

IN THIS ISSUE

PRESIDENT'S MESSAGE

PAGE 2

DONORS & MEMBERS CORNER

PAGE 3

MEMBER SPOTLIGHT: MIKE CAPLAN

PAGE 4-5

HOW MUSEUMS, SCHOOLS & COMMUNITY PROGRAMS ARE DEALING WITH COVID-19

BY DIANE SIPIERA

PAGE 5-6

GRATITUDE FROM SCHOLARSHIP RECIPIENT

PAGE 6

NASA TOUCHES DOWN ON ASTEROID'S SURFACE, WILL BRING SAMPLES TO EARTH

BY EVELYN LARSON

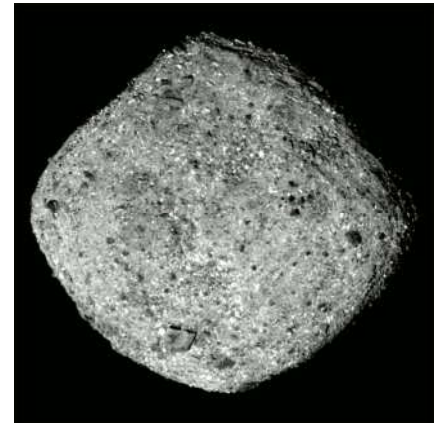
On October 20, 2020, OSIRIS-REX successfully touched down on the surface of the asteroid Bennu, 200 million miles away from home. OSIRIS-REX's mission was seemingly simple: fly to Bennu, gently touch down at the Nightingale Crater, puff up some dust and rocks to collect, and return to orbit before flying back to Earth. But, as with any space mission, thousands of things could have gone awry.

Luckily, due to the dedication and hard work of the OSIRIS-REx team,

only one small detail went wrong. They collected too much! After returning to orbit, the TAGSAM collection arm spun around towards a camera to be photographed. When the images returned to Earth, scientists discovered something they weren't expecting: the collection had gone so well that the flap over the collection area was unable to close, and as a result, material was leaking into space.

The NASA team worked quickly to stow the arm inside of the spacecraft, so that the majority of material could still be returned to Earth. Scientists are confident that a majority of the sample still remains. The Earth Return Cruise Phase window begins in March 2021. OSIRIS-REx is expected to return home with its sample on 24 September 2023. Bennu is a carbonaceous asteroid, meaning that its primitive material may contain clues to information about the early solar system.

OSIRIS-REx is one of a series of recent and forthcoming asteroid collection and discovery missions put on by space programs across the world. JAXA's Hayabusa 2 mission is expected to return to Earth on 2 December 2020, after studying and collecting a sample from the asteroid Ryugu. NASA has several upcoming asteroid missions, including DART (to Didymos and Dimorphos, 2021), Lucy (Trojan asteroids, 2021), and Psyche (to main belt asteroid 16 Psyche, 2022). These missions have the capability to completely transform what we know about the formation of our neighborhood in space. As a scientist who works first hand with meteorites, it's incredibly fascinating to think about the implications of studying the parent bodies that meteorites actually come from.



PRESIDENT'S MESSAGE

As the extremely unexpected and eventful year of 2020 comes to an end, we can only hope that the calendar change can bring us new hope and better times. On New Year's Eve 2019 I was very excited about the possibilities and opportunities that the New Year would bring for your Planetary Studies Foundation. With the two transitional years of 2018 and 2019 behind us, the prospects of working with our new partner the Putnam Museum of Davenport, IA were very encouraging for both our staff and the general membership. Over at our Firebaugh Astronomical Observatory in Freeport, IL Jim Dole and his staff were preparing for a very exciting public viewing and instructional season. The same was true for public tours at our 1876 Banwarth House & Museum in Elizabeth, IL. Prior to the official May opening we had contracted Andrew Klippert to paint the exterior of the Banwarth House & Museum. This would be the third painting since PSF purchased the property in November of 2008. Since the Banwarth House is over 150 years old it requires a painting scheme appropriate to a 19th century design. Given our specific location, both the house and the detached garage take a terrible beating from the sun, wind, rain and snow. In March, with the onset of the COVID-19 pandemic and subsequent restrictions,

