

BULLETIN

"An organization of people interested in the Natural Sciences"



May 2026; Vol. 80, #4

President's Message

President's 2025 Annual Report

The Rochester Academy of Science continues to be a vibrantly active and growing association with extensive programming in 2025 across all sections. We had more members at the end of 2025 than we had in 2024. Besides being evidence of a healthy organization it also indicates that we continue to appeal to our members with effective programs.

The Academy held our 51th RAS Annual Scientific Paper Session at SUNY Geneseo in November with attendees from 19 different colleges, universities, and other schools. 150 research projects were presented—102 by posters and 48 in oral reports. This is more than in any year since 2017. The abstracts for these will all be in our upcoming Volume 22 of the *Proceedings of the Rochester Academy of Science* which has been published regularly since 1890. The 2026 Paper Session session will be at St. John Fisher University on November 7 and will include our Annual Larry King Memorial Lecture. Do come.

Our Student Grants Committee reviewed numerous applications at the end of 2025 and made fifteen research grants to undergraduates in January totaling \$5750, the most awards and largest amount we have ever given thanks to endowment earnings and donations by members and by the Life Sciences Section.

The *RAS Bulletin* published ten issues covering Academy business and section events and providing interesting scientific articles and

photographs from our members. It is sent to every member each month. Please read this to keep up with all that we do.

We provided two well-attended public lectures last year. The first was "Frost Town - Archaeology of a Finger Lakes Ghost Town" by Dr. Alexander Smith, Associate Professor of Anthropology at the State University of New York at Brockport and President of our Anthropology Section. This was given at our 2025 Annual Meeting in April. In November, Dr. Marc David Abrams, Professor of Agricultural Sciences and Forest Ecology and Physiology at Pennsylvania State University, delivered our annual Larry King Memorial Lecture at the Scientific Paper Session on "Native Americans, Smokey the Bear and the rise and fall of eastern oak forests."

Our mission to "promote scientific study and research" is largely met through our sections' "citizen science" programs. Members had a wealth of opportunities available in 2025. Astronomy, Fossil, and Mineral sections had regularly scheduled meetings including lectures. Life Sciences Section held monthly workshops in the internationally known RAS Herbarium and recently announced that they have completed almost one-half of the photography and digitization for an estimated 30,000 preserved specimens in an on-line research data base. They also had some lectures and field trips.

Anthropology Section co-sponsored lectures with the Archaeological Institute of America Rochester Society. ASRAS offered both

scheduled and open observing of Space at the Marian & Max Farash Center for Observational Astronomy, the RocheStar Fest, educational Astronomy Forums, and several special events. Fossil Section conducted several collecting field trips to sites encompassing stratigraphy and fossils.

We also have a mission to "disseminate scientific knowledge" and we meet that through outreach and public science programming. In 2025, ASRAS hosted many public open house events and Scout astronomy camp-outs at the Farash Center, operated the RMSC telescope on Saturdays, and set up at the Ionia Fall Festival. Several sections participated in educational outreach programs at the ADK Expo in June, the Paper Session in November, and Spring and Winter break programs at the RMSC. Anthropology Section participated with hands-on displays at the RMSC for National Archeology Day.

Innovations this year included several equipment upgrades and acquisitions at the Farash Center, and improved and automated membership renewal.

Our success is due to the work of scores of leaders and volunteers within the Academy and its sections. There is much to do and see in our Academy. I recommend that you expand your knowledge by attending an event at any section to which you wouldn't normally go.

Michael Grenier, RAS President

Events for May 2026

May 1 Fri: Astronomy Members Meeting

7:00 p.m. – 9:00 p.m. Farash Center. Dave Bishop will speak about Astronomy Year in Review. Contact Craig Kaplan at President@rochesterastronomy.org for details.

