops for NH Earth-Space Science teachers. State contact person for the National Earth Science Teachers Association. Member, Hopkinton Conservation Commission. NH native. Current Secretary of the NHGS. Teaches Earth-Space Science at Rundlett Junior High School, Concord. Adjunct college professor in Earth-Space Science courses. Married to Betsy (Osgood) and lives in Hopkinton, NH. They have a (married) daughter, Samantha, living and working in Boston, MA.

For Treasurer:

Gretchen Rich

BS, Geology, 1979, University of New Hampshire. MS, Hydrogeology, 1986, Wright State University. Since 1980 working for consulting firms in the New York and New England area. She currently is office manager of the New Hampshire office of Coastal Environmental Corporation, a Bangor, Maine based company. Charter member of NHGS. Member of AIPG since 1989, registered professional geologist in the state of Florida. Resident of Epping for seven years.

Craig Durrett.

BS, Geology, University of Rochester. I currently work for Wehran-EMCON Northeast as a hydrogeologist. I am a native of New Hampshire and a charter member of NHGS. Since I joined NHGS, I have been an active member, participating in meetings and field trips as well as helping out with the Program Committee and organization of field trips and events.

For Member-at-Large (one position, two year term):

Bob Whitmore

Owner/Operator of Palermo Mines, N. Groton, NH. A mineral wholesaler, past Plant Manager, and Maintenance Supervisor. Professional Associations: NHGS, Capital Mineral Club (Concord), NE Micromounters, Council of Gem and Mineral Clubs of NH. Publications include: D. Dallaire & Whitmore, *Mines and Minerals of North Groton, NH*; and Segeler, Kampf, Ulrich & Whitmore, *Minerals of the Palermo #1 Pegmatite*, *Rocks & Minerals* magazine. Presentations include: Detroit Gem & Mineral Show, New Haven Mineral Show, Gem & Mineral Expo Rhode Island, Maine Mineral Symposium of the Maine Geological Survey, Boston Mineral Club, Groton Historical Society Major Displays of the Whitmore Mineral Collection: Harvard Mineralogical Museum, Boston Museum of Science, Tuscon Mineral Show, Detroit Gem & Mineral Show; Mount Sunapee Gem & Mineral Show.

Tim Allen

BA, Geology, 1984, Harvard University. MS, Geology, 1990, and PhD, Geology, 1992, Dartmouth College. 1992-present, Assistant Professor of Geology and Environmental Studies, Keene State College. 1995-present, Chair, Environmental Studies Program, Keene State College. Charter Member, NHGS. 1991-present, Editor of *Granite State Geologist*, the NHGS Newsletter. 1993-1995, Member-at-Large, Board of Directors, NHGS.

Nominating Committee: Julie Spencer, Joanne McLaughlin, Dorothy Richter.

Geologists Excluded by Massachusetts Agency

Jack O'Leary

Late last year the Massachusetts Department of Environmental Protection revised 310 CMR 15.00 ("Title V"), the regulation which governs the siting, design, construction, and maintenance of most septic systems in Massachusetts. This revision created a new licensed professional, the Soil Evaluator, whose role it is to use "appropriate expertise in soil identification, groundwater hydrology, and topography" to determine whether the soil and hydrological characteristics of a given location are suitable for the septic system proposed. The Soil Evaluator must pass a written and field examination which includes the topics "Geology and Soils of Massachusetts", "Soil Profile Descriptions", "Estimating Mean High Groundwater Elevations Using Soil Morphology", and "Principles of Groundwater Hydrology". The DEP periodically provides a training course in preparation for the exam, and its content is primarily soil science and glacial geology. Geologists have assisted in teaching the course. It is apparent that a Geologist would have the appropriate training and experience to qualify to take and pass the Soil Evaluator exam and practice effectively as a Soil Evaluator.

However, consider section 15.017 (2) of the revised Title V: "In order to qualify for the examination ... the applicant must demonstrate ... that he/she is a Massachusetts Registered Sanitarian, a Massachusetts Registered Professional Engineer, Certified Health Officer, Board of Health Member or Agent, or an employee of the

Department involved in the administration of 310 CMR 15.000" This regulation allows professionals and non-professionals alike, with no prior education or experience in the earth sciences, to practice as Soil Evaluators. However, Geologists are excluded from even taking the exam to become a Soil Evaluator! What is especially ironic is that the instructors that the DEP has contracted to teach the training courses and administer the exam (soil scientists) cannot become a Soil Evaluator under this regulation. To date the DEP has not provided a satisfactory justification for this exclusion (if indeed there is one).

