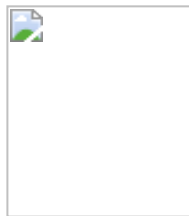


The Granite State Geologist



Newsletter of the New Hampshire Geological Society

Suite 133 * 26 South Main Street * Concord, NH 03301

Number 20 * March 1997

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The 1996 New England Intercollegiate Geologic Conference, dedicated to Marland P. Billings and Katharine Fowler-Billings

Tim Allen

The New Hampshire Geological Society was a co-sponsor, along with [Harvard University](#) and the [Mount Washington Observatory](#), of the [1996 NEIGC](#), which was held September 27-29, 1996 in northern New Hampshire, based at the Wildcat Ski Area. The last time the NEIGC visited this area of New Hampshire was 50 years ago, when [Marland P. Billings](#) convened the event at the Glen House Site on Mount Washington in 1946.

The 1996 NEIGC, held in Billings' honor, attracted record numbers of participants--the final registration count was 481! Field trips covered topics from stratigraphic controversy in the Connecticut valley region to structural geology in the alpine zone on Mount Washington, from the petrology of migmatites in western Maine and in Pinkham Notch to glacial geology and the history of geologic controversy in the White Mountains, and from environmental applications of geophysical techniques to the interface between geology and archeology. The weather held off such that we were able to successfully run excursions above treeline and hikes over the mountains without incident. Copies of the *Guidebook to Field Trips* are still available from the [Mount Washington Observatory](#) at their Resource Center in North Conway, or the museum on the summit, and from the [Department of Earth and Planetary Sciences at Harvard University](#).

It is fitting that most of these trips could trace their roots to original work done by Billings. [His influence, direct or indirect, was felt by many participants](#). Trip leaders and conference organizers are grateful that they were able to honor Professor Billings in this way at the end of his life. Marland Pratt Billings died on October 9, 1996. He was 94 years old. His ashes were interred at Mt. Auburn Cemetery in Cambridge on November 30. Donations in his memory should be sent to the Scholarship Fund, Roxbury Latin School, 101 St. Theresa Avenue, West Roxbury, MA 02132 "In memory of alumnus, Marland P. Billings"

Among many other honors, Billings, and his wife Katharine Fowler-Billings, were elected honorary fellows of the New Hampshire Geological Society in 1992 (see [The Granite State Geologist, number 3, December 1992](#), available from the [NHGS Web site](#)). Kay Fowler-Billings continues to reside at Summerhill in Peterborough. Her recent autobiography, *Stepping Stones, The Reminiscences of a Woman Geologist in the Twentieth Century*

was published in 1996 by the Connecticut Academy of Arts and Sciences (this reader recommends it highly!). [Her latest scientific contribution](#) can be found elsewhere in this issue of *The Granite State Geologist*.

With proceeds from the [1996 NEIGC](#), and with the New Hampshire Geological Society's help, a new fund honoring the memory of Professor Billings was established at the [Mount Washington Observatory](#) "to provide a way to fund research and educational activities in the field of New England geology, with special consideration being given to the support of future meetings of the New England Intercollegiate Geologic Conference (NEIGC)." Billings, the "godfather of modern geological research in New England," was a long-time member of the Mount Washington Observatory. The fund is overseen by NHGS and MWO members Mark Van Baalen, Brian Fowler, and Tim Allen.

See also: [Number 3 of *The Granite State Geologist*](#) and [Marland P. Billings 1902-1996: A Remembrance](#) by Brian K. Fowler

The [1997 New England Intercollegiate Geologic Conference](#) will be held September 19-21, 1997 in the Rutland, Vermont area, hosted by Castleton State College. For more information, contact Tim Grover, Dept. of Natural Sciences, Castleton State College, Castleton, VT 05735, (802) 468-5611, grovert@sparrow.csc.vsc.edu. The conference announcement and details about the field trips will be posted on the World Wide Web at: <http://neigc.org/NEIGC/1997/>

NHGS Board of Directors Elected for 1997

- President: Gregory Kirby
- Vice President: Gene Simmons
- Secretary: Leland (Lee) A. Wilder
- Treasurer: Gretchen Rich
- Members-at-Large:
 - Timothy T. Allen (term expires 1997)
 - Dorothy Richter (term expires 1998)

The Board wishes to thank retiring directors Nelson Eby from the University of Massachusetts at Lowell and John B. Lyons, emeritus at Dartmouth College, for their service to the Society. We welcome the return of Dorothy Richter, who previously served several years as the Society's Treasurer, and new director Gene Simmons.