May 5 Tues: Fossil Members Meeting

7:00 p.m. – 9:00 p.m. Pittsford Community Center, room 018, 35 Lincoln Avenue Pittsford, NY 14534. Open to all RAS members and guests. It will also be broadcast on Zoom. There will be a short talk by on "Dinosaur Soft Tissue and the Issues with Shrink Wrapping. Our featured speaker will be Ashley Hall, Paleontologist and Educator with the Museum of the Rockies, with a talk on "Walking with Mary Anning: A Journey Through the Fossil-Rich Shores of Lyme Regis." Mary Anning was an internationally known English fossil collector and palaeontologist. She had a major though generally unacknowledged role in the early days of paleontology. Finds included ichthyosaurs, plesiosaurs, and pterosaurs when these were little known and she was consulted by leading scientists for her expertise. For meeting details and Zoom login info, see the *FossilLetter* or contact Michael Grenier at paleo@frontier.com or (585) 671-8738

May 6 Wed: Astronomy Board Meeting

7:00 p.m. – 9:00 p.m. Zoom only. Members welcome to attend. Contact Craig Kaplan at President@rochesterastronomy.org for details.

May 13 Wed: Herbarium

12:00 p.m. - 3:00 p.m. The Life Sciences section will hold a workshop at the RAS Herbarium, located in the basement of the Rochester Museum and Science Center (RMSC). We will be continuing to organize plant specimens in preparation for digitizing the collection. If you plan to attend, please send an RSVP to rasherbarium@gmail.com. At RMSC go to the front desk to meet other participants. For more information, contact herbarium curators, Tim Tatakis and Steven Daniel, by emailing rasherbarium@gmail.com.

May 15 Fri: Public Observing

8:00 p.m. – 11:00 p.m. Farash Center. Contact Craig Kaplan at President@rochesterastronomy.org for details.

May 16 Fri: Member Observing

8:00 p.m. – 11:00 p.m. Farash Center. Contact Craig Kaplan at President@rochesterastronomy.org for details.

May 19 Fri: Astronomy on Tap

7:00 p.m. – 9:00 p.m. Contact Craig Kaplan at President@rochesterastronomy.org for details.

May 20 Wed: RAS Board Meeting

7:00 p.m. - 9:00 p.m. Pittsford Community Center, room 207, 35 Lincoln Ave, Pittsford. Zoom option available. For details, contact Michael Grenier at mgrenier@frontiernet.net.

May 26 Tues: Mineral Section Meeting

7:30 p.m. Meet at the Pittsford Community Center. Room 19. Zoom optional. We'll learn about the crushed stone industry from John Swierkos of the Dolomite Group. Members will receive information in mid-May. Guests welcome. Contact: Jutta Dudley, juttasd@aol.com.

May 27 Wed: Astronomy Forum

7:30 p.m. – 9:00 p.m. Zoom only. For details, contact Craig Kaplan at President@rochesterastronomy.org for details.

STRASENBURGH OBSERVATORY:

ASRAS will operate the telescope at the Strassenburgh Planetarium on mostly clear Saturday nights, dusk until 10:30. For more information, contact: Jim Seidewand at (585) 703-9876.

Robert (Bob) McGovern 1940-2026

It is with sadness we note the passing of RAS Fellow Bob McGovern whose contributions to RAS and ASRAS span many years.

From the ASRAS President's report by Frank Bov, June 2005

"Taking care where you step around the Wolk Observatory is prudent because Bob McGovern's been drilling holes again. This time, they're mostly pilings for an expanded deck on the South side of the main building. Bob's 2005 construction project for the club is an extension of the Brown Memorial from a newly-expanded library to include an adjacent 16' x 28' deck. Bob's plans incorporate a lot of interesting features, including an extra hole that looks a lot like a telescope pier ..."

Bob was first designated as Farash Center Site Manager in October 2005. For the next fifteen years, Bob refined visions, made plans, did work, and recruited others to help maintain and build the Center into the place we know today.

A late summer memorial service is planned with more information to follow.

Daniel Krisher inducted as RAS Fellow

According to our ByLaws, Fellows shall be chosen from the Active membership in recognition of scientific attainment or distinguished service to the Academy, by recommendation of a member and election by the Board of Directors. This is a rare honor bestowed by the Academy. This year two candidates were nominated, and both were elected by our Board. At the Annual Meeting they were recognized for their achievements and inducted as our newest Fellows—Daniel Krisher and Michael R. Grenier. Here we report on Dan Krisher's induction. Next month we will recognize Michael R. Grenier.



