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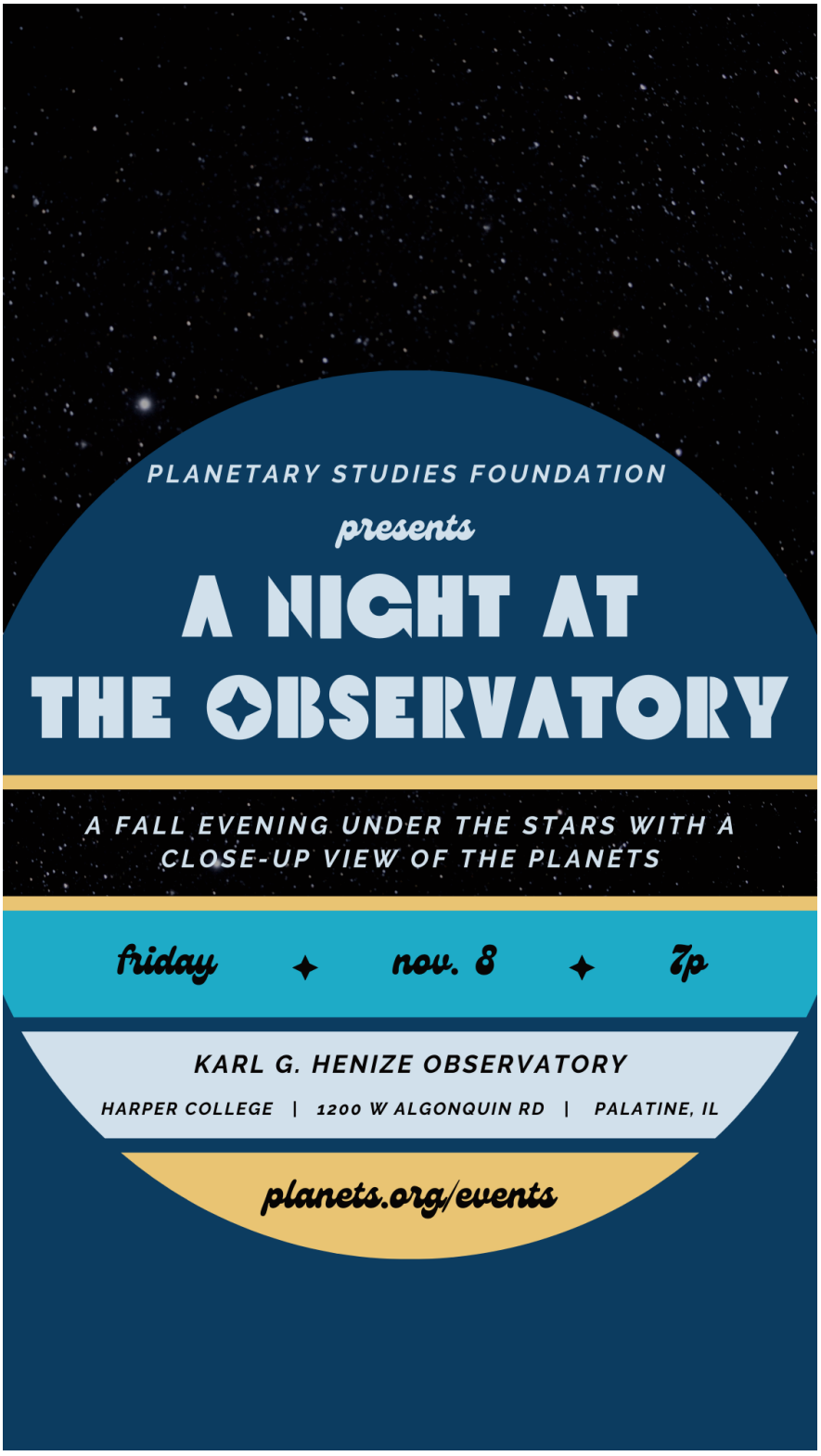
Third Quarter

