

## URBAN GEOLOGY WALK

Presented by

**ROBERT W. PREYER**

Milton J. Rubenstein Museum of Science & Technology (MOST)

Syracuse, New York

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*We will convene on Thursday, May 13 at 5:30 PM, at the MOST and journey through downtown to Traditions of Syracuse (corner of E. Washington Street and S. Salina Street) for cocktails and hors d'oeuvres when we have completed our walkabout! We look forward to seeing you at the season finale!*

For the final meeting of the 1998-1999 season of CNYAPG, we will be taking a walking tour of downtown Syracuse to view the architecture and geology of our city from a multi-disciplined scientific approach (with a lot of fun layered in). Some of the questions to be posed by our tour guide, Mr. Robert Preyer, educator and coordinator of summer programs for the MOST, include:

- ▶ Where can we find soda straw stalactites and flowstone in Downtown Syracuse?
- ▶ What can we learn about Central New York from Onondaga Creek?
- ▶ What geologic processes could have created the "stratigraphy" of the stone used in the beautiful older architecture in the city?
- ▶ How can we analyze the building materials in the downtown structures many of us pass daily?

With this creative, unusual presentation, we are expecting a wide variety of disciplines to be presented: professional geologists, hydrologists, engineers, environmental scientists, and architects; therefore, Mr. Preyer will be exploring the downtown area of Syracuse, playing brain games and presenting outrageous hypotheses, he offers. The walk will start at the MOST and will lead from Onondaga Creek, down Jefferson and S. Warren, ending at *Traditions of Syracuse* at E. Washington and S. Salina Streets. This journey will be completed rain or shine so, if necessary, bring umbrellas and dress to accommodate the weather.

Mr. Preyer invites all of the participants to form opinions and express yourself freely during this investigation. But he also asks that everyone remember that this is a fun activity, not a dissertation defense. He will be making the evening of May 13th one for curiosity and laughter as we stroll the streets of Syracuse together looking for science treasures.

Robert W. Preyer has a BS in Chemistry Education with a minor in Geology from SUNY Cortland and did Masters work in geology and geochemistry at Franklin and Marshall College, Lancaster, PA. At the MOST, he has conducted three summer camps in geology, and he taught an Elderhostel on "An Introduction to the Geology of Central New York." He has also offered astronomy labs at Syracuse University with the MOST's portable planetarium.

Previously, Mr. Preyer taught at Longwood College in Farmville VA, in a program to recertify teachers in Earth Science. He has taught courses in Oceanography, Astronomy, and Environmental Chemistry/Geology. So put on your walking shoes (or hiking boots) and meet Mr. Preyer at the MOST on May 13th!



## PRESIDENT'S PAGE

**Thank you** to last month's speakers, **Mr. Timothy Mulvey and Dr. John Ferrante**, for the informative, interactive, and entertaining presentation of issues surrounding future remediation plans for Onondaga Lake. I was pleased that our audience included members of the community not involved in geology or engineering. The "press" was there and Dr. Ferrante gave an interview that evening that aired on WAER radio the next morning. We were also pleased that James Fox, our CNYAPG member residing in Ontario, Canada, was able to attend. I received excellent feedback from a few people in attendance, including the fact that although the studies and conclusions surrounding lake clean-up are "old" and remain true to date, the presentations were contemporary and conscientious reminders as to various public perspectives and political influences involved in actually implementing a rehabilitation program for Onondaga Lake. I anticipate this will not be the last time we need an update on lake issues, particularly with the more recent proposal by Ogden Water Systems to implement the "skeleton" clean-up plan.

**Join us on May 13 for the last CNYAPG gathering of the season.** This month's gathering will be casual and end of season *Party* time is the theme. Keep in mind the *Wine and Beer Open Bar* being offered at Traditions after the Urban Geology Walk. We will be announcing the 1999/2000 newly-elected board members this evening....hmmmm, I wonder who will be among them?

**Looking to next season,** CNYAPG plans to vary our

monthly dinner meeting format throughout the season and rumor has it the newsletter may get a new millennium look as well. CNYAPG is beginning tentative plans for a technical symposium after the new year. The key questions we are asking in the planning stage are, "What technical topics are members interested in spending time and money to attend and how much time and money are we willing to spend?" All suggestions for a CNYAPG symposium are welcome. Let any of the board members know your ideas, or better yet, volunteer to assist in the programming. Several members have voiced interest in another CNYAPG field trip. Again, any suggestions are welcome. With your participation and contribution, we plan to make next season a success.