The Fellow award to Dan Krisher (left) was made by David Bishop (right) at our Annual Meeting on behalf of the Board of Directors. Photo credit: Robert Grenier.

DANIEL L. KRISHER.

FELLOW

April 20, 2026

As a child, Dan Krisher was captivated by stories of dinosaurs, and made his parents read them to him repeatedly. Growing up in Livonia, New York, his passion to learn more about ancient life blossomed when he began searching for and collecting fossils in the strata practically below his feet. By the time Dan got to high school he knew he wanted to become a paleontologist. After acquiring an Associate's degree at Alfred State College in math and science, his formal education in geology began at SUNY Geneseo by earning a Bachelor's degree. This was followed by a Master's degree from Indiana University in 1978. His research theses at these institutions gave him a deep understanding of corals and their habitats.

A career in geoscience did not happen for many years as he worked as a process chemist. Eventually, the opportunity to work at Ward's Natural Science Establishment occurred in 2004 and Dan found himself at home among rocks, minerals, and fossils as manager of the Geology Department for the next ten years. Working in the world's largest supplier of geological specimens to educational institutions, his responsibilities included creating science lessons and activities and lending expertise to state education departments and museums.

Dan was a member of the Genesee Valley Fossil Club, and when that group merged with the Rochester Academy of Science in 1981, he became an Academy

member. Since then, he has contributed in many ways to both the Academy and the Fossil Section.

Once the new Academy Fossil Section was established, it was not long before Dan was elected as Vice President yearly from 1984 until 1986, and then President from 1986 to 1990. He volunteered to be editor of the Fossil Newsletter in 2005 and did that work until he became President again in 2011; Dan is still serving in that position today.

Since 2014 Dan can be found contributing, on the behalf of the Fossil Section, at public STEM and nature-oriented events organized by the Academy itself, RMSC, Monroe County, and other organizations. Whether indoors or outdoors, a table of interesting fossils gathered by Dan is used to educate youngsters and adults about paleontology and where one can go to find fossils in the region.

Dan's passion for paleontological topics and his ability to present comprehensibly makes him a popular speaker. He generously accepts invitations to present in libraries, schools, and for various community groups. He always mentions RAS in anticipation that attendees will see it as a place to further their interest in science.

Fieldtrips are a noteworthy collecting and educational opportunity for members to experience. Because of Dan's leadership and knowledge, this opportunity has been available since 2011. The excursions are primarily to Silurian and Devonian sites across central-western New York State. With unwavering motivation, he continues to organize and lead many trips each year.

Dan has been serving on the Board of Directors of the Academy since 2003 when he was elected as a director for six years. Then he accepted the role of Vice President between 2019 and 2023. In that position he was instrumental in organizing and finding speakers for the annual fall Scientific Paper Session, as well as the annual meeting in the spring. Currently he serves as director again.

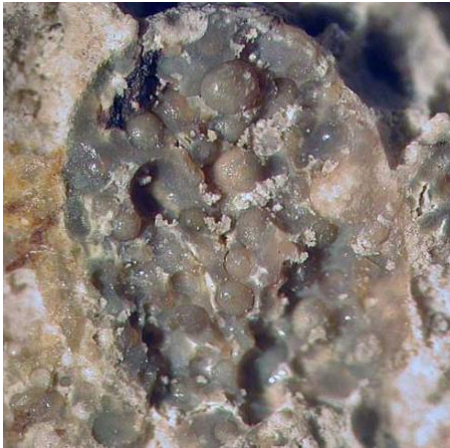
Contributing his knowledge to the field of paleontology, Dan is currently preparing research for publication about the Devonian corals of NYS. He has authored or co-authored several publications and abstracts in professional bulletins, special publications, and conference programs.

