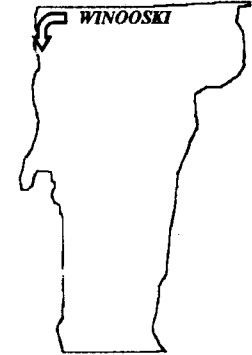


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DEPARTMENT OF GEOLOGY
UNIVERSITY OF VERMONT
BURLINGTON, VERMONT 05405-0122

THE

GREEN MOUNTAIN GEOLOGIST



QUARTERLY NEWSLETTER OF THE VERMONT
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The **GREEN MOUNTAIN GEOLOGIST**

is published quarterly by the Vermont Geological Society, a non-profit, educational corporation, dedicated to the advancement of the study of geological science in Vermont and its locale.

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*The Vermont Geological Society
Winter Meeting:*

A SYSTEM DYNAMICS WORKSHOP WITH ROLFE STANLEY

*Join us for a Hands-On Approach with STELLA
Winooski High School, Winooski, Vermont
SATURDAY MARCH 11, 1995, 10:00 AM*

See Inside For Details.

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PRESIDENT'S LETTER

This issue of the *Green Mountain Geologist* is decidedly one of our thinner publications. I know that it's been a busy Winter for me; I'm sure many of us are in the same boat. Professional time constraints always take precedence over those of volunteer commitments, yet I can't help but feel excited about the goings on here at VGS.

Our twentieth year was an active one for all of us. Last Winter's meeting at the Cold Regions Research and Engineering Laboratory yielded an intriguing combination of seminars, and the after-lunch tour of the lab itself was quite a treat! The Spring student presentations were a tremendous success; turnout was excellent, and the caliber of the students' papers were above most expectations by far. Our Summer field trip to Crown Point was a personal highlight for me. A number of us made an overnight of it and camped at the State Park; even the thunderstorms couldn't dampen the spirit of comradery that grew among us that evening.



lun

Of course, our Fall Annual meeting was exceptional beyond belief. At one point, I counted almost sixty people enjoying the Rutland area field trip, including the venerable, yet ably spry, John Rogers; what a treat to have one of the *deans* of Appalachian geology join us both in the field, and at the banquet table!

This coming year is shaping up well also. We haven't quite fleshed out a full agenda yet, but the upcoming STELLA workshop at the Winter meeting promises to be an excellent opportunity to try some hands-on experimenting with systems dynamics.

Spring meetings are always exciting! It's a great chance for those of us who've been around the block a few times to find out what's going on in academia, while we hone our questioning skills. As for the student presenters; it's a good time for them to get to know many of the practicing geologists in the state, while at the same time, they get to practice some very important skills in research communication.

The Summer field trip slot is still open. If any members have any ideas for a good field trip, I'd love to hear from you. Remember, this organization is for all of us; we always need lots of member input to keep new ideas flowing, and to keep things running smooth!

I'd like to thank Stephen Wright, Helen Mango, and Dave Westerman for volunteering to serve as joint VGS/GSA campus representatives at UVM, Castleton State, and Norwich University, respectively. We still need representatives at Middlebury College and Johnson State. Filling these roles is an important aspect in

(Continued on page 3)

INDUSTRY & COMMUNITY NEWS

Hyperaccumulators may provide an alternative solution to remediation of soils contaminated by heavy metals. There are numerous species of plants, worldwide, that are native only to metalliferous soils. These species are capable of accumulating high concentrations of metals in their foliar parts; *Sebertia acuminata*, for example, is a native tree species of New Caledonia that is found only in nickel/chromium-rich soils associated with serpentinites. The latex in this tree can contain more than 11 percent nickel (25% dry weight). British researchers, with funding from the Leverhulme Trust and the U.S. Army, are studying ways to apply this information, and to produce marketable metals as by-products of the hyperaccumulators (from *Pollution Engineering*, February, 1995).



Montan Wax, could present a 250 million year old solution to modern day pollution migration problems. The wax, associated with coal deposits in eastern Germany and northern California, has been used for years as an additive in highway construction materials, building supplies, carbon paper, and furniture polishes. Now the Department of Energy (DOE) is testing its use as a subsurface sealant. The wax is injected into the subsurface matrix to create a man-made aquitard or barrier. Montan wax has the ability to expand and contract in response to seasonal changes without cracking. DOE testing is ongoing in Sandia, New Mexico and in Richland, California (from *Environmental Protection*, January, 1995).

