



President's Message

Adventures are the stuff of summer days and nights for Academy members. Whether you are peering through a scope at celestial objects, digging for Paleozoic fossils, admiring an old growth forest, or doing arm chair naturalist activities, I hope your explorations continue to be fun and fruitful!

The adventures continue as Academy members share their passion and knowledge with the community. I would like to thank Astronomy, Fossil and Mineral Section leaders for continuing to promote the Academy and provide learning experiences at the ADK Expo in June.

The Academy BOD is grappling with a publications storage situation at the University of Rochester's Rush Rhees Library. We can no longer store extra *Proceedings* in that facility and must dispose of thousands of items! Determining what books must be saved and stored somewhere else is a problem that requires a solution by the end of August. Please read more about the RAS-UR library collaboration in this Bulletin. We welcome your input.

Jutta Siefert Dudley, President

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Share Your Experiences

Are you engaged in a solo project or working with other members in "citizen" science activities? Why not share your experiences with the community? You have a great opportunity to do this at the next RAS Scientific Paper Session on Saturday morning, **November 12, 2016**, hosted by Roberts Wesleyan College. Now is

a good time to gather your thoughts and plan ahead! More information about the event and presentation registration can be found on www.rasny.org and in the next RAS *Bulletin*.

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Disposition of Proceedings Storage at Rush Rhees Library

The relation of the Academy and the University of Rochester goes back to the days of Henry Ward and Herman Fairchild in the early 1900s. Their positions at the UR and in the Academy led to our collaboration with the UR library system that continues to today.

Decades ago agreements were formalized with the University regarding an exchange program with other institutions, archiving Academy minutes and other papers, shelving our publications for reading or lending, library card privileges for members, and storing extra *Proceedings*. Over the years, the agreements have morphed in favor of the UR (they are the "big guys" after all). The latest change is a request for us to remove the stored publications. The books in question had been kept for many years in a locked basement closet until a water leak flooded the basement and they were removed. They were eventually shelved in an office and that space is soon to undergo renovations. In addition, the library administration no longer wants to store our publications or process sales requests (which are few and far between). To help us get a handle on the volume stored there, the librarians made a list of the issues and counted over 6000 items! A portion of these are shown in the photo below.



The plan is to scan each issue and store selected books. The UR has offered to do the scanning and submit digital copies to the New York Heritage digital collection: <http://www.newyorkheritage.org>. RAS would lose its copyright to the UR for these issues but the upside is all of our past publications would become available to the world for perusal. The RAS BOD is in favor of this move.

Publications Committee member Karen Wolf and I began examining the books and making decisions on what to toss into the recycling bins. Many hours of work are anticipated to finish this job. In the meantime there will be discussions with library administrators about the requirements for the digital collection.

If you can offer a temporary haven for saved books, have ideas for their future distribution, or have questions, please contact me.

Jutta Dudley, Publications Committee Chair

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RAS Grant Recipient Keri Geiser Summarizes her Research Findings

Keri Geiser, is a geoscience major minoring in biology and environmental studies at William Smith College. Her advisor is Professor Tara Curtin of the Geoscience Department, Hobart & William Smith College in Geneva.

Reconstructing Past Primary Productivity of Four New York Finger Lakes Using Multiple Proxies

Eutrophication is one of the most pressing water quality issues in freshwater systems worldwide. Lake sediment cores provide an invaluable means of reconstructing changes in trophic status conditions because when the layers of sediment are dated, they permit inferring the factors involved in eutrophication at a high temporal resolution. For my research project, I analyzed sediment box cores collected from Conesus, Honeoye, Canandaigua and Cayuga lakes to reconstruct shifts in trophic status over the last century using several complementary paleo-productivity proxies. These four lakes were chosen because they currently reflect a wide range of trophic states, and written records reveal significant shifts in land use, population, and water quality (e.g., nutrient composition, chlorophyll) in the lakes and their watersheds over the last century.