In recognition of his dedication and contributions to the Academy, the Fossil Section, and the community, we welcome Dan Krisher as a Fellow of the Rochester Academy of Science.

**The Worst Day Ever:
The End-Cretaceous Extinction Event
Part III The Search for the Chicxulub
Crater, by Michael Grenier**

Artist's reconstruction of Chicxulub crater soon after impact, 66 million years ago.
<https://www.geology.com/2016/11/asteroid-impacts-could-create-habitats.html>

The Alvarez et al. 1980 paper (see last month's Part II article) provoked a world-wide search for corroborating evidence. As the reports came in confirming finds of the iridium layer with tektites and other debris at the Cretaceous-Paleogene (K-Pg) boundary world-wide, the asteroid theory gained support.

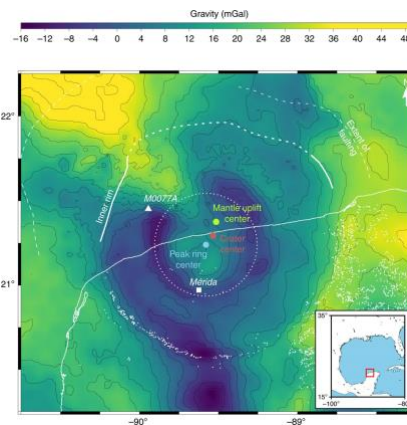


Glassy, greenish gray, micro tektite spherules from the Haiti K-Pg boundary. Tektites are formed only in the heat of asteroid impacts and nuclear detonations. These are sought after by mineral and meteorite collectors.
Source: <https://www.meteorite.com/kt-micro-tektites/>

If there was an impact, there must be a crater. The tektites and other terrestrial evidence indicated that it must have been on land or in shallow water, but where? Many looked for the crater. Several researchers believed it would be found in the Americas. Shocked minerals of greater abundance and larger size than elsewhere were found around the Caribbean. The ejecta layer and impact-wave deposit finds also suggested an impact between the Americas. On the southern peninsula of Haiti, a ~50-centimeter-thick

ejecta layer occurs at the K-Pg boundary. This ejecta layer is ~25 times as thick as those known from other sites further away and suggested an impact site within ~1000 kilometers of Haiti. Coarse boundary sediments at sites in the Colombian Basin and 5- to 450-meter-thick K-Pg boundary sediment in Cuba were evidence of deposits by a giant wave produced by a nearby oceanic impact¹⁷.

In 1978, even before the Alvarez paper, geophysicists Glen Penfield and Antonio Camargo were looking for possible locations for oil drilling for Petróleos Mexicanos (Pemex) as part of an airborne magnetic survey of the Gulf of Mexico north of the Yucatán Peninsula. Penfield thought he had found an impact crater, but Pemex would not allow publication. He presented on it with their permission in 1981¹⁸ at the 1981 Society of Exploration Geophysicists conference. It was little noted until 1990 when University of Arizona graduate student Alan Hildebrand learned of it.



Gravity anomaly map in the vicinity of the Chicxulub crater from data that helped identify the crater. The red circle marks the position of the crater center. The coastline is displayed with a thin white line¹⁹.

Hildebrand was one of those who had been looking for a K-Pg crater near the Caribbean and he teamed up with Penfield and others to complete the research into the site. In their 1991 paper they noted, "We suggest that a buried 180-km-diameter circular structure on the

Yucatán Peninsula, Mexico, is an impact crater. Its size and shape are revealed by magnetic and gravity-field anomalies, as well as by oil wells drilled inside and near the structure. The andesitic rocks have chemical and isotopic compositions similar to those of tektites found in Cretaceous/Tertiary (K/T) ejecta. Because the crater is in a thick carbonate sequence, shock-produced CO₂ from the impact may have caused a severe greenhouse warming²⁰."

Because it was completely buried under more than a half mile of younger sedimentary rock, Chicxulub is the most pristine large impact structure on the Earth²¹. It is half on-shore and half off-shore, explaining why there seemed to be a mix of both effects in the evidence found prior to the identification of the crater. It was named for the nearby village of Chicxulub.