PSF's ambitious plans for 2020 had to be re-evaluated as to priorities and probable success of a particular project. The first project to feel the effects of the restrictions was the Banwarth House exterior painting. With various state restrictions limiting public gatherings and museum closures, PSF decided to delay the anticipated May opening of the Banwarth House and re-schedule the painting. This was accomplished in late July by Andrew and his team who did an excellent job in making the old house and garage beautiful once again. The next two projects that were severely affected by the COVID-19 restrictions were our plans for creating an educational meteorite display at the Putnam Museum and the opening of our Firebaugh Observatory. Both had to be postponed and then later cancelled as the pandemic spread and grew in intensity. As the old saying goes "When one door closes another door may open". Early on this seemed to be true as the PSF staff turned inward and took the opportunity to "clean-up" a backlog of administrative work and to continue the inventory of over 1,500 meteorites that will eventually be transferred to the Yale Peabody Museum of Natural History in New Haven, CT. Helping in this project is Evelyn Larson our assistant curator of meteorites. She is currently a sophomore at Yale and came back to Galena in March as students were sent home in an effort to combat the spreading of the virus. Having Evelyn home and available to PSF was a big plus but we felt terrible that her freshman year experiences were being so badly affected by the pandemic. One project that did achieve success and fulfill its expectations was in our meteorite classifications. Through the efforts of Tony Irving, our senior meteorite researcher, 44 meteorites were classified and added to PSF's ever-growing collection. Continuing closings of our research partner's labs due to pandemic restrictions at Brown University and Washington University in St. Louis will have a negative effect on the number of classifications planned for 2021. Regardless of the situation, Tony Irving always seems to find a way to keep our meteorite research moving forward.

Conducting this year's September Annual PSF Members Meeting by ZOOM was another unforeseen situation. All considered it did accomplish its purpose, the 2021 budget was passed and Executive Board members and officers were elected, but the personal interaction between members was definitely missing. Hopefully we will all be face-to-face next year. As the final month of 2020 comes to an end, I am hopeful that 2021 will bring a new sense of stability and relief from the stress that the COVID-19 pandemic has had on all of us. Hopefully the chaos of the 2020 presidential election is behind us and the promise of a vaccine and possible treatment drug for COVID-19 will come true. I know that every member of the PSF family has been negatively affected by this pandemic. I thank all of you for "sticking together" and supporting your PSF through this difficult time. In the 2021 PSF budget we have made plans to resume all our research and educational efforts as conditions permit. Hopefully, a year from now, we can look back and say that the worst is behind us and we have created a "new normal" that will help us succeed in accomplishing our mission. On behalf of myself and the entire Sipierra Family, I wish that all our members, their families and friends enjoy the holidays in the safest way possible. Let's all look forward to a happier and healthier New Year.



Paul P. Sipierra

DONORS SPOTLIGHT

1876 Banwarth House & Museum

\$10,000

Anonymous

\$50-200

Elizabeth Larson

Connie Kahl
(Network for Good Program)

General Operations Fund

\$1,000 & Up

Diane & Paul Sipiera

\$25-100

Anne Swan Johnson
Marilyn Quas

Firebaugh Astronomical Observatory

\$100

John F. Walt

MEMBERS CORNER

NEW MEMBERS

Contributing Membership

Carl & Louise Bryant

RENEWING MEMBERS

Individual Membership

Cecilia Cooper
Mary Damasco
Michelle Firebaugh
Marilyn Quas
Karen Sabatini

Family Membership

Bill & Mary Sue Coates

MEMBER SPOTLIGHT: Mike Caplan

Mike Caplan has always been interested in science and has been a PSF member since 1994. He is a meteorologist for WFLD in Chicago, and he also runs a photography studio in Chicago with his wife Laura. You can see him on FOX 32's Good Day Chicago, or you can find him at caplanstudios.com. He and his wife also run a photography studio in Sturgeon Bay, WI, which you can find at caplanstudiosvault.com.

