

Volume 22.2  
 Summer 2012  
 Second Quarter

# PSF NEWS

Planetary Studies Foundation

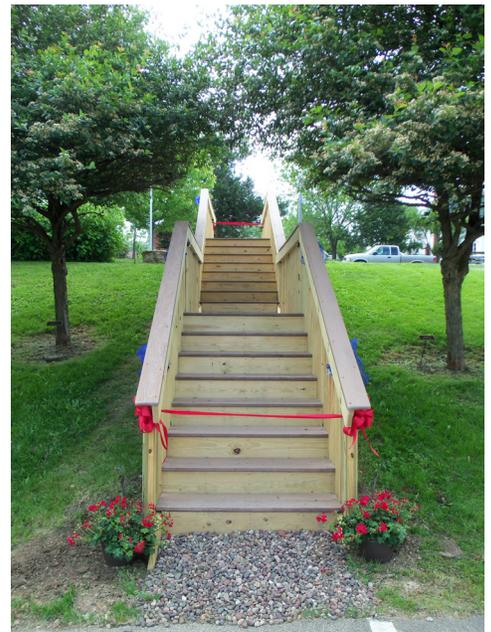
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## WE ACHIEVED OUR GOAL! "STAIRWAY TO THE HEAVENS" DEDICATION

By: Diane M. Sipiera

The alluring sound of music drifted through the Village of Elizabeth during the late morning hours of Saturday, May 12<sup>th</sup>. The 1876 Banwarth House & Museum was alive with excitement and anticipation. Shiny, star-studded garlands fluttered in the breeze against the PSF's newly built "Stairway to the Heavens".

With the Elizabeth Community Band playing in the background, I started the ceremony by giving a well-deserved thank you to all of the PSF members who contributed to the project. The generosity from our members was overwhelming, and the staircase would not be possible without you. Once again, the PSF would like to recognize those who believed in and contributed to our much-needed project; Leo & Karen Baran, Kate R. Butler, Cecilia Cooper, Kathie & Jess Farlow, Richard Friedman, Art Frigo, Bill & Claudia Gruber, Phil & Nancy Hablutzel, William & Alice Hack, James Hagen, David M. Lauerman, Richard & Ellie Leary, Captain James A. Lovell, Richard & Alimae Persons, COL (IL) J.N. Pritzker, Tawani Enterprises Inc., The Tawani Foundation, Jim & Pat Tierny, Linda Virag and John & Jane Yoder.



"Stairway to the Heavens" Dedication



Elizabeth Community Band

The construction of the staircase was also done by another PSF member, Randy Shaw and Hoskins Building Center in Elizabeth was able to provide the materials at a largely discounted price. Elizabeth Mayor and PSF member, Mike Dittmar, had the honor of cutting the ribbon to mark the official dedication of the stairway to the Village of Elizabeth. Following the ceremony, everyone was invited to try out the staircase and all the members gathered at the 1876 Banwarth House for refreshments and celebratory cake. What a special event, thank you!

### UPCOMING EVENTS:

#### AT THE 1876 BANWARTH HOUSE

##### *Members-Only Trivia & Potluck*

July 14

##### *Family Fun: Sock Monkeys*

July 14

##### *Lecture: How to Build a Pond*

July 19

##### *For Sale: Space Memorabilia*

July 20-21

##### **SKYWATCH**

July 21

##### *Lecture: Preserving at its Best*

July 28

## PRESIDENT'S MESSAGE

The first half of 2012 has been a very exciting time for our Planetary Studies Foundation with all the astronomical wonders happening around us. Both the partial solar eclipse on May 20<sup>th</sup> and the June 5<sup>th</sup> transit of Venus were viewed from our observing location at the Apple River Fort State Historic Site. Although a good portion of the southwestern United States enjoyed a beautiful annular eclipse, at its maximum, we were able to see about forty per cent coverage. Things were a little different for the Venus transit. PSF had two observing sites in operation for public viewing. **Jim Dole** and his team were host to over 125 people at the JETS Observatory in Freeport, Illinois. At the Apple River Fort in Elizabeth, Illinois, **Chris Zirtzman** provided safe views of Venus crossing the Sun for over 80 people through his five-inch refracting telescope. Initial cloud-cover created some very nervous moments, but the sky cleared and we were able to view the transit for over three hours. Just before sunset, viewers using a protective filter actually saw Venus positioned against the solar disk without the use of a telescope. Frankly, as a long-time astronomical observer, I did not think this was possible. I guess the longer you live the more you will learn. I would also like to thank **Ray Pickard**, an astronomer at the Bathurst Observatory in Australia, for providing us with his beautiful photos of the transit. This reminds me of an event back in 1990 when astronomer/astronaut **Loren Acton** was visiting the Karl G. Henize Observatory at Harper College in Palatine, Illinois. PSF was hosting an outdoor reception in his honor when Loren looked toward the setting Sun and exclaimed that he could clearly see a couple of giant sunspots. Much to my surprise we all saw them. From my astronomical studies I had heard that the ancient Chinese had observed sunspots, without the use of a telescope, perhaps as early as 1000 AD. I must admit that I was a little skeptical about this claim, but Loren Acton proved that Chinese astronomers were once again very accurate in their claims. It was also a personal thrill to have Loren be the one to point that out to me.