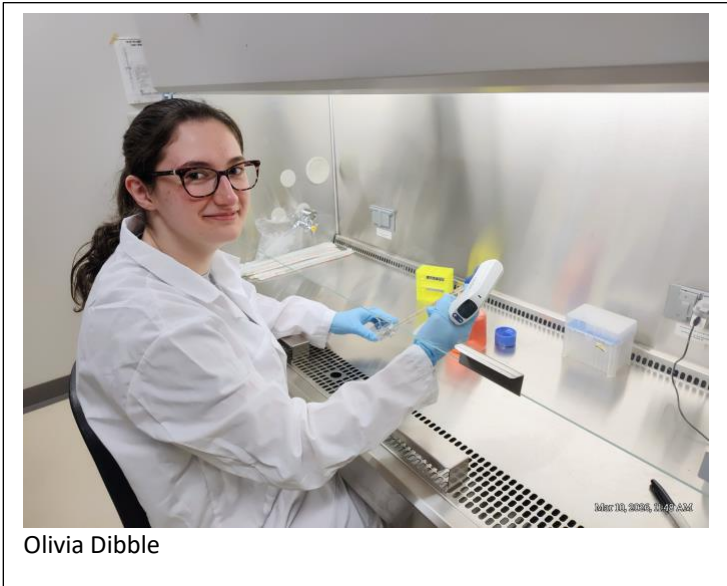
The "180-km-diameter circular structure" identified by Alan Hildebrand and his colleagues is just the inner peak ring. The complete crater was found to be about 260 km in diameter—about 160 miles.

Next month—the Asteroid Impact—the first few seconds!

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19. Collins, Gareth S., et al. "A steeply-inclined trajectory for the Chicxulub impact." *Nature communications* 11.1 (2020): 1480.
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Undergraduate Student Research Grant Awards



Olivia Dibble

Olivia Dibble An Undergraduate Laboratory to Detect MHC Class Ia Gene Expression in *Xenopus laevis* Cell Lines
Nazareth University. Olivia was awarded an RAS research grant for the 2025-2026 school year for her project.

Abstract

Understanding gene expression is essential in the study of genetics and molecular biology. One of the important components of molecular biology that students often struggle with is the central dogma, the direct flow of genetic information from DNA to RNA to protein. To better understand these concepts, we developed an undergraduate laboratory activity that demonstrates differential gene expression of a specific gene, Major Histocompatibility Complex Class Ia gene (MHC class Ia). The activity uses two *Xenopus laevis* cell lines; the A6 kidney cell line, which expresses MHC class Ia, and the B3B7 tumorigenic cell line, which does not express this gene. Students will gain experience in extracting DNA and RNA from the cell lines, synthesizing cDNA, and performing PCR/RT-PCR reactions. Students will also perform gel electrophoresis to analyze their PCR products. In doing so, students will be able to interpret that although all *Xenopus laevis* cells contain the same genes in their genome, not all cells express the same genes. Student learning will be evaluated through pre- and post-activity questions to determine if learning objectives are achieved.

RAS Member Images



Sombrero Galaxy (M104). Pat Cosgrove; April, 2026



Burney Baron Photography

Barkarian's Chain of Galaxies. Burney Baron; April, 2026.



Fossil Section members Joe Sullivan (left) and Dan Krisher on the section's April 26th 2026 field trip to the Gulf at Lockport to collect in the fossiliferous Lower Silurian Rochester Shale. Photo by Michael Grenier.

Rochester Academy of Science Annual Financial Report for 2025

Submitted by Timothy Tatakis, RAS Treasurer

The Rochester Academy of Science (RAS) has three categories of funds: the General Fund, the Endowment Funds, and the Expendable Funds. The General Fund receives RAS membership dues and monthly interest from the Life Fund (endowment) and the Memorial Fund (endowment). Expenses from the General Fund are outlined in the budget below. This financial report does not include income and expenses of the individual sections. A total of 369 members paid dues for 2025 membership (includes Life and Emeritus members).