Where did you attend school and what did you study?

- College of Lake County A.S degree
- Illinois State University B.S degree
- Mississippi State University graduate broadcast meteorology

How many years have you been a meteorologist, and where?

I have been a meteorologist since 1984.

- WCIA Champaign Urbana 84-87
- WTVD Raleigh Durham 87-93
- WLS Chicago 94-2015
- WFLD Chicago 16-present

What is your favorite part of being a meteorologist, and why did you decide to become one?

My job gives me an opportunity to merge two of my strengths: science and persuasive speaking. No two days are ever the same and I still get paid even on those exceedingly rare occasions that I am wrong.

How did you become interested in astronomy and the Planetary Studies Foundation?

When I was a young lad I wanted to be an astronomer. My father arranged for me to meet an astronomer at the Adler planetarium when I was about 12. He convinced me what I really wanted to do was make money and allow astronomy to be a hobby. Later I actually interviewed him for a story I was working on. I shared that story with him and he laughed and said "see I steered you right!" My job still gives me ample exposure to share my passion for the night sky and I do my

best to inform my viewers of celestial highlights. The PSF saw my interest in astronomy and invited me to be part of the organization.

You used to be the Master of Ceremonies for the PSF Fundraising Dinners. Which astronaut did you enjoy meeting the most?

Through PSF directly and indirectly I've been fortunate to meet several astronauts. I'm proud to consider Jim Lovell a friend and he would be at the top of my list. He and I shared a skybox at game 2 of the White Sox vs. Astros World Series which his team lost. One of my favorite photos was taken of the two of us moments after the game ended.

Many of our members remember your son Carter as a young boy at our Annual Fundraising Dinners. What is he up to now?

Carter is a Youth hockey coach.

What are your hobbies and interests?

Besides my interest in astronomy my favorite pastime is now my side hustle. Photography. Flowers. Wildlife. Products. Portraiture. I do it all. My wife also enjoys photography which has led to our opening of a gallery of our work in Door County, Caplan Studios Vault.

Tell us about your adventures with your wife Laura and Caplan Studios. What services do you provide?

The first thing I ever bought with my own earned money was a film camera in the late 70s. I got into digital photography about twenty years later. I became obsessed with improving my skills and people

started to notice my work. I sold prints at the Chicago Botanic Garden and Morton Arboretum for a while then people started asking if I took "people" pictures. So I learned. And became very good at it. Which led to Caplan Studios Photography. That is now the umbrella for our photo business and my wife's web design and social media management career. We photograph families, seniors, models, weddings, products ranging from food to cars to jewelry. We also sell prints of our artistic photos.

Where all have you traveled to and which place has been your favorite destination?

Most of our travel destinations center on photography. Go figure! We've traveled extensively through the US including Alaska and Hawaii. We love Yellowstone and Grand Tetons in winter. To witness Old Faithful erupt basically by yourself after having encountered a stampede of about 30 bison along your route is priceless. But my favorite destination is Iceland. We've been twice. The raw power of the earth is on display there like nowhere else and the beauty of waterfalls, glaciers, mountains and the northern lights is breathtaking.

What would be your advice for young readers who are interested in meteorology or photography?

I would encourage anyone interested in pursuing careers in meteorology or photography to remember how important it is to be able to relate to people. This applies to almost any career path. I consider myself successful in both of my fields because on top of the technical expertise, I also enjoy talking to people. That can be trying to



convince tens of thousands of viewers that tomorrow there will be 2-4" of snow, or trying to coax a smile from a shy child during a family photo shoot. ♦



WINTER CELESTIAL CALENDAR

Dec. 13, 14 — Geminids Meteor Shower

This shower runs annually from Dec. 7-17, and peaks on the night of the 13th. The nearly new moon will ensure dark skies for what should be an excellent show.