Volunteers are now being sought for the nominating committee who will put together the slate of candidates for the 1998 Board of Directors. Nominations are solicited over the summer, with biographies of candidates published in the fall newsletter. Members of the nominating committee have the responsibility of confirming each nominee's willingness to stand for election, collecting their biographies, and conducting the election at the Society's Annual Meeting in the fall. If you would like to volunteer, please contact any of the current directors (e.g. Greg Kirby at 603-271-3624). If you would like to nominate yourself or someone else for a slot on the Board, please wait for the nomination form which will be included with the summer newsletter or [membership renewal](#) invoice.

Five Years of *The Granite State Geologist*

This marks issue number 20 of the New Hampshire Geological Society's newsletter, [The Granite State Geologist](#). Published quarterly since April 1992, the newsletter was originally the idea of then-president Dick Lane, who put out a call for volunteers at one of the Society's dinner meetings. Tim Allen, then a graduate student at [Dartmouth College](#), responded and worked with directors (and subsequent presidents) Bob Luhrs and Joanne McLaughlin to put together [the newsletter's first issue](#). Since that time, *The Granite State Geologist* has reported on NHGS news, announced upcoming events, and carried numerous other articles of interest to the

membership, including a series of wonderful historical vignettes by the late [Linc Page](#). We continue to depend on members for material. Please send [submissions](#) to Tim Allen, Mailstop 2001, Keene State College, Keene, NH 03435-2001, or by e-mail to: tallen@keene.edu

With the mailing of this issue, responsibility for managing the NHGS membership database and mailing list has passed on to Steve Shope. Questions about the status of your membership should be directed to Steve. Tim Allen will continue to publish the newsletter.

Upcoming Events

The [U.S. Geological Survey, New Hampshire-Vermont District](#) is sponsoring an Open House and Water Resources Exhibition on Tuesday, April 29, 1997 at the Pembroke, N.H. office. District staff will demonstrate ground-penetrating radar techniques, methods of bridge scour modeling and streamflow monitoring, fracture-trace delineation in bedrock, ground-water-flow modeling, borehole video techniques, GIS, and water quality monitoring. Seminars on fracture-trace delineation, water-quality assessment, and borehole logging techniques will be offered during the day. The Open House will be from 11:00 am to 6:00 pm at 361 Commerce Way, Pembroke, N.H. rain or shine. For more information and directions call Debra Foster at (603) 226-7837.

The 8th Maine Mineral Symposium will be held in Augusta, ME between May 2-4, 1997. at the Senator Inn, Western Avenue, Augusta. Topics will include the 19th century mining in Maine, the origin and geochemical characteristics of granitic pegmatites, and mines and minerals of northern New Hampshire and west-central Maine. For further information call or write: Robert Hinkley, Yarmouth Rd, Route 115, Gray, ME 04039. Phone: 207-657-3732.

The Canadian Quaternary Association will be holding its 8th Biennial Meeting May 22-25, 1997, in Montreal, Quebec, Canada. The meeting will encompass deglaciation of the Appalachians and the St-Lawrence Lowlands, and the timing of the North American Glaciations. Recent age dating has been done in northern NH by Canadian Geologists that should help tie in deglaciation of northern New Hampshire and southern Quebec with events surrounding the advance and retreat of the Champlain Sea. For further information contact: Ms. Marie Auclair, Departement des Sciences de la Terre, UQAM (auclair.marie@uqam.ca), Fax: (514) 987-7865 or phone at (514) 987-3000 ext. 3658.

NHGS [family outing: July 19](#); and [field trip: August 10](#)

Avalanche in King Ravine

Katharine Fowler-Billings

December 12, 1996

After reading about the March avalanche in the November issue of A.M.C. Outdoors, I was struck by the possibility that this was the solution to a problem which had nagged us for years-- "Where did, and how did those huge boulders in front of our cottage in Randolph get there?" The idea of an avalanche seemed too far-fetched. But if you compare the photos on the cover and on page 31, they could easily be duplicated by the slope, distance, and slide surface that would start from the King Ravine Headwall, along Coldbrook, to stop just south of the R.R. and in front of our cottage. So I have written up this theory, below:

King Ravine--on the northern side of Mt. Adams, in the town of Randolph, New Hampshire, could easily have duplicated the recent avalanche in the Gulf of Slides on the south side of Mt. Washington, which killed two skiers on March 14, 1996. [See photo on front cover of Outdoors The A.M.C. November 1996 issue, as well as the photo on page 31.] We had a cottage on the east side of Coldbrook, just south of the R.R. and north of a series of large boulders. We gave the cottage to the Dartmouth Outing Club, when the state took most of our land for the re-routing of Route 2.