Revenue (combined for General, Expendable and Endowment funds):

RAS Member dues = \$3,665.00, Gifts/Donations = \$4,202.00, Interest and Dividends = \$7,118.97, Fall Paper Session Abstract Fees/Lunches = \$1,421.15, Magnet Sales = \$12.00.

Total revenue = \$16,419.12.

Expenses Summary - General Fund:

Section & Board Meetings: Room expenses	\$250.00
Bulletin: preparation, printing, mailing	\$1,569.73
General Office Expenses (e.g. PO Box, postage)	\$222.50
Liability Insurance	\$661.00
Website	\$421.53

Expenses Summary - Expendable Funds: (Reported to the IRS as unrestricted assets, each are self-supporting and do not receive funds from membership dues or from the General Fund.)

Publications Fund: used to publish the Proceedings and Academy booklets. 2025 expenditure was \$0.00.

Grants Fund: used to award annual research grants to undergraduate college students. 2025 expenditure was \$5,750.00.

Lecture Fund: used to pay the expenses and honoraria for invited speakers who give lectures at Academy events (the Fall Scientific Paper Session and the Spring Lecture). 2025 expenditure was \$250.00.

Paper Session Fund: used to pay expenses associated with the Fall Scientific Paper Session. 2025 expenditure was \$1,137.49.

Herbarium Fund: used to purchase supplies needed for maintaining the RAS Herbarium. 2025 expenditure was \$0.00.

Total Expenses (General + Expendable Funds): \$10,262.25

Endowment Funds: The endowment funds are not spent but generate interest, which is entered as income into the General Fund and four of the Expendable Funds. They are reported to the IRS as restricted assets.

Fund	Balance (12/31/2025)	Interest Supports
Fairchild Fund	\$10,741.00	Publications
Life Fund (Life Membership dues)	\$14,900.00	General Fund
Jensen Fund	\$8,275.00	Student Grants
Speakers Fund	\$6,550.00	Lectures
Grace Murray Fund	\$8,250.00	Student Grants
Grants Program Endowment	\$37,000.00	Student Grants
Herbarium Endowment	\$ 2,000.00	Herbarium
Memorial Fund	\$1,650.00	General Fund
Babette Coleman Bequest	\$ 4,958.86	Herbarium
Balance of the Endowment Funds	\$94,324.86	

Assets and Liabilities: The assets of the Rochester Academy of Science include money held by each of the five sections, as well as the RAS funds in the Pittsford Federal Credit Union (checking, savings) plus investments held by MorganStanley (monthly interest/dividends received from these accounts are deposited into the Expendable Funds accounts). The RAS also owns stock in ConocoPhillips and Phillips 66; the dividends received are deposited into the Grants Fund. Finally, RAS has investment money in the UBS Putnam Diversified Income Trust, which was a bequest from the Babette Coleman estate. The RAS also owns the Astronomy Section observatory in Ionia, NY. The RAS has no liabilities.

Rochester Research in Review.

(These are Hot Links which when clicked lead to the press release on the Science Daily and other science websites.)

[Scientists discover reversible male birth control that stops sperm production.](#)
Cornell University; April 7, 2026

[This new "phonon laser" could measure gravity more precisely than ever before.](#)
University of Rochester; March 30, 2026

[Scientists discover hidden ocean methane source that could worsen global warming.](#) University of Rochester; April 16, 2026

[Greenland ice completely melted 7,000 years ago and could happen again.](#)
University at Buffalo; April 18, 2026.

[Erased, Burned, or Hidden from Sight, Unreadable Texts Are Being Decoded.](#)
Rochester Institute of Technology; March 17, 2026.



Jupiter with moon Io to the right. Kevin Lyons; April 22, 2026.

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 online](#). Each Section also sets dues to cover Section-related publications and mailings. We are recognized as a 501(c)3 organization.

For information, contact President Michael Grenier at (585) 671-8738 or by email paleo@frontier.com.

The Academy Internet website is <http://www.rasny.org> or see us on Facebook at <https://www.facebook.com/Rochester-Academy-of-Science-792700687474549>.

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