Dec. 21 — Conjunction of Jupiter and Saturn

This rare conjunction of these two planets last occurred in the year 2000. They will appear so close that they may look like a bright, double planet. Look to the west just after sunset for the impressive and rare planetary pair.

Dec. 21-22 — Ursids Meteor Shower

The Ursids is a minor meteor shower producing about 5-10 meteors per hour. It's produced by dust grains left behind by comet Tuttle, which was first discovered in 1790. Meteors will radiate from the constellation Ursa Minor, but can appear anywhere in the sky.

Dec. 30 — Full Moon

Early Native American tribes called it the Cold Moon because this was the time of year when the cold winter air settles in and the nights become long and dark.

Jan. 2-3 — Quadrantids Meteor Shower

This is an above average shower with up to 40 meteors per hour at its peak. The shower runs annually from Jan. 1-5, but will peak on the night of the 2nd. Meteors will radiate from the constellation Bootes, but can appear anywhere in the sky. Best viewing will be from a dark location after midnight.



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HOW MUSEUMS, SCHOOLS & COMMUNITY PROGRAMS ARE DEALING WITH COVID-19

2020 has been a challenging year for everyone both young and old. We have personally seen people falling ill, dying, quarantining, disagreeing with friends or family, participating in peaceful marches and protests, losing their jobs, learning and teaching remotely, and missing our elderly in no-contact nursing homes, among countless other issues that have cropped up for multitudes of people. I would like to share what I have learned from the past 9 months.

Diane Szipiera

Since March, so many things have change. We look back and reflect on what normalcy was like, and it seems like a lifetime ago. Dealing with family hardships and trying to continue our business and passions in new, creative ways has been extremely challenging.

Unfortunately our family has had three deaths, one was from COVID-19, one was heart related, and the other was due to Parkinson's disease with other medical issues. Regretfully, we were unable to attend these private funerals because of the COVID-19 rules and regulations. We respect our governor, community leaders, and scientists, but it still made us feel that there was no closure for our family. We had to accept that is the way it is, and I'm sure it is the same for thousands of other families, until we can get the virus under control.

Throughout the years PSF worked with various museums such as the Putnam Museum and Science Center and the Lizzadro Museum of Lapidary Art. We enjoy working with these museums because it gives us the opportunity to experience their new and exciting displays. Unfortunately, all of these presentation opportunities came to a halt in the spring. Museum attendance has been down considerably both from school field trips and everyday visitors not risking the visit. The museums had to reconstruct some of their facilities to adapt to new CDC rules and regulations. Our PSF presentations were cancelled or we too had to reinvent our programs. I hope that soon the virus is conquered so that the museums can continue to educate curious minds, expand their programs, hire employees, and service their communities.

As many of you readers know, both Paul and I are like many of our members, senior citizens with underlying pre-existing health problems. Quarantining in Galena was quite easy because we are used to being isolated in such a beautiful and natural rural area. Some of the personal questions we have faced have been when to wear masks, who is allowed in our house, and how long we can visit with our daughters or friends outside. Since the country has been a hotbed for the virus it has been difficult to spend time with our loved ones. Andrea's family lives in the Chicago, Paula's family in Wisconsin and Caroline in Iowa. In the face of conflicting advice and many unknowns, it is difficult to know which protocols to follow. For various reasons, both Iowa and Wisconsin did not have consistent mask mandates. To our members and readers, Wisconsin is only 7 miles from us. After a few months Wisconsin started to accept the importance of wearing masks as a precautionary measure, but many Iowans do not wear masks at all, except for in federal or public buildings or if a business establishes it themselves. Then there is Illinois where people are supposed to be wearing masks, but along the border of Iowa or Wisconsin a lot of people do not. Also, and more unfortunately, mask wearing has become political, it's stereotypical to say Republicans do not and Democrats do. I think it's more accurate to say that responsible people wear masks, and irresponsible people do not. I had long discussions with various family members about wanting to be safe, and I also want to protect my friends and community. I come from a long background where my family and I live by science and facts and the evidence is clear: the virus primarily spreads through droplets released by coughing, sneezing, talking or laughing and masks prevent spreading those droplets to others as well as serving as a barrier from other droplets to end up near or inside your mouth or nose.

