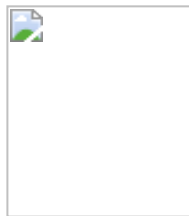


The Granite State Geologist



Newsletter of the New Hampshire Geological Society

Suite 133 * 26 South Main Street * Concord, NH 03301
Number 12 * January 1995

President's Message

Greg Kirby

As 1994 comes to a close, I'm pleased to report the successes of the Society's outreach campaigns. First, the Membership Committee was successful this year in its membership outreach program. Over 60 Consulting firms received NHGS literature, and I anticipate many new members joining us in the year to come. (Our current membership is over 130). In September, the Education Committee awarded a \$300.00 scholarship to a secondary school science teacher and will send her to a conference in Pennsylvania. The Program Committee successfully recruited contributions from Chris Covell, who gave a talk about geophysical tools which aid in environmental investigations, and Karl Koteff and Dykstra Eusden, who presented their interpretations of glacial and bedrock geology, respectively, in New Hampshire. Lastly, we saw a marked increase in membership participation in NHGS. Many thanks to those volunteers for contributing their time and services to the Society.

For 1995, I anticipate continued progress in the Society's outreach programs and committees. I look forward to our Education Committee awarding another scholarship (or two?) in September. The Program Committee has lined up several speakers to present new geological tools for environmental investigations. In January, we start off with Acoustical Methods for Estimating Fracture Permeability. I also look forward to the annual field trip in August when the Society travels to southwestern New Hampshire where Peter Thompson will give us a tour of the Geology of Mount Monadnock. I would like to continue with the popular mineral displays, and I will make a concerted effort to have them shown at each dinner meeting.

In order to raise money for scholarships, this year, I would like to propose mineral raffle to raise money for future scholarship funds. These raffles would be held at the quarterly dinner meetings. Donations will be graciously accepted. Also, a novel approach for fund raising this year will be the Finance Committee's endeavor to print T-shirts and/or hats with the NHGS logo.

On a more sober note, I would like to point out that tough times for the science of geology in New Hampshire are intensifying. The recent political upheaval in Washington and the desire to cut spending threatens the security of notable institutions like the US Geological Survey and the Bureau of Mines. Also, this year the State of New Hampshire is asking for another budget cut from the Department of Environmental Services. So, I believe it is imperative that this Society continue its efforts in public outreach. As individuals, we can do this by contacting our political representatives to voice our concerns. In addition, I would like to see an effort from our membership in volunteering time for public education. So this year a major goal of mine will be to solicit volunteers to contribute their experience and share it with students in our secondary schools. I ask for those interested to provide your name and topic of interest so a list can be developed and provided to schools - so students and teachers can benefit from our understanding of the relationship of geology to the environment.

In conclusion, there has been a substantial increase in membership involvement with the Program, Education, and Membership committees. 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 our newsletter, The Granite State Geologist.

See you in January!

Attendance Record Set at Fall Meeting

At the Society's annual meeting on October 13, 1994, a total of 91 people showed up to listen to Dyk Eusden's presentation on the Bedrock Geology of the Presidential Range, New Hampshire. This is believed to be the largest attendance for a Society meeting ever. Also, a new Board of Directors was elected: Greg Kirby - President, G. Nelson Eby - Vice President, Lee Wilder - Secretary, Craig Durrett - Treasurer, and John Lyons - Member-at-Large. Tim Allen was elected in 1993 and is serving a two-year term as Member-at-Large. One highlight of the meeting was a vote to amend the bylaws so that Members-at-Large will serve staggered, overlapping two-year terms. If you have an issue you would like the Board to address, please feel free to contact any of the new Directors.

Operating History of the Polermo Number 1 Mine, Rumney, NH

Bob Whitmore

The Polermo Mine, located off Route 25 in Rumney, NH, has been operating off and on as a source of mica, feldspar and beryl for over 125 years. Quarrying operations started in 1863, when Charles E. Kellogg began mining sheet mica (muscovite). He eventually sold his operation to the Hartford Mining Company in February 1978, naming it the Hartford Mine. The Hartford Mining Company then began expanding operations and began working the pegmatite from the south end eastward and extending underground. In 1886, the mineral rights were sold to George F. Bread. Bread then transferred a mortgage to the Polermo Mining Company of New York as security for a prior loan, and in 1888 the Polermo Mining Company purchased all mineral rights from Bread. At this time, the Hartford Mine became the Polermo Mine.