A group of Geologists and Soil Scientists have formed a group to try to change this situation. This group, the Earth Scientists Coalition, is requesting that individuals write letters to the officials named below and urge them to amend Title V to include Geologists and Soil Scientists as professionals qualified to take the Soil Evaluator exam. This strategy was successfully used by land surveyors to change Title V to include them as candidates for Soil Evaluators. Even if you live and work outside of Massachusetts you may still wish to write, since this exclusion restricts your ability to practice what you have been trained in. Also, many states follow other's leads in setting regulatory guidelines. The Earth Scientists Coalition can be contacted c/o P. O. Box 586, Hanover, MA 02339-9998.

The suggested contacts (in order of importance) are:

David B. Struhs, Commissioner
Department of Environmental Protection
1 Winter Street, 3rd Floor
Boston, MA 02108

Dean Spencer, Acting Director
Division of Water Pollution Control
Department of Environmental Protection
1 Winter Street, 3rd Floor
Boston, MA 02108

Senator Robert A. Durand
Chairperson, Natural Resources Committee
Massachusetts State Senate
State House, Room 109C
Boston, MA 02133

Representative Barbara Gray
Chairperson, Natural Resources Committee
Massachusetts House of Representatives
State House, Room 473F
Boston, MA 02133

7/25/95

The views expressed above are those of the author. The New Hampshire Geological Society has no position with regard to the issue of professional registration or certification of geologists.

NHGS On Line

The New Hampshire Geological Society is now on-line on the Internet's World Wide Web at the URL:
<http://nhgs.org/NHGS/>

The Society's "homepage" includes basic information about the Society and our activities. A complete set of back issues of the Society's newsletter, The Granite State Geologist, is available, as is an on-line membership application form. The Society's pages have already been accessed by a number of Web browsers from around the world, and the first electronic membership application has come in. Questions, comments or suggestions? Send e-mail to: tallen@keene.edu.

Progress Report on the Bedrock Geologic Map of New Hampshire

Eugene L. Boudette, State Geologist

The new state geologic bedrock map (superceeding Billings, 1956) passed an important milestone on 8/29/95 when it was logged in at the USGS, Reston, VA, for cartographic preparation. The manuscript map was approved by the Director of the USGS on 11/16/94 after peer review, and subsequently received technical review. This was followed by final digital preparation into a file created by Complex Systems Research Center at UNH. This file will be used to publish both a classical map through lithography and a CD-ROM, a GIS activity unique for a state map.

The products will fulfill a critical need for societal welfare - resource analysis - creative research information. This information will be presented on two sheets: (1) the central illustration at 1:250,000-scale and (2) derivative maps (geologic structure, pluton ages and fossil localities, and metamorphism) at 1:500,000-scale and text.

Publication will close-out a project started more than 10 years ago in anticipation of a federal proposal to use New Hampshire's bedrock for a high-level nuclear waste, irretrievable storage facility. The high potential for the choice of a site here found the state unprepared to adequately respond geologically to the challenge.

An earlier edition was released into open file by the state in 1986. This map became the central exhibit in the geologic chapter of the Governor's reply to the US/DOE in response to the selection of the Cardigan Pluton (calc-alkalic granite in central, southern New Hampshire) as a possible depository. The document presented findings that cast serious doubts about the logic and safety of such a facility, not only in New Hampshire, but in the entire Caledonian-Hercynian orogen. Ironically, US/DOE supported preparation of the map.

The release date of the map by the USGS is a matter of priority, and is not known at the present time. There will be working copies of the map at Dartmouth College, UNH, and NH/DES, Concord for the purposes of coordination between the authors, the state geologist, and USGS cartographers.

