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Rochester Academy of Science

BULLETIN

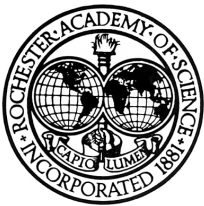
“An organization of people in the Natural Sciences”



August, 2009 - Vol. 63, #7

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ABOUT THE **ACADEMY** - The Rochester Academy Of Science, Inc. is an organization which has been promoting interest in the natural sciences since 1881, with special focus on the western New York state region. Membership is open to anyone with an interest in science. Dues are minimal for the Academy, and are listed in the membership application. Each Section also sets dues to cover Section-related publications and mailings.



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 <editor@rasny.org>

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THE IMPACT OF RESTRICTING DEVELOPMENT ON WATER QUALITY.

Katrina Abdalla, Biology Department, Nazareth College, 4245 East Avenue, Rochester, NY 14618

Nitrate and phosphate serve as the major nutrients in open waters. Increasing the

nitrate or particularly the phosphate levels can lead to stream eutrophication. Large amounts of suspended solids also impact streams, as light penetration of stream water is blocked, thus inhibiting photosynthesis. The town of Pittsford has elected to limit housing development which reduces storm water discharge into tributaries of the East Branch of Allen Creek. The goal of this research was to determine if Pittsford’s objective will have a positive effect on water quality. Three water catchments were compared by measuring phosphate, nitrate and suspended solid levels, one having no development, one with controlled development and the other highly developed. The water samples from catchments in the towns of Mendon, Henrietta, and Brighton demonstrated that in less developed areas, fewer nitrates,

phosphates, and suspended solids exist, thus increasing stream quality.

* * *

THE SIZE THAT COMMON EURYPTERUS SPECIES ATTAINED (LATE SILURIAN BERTIE GROUP OF NEW YORK AND ONTARIO, CANADA

Samuel J. Cieurca, Jr., 2457 Culver Road, Rochester, New York 14609.

Across New York State and southwestern Ontario, Canada, the ‘common’ eurypterids occur in countless numbers within a sequence of rocks termed the Bertie Group. Within the lower portion of the group, i.e. the Fiddlers Green Formation, the eurypterid *Eurypterus remipes* is the characteristic taxon found within the preserved biota.

Stratigraphically higher, the common form is *Eurypterus lacustris*. Generally, *E. remipes* is found in a small/medium size (~5 – 8 inches), while *E. lacustris* occurs in a medium/large size (~6 – 9 inches). Interestingly, in the Niagara Peninsula of Ontario, Canada, some of the smallest (0.5 – 2 inches) eurypterids (*E. remipes*) are found in the Fiddlers Green Formation (Ellicott Creek Member). Whether size-sorting,

i.e. segregation according to the size of individuals or fragments, is the principle reason for the distribution observed is not known at present, although size-sorting has often been observed within these eurypterid-bearing units not only in the case of eurypterid material, but also associated animal and plant remains (cephalopods, gastropods, horseshoe crabs, etc.). Regionally, it appears that storms frequently carried or floated all kinds of organic debris, much as they do today, into widespread areas of shallow water deposition that existed shoreward of stromatoporoid banks/shoals and bands of microbialite mounds. It is suggested that much sorting took place as material moved shoreward and currents distributed molted eurypterid remains in bands (windrows) within the fine dolomitic muds.

The Peabody Museum of Natural History contains one of the largest collections of eurypterid material ever assembled (Cieurca Collection) with a very wide assortment of ranges of size and preservation. Specimens of *Eurypterus* sp. indicate, by extrapolation of preserved parts, that the common eurypterids attained a size of about 16 – 18 inches in length, a condition not recorded by complete material

reported from the waterlimes of New York and Ontario.

A new specimen proves that these eurypterids attained an even greater size. A telson discovered in the Williamsville 'A' Waterlime is an exceptional 6 inches in length, the largest found to date, and was recently added to the invertebrate collections of the Peabody Museum in New Haven, Connecticut. Two large specimens of nearly complete *E. lacustris*, with telsons measuring 3 inches in length, were photographically enlarged to a size where the telsons became 6 inches in length. This photographic enlargement indicates that a eurypterid with a 6-inch telson reached over 2 feet in length from the tip of the carapace to the tip of the telson. It also shows that the carapace of the animal (*E. lacustris*) reached approximately 7 inches in width.

This study is being extended to a 'common' fossil found in the Pittsford Member of the lower Vernon Formation (Salina Group), viz. *Eurypterus pittsfordensis*, as a very large collection of 'Pittsford Shale' material is now available for study.

* * *

**SATELLITE
ARCHAEOLOGY:
EXPLORING THE ECOLOGY
OF STATE FORMATION IN
ANCIENT MEXICO FROM
SPACE**

William D. Middleton, Ph.D.