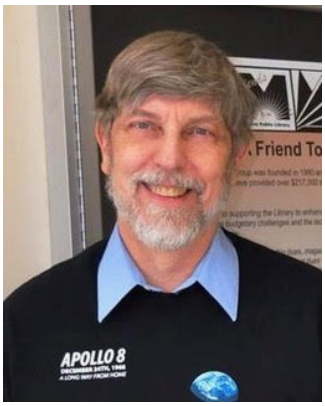
PSF NEWS

Planetary Studies Foundation

IN THIS ISSUE



PRESIDENT'S MESSAGE



As we enter the Fourth Quarter of 2024 and as Fall turns into Winter, it's a great time to both look back and prepare for the future. As I mentioned in previous PSF newsletters, your Planetary Studies Foundation is currently in a transitional state. What this means is that we are in the process of realigning our infrastructure to better serve our membership and to redefine our educational programs. This approach falls well within the established goals of our organization and its purpose will be to reach a broader audience. What PSF has been most noted for over the past 35 years is our ability to adapt to a changing environment whether that be climatic or organizational. One PSF program that has remained strong throughout the years is our Meteorite Research Program under the direction of Dr. Tony Irving. As part of PSF's association with the Yale Peabody Museum (YPM) we continue to classify new meteorites that will eventually be added to their collection. I am also very pleased to report that at the September 14th Annual Members Meeting there were many interesting reports and ideas presented by the various committees. With these areas of focus, they will be used to develop new programs that are envisioned for 2025. Two of the most critical issues that were also addressed were the needs to fill the Executive Director and the Members Services Director positions. For various health reasons, Diane Sipiera decided it was necessary to vacate that position. For the past 35 years, Diane Sipiera has held the position of Executive Director. All through those years she has "steered the PSF's course" through times of both "feast and famine" with her always positive attitude for guidance. As we all know, the PSF could never have achieved its success without Diane's direction and her dedication to education. She was and still is an inspiration to all the children that joyfully fell under her "educational spell". Because of her physical limitations, Diane can no longer pack 60 kids into a StarLab planetarium for her famous presentations. What we can count on from Diane is her continued guidance from all her educational and organizational experiences. Stepping into the Executive Director's position is Jim Dole. He is an Executive Board Member and the Director of our highly successful Doug Firebaugh Observatory in Freeport, IL. He is an excellent choice to fill this position. Another critical need was the creation of a Director of Member Services position. This role would be responsible for all aspects addressing membership correspondence. This includes membership list updates and the mailing of the quarterly newsletters. I am very pleased that Executive Board Member, Liz Larson, volunteered to assume this position. We welcome Liz and all of her years of marketing experience to take on this critical task.

As I previously mentioned, it is our continuing association with the YPM that has brought us our greatest scientific recognition. It all began back in 2015 when the PSF Executive Board decided that our James M. DuPont and PSF Meteorite Collections would be best preserved in the care of a major museum. Several excellent institutions were considered but, in the end, the YPM was selected as the perfect choice. In July 2017 1,000+ meteorites in the James M. DuPont Collection were transferred to the YPM. It would take another six years (June 2023) before the remaining 1,800+ PSF specimens could join the DuPont meteorites. One aspect of this donation was that both organizations were aware of the enormous pressure it would place on the YPM staff to properly inventory and catalogue these meteorites. Neither organization wanted to see these thousands of specimens remain in packing boxes for any length of time. It was then agreed upon to hire additional staff to work exclusively on the PSF collections. Finding a person to fill this role was easy and that would be Evelyn Larson, a May 2023 Yale graduate. Evelyn was the perfect choice since she already had several years of experience working with these meteorites in her role as a PSF research intern. Funded partially through a PSF Fellowship Grant, we proudly announce that Evelyn completed the project this past July to everyone's satisfaction. She now moves on to her next challenge in pursuing her doctoral graduate studies at MIT. We are also pleased to report that Evelyn was awarded an MIT Presidential Graduate Fellowship in support of her first academic year tuition and expenses. We are all proud of Evelyn and wish her much success and a bright future.

Paul P. Sipiera

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Congratulations & Thank You!

- Congratulations to **Joe Auer**, **Liz Larson** and **Dr. Kahn** for being re-elected to the Board.
- Congratulations to **Jim Dole** for being promoted to Executive Director and Liz Larson being named Director of Member Services.
- Congratulations to **Evelyn Larson** and **Grant Harkness** for being promoted to Associate Curator for their contributions to the study of meteorites.
- Thank you to our **more than +35 members** who took the time to vote for our Board. Your vote matters!
- Thank you to **Diane Sipiera** who stepped down from day-to-day responsibilities as Executive Director but will remain in an advisory role for the PSF. She served the PSF for more than 30 years as one of our key educators and even as her Parkinson's advanced, she remained committed to ensuring the PSF ran smoothly. We thank her for her years of service and look forward to her continuing to stay engaged in key decision making for the organization.

Q&A with Evelyn Larson— Yale Grad, Associate Meteorite Curator & MIT Fellow

Planetary Studies Foundation (PSF): You shared an impressive update with the PSF Board on Sep. 14 detailing the work you did to inventory and categorize more than 2,500 meteorites. Can you share with the membership what you accomplished for the Yale Peabody Museum in partnership with the PSF?