Funding from the Rochester Academy of Science (RAS) coupled with grants received from Hobart & William Smith Colleges provided me the opportunity to use an analytical technique called Fourier transform infrared (FTIR) spectroscopy to quantify one paleo-productivity proxy, biogenic silica. The biogenic silica concentration in each layer of the four sediment cores reflects changes in the total diatom primary productivity in the lake, providing an important means to assess past primary production in these lakes.

Funding from the RAS also helped offset the cost of a necessary chemical powder, safety equipment, and a diatom standard to prepare samples and diatom

standards for analysis.

I spent nearly three weeks (30-40 h/wk) preparing samples and standards prior to FTIR analysis. In February 2016, I traveled to the Geoscience Department at the University of Massachusetts with my adviser to use Dr. Sheila Seaman's Bruker Vertex 70 FTIR spectrometer that was equipped with a Praying Mantis diffuse reflectance accessory, which allows for analysis of powders. While there, I analyzed 50 diatom standards and 252 sediment core samples. I began to process the sample spectra using a computer program called PeakFit (SysStat) to remove the background using two different techniques - rubber band and concave rubber band. Returning to my home campus, I continued using PeakFit to identify and isolate the absorption peaks associated with biogenic silica from the peaks associated with quartz, feldspar and clay minerals in order to calculate weight percent biogenic silica in each standard and sample. Sample post-processing took over two months to complete. As predicted, the shifts in biogenic silica generally mimicked that of the weight % organic matter and $\delta^{13}\text{C}$ of algae in the lakes, and most changes in these lakes occurred post-1950.

I am currently working on incorporating results from the FTIR analyses into an abstract for a poster presentation at the annual Geological Society of America conference in September 2016 and a manuscript to submit for publication in a peer-reviewed journal called the *Journal of Paleolimnology* after this poster presentation. I presented initial results from my thesis at the annual Northeastern Geological Society of America meeting as a poster in March 2016.

Without funding from the RAS, FTIR analyses and quantification of biogenic silica in these four lakes would not have been possible. This study represents the first attempt to quantify diatom abundance (as biogenic silica) in these study lakes and is, based on my literature review, the first to use FTIR to quantify diatom abundance in lakes that span trophic states from eutrophic to mesotrophic to oligotrophic.

Minor edits to this report were done by Grant Committee member J. S. Dudley to fit the report in this space.

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New Al Ureles Observatory at Farash Center Observatory

The Astronomy Section is pleased to announce a new observatory, known as "The Al Ureles observatory", has been donated by ASRAS's long-time patron Dr. Al Ureles. This observatory, shown below, will be officially dedicated on August 5, on Dr. Al Ureles's 95th birthday. Happy Birthday and thanks, Al!



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Events for August/September, 2016

For updates to events, check the Academy website, <http://www.rasny.org>, and Section websites.

AUGUST 2016

NO ASTRONOMY SECTION MEETING IN AUG

NO MINERAL OR FOSSIL SECTION MEETINGS IN AUG

Fri Aug 5 ASTRONOMY – Al Ureles Observatory Dedication and Birthday Party. 6:00PM. Farash Center, Ionia New York, Contact Joel Schmidt 533-2097

Mon Aug 8 ASTRONOMY BOARD MEETING 7:00 p.m. Farash Center, The Marian and Max Farash Center for Observational Astronomy 8555 County Road 14 Ionia, NY 14475

Wed Aug 10 HERBARIUM.

1:00-4:00 p.m. Life Sciences section will hold a workshop at the RAS Herbarium located in the basement of Rochester Museum and Science Center. We will be working on refiling repaired genus folders and other odd jobs. At RMSC go to the front desk and ask staff person to call ext. 368 in the Herbarium. For more information, call Larry Hirsch (429-6199) or LPH710@yahoo.com.