In the past, we did numerous outdoor astronomy and space-related presentations for schools, civic groups, and libraries. Many people forget at times for stargazing we would have up to 250 people in attendance. At libraries our attendance would be 15-75 people in close proximity to each other. Honestly, with that many people in attendance, no mask would be able to protect us. It was with a very heavy heart that the PSF board of directors decided that it was in our organization's best interest for us to cut back drastically or to close our facilities until the virus can be better under control. The good news is that we are still able to do our meteorite research, repaint the 1876 Banwarth House & Museum, and begin planning for new programming for Spring/Summer 2021, however that may have to look. The PSF sincerely hopes that the virus will soon be under control, so that we can return to a "normal" routine of inspiring the public to be interested in science, space, and meteorites.

GRATITUDE FROM SCHOLARSHIP RECIPIENT

Several years ago the Planetary Studies Foundation donated \$25,000 to the Harper College Educational Foundation for the purpose of establishing a trust fund that would provide an annual, \$1,000 scholarship specifically for a deserving student chosen by the faculty members in the Physical Science department. We received this letter from the 2019-2020 Planetary Studies Foundation Endowment Scholarship Recipient, Wilma Rishko.



Dear Scholarship Donor,

My name is Wilma Rishko. I am a second year student at Harper College pursuing my associates in arts and science. I plan to transfer to a four-year university next year to major in physics or astrophysics and astronomy. I am a part of the honors program, Phi Theta Kappa, and the cross country and track team here at Harper, as well.

As the recipient of this scholarship, I have been granted the opportunity to partake in more activities, and I have been able to now further my academic career more effectively. This means so much to me because I am one of the few people who actually genuinely enjoys going to school almost every day and learning new things. By receiving this scholarship, I have been offered a chance to do something greater, to learn more. I would like to say thanks not only because of having received the scholarship, but also because it exists in the first place. This scholarship provides opportunities to students like to get chances at school that others may take for granted. The donor clearly understands that funding one's academic career can be

challenging for a variety of reasons, and has chosen to help out and give aid to students. For that it gives so many people the opportunity to improve and go after opportunities they usually wouldn't have. Such chances are rare and for being given one I am extremely grateful.

This scholarship will help pay for my classes when I transfer, which will be unexplainably helpful. I will be taking mostly classes directly related to my major, more advanced physics courses, and it will allow me to take all the classes necessary. It will also help pay for any fees associated with classes and attending the school.

I chose Harper because I had a change in major. I had originally wanted to go into nursing only because I didn't know what else to do, and I was feeling peer pressure to choose something immediately. When it came down to it, my parents decided not to give me financial support so I decided to go with Harper in order to save money while still knowing I'd get a similar education. Going to Harper let me decide for myself what I wanted to study, and when it came down to it, I decided to go with physics for my undergrad, and then getting a masters in either physics or astrophysics. I am not 100% sure yet, but it is something along those lines. I had also felt a lot of stigma and discouragement from my peers when I said I was studying physics as they may not have believed I could do it; however, coming here to Harper I found a lot more support and resources who helped me follow my passion.

Receiving this scholarship means that I have a legit chance now at transferring to a four-year university and pursuing my passion in science as before I was really struggling to come up with enough money to financially plan out my future college course. This has opened up a whole new door of opportunities and choices that I would never have had before.

Thank you,

Wilma Rishko

2019-2020 Planetary Studies Foundation Endowment Scholarship Recipient

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