Evelyn Larson (EL): From January to July this year, I worked part time on setting up an intake process for PSF meteorites at the Yale Peabody Museum. This involved getting both the PSF collection and the DuPont collection fully cataloged, weighed, and photographed. I took over 3000 high-resolution photographs of each piece in both collections in the Peabody Imaging Studio. I worked with the Imaging Studio manager, Andy Todd, to devise protocols for different kinds of meteorites. For example, iron meteorites have to be photographed with special lenses to minimize reflections on their shiny surfaces. I also set up an intake spreadsheet with all of the relevant information about each of the meteorites, including information from the Meteoritical Bulletin and extra catalog numbers found on the meteorite packaging. All of this information and the photographs are currently being uploaded to the Peabody's museum catalog system, called EMu. Once everything has been uploaded, the information will be available for the public and researchers alike, and researchers will be able to make requests to Yale for sub-samples of meteorites for their work.

PSF: Wow! That sounds like a daunting, but important task you completed. You mentioned the information will be available to the public and researchers, can you explain?

EL: Once all of the meteorites have been uploaded into the Peabody system, they will be searchable by the public on their online platform: peabody.yale.edu/explore/collections/mineralogy-meteoritics. Some of the PSF/DuPont meteorites are already on display in the Peabody Museum's Hall of Minerals, including Allende, Dar al Gani 400, and Seymchan. I imagine the collection will be used in the future for students of all ages. Some of them have been used as examples in classes that I took as an undergrad at Yale.

PSF: Will you be involved with anything else with the PSF or DuPont meteorite collections or is your work done?

EL: As work is finished on importing the collection information to the database, I will be available to answer any questions they might

Evelyn's graduation from Yale in 2023

One of the cabinets where PSF meteorites are stored at the museum

Stacks and stacks of meteorites at the Yale Peabody museum!

have at the Peabody. In the future, more meteorites might come to the Peabody from Paul, at which point volunteers would be able to follow the protocols I outlined in the last year to get them imported.

PSF: Congratulations on starting the first year of your doctoral program at MIT! How did you make that decision and what will your area of study be?

EL: Thanks! I received the Presidential Graduate Fellowship Award that will help fund my tuition for my first year at MIT. I did not apply for the fellowship, rather I was recommended for the award by my advisor and department. Nominations for Presidential Fellows are selected by the President and Provost from the pool of candidates. The program supports approximately 120 graduate students annually. I will attend a reception for the award in October.

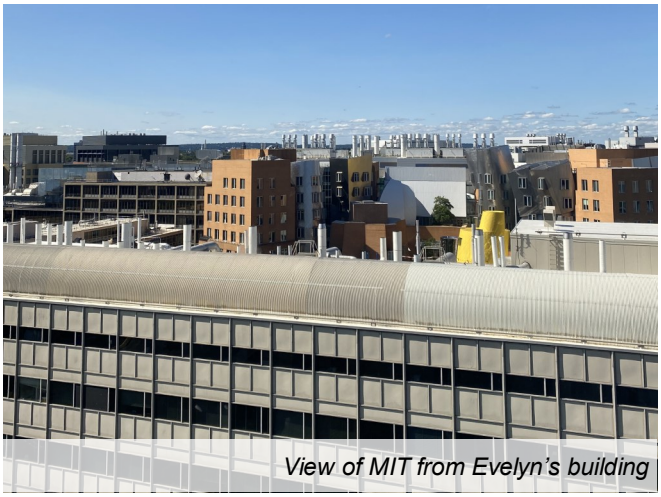
I will be studying meteorite paleomagnetism in Ben Weiss's lab, starting with a study on Calcium-Aluminum-rich inclusions in carbonaceous chondrites. I aim to answer questions about the strength of the magnetic field in the very early solar system and its role in the formation of planets. Ben's lab felt like the right fit–I get to work on fundamental questions in planetary science using a range of techniques on meteorites, including paleomagnetism, petrology, and cosmochemistry.

PSF: What have the first few weeks been like at MIT? What is it like on campus and in the classroom?

EL: MIT is great! The department is quite large, and it's fun to see what people are working on across a range of disciplines. My office includes people who work on Earth geology and astronomy, so I am exposed to many different ideas every day. I am only taking one class (Essentials of Planetary Science)–mostly I focus on research.

PSF: Our understanding is that your hope is to advance the field of planetary geology as a way to impact the future… at this point, do you know what they may translate to after you receive your doctorate?

EL: I hope to become a professor…but I'll get back to you on that in a few years. We have a very exciting future ahead of us with sample return missions by NASA and others.♦



View of MIT from Evelyn's building

Charles River from MIT campus

Evelyn performing field work in Michigan's Upper Peninsula region with Paul's rock hammer

IS FARMING A CULPRIT FOR CLIMATE CHANGE?