At this time, the operation changed completely, Workers went from hand drills and black powder to steam drills and dynamite. A crew of 85 local farmers was hired to work underground, and a trimming shop employing twenty-five women was set up at the surface.

Near the end of the nineteenth century, the Polermo Mining Company went bankrupt, and the mine was sold at an auction to Eugene Munsell & Company for \$30,000. The mine lay dormant for the next few years until 1914 when the General Electric Company bought the mineral rights. GE then resumed mining mica underground during World War I. After the war, the mine operation again laid dormant. In 1944, GE was managing the mine pool, so leased the mine to a newly formed mining company called the Ashley Mining Company of Rumney, NH. H.A. Ashley, as president, and Maltby Shipp as mining engineer produced 4,222 tons of feldspar, 495 tons of scrap mica, and 49 tons of beryl in one year. Poor health forced the Ashley Mining Company to shut down in 1954.

In 1958, John Maderic bought the rights from GE and resold them to Milton Burluson, of the Mountain Mining Company in North Carolina the same year. The Mountain Mining Company operated underground, mining mica for three years. In 1963, Minerals Materials, Inc. leased the mine for five years and produced crushed quartz from the core of the pegmatite. Some of the material from the mine was used for the facing of the Prudential Insurance Company building in Boston. Also, 40 tons of beryl was stockpiled as well.

In 1973, Peter Samuelson leased Polermo solely for the production of gem beryl and mineral specimens. It was at this time that Professor Paul B. Moore, of the University of Chicago, Department of Geophysical Sciences, began investigating the numerous phosphate minerals that had been exposed by the blasting of the triphylite pods in the quarry part of the mine. A new mineral, Bjarcbyite, was found at this time.

In May 1974, all mineral rights to the Polermo Mines were purchased by R. Whitmore and F. Fogg, calling themselves Polermo Mine Enterprises. During the 1970's, Dr. D.P. Moore and A.R. Kampf (now Dr. A.R. Kampf) did an extensive investigation of the phosphate minerals. During this time, there were five more new phosphate minerals found. These were Foggite, Goodhenite, Samuelsonite, Shoonerite, and Whitmoreite.

Today, R. Whitmore is the sole owner of the property. To date there have been 110 minerals found at this locality, with the Polermo Mine being the type locality for ten of them.

The 1996 New England Intercollegiate Geologic Conference

Mark Van Baalen

One of the most venerable and durable geologic institutions in the United States is the New England Intercollegiate Geological Conference, better known by its initials, NEIGC. This informal and low-overhead organization exists solely for the purpose of running geologic field trips in the fall, in the New England and states and in immediate adjacent areas. Organized in 1901 by geomorphologist William Morris Davis, NEIGC has convened on a yearly basis ever since, with minor hiatuses due to wars. The locus of NEIGC field trips has migrated through all the New England states; in 1994 NEIGC was headquartered in Millinocket, Maine; in 1995 it will take place in late September or early October in Brunswick, Maine, hosted by Art Hussey of Bowdoin College (look for more details in future issues of the Granite State Geologist).

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. The last time the NEIGC visited this area of New Hampshire was in 1946, when Marland P. Billings convened the event at the Glen House Site on Mount Washington. 50 years later, NEIGC '96 will be jointly sponsored by Harvard University, the Mount Washington Observatory, and the New Hampshire Geological Society. The scale of this event will be about 300 people going on their choice of about 25 field trips over the three day period. The program will be very simple: three days of field trips in beautiful fall weather. There is traditionally a welcome party held on Friday and a banquet on the Saturday evening of the three-day weekend. NHGS members will be welcome on all of these trips; in fact, several NHGS members will be leading some of the field trips! A substantial guidebook for these field trips will be published as part of the conference: the set of NEIGC guidebooks from over the years are a priceless collection of New England geology. Many interesting and provocative geologic ideas are published nowhere else.

NEIGC field trips have traditionally been grouped loosely into Bedrock Geology and Glacial Geology categories. For NEIGC 96, recognizing the unique capabilities of NHGS, we would like to extend this tradition to include Environmental Geology. Are there any NHGS members who would be interested in leading a field trip along these lines? The possibilities could include demonstrating current field techniques used in environmental site investigations. Firm commitments from trip leaders will be needed by summer '95; there will be some sort of review process for prospective field trips. Specific logistical help that is needed includes booking suitable locations for the welcoming party and the banquet (Bretton Woods or Wildcat ski areas come to mind), compiling lists of motels and campgrounds in the area, preparing the guidebook for publication, mailing flyers announcing the field trips (spring-summer 1996), and handling registrations (fall 1996). Any NHGS members who are interested in volunteering to help with the NEIGC 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: [m vb@harvard.harvard.edu](mailto:mvb@harvard.harvard.edu) (or contact Greg Kirby or Tim Allen).