The **National Forum on Nonpoint Source Pollution Study Group** seeks input from members of the **Association of Ground Water Scientists and Engineers**. The Forum is seeking to identify successful models for addressing nonpoint source pollution for inventory and distribution. The inventory will be made available in electronic form through the National Nonpoint Source Federation. Contact the AGWSE at 1(800)551-7369 for more information.

GOVERNMENT

The Republican Contract With America, among its many proposed offsets (cuts) for reducing the cost of government, proposes the complete elimination of the United States Geological Survey (USGS). This would result in a budget savings of approximately \$3.261 billion over the next five years. No estimate has been offered regarding what the cost of cutting the USGS will be to the American people.



(President's Letter - continued from page 2)

the continued growth of our Society. If you're interested, please contact any member of the Executive Committee.

Not all the news is good. Regardless of your political leanings, the news from our Republican controlled Congress that they intend to eliminate the USGS does not bode well for the future of geology in America. Take the time to write or telephone your representative to let him know how you feel!

I look forward to seeing you at the next VGS meeting, and to working with you through the coming year.

Respectfully,
Kent Koptiuch

WINTER MEETING PROGRAM

Winooski High School Computer Lab
Winooski, Vermont
Saturday, March 11, 1995

DIRECTIONS

The Winooski High School is located immediately south of Exit 16 on I-89, on the east side of Route 7. Enter the High School by the entrance closest to the parking lot. Take the stairs up to the second floor. The computer lab is immediately on the right.

9:30 *Coffee & Doughnuts (provided)*

10:00 *"A System Dynamics Workshop With Rolfe Stanley:"*

Rolfe will introduce interested VGS members to the *STELLA* program using examples from the earth sciences. *STELLA* utilizes system dynamics to explain almost any type of large-scale process. Large-scale processes in the earth sciences (such as mountain building) result from the interaction of many small-scale processes all operating at differing rates. *STELLA* is a computer program designed to explore system dynamics whereby these smaller-scale processes can be described and their influence on one another, and on the system as a whole, can be observed.

12:00 *Lunch and Executive Committee Meeting:*

Members are welcome to *brown bag their* lunch and join the Executive Committee, or feel free to partake at one of Winooski's numerous, nearby restaurants.

1:00 *Open:*

Members are invited to experiment with the *STELLA* program, and to pick Rolfe's knowledge of the system!

2:00 *Meeting Adjourns.*

VERMONT GEOLOGICAL SOCIETY
BUSINESS AND NEWS

New Members

- Scott Gaffney Newfane, Vermont
- Lin Li Burlington, Vermont
- Timothy Schmaltz Waterbury, Vermont

Treasurer's and New Members Report

Of the 150 members of the Society prior to the end of the calendar year, 120, or 80%, have renewed their membership as of February 22, 1995. Although the deadline for membership renewal was January 15th, dues continue to trickle in. The vast majority of the 30 members who have not yet renewed are members who have retired or moved out of New England in the past year. Also, only a few of our institutional members have renewed, but this is not unusual as they are often notoriously slow in remitting their dues.

The Society's financial condition continues to improve, and our retained income is at its highest level since I became Treasurer three years ago. In fact, our balance is now at a consistently high enough level that I will seek the approval of the Executive Committee to move our finances into an interest-bearing account with an even higher interest rate than the rate we currently enjoy. Continued tight cost controls will remain in place to insure that our healthy financial condition persists. For example, nearly \$50.00 were saved by mailing the dues notices several weeks early, before the postal rate increase at the beginning of 1995. Small cost-saving measures involving the publication of the Green Mountain Geologist are also being explored.

The Society's strong financial condition makes possible our continued support of the Student Research Grant Program. I am pleased to report that we awarded Amy Church, a graduate student in the Department of Geology at the University of Vermont, financial support to continue her Master's Thesis research during the last round of awards in November. The next deadline for submittal of proposals is May 15, 1995.

In addition to our three newest members noted above, eight applications for membership will be considered by the Executive Committee at its next meeting in March. Applicants include:

- Tania Bacchus Johnson, VT
- Arlen Bloodworth Pittsford, VT
- Stephen Bracket Keene, NH
- Kathleen Callum Brandon, VT
- Allen Carpenter South Burlington, VT
- Richard Chamberlain Wayland, MA
- Timothy Grover Castleton, VT
- Julia Nicholson Woodstock, VT

As always, I welcome comments and suggestions concerning the financial condition of the Society from all members.