Department of Material Culture
Sciences, Department of

Sociology and Anthropology
Rochester Institute of
Technology.

Over the past few decades, satellites have become an increasingly important tool in archaeological research. They have been used to identify surface-visible features over large areas, penetrate the canopies of dense forests to view otherwise hidden archaeological sites, identify subsurface archaeological features, and many other applications. An interdisciplinary team of scientists from RIT, the University of Colorado at Boulder, Cornell University, and others has been developing a novel application of hyper-spectral, satellite image analysis to explore the relationship between the ancient Zapotec state (ca. 250 BC-AD 750) and its environment in Oaxaca, Mexico. We are using hyper-spectral imagery, geomorphology, and paleobotany to model ancient landscape change in Oaxaca and gain a better understanding of how ancient human activity both has impacted, and been impacted by, a changing environment. Answers to these questions will help us to better understand the role of human activities in today's changing environment.

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HELP WANTED

The RAS is in need of a volunteer Website content coordinator. This volunteer would decide what should be published on the site, collect the information from the

relevant parties and submit it to the Webmaster for publication. This information includes the Section calendar events and Academy announcements. Other ideas for content are articles from Section newsletters, articles submitted by RAS members, RAS photographs (e.g., depicting section activities or a photograph of the month taken of a scientific subject by an RAS member) or any other content the coordinator feels will help increase visits and usefulness of the Website.

EVENTS for August / September 2009

(For updates to events, check the Academy web site, <http://www.rasny.org>, or appropriate Section web site.)

AUGUST EVENTS

**Fri 07 ASTRONOMY
GENERAL MEETING**

We move our monthly meeting to our own observatory grounds in Ionia, New York during the summer months. So be SURE to note the location shift! Come early, starting at 7 for conversation and snacks. Stay late if clear for a peek through the club's telescopes. Our meetings are always free and open to the public. Why not stop in and listen? For information, contact Carol Latta at 230-9548, or <cosmos@rochester.rr.com>

**Sat 15 FOSSIL
FIELD TRIP**

FIELD TRIP Trip to Jaycox Run, Livingston County, NY. Details forthcoming. Please email <tcarter1@rochester.rr.com> or call Terry at 585-467-0135 if you wish to attend or want more information.

**Sat 15 RAS
BULLETIN**

Deadline for event notices and articles for the September issue.

**Fri 21 ASTRONOMY STAR
PARTY** 9:15 – 11:00 PM at Mendon Ponds Park, near the scout camping area on Hopkins Point Road. Our fifth star party of the year spotlights a crescent Moon and deep sky objects. Star parties are an open invitation to look through telescopes provided by astronomy club members.

Depending on conditions, we'll see a variety of objects including star clusters, gaseous nebulae, and other galaxies. Be sure to dress for cool weather as nights often are cold and grass can be wet with dew, so wear waterproof shoes just in case. We'll cancel if not at least partially clear. Call us at 723-6225 starting a half hour before the start time if you're in doubt.

**Sat 29 (rain date August 30)
ANTHROPOLOGY FIELD
TRIP**

9:00 am Annual Flint-Knapping Demonstration at Letchworth State Park in Mt. Morris. We will meet at the Big Tree Inn to carpool for the day trip to Letchworth. Bring lunch and water, or buy food there. Many exhibits of early Indian life and demos of flint-knapping, Atlatl-throwing etc. May also visit the Mills Mansion in Mt. Morris. Contact Karen Wolf 670.9709.

SEPTEMBER EVENTS

**Fri 11 ASTRONOMY
GENERAL MEETING AT
IONIA**

We move our monthly meeting to our own observatory grounds in Ionia, New York during the summer months. So be SURE to note the location shift! Having the September meeting at Ionia is a trial for this year. Come early, starting at 7 for conversation and snacks. Stay late if clear for a peek through the club's

telescopes. Our meetings are always free and open to the public. Why not stop in and listen? For information, contact Carol Latta at 230-9548, or <cosmos@rochester.rr.com>

Sat 12 FOSSIL FIELD TRIP

Trip to Fall Brook, Livingston County, NY. Details forthcoming. Please email <tcarter1@rochester.rr.com> or call Terry at 585-467-0135 if you wish to attend or want more information.

Tue 15 MINERAL MEETING

7:30 p.m. at the Brighton Town Hall at 2300 Elmwood Avenue, in the Downstairs Meeting Room. Harry deLahunta will give the first of the member short talks on "Plate Tectonics" Door prizes and refreshments; visitors welcome.

FUTURE EVENTS:

October 24-25: Annual Gem, Mineral and Fossil Show

October 31: RAS Fall Paper Session at Roberts Wesleyan College