**Financially speaking,** CNYAPG has been fortunate enough to have a small financial reserve from which we have slowly whittled to cover various operating costs. It is interesting to note that membership renewals are basically enough to cover the costs of issuing a monthly newsletter. We currently have enough reserve to cover the needed up-front costs to organize next year's symposium and potentially provide a travel and speaker fee to bring a national speaker to CNYAPG. My point is, we currently have the opportunity to bring in a few national speakers and organize a symposium to benefit our organization and the larger community of professional geologists. As always, the best financial support for CNYAPG is you, the members. Support CNYAPG by attending the meetings. Thanks to everyone who renewed their membership and to all the new members who joined us this

year. The renewal rate is about 95%.

I want to thank all the CNYAPG advertisers. I know several people who actually copy the page and use it for easy reference when looking for recommended subcontractors. We hope to have you all back as advertisers next year.

Given that this is my last *President's Page*, one opportunity I admit I won't miss (good luck Bill, I am sure your column will be brilliant), I want to thank everyone on the Board of Directors for their volunteer time and general support in making the season a successful one. I wish I had a passionate topic to rant about in my last column. As I said before, I particularly enjoy being involved in CNYAPG for the interaction with other geologists, engineers, students, and yes, the attorneys that attend our meetings. This year has particularly expanded my perception of the various working roles geologists are involved in. I have had the opportunity to meet new people and get to know others better. Thanks to everyone for making my experience as president a rewarding and satisfying one.

Best wishes to all for a fun filled summer. Have a safe field season.

Vita DeMarchi, P.G.  
Future Past President

# GEOLOGIC NEWS

In the Know...  
with Jon S. Fox

## Geochemical Research Notes

Results of numerous research studies were to be presented at the 217th American Chemical Society National Meeting in Anaheim, California, between March 21 and March 25, 1999. Several presentations sponsored by the Division of Environmental Chemistry (DEC) may have had important implications in remedial projects. Page numbers listed in parentheses below refer to DEC Preprints of Extended Abstracts, Volume 39, Number 1.

- ◆ Researchers from the Massachusetts Institute of Technology and the University of Connecticut are studying potential enhanced removal of chromium from a contaminated aquifer through injection of citrate. Apparently, a significant percentage of chromium is adsorbed onto colloidal particles in the aquifer. The citrate apparently enhances removal of chromium, as demonstrated through analysis of influent and effluent samples (pp. 342-343).
- ◆ Researchers from the University of Michigan have been evaluating reductive transformation of halogenated organic compounds by iron sulfide (pp. 348-350). As expected, kinetic variations are observed for different compounds. As many geologists are aware, certain rock formations (particularly organic-rich sedimentary rocks) may contain significant amounts of iron sulfide as pyrite or marcasite. Therefore, these terrains may facilitate enhanced natural reductive de-halogenation in groundwater.
- ◆ Researchers from Texas A&M University have been experimenting with different zero-valent metals and combinations of zero-valent metals for remediation of chlorinated ethenes and acetylenes (pp. 351-353).

Preliminary data suggest the fastest reaction (degradation) rates were obtained using palladium-coated iron and palladium-coated zinc (however, I noticed the authors did not mention the cost of these materials!). Generally, iron had higher reactivities with chlorinated ethenes compared to zinc, with the notable exception of tetrachloroethene (PCE).

## Interstellar PAH

Polycyclic aromatic hydrocarbons (PAH) such as chrysene and benzo(a)pyrene occur naturally on Earth and have been identified in the interstellar environment. Recent research published in the journal *Science* (1999, v. 283, p. 1135) indicates several pre-biotic molecules including polycyclic alcohols, ketones, and ethers have been produced by bombarding PAH-laden ice with ultraviolet light under space-like conditions. Additionally, several more complex organic molecules such as quinones and aromatic alcohols which are ubiquitous in organisms on Earth were also isolated. These data suggest organic compounds present in interstellar environment may be modified by typical astrophysical processes into compounds utilized in carbon-based organisms.

## Job Search

Are you looking for new employment? The Geological Society of America (GSA) offers an Employment Matching Service. Numerous firms which employ geoscientists use the service to help find individuals for positions. Your name and resume are provided to all participating employers. The cost for a one-year listing is \$35.00 for GSA members and \$65.00 for non-members. Additional information and an application form can be found at the GSA website ([www.geosociety.org](http://www.geosociety.org)).