Just north of our cottage, and south of the R.R., on both sides of Coldbrook, there are several large boulders. The largest one--8 feet by 6 feet by 4 feet--was demolished by the highway crew in the re-routing of Route 2. This boulder was a mica schist with granulite, and showed folding. It was similar to the outcrops on the headwall of King Ravine, and was relatively fresh as are the other large boulders in the vicinity. I believe they had been loosened from the headwall, when the ice sheet left 11,000 years ago, by the frost action. The basin is strewn by large boulders which came from outcrops of the headwall. These had accumulated after the forming of the small cirque in King Ravine. Conditions were ideal for an avalanche to pick them up, in conditions similar to those in the Gulf of Slides. They would have been packed in the heavy new snow, which fell on a sliding surface of packed ice and snow. They would have been picked up and carried down to the foot of the slide by the avalanche, and dropped much as a terminal moraine where the ground leveled off. Outwash and smaller boulders would have been carried further, making a fan-like structure just south of the Moose River which flows from west to east in the Randolph valley. This theory could explain the presence of the large boulders.

1996 Treasurer's Report

Starting Balance, January 1, 1996 3441.30

Income

Dues	2739.00
January Meeting	1028.00
April Meeting	738.00
Summer Picnic	883.00
NEIGC Fall Outing	13,393.00
October Meeting	999.00
January 1997 Meeting	34.00
Mineral Raffles	124.00
Interest Income	152.72
Total	20,090.72

Expenses

January Meeting	811.80
April Meeting	773.83
Summer Picnic	1531.41
NEIGC Fall Outing	13,393.00
October Meeting	949.78
Postage	12.80
Bank Fees	50.39
Newsletter Publication & Mailing	519.33
Insurance	206.00
Tax Exemption Filing	25.00
Tax Preparation & Filing	450.00
Scholarship Grants	300.00
Mailbox Rental	90.00
Miscellaneous	57.00
Total	19,170.34

Ending Balance, December 31, 1996 4361.68

Savings Account 3645.19

Checking Account

716.49

Respectfully submitted,
Gretchen Rich, Treasurer

NHGS News and Events

The Society's **Spring Dinner Meeting** will be held on April 10, 1997, at the Wayfarer Inn in Bedford, NH. [Joe Kelley](#) of the [University of Maine at Orono](#) and the [Maine Geological Survey](#) (and President of our sister organization, the Geological Society of Maine) will present *Shoreline Changes in Southern Maine: the Role of Human Activity*. Joe will discuss the recent changes in shoreline positions and beach geomorphology in light of changing rates of Holocene sea-level rise and human activity in the Saco and Wells Bays. Of major concern is the rapid contemporaneous sea level rise and recent engineering structures that have led to severe beach erosion and a wholesale redistribution of sand in the bays. The meeting will begin at 6:00 p.m. with a cash bar, dinner following at 7:00. Costs for the dinner will be \$17.00 for members, \$18.00 for non-members, and a \$2.00 cover charge for guests paying at the door. We need an accurate head count, so we request your reservations no later than April 7, 1997. For more information, contact Greg Kirby at 603-271-3624. We look forward to seeing you there.

For the last nine months the Board of Directors has been working on an application for **Tax-Exempt Status** for non-profit organizations. Finally, in January, NHGS was granted tax exemption as a professional organization. As such, the Society will no longer have to pay federal income taxes. Unfortunately we did not qualify as a charitable organization, but you can fully deduct your costs for membership and any contributions you make to the Society's [Lincoln Page Memorial Scholarship](#) as business expenses (only 50 percent of the cost of the dinner meetings can be so deducted).

While we may never surpass last summer's [expedition to Star Island](#), this summer the Society will embark on both a [Family Outing and Picnic](#) to [Franconia Notch State Park](#) (July 19) and a [Geological Field Trip](#) to examine the "classic" geology of west-central New Hampshire (August 10). We are currently seeking volunteers to assist in the bar-b-que preparations and the field trip logistics. For further information please call Greg Kirby at 603-271-3624. Mark these dates on your calendar and look for more details in the summer issue of *The Granite State Geologist*.

Last Modified March 26, 1997

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