

The Blue Ridge Chemist

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VMI Hosts March Meeting

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VIRGINIA BLUE RIDGE SECTION AMERICAN CHEMICAL SOCIETY

583th SECTION MEETING

Hosted by Virginia Military Institute

Wednesday, March 10, 2004

PROGRAM:

- 5:00-6:00 Social, Activities Room, Moody Hall
- 6:00-7:00 Dinner, Activities Room, Moody Hall
- 7:00-8:00 Meeting, Thurman Room, Preston Library

The social time, and dinner will take place in the Moody Hall Activities Room at VMI, and the meeting in the Thurman Room of the Preston Library. (See map on page 7). The speaker will be Dr. R. Paul Philp, speaking on "Forensic Geochemistry, or Who Was Responsible for the Spill?".

The menu is a buffet of mixed green salad, marinated pork tenderloin, chicken jambalaya, honey glazed carrots, roasted pearl onions and peas, saffron rice, assorted deserts, iced tea & coffee. The cost for the dinner is \$12.00. For retired members and students the cost is \$6.00.

Reservations for the dinner must be made by **WEDNESDAY, MARCH 3, (7 days before the meeting)**, to Anita Cruze at cruzeaf@vmi.edu, or (540) 464-7244, or Chemistry Department, VMI, Lexington, VA 24450. Reservations can also be made to Henry Schreiber by phoning (540) 464-7416.

Forensic Geochemistry, or Who Was Responsible for the Spill?

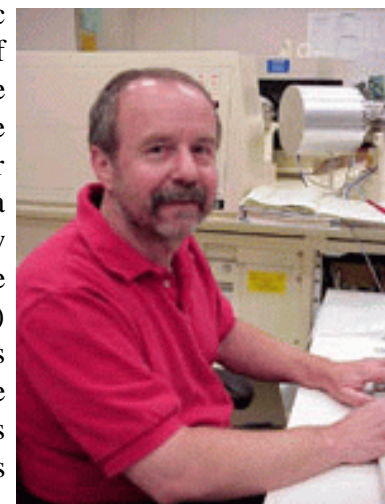
As soon as organic compounds are spilled into the environment, changes will start to occur to them as a result of weathering process. For example with crude oils changes will range from evaporation and loss of light ends to extensive biodegradation and loss of many of the compounds typically used for correlating spilled oils with their original source. As a result of these weathering processes, it is often difficult to correlate the spilled oils with their suspected sources. It is essential that these correlations be made to determine who is responsible for the spill and who pays for the clean-up process. There are a number of sophisticated techniques available for this type of forensic geochemistry which can be used for correlating weathered samples with their respective source materials

In this talk specific emphasis will be directed towards the most recent technique for use in this area, namely, gas chromatography combined with isotope ratio mass spectrometry (GCIRMS). Examples will be presented to demonstrate that the isotopic composition of individual compounds in complex mixtures, such as crude oils, can be used to correlate them with their weathered counterparts. It is clear from the results that GCIRMS is a powerful new tool in forensic geochemistry particularly when combined with the more traditional techniques such as GC and GCMS.

Other applications will be described to demonstrate that GCIRMS can also be used to determine the source of leaks from underground storage tanks and sources of gases from leaking pipelines. Variations in the isotopic composition of the MTBE added to gasolines also provides the opportunity of using GCIRMS as a means of monitoring, and determination of the source of, gasoline spills from underground storage tanks. Applications are many and varied but with this relatively new technique the ability to correlate heavily weathered samples with their unweathered counterparts has been elevated to a new level and provided forensic geochemistry with a new dimension.

R. Paul Philp

I received my Ph.D. in organic chemistry from the University of Sydney (Australia) in 1972 and more recently my D.Sc. degree from the same University in 1998. After obtaining the Ph.D. I spent one and a half years as a post-doctoral fellow with Professor G. Eglinton at the University of Bristol (England) undertaking research in various aspects of organic geochemistry and the application of analytical techniques such as gas chromatography-mass spectrometry to this area of research.



Following this, I spent four years at the University of California, Berkeley, as a research associate, directing the organic geochemistry research group of Professor Melvin Calvin. I returned to Sydney in 1977 to join the CSIRO, Fuel Geoscience Unit, now part of the Division of Fossil Fuels, where I was a principal research scientist studying various aspects of petroleum geochemistry. In June 1984, I joined the faculty at the University of Oklahoma. The major theme of my research during the past 15 years has been directed at the application of organic chemistry to fossil fuel research. The second major area of research has been the characterization of source rocks, coals, and oil shales using microscale pyrolysis techniques combined directly with gas chromatography-mass spectrometry. More recently a large amount of my work has been concerned with environmental studies and particularly investigating the use of stable carbon isotopes as a means of monitoring and tracking pollutants in the environment. Professional activities include past associate editor of Chemical Geology and past chairman of the Geochemistry Division of the American Chemical Society.

SERMACS 2004

The 2004 Southeastern Regional Meeting of the ACS (SERMACS 2004), hosted by the North Carolina Section, will be held in Research Triangle Park (The Sheraton Imperial Hotel) from Nov. 10 -13. An added new feature for the region: this is a joint meeting with the 2-Year College Chemistry Committee (2YC3).

