



## Green Mountain Local Section of the American Chemical Society

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Green Mountain Section website:  
<http://membership.acs.org/g/greenmt>

### Officers 2008

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Chair-Elect..... *Open*  
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Education..... *Martha McBride*  
Gov't Affairs..... *Sarah Locknar*  
Newsletter Editor... *Willem Leenstra*

### Upcoming Events

#### **Tuesday September 16<sup>th</sup>**

The Chemistry and Alchemy of  
Brewing, Middlebury

#### **Wednesday October 15<sup>th</sup>**

Worlds Within the World: An  
Introduction to the Chemistry,  
Geology, and Ecology of Caves,  
Rutland.

#### **Tuesday November 18<sup>th</sup>**

Fiber spinning: presentation and  
plant tour of Monahan Filaments,  
LLC.

#### **Wednesday, December 10<sup>th</sup>**

Holiday Party at the Swift House  
Inn in Middlebury



## The Chemistry and Alchemy of Brewing

Tuesday, September 16, Middlebury



**Steve Parkes**  
Brewmaster  
Otter Creek Brewing



**Prof. Robert P. Bates**  
University of Florida

A special tour of Otter Creek Brewery given by Steve Parkes, Brewmaster, followed by dinner at the Swift House Inn and a presentation by Professor Robert P. Bates, University of Florida. Cost: \$35 per person, \$20 for students, including 3-course dinner.

**Steve Parkes** is Brewmaster at Otter Creek/Wolavers Organic Beers. He is also Lead Instructor at the American Brewers Guild. He received his degree in Brewing Science from Heriot-Watt University, Scotland, one of the UK's finest and most respected institutions of brewing science. Since his graduation in 1982, he has been Brewmaster in three British breweries and two microbreweries in the United States. In 1992, he joined the Humboldt Brewing Company in Arcata, California and led that brewery from a small pub and micro operation to a 24,000 barrel annual operation with a respected following throughout California before being wooed to Vermont by Otter Creek.

**Robert P. Bates** received his B.S. degree in Food Technology from MIT. After several years in the food industry, he obtained an M.S. degree in Food Science from the University of Hawaii and a Ph.D. in Food Science from MIT. After a year at the Institute of Nutrition of Central America and Panama in Guatemala, he joined the University of Florida where he has been for 3+ decades. He is presently professor emeritus of Food Science in the Food Science and Human Nutrition Department. Bates' areas of interest are food processing and utilization, small-scale process and equipment development, fermentation technology and byproduct recovery, food product development, and international technical assistance.

**Abstract for Professor Bates' Presentation:** Beer making, one of the oldest examples of biotechnology, is a fascinating study of chemistry, biochemistry, and engineering. It combines well-recognized and controllable reactions and operations with complex, poorly understood phenomena, including the psychosensory response. Surprisingly, some of the most sophisticated science and technology are employed in the efficient production of mass advertised, mediocre beers. In contrast, traditional "alchemy-driven" methods can produce exceptional yet under-recognized beers. Fortunately, there is an achievable balance between these extremes. This presentation will cover the brewing process from raw material selection and preparation through fermentation to consumption.

**The Otter Creek tour starts at 5:30pm at 793 Exchange Street, off Route 7 just north of downtown Middlebury.**

**Pre-registration is required for this event. Please contact Fiona Case at 802-879-3684 or [greenmntacs@yahoo.com](mailto:greenmntacs@yahoo.com) by Friday September 12<sup>th</sup>.**

# Worlds Within the World: An Introduction to the Chemistry, Geology, and Ecology of Caves

Wednesday, October 15, Rutland



**John R. Marquart**  
Eastern Illinois University

**Dr. John R. Marquart** is a professor of chemistry at Eastern Illinois University in Charleston, IL (1978 - present). His area of research involves applications of analytical and physical chemistry to environmental problems. He is active in a wide variety of field-based conservation and restoration projects involving subterranean environments (e.g. caves, mines, and water hydrology). His work on these projects is in collaboration with several state, federal, and private organizations.

**Abstract:** Cave science, or "speleology", offers a means of learning about the earth's geological history from the inside out. Caves are the exotic inner-worlds within our more familiar surface-world, hence the title "Caves -- Worlds within the World". Caves can be aesthetically beautiful, challenging, and sometimes fearsomely dangerous. They also constitute a valuable nonrenewable resource that should be appreciated for their beauty and protected from damage. They have considerable impact upon our lives and the welfare of the earth's resources and ecology. Professor Marquart has been exploring and studying caves throughout the U.S. for almost five decades. It is estimated that at least a quarter of the United States can be considered karst (cave) area. He will take you on a slide-show tour of caves from across the country, with particular attention to the chemistry and geology that created them and their unique characteristics. This presentation is designed for an audience of varied interests and backgrounds, technical or non-technical. It is interdisciplinary in content, combining chemistry with geology, hydrology, and earth history to show how and where caves are formed and why environmental concerns are particularly serious in karst regions.