Fri Aug 12 ASTRONOMY

“The Perseid Meteor Shower in the Meadow” - a presentation of the Genesee County Parks together with ASRAS with be held from 8:00 – 9:30pm at Genesee Park and Forest Interpretive Nature Center 11095 Bethany Center Road East Bethany, NY

Sun Aug 14 ASTRONOMY OPEN

HOUSE at the Farash Center Observatory noon to 4:00pm (or later is skies are clear) at: The Marian and Max Farash Center for Observational Astronomy 8555 County Road 14 Ionia, NY 14475

Wed Aug 17 RAS BOARD

MEETING 7:00 p.m. Brighton Town Hall, Stage Conference Room.

Fri Aug 19 LIFE SCIENCES FIELD

TRIP 6:00 PM We will join the Burroughs Audubon Nature Club for their Potluck at the BANC Sanctuary with a program titled “An Altered Landscape”. Bring a dish to pass and table settings For directions and more information, contact Karen Wolf 670-9709.

Fri 14 ASTRONOMY STAR PARTY

9:00 – 10:45 p.m. Mendon Ponds Park, youth camping area. For more information, contact Jim Seidewand at (585) 703-9876..

Tues, August 30 LIFE SCIENCES

FIELD TRIP 6:00- 8:30PM PM. We will again join the Burroughs Audubon Nature Club for their OPENHOUSE at BANC Sancturay with a program titled SHARING BOOKS ABOUT NATURE. For directions and more information, contact Karen Wolf 670-9709.

SEPTEMBER 2016

Sept MINERAL SECTION

for information contact Stephen Busschaert at mineralvp@rasnyor (585) 732-5321

Sept FOSSIL SECTION

no Fossil Section meetings are scheduled for September. Members will be notified in case of scheduling changes for Sept.

Sun Sept 11 ASTRONOMY OPEN HOUSE

at the Farash Center Observatory noon to 4:00pm (or later is skies are clear) at Farash Center Observatory. Contact Joel Schmidt at 533-2097

Sept ASTRONOMY STAR PARTY

9:00 – 10:45 p.m. Date and Location TBD Contact Jim Seidewand at (585) 703-9876.

Fri Sept 2 ASTRONOMY SECTION MEETING

7:30 p.m.–10:00 p.m at the Farash Center, Ionia. ASRAS General Members Meeting. For more information, contact Joel Schmid at (585) 533-2097.

Mon Sept 12 ASTRONOMY SECTION BOARD MEETING

7:00pm Farash Center, Ionia NY.

Sat, Sept 10 LIFE SCIENCES FIELD

TRIP 9:00AM. We will again join the Burroughs Audubon Nature Club for their ZURICH BOG FIELD TRIP, Arcadia NY. FUNGI AND PLANTS OF ZURICH BOG WOODS. For further instructions about car pooling and meeting place, contact Karen Wolf 670-9709.

Sat Sept 17 LIFE SCIENCES

SECTION will hold a workshop from 10 am - 2 pm at the RAS Herbarium, located in the basement of the Rochester Museum and Science Center (RMSC). We will continue work on replacing torn and damaged genus folders, as well as repairing specimens as needed. It is a great way to see interesting plants from the Rochester region and around the world! No experience needed! If you plan to attend, please send an RSVP to Elizabeth Pixley. Then, at RMSC, go to the front desk and ask staff person to call ext. 368, phone in the Herbarium. For more information, contact Elizabeth Pixley, herbarium curator (334-0977 or epixley@rochester.rr.com).

Wed 21 RAS BOARD MEETING

7:00 p.m. Brighton Town Hall, Stage Conference Room.

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ABOUT THE ACADEMY - The Rochester Academy Of Science, Inc. is an organization that 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 Jutta Dudley, 140 Railroad Mills Road, Pittsford, NY 14534; by telephone (585) 385-2368; or by e-mail <pres@rasny.org>. The Academy Internet website is <http://www.rasny.org>. Or see us on Facebook at <https://www.facebook.com/RochesterAcademyOfScience>

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