The Society's role as co-sponsor is limited to soliciting its membership for volunteers and providing publicity through its newsletter.

Membership Report

We want to remind everyone that, currently, the Society's membership year runs from June 1 of each year to May 31 of the following year. To be listed in the Annual NHGS Membership Directory, you must submit your dues within 60 days of the beginning of the membership year. Anyone who joins the Society in time to receive the April newsletter will be considered a member for the current membership year, and will be sent a renewal invoice in the spring. At the last Directors' meeting, there was some discussion about changing the membership year to correspond with the calendar year, which is also the Society's fiscal year. As this requires a change to the Bylaws, it can not be acted upon until the Annual Meeting, October 12, 1995.

Since the membership directory was put together in September and handed out at the October meeting, we've had 30 new members join up, bringing our total membership to 136. A page with these new members has been prepared for you to insert into your 1994-1995 NHGS Membership Directory.

Congress Threatens to Abolish U.S. Geological Survey and U.S. Bureau of Mines

Craig M. Schiffries

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The U.S. Geological Survey and the U.S. Bureau of Mines are facing one of the most serious challenges in their history. Both agencies have been targeted for complete elimination according to an attachment to the Contract with America. The Contract contains a package of 10 bills that 224 Republican members of Congress have pledged to introduce in the first 100 days of the new Congress. The attachment identifies \$176 billion in possible spending cuts over five years. Although many programs would be reduced, restructured, or frozen, the USGS and the USBM are among a handful of organizations that have been targeted for abolition.

"We are deeply concerned about the Contract with America proposal, because it reflects a lack of understanding about the broad range of scientific activities conducted by the U.S. Geological Survey, as well as our active role within all 50 states," says Gordon P. Eaton, director of USGS. "We serve as the archivist of this nation's Earth resources - monitoring the rivers, for example, and helping to maintain healthy water standards. Our geoscientists help citizens prepare for emergencies such as earthquakes and floods; and we address the challenges of sustainable development of our oil, gas, and minerals resources. In fact, the USGS touches the lives of every American citizen every day."

The geosciences would absorb a disproportionate share of spending cuts relative to other scientific disciplines, and the U.S. Geological Survey and the U.S. Bureau of Mines would take the most direct hits. Abolishing the USGS ranks as the fifth largest cut among all discretionary programs in the federal budget. Eliminating the USGS represents the largest single reduction for any science and technology program.

Congressional staff members indicate that abolishing the U.S. Geological Survey might be accomplished by transferring some of its functions to other organizations. They suggest that some programs in the water resources division might go to the Environmental Protection Agency. Likewise, certain functions of the national mapping division might move to the Defense Mapping Agency or to the private sector, while some functions of the geologic division might be transferred to universities. But shifting programs from one agency to another would offset some of the proposed savings, and no estimate of the net savings has been made available. It is unlikely that other organizations would pick up these programs at no expense to the nation.

Rep. John R. Kasich (R-Ohio) is a key figure behind the proposal to abolish the USGS and the USBM. Last year, Rep. Kasich cosponsored an amendment with Rep. Timothy J. Penny (D-Minn.) that would have eliminated the two agencies, a proposal included in a package of numerous budget cuts. Although President Clinton intervened to oppose the Penny-Kasich amendment, the House of Representatives defeated it by a margin of only two votes. Now that Republicans control both the House and Senate, Rep. Kasich is expected to become chairman of the House Budget Committee. He will be in a much stronger position to pass these measures.

The Clinton Administration has made clear its support of the USGS and the USBM. Secretary of the Interior Bruce Babbitt has said, "The USGS is the nation's premier water and earth-science information agency, and its role is increasingly important at a time when we are facing many critical decisions on the environment." Last August, Secretary Babbitt stated, "This Administration is firmly committed to maintaining a strong, viable, U.S. Bureau of Mines in the Department of the Interior." In October, when Rhea L. Graham was sworn in as director of the USBM, she said, "I believe that the agency has a vital role to play in helping the nation solve its mineral-related problems - problems that involve our environmental and economic goals as well as basic human issues such as worker health and safety."

It is ironic that Congress is considering legislation to abolish the USGS and the USBM at a time when the United States is beginning to recognize its increasing vulnerability to earthquakes, floods, droughts, water pollution, volcanic eruptions, global environmental change, contamination from waste disposal, and reliance on unstable sources of foreign oil and minerals.