## Mercury in the St. Lawrence River

Research published in *Environmental Science and Technology* (v. 33, pp. 840-849) presents data and mass balance calculations regarding dissolved and particulate mercury in the St. Lawrence River drainage basin. Samples were

collected at major Canadian tributaries and the mouth of the St. Lawrence River. Review of these data indicate gross mercury export from the river is approximately 5.9 kmol/year with approximately 73% of exported mercury occurring in particulate form and the remainder in dissolved form. Approximately 75% of the mercury was apparently derived from tributaries and erosion of the riverbank with less than 10% derived from Lake Ontario. Anthropogenic point sources apparently account for less than 5% of particulate mercury. Mass balance calculations suggest approximately 88% of mercury contributed to the St. Lawrence River remains in the watershed, primarily deposited in sediments.

## Evaluating Recharge with Isotopes

Groundwater level monitoring combined with analysis for major cations, anions, dissolved organic carbon (DOC), and hydrogen and carbon stable isotopes were employed to evaluate recharge in the Raisin River basin near Cornwall, Ontario (*Ground Water*, v. 37, no. 1, pp. 133-139). The geology of the area generally consists of sandy glacial till overlying Paleozoic carbonate bedrock. The proximity of the study area to similar surficial and bedrock geology suggests the results may apply to adjacent portions of northern New York State (Jefferson, St. Lawrence, and Franklin counties). High correlation was observed in stable carbon isotope ratios in groundwater from all 12 study wells. These and other data suggest recharge occurs primarily in the spring and late fall with minor contributions in early summer. Contributions in summer apparently are limited by plant transpiration while contributions in winter are limited due to frost. Variations in carbon stable isotope ratios and DOC are used to delineate contributions from native versus cultivated vegetation.

### Evolution Gap Research

University of Chicago developed new research methods to evaluate gaps in the fossil record. These methods, consisting of data compilation and mathematical modeling, were initially used to address the question: When did modern mammals first evolve? For decades, scientists believed mammals evolved about 65 million years ago; however, last year Penn State scientists concluded that mammals evolved about 130 million years ago, based on the current rates of genetic change. The University of Chicago researchers believe the more recent evolution date, based on their research. They evaluated the completeness of the fossil record mathematically to determine if there are gaps in the fossil record or the mammals did not evolve yet. Simply put, the fossil record is not that poor to have no evidence of mammals for 60 million years. However, researchers acknowledge that the fossil record buried beneath ice in Antarctica could provide a more data, if accessed, because this area of the earth supported abundant life millions of years ago. The University of Chicago researchers believe that the rates of genetic change are not constant and change unpredictably. The theory that mammals evolved 65 million years ago also corresponds to the demise of the dinosaurs. With the dominant dinosaurs waning, mammals could proliferate and diversify. (*Chicago Tribune*)

### Cool News from the Internet

Don't have time to read all those technical journals piling up? Here's an EPA web site that summarizes current innovative technologies < [www.clu-in.org](http://www.clu-in.org) >. Innovative technology news is separated into five categories:

- ◆ Market/commercialization information
- ◆ Cleanup news
- ◆ Demonstration/feasibility studies
- ◆ Research
- ◆ General news

Examples of the types of information summarized recently include the following titles:

- ◆ Remediation of soils and wastes contaminated with uranium and toxic metals
- ◆ "Sweet" technology to treat

- ◆ contaminated groundwater
- ◆ In-situ hydrothermal oxidative destruction of DNAPLs in a creosote contaminated site
- ◆ Experimental investigation of steam injection in fractured porous media
- ◆ Geostatistical analysis of TPH degradation in field soils
- ◆ Pilot scale devices for remediation of munitions contaminated soils
- ◆ End-points of PAHs in soil treatment
- ◆ Grand challenge problems in environmental modeling and remediation
- ◆ Conceptual feasibility study for centralized treatment of petroleum contaminated soil
- ◆ Hazardous wastes sites: state cleanup practices

Entries came from:

- ◆ *Hazardous Waste News*
- ◆ *Nuclear Waste News*
- ◆ *Environmental Science and Technology*
- ◆ *Superfund Week*
- ◆ *Civil Engineering*
- ◆ *Water Science and Technology*
- ◆ *Journal of Environmental Science and Health*
- ◆ *Waste Management & Research*
- ◆ *DOE*
- ◆ *EPA*
- ◆ *Journal of Membrane Science*
- ◆ *Groundwater Monitoring and Remediation*
- ◆ *Proceedings from Conferences*

### You are Still Needed!

Keep the newsletter input coming. Send ideas, articles of interest, requests, and questions for the newsletter to Vita DeMarchi at [vdemarchi@secor.com](mailto:vdemarchi@secor.com).