Respectfully submitted,
Stephen S. Howe

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(VGS Business & News: Continued from page 5)

Executive Committee Minutes -

The Executive Committee of the Vermont Geological Society was called to order at 5:30 p.m. on November 7, 1994 at the University of Vermont, Burlington, Vermont. Members present included Steve Howe, Nancy Keller, Kent Koptiuch, Helen Mango, and Stephen Wright.

- **Treasurer's Report:** Steve Howe reported an approximate balance of \$2,89.00 in the VGS account. Three new members have joined the Society since the last Executive Committee meeting: Scott Gaffney of Newfane, VT, Lin Li of Burlington, VT, and Timothy Schmaltz of Waterbury, VT. Dues statements for 1995 will be mailed to members by early December to take advantage of the \$0.29 postage rate. The Executive Committee supported Steve's recommendation to maintain the dues at \$15.00 for regular membership, and \$10.00 for student membership.
- **Reciprocal Agreements:** Stephen Wright reported that he is awaiting a message regarding the status of the reciprocal agreement with the New Hampshire Geological Society. VGS is currently a member of the Maine Geological Society and is receiving their mailings and newsletters. Kent Koptiuch has finalized the reciprocal agreement with the *Soil and Water Conservation Society (SWCS)*.
- **Publications/Editorial Committee:** The theme for the Winter Meeting and the next issue of the GMG was discussed. It was suggested by Stephen Wright, and approved by the Executive Committee, that we ask Rolfe Stanley to offer a workshop at the Winter Meeting in systems modeling using STELLA. The date suggested for the Winter Meeting was February 11, 1995. The location would be decided later, dependent upon the availability of computer facilities at UVM or Middlebury College. The Winter GMG would then feature articles from those individuals currently using STELLA for geologically related purposes. Stephen agreed to pursue this matter further with Rolfe.
- **VGS Research Grants:** The deadline for the VGS Research Grant proposals is November 15, 1994. Rolfe Stanley and Ron Parker have agreed to review the applications.
- **Constitution and Bylaw Changes:** Changes to the constitution and bylaws are on hold until Steve Howe and Shelley Snyder have had an opportunity to review them. The proposed changes will be circulated among the members of the Executive Committee, and an amended version will appear in the Summer 1995 GMG. A final, referendum vote of the proposed changes will take place at the Fall 1995 meeting.
- **VGS/GSA Campus Representatives:** Kent brought it to the attention of the Executive Committee that Vermont has a noticeable absence of GSA representatives on its college campuses. He suggested that we contact selected faculty members at Vermont colleges and ask if they would serve as both a GSA and a VGS representative. A representative's purpose would be to serve as a contact person for those students and faculty members interested in becoming involved with these organizations. Stephen Wright and Helen Mango agreed to be the representatives for UVM and Castleton State College, respectively. Helen and Kent will also contact faculty members at other colleges to request their representation. More information will be available from Kent at the next Executive Committee meeting.

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(VGS Business & News: Continued from page 6)

- **Membership Drive:** Sue Hadden of *Rock and Mineral* magazine had contacted Steve Howe mentioning that the June 1996 issue would be featuring Vermont minerals. Although the articles are already set, there is advertising space available. The Executive Committee agreed to place an ad in this publication to let others know about the VGS. Kent agreed to produce a mock-up of an ad, to be reviewed and approved by the Executive Committee at the next meeting.

Kent also reported that he and Ron Parker would like to put together a pamphlet that would educate others about the VGS. This pamphlet would then be mailed to other geologists in Vermont who are not currently members of the VGS. The Executive Committee approved of this mailing and will review its progress at the next Executive Committee meeting.

Pamphlets about the VGS, and samples of our publications would also be made available at the Northeast GSA convention in Hartford, Connecticut on March 19-22, 1995. Stephen Wright agreed to transport and place these items on display at the convention.

- **Next Meeting:** The Executive Committee will meet following the Winter Meeting on February 11, 1995.

Meeting adjourned at 6:30 p.m.