Presentation starts at 5:30pm, location in Rutland to be confirmed. Dinner following the talk at Three Tomatoes

## Message from Our Section Chair, Fiona Case



First a big THANK YOU to everyone who participated in NERM2008. The meeting was a great success! When we surveyed our attendees more than 90% said that it was a valuable meeting for them to attend, and 97% enjoyed it! The high quality and diversity of the technical program was particularly praised – with fulsome compliments to Martin Case, NERM2008 program chair, to the 21 symposium organizers, and to all the people who presented their work at the meeting. The social events and tours, organized by Michele Johnson, were extremely popular. We were also praised for the warm welcome the ACS Green Mountain Local Section gave to all our out-of-state guests, for our innovative chemistry enthusiasts program, and for our website. A full report, with more photos, will be available at [www.NERM2008.org](http://www.NERM2008.org) shortly.

One of the new programs at NERM2008 was a Chemistry and Policy forum organized by the Green Mountain Local Section Government Affairs Committee (GAC) lead by Sarah Locknar and Ralph Stuart. Congressman Peter Welch hoped to participate, but commitments in Washington DC prevented this. The letter he sent to all of us is reproduced here. We can all be proud of the impact our GAC has made. It is, I believe, incredibly valuable for scientists to be engaged in the political process, especially in an election year. I'd like to encourage you all to visit <http://www.act4chemistry.org/> and consider the actions recommended by the ACS. They are at the very least a starting point for discussions. If you have any comments, or ideas about local activities, feel free to email Sarah at [locknars@biotek.com](mailto:locknars@biotek.com) or Ralph at [ralph.stuart@uvm.edu](mailto:ralph.stuart@uvm.edu), or to email to our GAC listserv at [GMACSGR@list.uvm.edu](mailto:GMACSGR@list.uvm.edu).



## Letter from Peter Welch, Congress of the United States, House of Representatives:

Dear Members of the American Chemical Society,

Thank you very much for this opportunity to participate in your meeting and to join in your enthusiasm for the field of chemistry. I am sorry that I am not able to be with you in person, but please accept my best wishes for an informative, thought-provoking, productive conference.

It was during my first months in office that I met with several of your Vermont members. It was because of the advocacy of these members that I became interested and engaged with the idea of green chemistry, it clearly impressed me as an idea that made sense for the

environment, for health and safety, and for the future of science.

Chemistry conducted through safe efficient processes that reduce or even eliminate the use of hazardous substances will, for those that choose this method, lead to reduced costs, wastes and environmental and human impact.

The legislation I co-authored with Congressman Gringrey, is HR 2850, the Green Chemistry Research and Development Act. It sets up a Green Chemistry Research and Development Program to promote and coordinate all federal green chemistry research, development, education and technology transfer activities. Funds are authorized for the National Science Foundation, the National Institutes of Standards and Technology, the Department of Energy and the Environmental Protection agency to promote green chemistry curricula, research and development.

I was proud to participate in the drafting of this legislation and I am pleased to report that this bill successfully passed the House of Representatives on September 4<sup>th</sup> 2007.

I would like to thank in particular Ralph Stuart and Sarah Locknar of Vermont for their leadership, their advocacy and their clear articulation about the need for this kind of federal coordination.

Your field holds so much promise for the future. Chemistry, I believe, will provide some of the answers to what seem like intractable dilemmas today: climate change, the global food supply, threatened water supplies, epidemics. You and your colleagues will continue to provide many opportunities for economic growth in Vermont and nationally.

While it is a critically important role for the federal government to provide for this science, for chemistry, it is equally important that the federal government protect your academic freedom and respect science. Congress must remain a vigilant watchdog. Last year, as a member of the House Committee on Oversight and Government Reform, I learnt that scientists at the seven agencies that study climate change had reported widespread abuses of their information by the Bush Administration, and that their reports were being altered once they reached the White House. Politically motivated suppression of science is not only irresponsible, but it highlights a reckless disregard for the public we serve.

I pushed the committee to fully investigate this politically motivate conduct to be certain that the American people get the full benefit from what science can teach us.

I appreciate all you have done to advance your field, and to encourage each other along in your important work. I look forward to continued contact with your members,

and learning more about your progress in helping us better understand the world and how to live sustainably.

Thank you very much

Sincerely,  
  
PETER WELCH  
Member of Congress

### Photos from the NERM2008 Chemistry Cruise



Rani Jha, Sunandan Banerjee, Martin Case, Rahul Patel, Sandeep Naik



Sunset



Fiona with Benjamin



Kitty Wagner, Wendy Cornell, Martin Walker (NERM2010 General Chair), Klaus Wagner (President, Royal Society of Chemistry, US), Janette Brown, and Les McQuire