Geoscience research and information play vital roles in an ever-growing range of societal problems. Federal investments in geo- science research and information continue to pay enormous dividends. Although the rationale for supporting the USGS and the USBM remains strong, Congress and the public are not generally aware of their relevance to a broad range of national goals. Over 100 years ago, the USGS was established without fanfare - created by an amendment to another bill. Today, the agency stands in danger of being dismantled in much the same way it was created.

Possible Spending Cuts for the Contract with America

(projected savings in billions of dollars over five years)

Proposal	Estimated Savings
Abolish the U.S. Geological Survey	3.261
Abolish U.S. Bureau of Mines	0.872
Abolish National Biological Survey	0.139
Eliminate the Advanced Technology Program	0.819
Downsize Minerals Management Service	0.465
Reduce funding for Energy Technology Development	2.139
Reduce overhead rate for university research	1.620
Freeze funding for NOAA	0.805
Halt purchases of oil for Strategic Petroleum Reserve	0.362
Restructure the Naval petroleum reserves (Elk Hills)	0.143
Restructure Bureau of Reclamation	0.427
De-Emphasize permanence in Superfund clean-ups	1.140
Limit rate of growth of National Science Foundation	0.346

Source: House Budget Committee Republican Staff

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Next Slide Please...

What don't we like upon the screen?

Tabulations! Tabulations!

What makes the audience feel mean?

Tabulations! Tabulations!

What call forth remarks obscene

And send us out for strong caffeine

Or even better, Benzedrine?

Tabulations! Tabulations!

What do we greet with rank dismay?
 Phase diagrams! Phase diagrams!
 What do we wish would go away?
 Phase diagrams! Phase diagrams!
 What put our minds in disarray
 And rapidly unmake our day?
 What definitely ain't OK?
 Phase diagrams! Phase diagrams!

What pictures do we yearn to see?
 Rock exposures! Rock exposures!
 What better subject can there be?
 Rock exposures! Rock exposures!
 What makes us glad we paid our fee
 And close attention guarantee?
 What really mean geologiee?
 Rock exposures! Rock exposures!

source unknown

NHGS Treasurer's Report

For the period January 1, 1994 through November 30, 1994 (11/12ths of an Annual Report).

Starting Balance - January 1, 1994 2518.56

Income

Dues	2730.00
Meeting Fees	3795.00
Interest Income	44.99
Field Guide Sales	8.00
Directory Sales	1.00
Total Income	6578.99

Expenses

Meeting Expenses	3702.63
Postage	383.69
Newsletter	209.89
Directory	237.90
Field Trip Guide	160.20
P.O. Box Rent	90.00
Insurance	206.00
Professional Services (Tax Prep)	150.00
Bank Charges	11.95
Total Expenses	5210.48

Ending Balance, November 30, 1994 3887.07

Bank Account Balances, November 30, 1994

Savings Account, First NH Bank	3309.34
Checking Account, First NH Bank	577.73
Total Balance Forward	3887.07

Respectfully submitted,
Dorothy Richter, Outgoing Treasurer

More Meetings and Field Trips

The Environmental Engineering and Geophysical Society (EEGS) will be sponsoring its Eighth Annual Symposium on the Application of Geophysics to Engineering and Environmental Problems, April 23-27, 1995, in Orlando, Florida. For more information, contact: Environmental Engineering and Geophysical Society, PO Box 4475, Englewood, CO 80115; 303-771-6101.

The Third Hutton Symposium on the Origin of Granites and Related Rocks, from August 27 to September 2, 1995, will be hosted by the University of Maryland at College Park. Two pre-conference field trips have been organized to look at igneous rocks throughout New England, including stops in the New Hampshire Plutonic Series and the White Mountain Batholith. The registration deadline is March 31, 1995. For more information, contact: Third Hutton Symposium, Department of Geology, University of Maryland at College Park, College Park, MD 20742.

The Mineral Industry of New Hampshire in '93

US Bureau of Mines

The value of nonfuel mineral production in New Hampshire in 1993 was estimated by the US Bureau of Mines to be \$35.9 million. This value represents a decrease of \$6.1 million from that of 1992, primarily the result of lower sales of construction sand and gravel and crushed stone, the State's two leading mineral commodities produced. Dimension stone, common clay, and gemstones accounted for the remainder of the State's mineral value. Crude gypsum, imported to the State, was calcined at two plants to manufacture wallboard

The table below shows estimated 1993 nonfuel mineral production in New Hampshire as measured by mine shipments, scales, or marketable production (including consumption by producers).

