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For applications and/or more information contact membership chairman Stephen Busschaert, 54 Keswick Rd., Rochester, NY 14609; by telephone 288-5683; or by e-mail <sbusschaert@msn.com>.

The ***Academy*** Internet web page is **http://www.rasny.org**

The ***Astronomy Section*** Information phone number is (585) 987-5330. The ***Astronomy Section*** Internet web page is **http://rochesterastronomy.org**

This "**BULLETIN"** is produced monthly, *except July and September*, by the ***Astronomy Section, Rochester Academy of Science***. The editor is Frank Bov, 16 Gladbrook Rd., Pittsford, NY 14534 Phone (585) 422-9910 (days) and (585) 385-1518 (evenings), e-mail <frank.bov@xerox.com>

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BULLETIN

"An organization of people in the Natural Sciences"

March, 2007 - Vol. 61, #3

RMSC DISTINGUISHED SCHOLAR LECTURE

The Yellowstone Hot Spot

Lisa Morgan

Research Geologist
U.S. Geological Survey

Wednesday, March 7th , 7:30PM
Eisenhart Auditorium

Three of the most astonishing volcanic eruptions in the geologic record occurred during the last 2.1 million years around what is now Yellowstone National Park. Today researchers are monitoring Yellowstone's every geologic move as it ramps up for yet another eruption. Lisa Morgan is part of the team of scientists at the Yellowstone Volcano Observatory keeping an eye out for signs of unrest. Hear about the past, present, and future implications of the Yellowstone Hot Spot

Lisa Morgan is a Research Geologist with the U.S. Geological Survey

Tickets are $15 for non-RMSC members, $8 for students through grade 12 or college students with ID. Call (585)697-1942 for more information and reservations.

Samuel Clemens

RAS 2007 SPRING LECTURE SERIES

A Fossil Guide to Mark Twain's Essay "Was the World Made for Man?"

J. Michael Pratt

Assistant Professor of Management Information Systems, Elmira College

Monday, April 16
6:00 PM Dinner ($18 *)
7:30 PM Lecture (FREE)

Main Auditorium
Brighton Town Hall
2300 Elmwood Avenue

* RSVP by April 9th to Stan Spector at 585-461-1272 or <stanspec@aol.com>

REPORT FROM THE GRANTS COMMITTEE

January 2007

Requests for proposals for the Rochester Academy of Science Undergraduate Student Science Research Grants went out to all area schools in September, 2006. Sixteen proposals were received.

The following awards were made:

1. The top award of $50 unrestricted went to Jillian Lund at the Rochester Institute of Technology for her proposal "Multiple antibiotic resistance found in wild leopard frogs." The Biology Department at RIT also received a grant of $500 sent to her advisor Dr. Harvey Pough.
2. Thomas Anderson, a student at RIT was awarded partial support for his proposal, "Identification of unknown bacterial by molecular analysis." The Biology Department at RIT received a grant of $150 sent to his advisor Dr. Michael Savka.
3. Dennis Buckley and Patricia Hackett, students at SUNY Geneseo were awarded partial funding for their project "Synthesis of a halogenated polyacetylene in Anaphalis

margaritacea." The Chemistry Department at Geneseo received a grant of $175 sent to their advisor Dr. Eric Helms.

4. Megan Crocker, a student at Hobart & William Smith Colleges, was awarded partial funding for her project "Going with the flow: evidence for changes in circulation in Seneca Lake, NY during the Holocene." The Geoscience Department received $150 sent to her advisor Dr. Tara Curtin.
5. Emily Wright, a student at Keuka College was awarded partial support for her project "The effect of dietary calcium on growth and calcium carbonate shell composition in aquatic snails." The Biology Department received $150 sent to her advisor Dr. Joan Magnusen.
6. Chelsea Yaskow, a student at Keuka College was awarded full support for her project "Fiddler crab burrow morphology." The Biology Department received $81 sent to her advisor Dr. Joan Magnusen.
7. John Cadwalader, a student at Niagara University was awarded partial funding for his project "Antibacterial efficacy of aniline derivatives." The Chemistry Department received $100 sent to his advisor Dr. Ronny Priefer.
8. Vincent Carroll, a student at Niagara University was awarded partial funding for his project "Synthesis and biological evaluation of isoflavonoids as antimicrobial agents." The Chemistry Department received $150 sent to his advisor Dr. Ronny Priefer.

Bill Hallahan, Chair,
RAS Student Grants Committee

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ABSTRACTS OF SOME PAPERS GIVEN AT THE 2006 PAPER SESSION

PHYLOGENETIC ANALYSIS OF THE FAMILY GESNERICACEAE USING A DUPLICATED NUCLEAR GENE

Sarah E. Caro, Michael J. Greene, and Michael A. Kotarski Niagara University Academic Center for Integrated Sciences, Department of Biology, Niagara, NY.