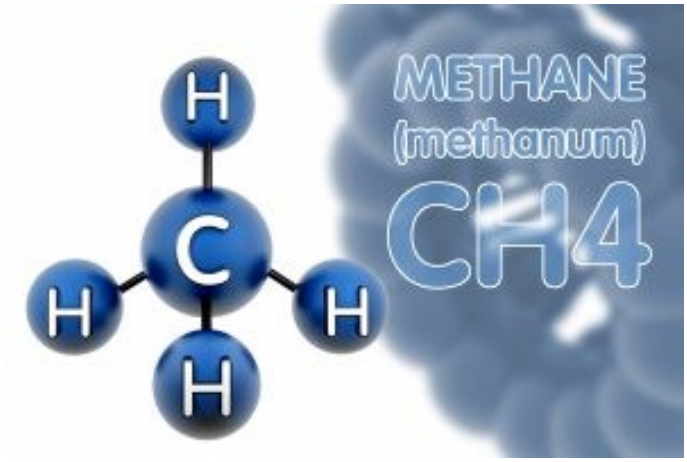
By: Avery Engle

Avery started at Kansas State University this fall, studying Animal Science on the Pre-Veterinary Path with an emphasis in equine. Over the summer, she was a lifeguard and helps the PSF on various projects. She has always had a love for nature and astronomy.

Eight billion. This isn't just a random number, statistic, or piece of data. This is the amount of people on earth, each person requiring a minimum of three meals a day, and enough nutrients in each meal to keep them healthy and strong. Without farming, feeding eight billion people would be absolutely impossible, and it is estimated that one farmer feeds one hundred and fifty five people.

Therefore, if you ate today, don't be afraid to silently thank a farmer for what's on your plate. However, just like with anything else, there are downsides to some of the best things in life. In my short time here at Kansas State University, my intrigue has grown in abundance for this topic. I believe that knowing the effects of traditional farming on the environment, and also how corrective farming can reverse those effects, is essential in paving the path to a cooler climate.

As an animal science major, part of my studies involve taking a deeper dive into how animal systems work, especially livestock, and what role these animal industries play in the world. During the second week of classes, we were introduced to how cattle emissions affect the environment. Cattle break down carbohydrates much differently than other species, due to the fact that they have four compartments in their stomachs. One of the main compartments is the rumen, which stores partly digested food and ferments it. As the food sits in the rumen, the greenhouse gas known as methane is produced, and then belched back up into the atmosphere. Cattle farmers and cattle in general have received lots of criticism for the role they play in emitting methane. However, new research proves that cattle can actually play an important role in the reduction of greenhouse gas emissions. You're probably thinking "That makes no sense Avery, you just said cows were the ones putting methane into the environment!"



Yes, yes I did, but when farming is done right, it is a huge help in climate change.

First off, methane is a short-lived climate pollutant that stays in the atmosphere for about ten years, while carbon dioxide (produced from fossil fuels and other human pollutants) stays in the atmosphere for about one thousand years. Therefore, methane isn't causing warming, or building up, as significantly as carbon dioxide. Secondly, methane from cattle is part of the biogenic carbon cycle, while fossil fuels aren't. If we were to keep our herd size constant, the amount of methane produced by the livestock and destroyed, would

balance each other out.

Additionally, methane from cattle is considered a “flow gas”, so as it is emitted, it is being destroyed. Carbon dioxide from fossil fuels are “stock gasses”, compiling in the atmosphere without the potential to break down. With the help of digesters and feed additives in the diets of cattle, we can generate short term cooling. If you reduce methane from cattle, you are “pulling” carbon out of the atmosphere, inducing global cooling.

The University of California Davis has been a pioneer when it comes to this topic, and have reduced methane emissions in their herd by 25% using this method. Reducing greenhouse gas emissions with cattle can be done and has been done. Farming is essential and isn’t going anywhere. Instead of blaming farmers and livestock for climate change, let's support them in practicing environmentally sustainable efforts!♦

Doug Firebaugh Observatory

2892 W Stephenson St | Freeport, IL | 815-291-3072

Public Observing Nights

May–October, 1st and 3rd Saturday of the month, 8pm

There will be an astronomy related presentation as the prelude to observing on public nights. Come and share the beauty of the nighttime flies with the telescopes and imaging.

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Our mission is to promote the study of planetary science and astronomy with an emphasis on meteorites; and to sponsor, encourage, and assist in the physical, astronomical, environmental, and cultural sciences so as to broaden man's knowledge of all phases of the universe.

For more information about our mission, articles and upcoming events, visit:

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