	Quantity (short tons)	Value (dollars)
Gemstones	na	\$1,000
Sand and Gravel	5,300,000	\$20,700,000
Crushed Stone	1,500,000	\$9,600,000
Dimension Stone	28,981	\$5,608,000

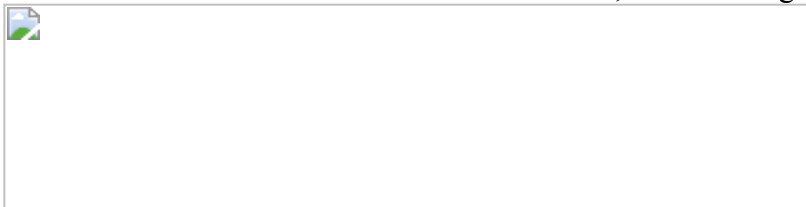
The average number of workers in the mineral extractive industries in New Hampshire during the first 9 months of 1993 was estimated to be 378, a total of 25 more than that of 1992. This included 252 workers at sand and gravel pits and 112 workers at stone quarries. A total of 14 workers were employed at mineral-related mills and preparation plants in the State.

The New Hampshire Geological Survey, in a cooperative agreement with the New England Governor's Council, completed a series of three quadrangle maps covering the entire State in the second phase of a three-part study to assess onshore sand and gravel in the region. The map work, financed by the Minerals Management Service, will be combined with similar work of the other New England State Geological Surveys and will be the basis for completion of a report depicting the sand and gravel resources and those that are limits to mining. The volumes that are off limits to mining will be subtracted from the total resources to give a presently usable volume.

A report on Construction Aggregate Demand in the New England States was completed in January 1992. The study estimated that demand for construction aggregate in New England will grow at a vary modest rate over the next two decades. Much of this growth will likely be for repair and replacement of the region's infrastructure. Most of the increase in demand will occur in Massachusetts and Connecticut, and in major metropolitan areas such as Boston, Hartford, and Providence.

NHGS News and Events

The Winter Meeting of the New Hampshire Geological Society will be held January 12, 1995. Randy Martin and Martin Smith, of New England Research, White River Junction, VT, will present Acoustic Methods for Estimating Fracture Permeability. Randy and Martin will discuss the innovative borehole geophysical techniques in estimating fracture permeability for use in bedrock aquifer contaminant investigations. We encourage all to attend and benefit from NER's experience. The dinner meeting takes place at The Cat 'n Fiddle Restaurant in Concord, NH. A cash bar begins at 6:00 p.m., with dinner at 7:00. The cost will be \$13.00 for members and \$14.00 for non-members. For more information, contact Greg Kirby at 603-271-3624.



Other Meetings in 1995 are scheduled for April 13, June 10 (tentative), August 5 (annual field trip and picnic), and October 12 (1995 Annual Meeting). In 1996, NHGS meetings are scheduled for January 11, April 11, June 8 (tentative), August 3 or 10 (annual field trip and picnic), and October 10 (1996 Annual Meeting). Generally, the Society's meetings are scheduled for the second Thursday of the months of January, April, June(?) and October; we usually shoot for the first Saturday in August for the field trip.

For the **Annual Field Trip(s)** this year, we will be heading to southwestern New Hampshire. Peter Thompson has accepted our invitation to guide us on a full-day trip to study the geology of Mount Monadnock on August 6, 1995. We are also hoping to schedule a separate picnic and family outing to another area of geologic interest in that part of the state, possibly in June. Look for more details in upcoming issues of the Granite State Geologist.

The **Association of Engineering Geologists - New England Section** will be hosting the following meetings:

- January 19, 1995: Dick Heely: Buried Valleys, Buried Treasure or Buried Trouble?
- February 6, 1995: Steve Stokowski, Jr.: Graphite in New England.
- March 25, 1995: Spring Symposium - to submit abstracts, contact Jutta Hager at 617-893-9700
- April 20, 1995: George Furst: The Geology of Vietnam.

For more information, contact Jutta Hager at 617-893-9700.

The 1995 meeting of the **Geological Society of America - Northeast Section** will be held in Hartford, CT, between March 20-22. For more information, contact Norman Gray, University of Connecticut, at 203-486-4434.

Last Modified June 15, 1995

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[Previous Issue](#) | Number 12 | [Next Issue](#)

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