**Do You Support the  
Geologists' Licensure?  
Write a Letter! Make Your  
Voice Be Heard**  
by William Kelly, President,  
NYSCPG

A proposed law to establish professional licensure for geologists, sponsored by the New York State Council of Professional Geologists (NYSCPG), has been introduced into both houses of the New York State Legislature. If you wish to support such an initiative, if you wish to *strengthen the profession of geology, write a letter now!* Here are the details:

The revised language of the bill is posted on the NYSCPG web page, found at:

<http://pbisotope.ess.sunysb.edu/nyscp>

In a nutshell, changes in this year's version of the bill deal with more activist definitions of "geology" and "practice of geology," removal of language referring to "incidental practice" by engineers and geologists, and the provision for a combined board of engineering, land surveying, and geology. The bills in the Senate (bill no. S03263) and Assembly (bill no. A06281) carry different numbers from those of last year since we are in a new legislative season.

### Who Do I Write To?

Write directly to your local Assemblyman and Senator. Letters of support should be kept to a single page. Mention the bill number in your letter and ask for the legislator's support. In addition to the letter to your representatives, we request that the NYSCPG and the Chairmen of the Higher Education Committees of the Senate and Assembly be included on the "cc: list. The two Higher Education Committees are the ones in which the fate of the bill will be decided and the respective Chairmen are Senator Kenneth LaValle and Assemblyman Edward Sullivan. Send one copy of your letter to NYSCPG, c/o Jean Neuback at Alpha Geoscience, 400 Trillium Lane, Albany, NY 12203 and she will then forward your letter to the Higher Education committee chairmen.

Wednesday, May 12, 1999

**Northeast Section AIPG 1999 Spring Meeting** in the Seismology Building at Lamont-Doherty Earth Observatory, Route 9W, Palisades, NY from 4 - 8 p.m. Dr. Paul Olsen and Dr. Dennis Kent will present the Newark Basin Coring Project (NBCP) and the Pole-to-Pole Coring Transect of Triassic-Jurassic Pangea. The NBCP was a scientific drilling project in which the goals were to recover a very long a detailed record of ancient continental climate, unravel the history of one of the largest and longest lived rift basins, and produce a magnetic polarity time scale for the Late Triassic. More information can be found at <http://www.ldeo.columbia.edu/>. For directions to the meeting, go to:

[http://ldeo.columbia.edu/what/campus\\_map/c\\_campusmap\\_main.html](http://ldeo.columbia.edu/what/campus_map/c_campusmap_main.html).

To register, contact Dan St. Germain, c/o Malcolm Pirnie, Inc., One International Boulevard, P.O. Box 601, Mahway, New Jersey, 07430-0601.

Thursday, May 13, 1999

\* CONTRIBUTIONS TO THIS  
MONTH'S  
CNYAPG NEWSLETTER  
WERE MADE BY:

Vita DeMarchi    Jon. S. Fox  
Gerry Gould     Bill Kelly  
Nancy Gensky    Georgia Popoff

**CNYAPG Walking Tour** with Mr. Bob Preyer of the MOST. Tour downtown Syracuse, reflecting on the geologic origins of local building materials and stone work. The tour will conclude at **Traditions of Syracuse**, located at the corner of S. Salina and E. Washington Streets. There will be an open wine and beer bar from 6:30 to 8:00 p.m. and a spread of munchies to appease the tastes of all. The cost for all of this fun is a mere **\$15.00** and you must **make your reservation by May 10th at the latest. Call Buck Gabriel at (315) 437-6100, ext. 2656 to guarantee your participation in the CNYAPG season finale!**

*The Board Members would like to thank all of the corporate and individual supporters of CNYAPG throughout the past year. We would like to encourage you to continue your pledge of support throughout the upcoming year. Contact Steve Crook at (315) 437-1429 or (518) 827-5720 details.*

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**CNYAPG MISSION STATEMENT**

The CNYAPG was founded in 1993 to strengthen and advance the geologic sciences as a profession and to provide an open forum for the exchange of ideas; to promote the protection of public welfare through the professional practice of geologic sciences; to inspire and maintain the highest standards of professional conduct, business ethics, and personal honor of the membership; to foster the spirit of scientific research throughout the membership; to publish and otherwise disseminate information related to the geologic sciences and associated technologies; to maintain and encourage intra- and inter-association activities, to enhance the association's programs, and to encourage the affiliation of individual members with other scientific and technical organizations.