The DNA sequence of low copy number nuclear genes can be used to construct phylogenetic relationships of species that are otherwise difficult to place. Chalcone synthase (CHS) is the first enzyme in the flavonoid biosynthetic pathway in green plants and is encoded by a small gene family in nearly all species studied. Two copies are present in the Gesneriaceae (CHSI and CHSII) presumably caused by a gene duplication and subsequent divergence. There are several genera within Gesneriaceae for which assigning a tribal or subfamily relationship is difficult using morphological data or high copy number gene sequence data. Primers specific for a 757 base pair sequence of CHS exon 2 were designed and a high fidelity polymerase was used to generate amplified fragments that were sequenced. Sequence data were used to produce a tree that clarifies the placement of rogue species into either the old world or the new world subfamily.

* * *

THE STEAMROLLER BLUES: REDISCOVERING AN HISTORIC CEMETERY.

Jennifer J Prutsman-Pfeiffer, Department of Anatomic Pathology, University of Rochester Medical Center, Rochester, NY.

Skeletons dating to the contact period (mid-1700's) in western New York are rare, due to taphonomic factors that inhibit good bone preservation. Colonial skeletons, when preserved, are often encountered incidentally as unmarked burials in the name of modern progress (i.e. road or civic improvements).

Such a find is presented here. Human remains discovered in July 2005 were initially thought to be a forensic case by the county sheriff's department as a road was being dismantled for utility upgrades. The sandy substrate, geologically deposited by a glacial delta of the Genesee River, allowed for excellent preservation of the skeleton. The remains were interred in a pinned shroud within a wooden coffin, which had since degraded. Anthropological analysis revealed a craniodental anomaly, intense physical labor, and nutritional deficiency as a child. Cranial measurements and gross morphological observations reveal an "atypical" skull for a European male. Femora also lacked anterior bowing. Portable XRF was performed to determine trace element concentrations.

This individual represents one of multiple burials that were discovered in this general area. An incomplete adult calvarium and pelvic bone of a juvenile were also recovered in the days after the initial excavation. Historical documents revealed that two other burials were discovered in 1920 and 1820, however no anthropological report was found. It is likely that these burials represent the earliest settlers of the region dating to the contact period in New York State.

* * *

RAMAN SPECTROSCOPY AND GROUP THEORY IN THE PHYSICAL CHEMISTRY LABORATORY.

Kristina Lantzky-Eaton, St. John Fisher College, Rochester, NY.

The coverage of group theory in physical chemistry has declined recently often being deferred to inorganic chemistry. The implementation of a Raman spectroscopy experiment in the physical chemistry laboratory, which implements group theory to determine vibrational modes of small organic compounds, offers an inorganic overlap experience for upper level students. Students model the given organic molecule with Gaussian03 and then obtain Raman spectra. Mode assignments are made by comparing Gaussian calculations to the vibrational components from the reduced representation.

EVENTS for MARCH 2007

(For updates to events, check the Academy web site, http://www.rasny.org, or

Fri 2 ASTRONOMY GENERAL MEETING

7:30 PM Rochester Institute of Technology, Gosnell Hall, room A300. Join us at RIT for this month's general meeting. This month's talks: TBA Visitors are always welcome. Come as early as 7:00 PM for pre-meeting snacks and conversation or plan to go out afterwards with us. For information, contact Carol Latta at 230-9548, or by e-mail at <cosmos@rochester.rr.com>.

Tue 06 FOSSIL MEETING

7:30 to 9:30 PM at the Brighton Town Hall, 2300 Elmwood Ave., in the Community Meeting Room. RAS Member John Spina will speak on "The Silurian Circle of the Great Lakes - the Neglected Lagerstatten". Refreshments. Visitors welcome. For further information, contact John Handley jhandley@rochester.rr.com (585 802 8567), contact Anne Roth-Blizzard or check the Fossil Section Web site for updates.

Wed 07 DISTINGUISHED SCHOLAR LECTURE

7:30 PM in the Eisenhart Auditorium at the RMSC. Dr. Lisa Morgan, Research Geologist with the U.S. Geological Survey will speak on: "*The Yellowstone Hot Spot*." Tickets are $15 for non-RMSC members, $8 for students. Call (585)697-1942 for more information and reservations.

Thur 15 RAS BULLETIN

Articles and event notices due for the March, 2007 newsletter.

Tue 20 MINERAL MEETING

7:30 to 9:30 PM at the Brighton Town Hall, 2300 Elmwood Ave., in the downstairs Community Meeting Room. This month will feature a talk by John Berkley. John is a geology professor at SUNY Fredonia. He will be speaking on "Anorthosite: The New York – Lunar Connection". Refreshments will be served. Visitors are welcome. For more information call Chuck Hiler at 924-7496 or check the Mineral Section web page for possible updates. <http://www.rasny.org/mineral>

Wed 21 RAS BOARD MEETING

7:00 PM Brighton Town Hall, Stage Conference Room. Everyone welcomed.