Respectfully submitted,
Nancy Keller

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SEMINARS, MEETINGS, and FIELD TRIPS

- **March 6, 1995: Spring Seminar Series**, University of Vermont, 4:00 PM, Perkins Geology Building. Dr. Ray Spear, SUNY Geneseo, "Revegetation of the White Mountains of New Hampshire Following the Retreat of the Laurentide Ice Sheet."
- **March 6-7, 1995: Movement and Fate of Contaminants in Surface Water, Groundwater and Soils**, Boston, MA. Contact American Society of Civil Engineers, 345 East 47th Street, New York, NY 10017, 1-800-548-2723.

At only \$15.00 per year the VGS offers one of the best bargains in Professional Association dues around. Do you know a "rock head" who'd like to enrich his/her depositional environment? Let's get their mudcast today!

- **March 11, 1995: Winter Meeting**, Vermont Geological Society, Winooski High School, Winooski, Vermont. **A SYSTEM DYNAMICS WORKSHOP with ROLFE STANLEY**, 10:00 am.
- **March 20-22, 1995: Northeastern Section Meeting**, Geological Society of America, Radisson Hotel, Hartford, CT. For details see the December 1994 issue of **GSA TODAY** or call the GSA Meetings Department at 1-800-472-1988.
- **April 2-5, 1995: Fifth Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst**, Gatlinburg, TN. Abstracts deadline: September 2, 1994. Contact P.E. LaMoreaux & Associates, Inc., Box 4412, Oak Ridge, TN 37831-4412.
- **April 3, 1995: Spring Seminar Series**, University of Vermont, 4:00 PM, Perkins Geology Building. Dr. Orin Pilkey, Duke University, "Shifting Shores and Rising Sea Levels - A Geologic 'Solution' to the Problem."
- **April 17, 1995: Spring Seminar Series**, University of Vermont, 4:00 PM, Perkins Geology Building. Dr. Julie Palais, National Science Foundation Polar Programs, "Polar Ice Cores and their Record of Global Climate Change."

- **April 24, 1995: Spring Seminar Series**, University of Vermont, 4:00 PM, Perkins Geology Building. Dr. Brian Atwater, United States Geological Survey, "Prehistoric Earthquakes."
- **April 28, 1995: Our Waters - Whose Rights are Right? A Conflict Resolution Workshop** sponsored by the New Hampshire-Vermont Chapter of the Soil and Water Conservation Society. To be held at the Lake Morey Inn, Fairlee, Vermont. Contact: Nick Comerci at (802) 748-3885.
- **April 29, 1995: Spring Meeting**, Vermont Geological Society, Tentative date, University of Vermont, **Presentation of Student Papers**.
- **May 21-24, 1995: Opening the Toolbox: Strategies for Successful Watershed Management** is the theme of the **Fourth National Watershed Conference**, Charleston, West Virginia. Sponsored by the National Watershed Coalition.
- **August 6, 1995: Annual Field Trip**, New Hampshire Geological Society, "Geology of Mount Monadnock" with Peter Thompson.

EDUCATIONAL OPPORTUNITIES

The Folkways Institute of Portland Oregon is offering a specially designed, educational tour to **Great Britain's Classic Geological Sites**. The program tour director will be Dr. Dick Thoms, Portland Sate University Professor of Geology.

- Program Dates: September 2 - 24, 1995
- Registration Deadline: April 15, 1995
- Program Fee: \$3,085.00 (includes airfare, transportation, entrance fees, meetings, accommodations, breakfast/dinner), or \$2,545.00 (includes all of above except airfare).
- Program Fee: Open to persons interested in geology.
- Enrollment: Bus Travel plus Site Visit Walking.
- Activity Level: New York
- Departure City: 1-800-225-4666.
- Information:

Follow in the footsteps of the founding fathers of modern geology. Study the terrane that prompted early geologists to set the standards for geological units, and to establish the basic principles of stratigraphy as they developed the first truly scientific theory of the earth.

From London to Cornwall, and Wales to Scotland, here's a unique opportunity to combine a rich background of observations, field experience, museum visits, and informal, on-site instruction to gain an understanding of the British pioneers in the geological sciences.

DRINKING WATER UPDATE

K.S. Koptiuch

The Environmental Quality Institute (University of North Carolina-Asheville) has released a study that supports the National Ground Water Association's stance that significant levels of lead are not leaching into groundwater supplies from submersible well pumps operating under typical installation conditions. We still haven't heard much from the EPA since their much-touted warnings in April 1994.