The official citation for the map is as follows: Lyons, J.B., Bothner, W.A., Moench, R.H., and Thompson, J.B., Jr., 199_, Bedrock Geologic Map of New Hampshire: Reston, VA, U.S. Geological Survey State Geologic Map, 2 sheets, scale 1:250,000 and 1:500,000. (09/07/95)

Field Trip Reports

NHGS Annual Family Picnic July 1995

The 1995 Annual Family Picnic of the New Hampshire Geological Society was held Saturday, July 22, 1995. The day was spent enjoying a cloudless upper 80's degree day at the Palermo Mine followed by an afternoon of barbeque and swimming at Wellington State Park at Newfound Lake. A total of 65 (52 adults, 13 children) attended the outing. The morning was spent with Bob Whitmore touring the Palermo Mine. An opportunity for mineral collecting and a history of the mine was provided. Of notable interest was the presence of at least three feet of ice in the mine itself. Those fortunate enough to attend the afternoon barbeque shared in a menu featuring shish-ka-bob, plus an added treat of shrimp, and boiled lobster provided in part by membership dues of the Society. Many thanks to Craig Durrett, Dick Lane, Lee Wilder and Bob Whitmore, who assisted in the organization and operation of the picnic.

Fifth Annual Field Trip August 1995

On Saturday, August 5, 1995, Peter Thompson, PhD. hosted a trip to explore the geology of Mount Monadnock. A total of 21 attended a wet and humid hike up the southwest face of Monadnock. Despite the weather the group was offered a special treat. Aside from observing the bedrock geology, Carol Hildreth, assistant to State

Geologist, Gene Boudette, presented her summary of the glacial geology of the Monadnock 7.5 minute quadrangle. Also, park superintendent, Michael Walsh provided his knowledge and understanding of the natural and cultural history of the mountain. Many thanks to those who attended, and a sincere appreciation to Peter for donating his time with the Society.

Upcoming Field Trip Opportunity: 1996 NEIGC

The 1996 NEIGC will take place on Friday, September 27 through Sunday, September 29 and will be headquartered in the Gorham-Littleton area of northern New Hampshire, jointly sponsored by Harvard University, the Mount Washington Observatory, and the New Hampshire Geological Society. Anyone interested in leading a field trip or otherwise volunteering to help with this event should contact Mark Van Baalen, Dept. of Earth and Planetary Sciences, Harvard University, 20 Oxford St., Cambridge, MA 02138; W: 617-495-3237; FAX: 617-495-8839; H: 508-486-4751; e-mail: mvb@harvard.edu

NHGS News and Events

The 1995 Annual Meeting of the New Hampshire Geological Society will be held Thursday, October 12, 1995. Richard Pendleton, a recent graduate of UNH, will present "The Deglacial History of the Penacook Quadrangle and the Holocene Evolution of the Upper Merrimack River, New Hampshire." Rick will discuss his surficial mapping of the Penacook, NH 7.5 minute quadrangle and geologic history of the Merrimack River. Also, members of the Society will be casting their votes for the 1996 Board of Directors (see Slate of Candidates inside). The dinner meeting takes place at the Sheraton Tara Hotel in Nashua, NH. A cash bar begins at 6:00 p.m., with dinner at 7:00 p.m. The cost will be \$17.00 for members and \$18.00 for non-members. Dinner will be a choice of Pork Medallions or Chicken Dijonaisse. We need an accurate head count so we need your reservations no later than October 9, 1995. For more information, contact Greg Kirby at 603-271-3624.

Scheduled dates for Upcoming Meetings of the Society for 1996 are: January 11, April 11, Family Outing (June or July?); Annual Field Trip August 3 or 10 and the annual meeting October 10, 1996. As a general rule, the Society's meetings are scheduled on the second Thursday of January, April, June(?) and October; while we usually shoot for the first Saturday in August for the Annual Field Trip.

The New England Section of the Association of Engineering Geologists has provided the meeting schedule for 1995-1996. Those wishing additional information may contact Jutta Hager at 617-893-9700. The next scheduled events are: October 19, November 16, December 14, January 18, 1996, February 15, March 16, April 18, and May 16, 1996.

A new Membership Directory should be available at the Annual Meeting. At press time, there are about 120 current members for 1996; we anticipate several more renewals at the annual meeting or shortly thereafter. The Membership Directory is available to and lists only current members. The Society's current policy is that we will not provide mailing labels or membership lists to non-members or other organizations. The Society will gladly publish announcements of upcoming events and other items of interest in our newsletter, but we will not make special mailings to our members on behalf of other organizations. Other organizations may distribute information at our meetings, if they wish.

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