The planning committee has intensified its activities as the meeting now rapidly approaches. To date, there are 31 invited symposia and each is planned to have a corresponding general session. The topics are wide ranging and include the GlaxoSmithKline Frontiers in Chemistry and Medicine Symposia, chemical education, laboratory automation, environmental chemistry, protein chemistry, and nanoscale materials. Highlights include sessions and a banquet honoring Ernest Eliel for his many contributions to chemistry, the ACS and our local section as well as a plenary lecture by Nobel Laureate John Fenn. In addition, there are several mixers, luncheons and banquets and a number of workshops including an ACS short course.

Included in the plans is a commercial exhibition (for information, contact John Hines, hines@rti.org), a meeting in miniature for undergraduates which will include a graduate school fair (contact Art Rodriguez, rodriguez@mail.ecu.edu). There is still time to sponsor one of these sessions or events; just contact Sol Levine, General Chair at serm2004@mindspring.com.

Abstract submission and registration will be on-line beginning sometime in April. For continuing information check the website at <http://membership.acs.org/S/SERM2004>. If you want to be involved in helping with this meeting, contact Sol at the email address above.

Twelfth Annual Undergraduate/High School Poster Session

The Virginia Blue Ridge Section of the ACS is sponsoring its annual poster session as a part of the April 14, 2004 meeting at Radford University. The posters will consist of an 8'(high) by 4'(wide) board.

If you have a student or students who will be participating, submit the following information to Chris Hermann by late March via email [chermann@radford.edu], by fax [540-831-6615], or by mail [Box 6949, Department of Chemistry and Physics, Radford University, Radford, VA 24142]. If you have any questions, call Chris Hermann at 540-831-5413 (office) or 540-563-8025 (home). All students and faculty will get e-mail confirmation.

Name of Project:

Name(s) of Student(s):

Affiliation (name of high school, college, or university):

Class of Student(s) (circle) (freshman, sophomore, junior, senior)

Student(s) e-mail address: _____

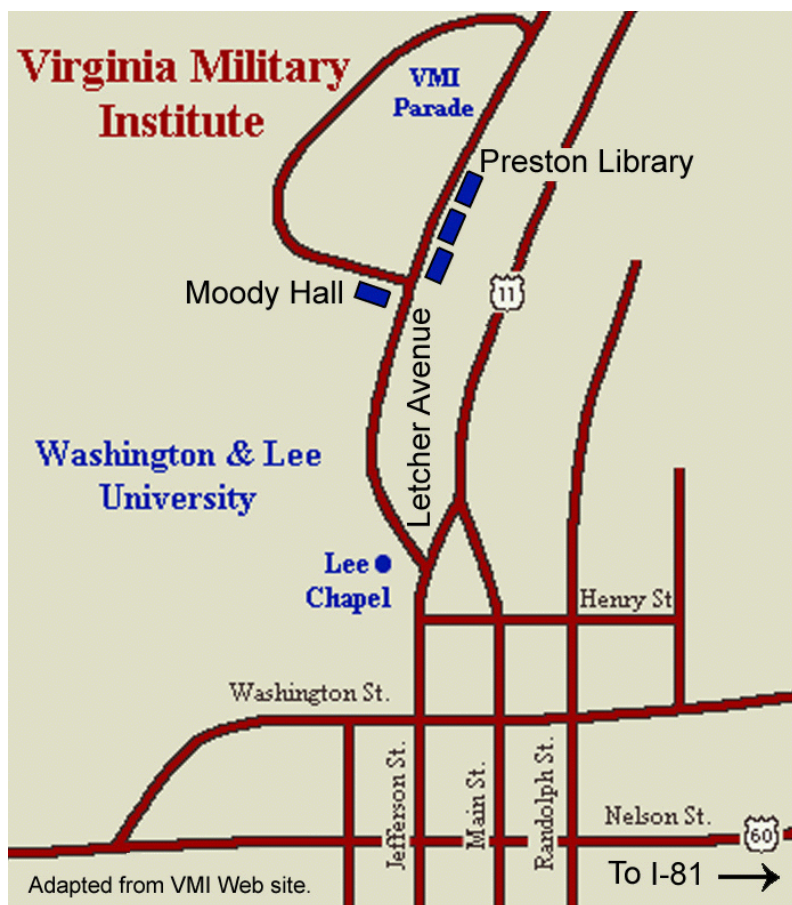
Advisor's Name, Address, Telephone Number, and e-mail address:

Directions to Virginia Military Institute

Take Exit 188B off I-81 onto Route 60 west, continuing into Lexington. At the 6th light turn right on Main Street, go three blocks and turn left onto Jefferson Street in front of the StopIn/Exxon. Only go about 100 feet and turn right onto Letcher Avenue. Proceed to the VMI Parade Ground. Moody Hall is on left corner. Parking is available in front of the building. Preston Library is the 3rd academic building facing the Parade Ground along Letcher Avenue.

The social time and dinner are in the Activities Room of Moody Hall, and the talk in the Turman Room of the Preston Library.

Map of Lexington



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THE BLUE RIDGE CHEMIST

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The next Blue Ridge Section meeting will be Wednesday, April 14 at Radford University. Our speaker will be Robert P. Bates, speaking on "The Chemistry and Alchemy of Brewing". The contact person is Chris Hermann.