Current research, ongoing at Michigan State's Hancock Turfgrass Research Center, in cooperation with Michigan State Extension researchers and the Grand Traverse County Drain Commissioner has indicated that properly managed fertilizer application programs, as promoted by turfgrass managers and golf course superintendents for years, have little effect on nitrogen or nitrite concentrations in groundwater and soils. The studies suggest that well-maintained turf is ideally suited to maximizing the use of nitrogen, thus minimizing impact to water supplies. Having once owned and operated a turf management company in southwestern Connecticut for a number of years, it is gratifying to see that independent research is finally validating what turf managers and fertilizer manufacturers have known for years.

STATE HAPPENINGS

Governor Appoints New ANR Liaison

Governor Dean has appointed Tasha Wallis of Norwich as a policy analyst to replace James Bressor. Bressor took a post with the Agency of Natural Resources last year. Wallis will act as a liaison between the governor's office, the Agency of Natural Resources, and the Agency of Development and Community Affairs. As a former independent consultant, Wallis conducted extensive studies on the links between environmental protection and the community. She can be contacted at the office of policy research at 802-828-3333.

ANR Bringing Permit Process On-line

The Agency of Natural Resources is developing a computer permit tracking system that will open permit information to anyone with a modem and a computer. The system would allow people in the Agency, and the general public to pull up specific permit information on any given project.

Users could see the status of permits associated with the project and identify the ANR staff working on the permit. The ANR anticipates having the system up and running by this coming Fall.

ANR Seeks Restoration of Waste Tax

Need to vent some geo-internal energy? The VGS always welcomes member input.

The Agency of Natural Resources will be asking the legislature to restore a hazardous waste surcharge tax that expired in 1994. The surcharge is needed to fund Agency programs in hazardous waste reduction. The tax will affect between 800 and 1000 businesses in Vermont. It is anticipated that annual revenues from the tax will amount to approximately \$150,000. The federal government provides matching funds for the tax.

VNRC Pushing for Fees on Public Water Use

The Vermont Natural Resource Council is seeking to impose legislative fees on the private use of public water in Vermont. The plan would charge a per-gallon fee to private industry when taking water from public waterbodies. The funds generated would be dedicated to fish and wildlife protection.

Environmental Board Nominees to be Confirmed

Smooth sailing is expected in the Senate on upcoming confirmation hearing for Governor Dean's nominees to the State Environmental Board. The nominees are John Farmer, Arthur Gibb, Marcy Harding, William Martinez, and Robert Page. The Senate has high hopes that the new board members will push for a rapid resolve to the process of streamlining the Act 250 permit process.

Your tax-free contributions to the VGS Research Grant Fund, or to the General Fund, are always welcome!

Palisades Landfill on the Block

The controversial, and bankrupt, Palisades Landfill in Moretown is scheduled to go up for auction. Requests by the landfill owners, the Rainbow Trust, for reorganization have been denied.

Order your VGS VERMONT GEOLOGY, VOLUME 7 "FIELD TRIP GUIDEBOOK NUMBER 3"

Editor: Stephen F. Wright

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The Altona Flat Rock Jack Pine Barrens, Altona, New York David A. Franzl & Kenneth B. Adams
The Champlain Thrust Fault, Lone Rock Point, Burlington, Vermont Rolfe S. Stanley
Stratigraphy of the Cambrian Platform in Northwestern Vermont Charlotte J. Mehrtens

Vermont Geological Society Student Research Grants

are designed to aid our future geologists investigate Vermont's geo-history. Help the VGS to promote a deeper insight into Vermont Geology. Students receiving assistance through the program will present their research results at the VGS Spring Meetings. Your generosity will help cover a lot of terrane!

To receive your copy of Vermont Geology, Volume 7, or to contribute to the VGS Student Research Grant Program, clip this form and send it, along with your check or money order made payable to VGS, to:

Stephen Howe, Treasurer, Vermont Geological Society Department of Geology, University of Vermont Burlington, Vermont 05405-0122

- YES, PLEASE SEND ME COPIES OF VERMONT GEOLOGY VOLUME 7-I'VE ENCLOSED MY CHECK OR MONEY ORDER OF \$8.00 PER COPY (\$10.00 PER COPY FOR NON-MEMBERS). TOTAL PRICE: \$
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