The other exciting event that occurred in May was the dedication of our new “Stairway to the Heavens” that connects the parking area at the Apple River Fort Interpretive Center to our 1876 Banwarth House & Museum. Opening ceremonies included a ribbon-cutting, a concert by the Elizabeth Community Band, and refreshments served on the front lawn. PSF member and Elizabeth Village President, **Mike Dittmar**, was present to accept PSF’s donation of the staircase to the people of Elizabeth as a symbol of the growing relationship with the community. Since its construction we have received numerous thanks from the people who constantly use the staircase. As anticipated, having the staircase in place has also increased the attendance at the 1876 Banwarth House & Museum. A “Win-Win” for everyone involved in this project. Looking to the near future, the 92<sup>nd</sup> Annual Elizabeth Community Fair will be held from July 19<sup>th</sup> through the 22<sup>nd</sup>. PSF is a traditional participant in the Saturday parade and we will also be holding a fundraising event at the 1876 Banwarth House & Museum. A special exhibit will honor NASA’s Project Apollo on the 43<sup>rd</sup> anniversary of the Apollo 11 moon landing. Also featured on display will be the Apollo 16 Illinois State Flag that was carried to the Moon by PSF member **Charlie Duke**. Select items from PSF’s surplus collection of astronaut and space-related items will be available for donations. Come join us at your PSF Headquarters and enjoy a weekend of fun and excitement!

*Paul P. Szipiera*

## DONORS' SPOTLIGHT

### \$1000 - \$500

Art Frigo  
 Jennifer Schwartz—  
 Yahoo! Employee Matching Grant  
 Paul & Diane Sipiera

### \$499 - \$100

Kate Butler  
 Richard Friedman  
 Ricardo J. Sequeira  
 John & Jane Yoder

### \$99 - \$25

Helen Kilgore  
 Richard & Ellie Leary  
 Pat Tierny

## MEMBER'S CORNER

### *RENEWING MEMBERSHIPS*

#### **Contributing Member**

Kim Thorsen Family

#### **Supporting Member**

Nate & Karen Greiner Family

#### **Family Membership**

Kathie & Jess Farlow

#### **Individual**

Jim Dole  
 Richard Dreiser  
 Nancy Heggem  
 Debbie Pausz  
 Marilyn Quas

### *NEW MEMBERSHIPS*

#### **Family Membership**

Robert Dittmar  
 Michael & Joanna Dittmar

#### **Individual**

Steve Hess  
 Sharon Madden  
 Pat Mauritz  
 Diane Urbanek  
 Lisa Walters

CONTINUED FROM PREVIOUS PAGE

## MEMBER'S CORNER (continued)

Congratulations to PSF Associate Board Member and Research Associate **Tony Irving** for a job well-done in inspiring one of his graduate students at the University of Washington, **Nick Castle**, to continue on toward a Ph.D. in meteorite studies. Tony was impressed with Nick's scientific ability and suggested that he apply for a Planetary Studies Foundation student travel grant in order to present his research at the March 2012 Lunar and Planetary Science Conference (LPSC) in Houston, Texas. PSF agreed to a \$500 award and Nick not only presented his paper very well, but had the opportunity to meet many interesting and well respected scientists. Nick has stated that his attendance at the LPSC made all the difference in making his decision to pursue a career in meteorite studies. This fall, Nick will begin his Ph.D. studies at the University of Alberta in Canada. GOOD LUCK NICK!

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## A SPECIAL THANK YOU NOTE FROM STUDENTS

Several weeks ago, Diane Sipiera presented at River Ridge Junior High School. Using StarLab, an inflatable planetarium which displays the nighttime sky inside of it, Diane was able to teach students how to navigate their way through the nighttime sky. Her presentations included constellations and the mythology behind them. To her surprise, she received many thank you notes from the students and one student in particular, visited the 1876 Banwarth House after hearing about it from Diane. Here is her very sweet note.

*Dear Mrs. Sipiera,*

*Thank you for bringing in the Star Lab!! That was fun! My favorite story that you told was the one about how Perseus killed Medusa. My favorite part of that story was when Perseus found the love of his life! Some more stories that you told us about is the one snake, I think his name is Draceo. I also like the one where Queen Hera got the golden apples, another one that I remember is the one constellation that looks like a frog! Also the one constellation that is scorpion! And always I can never find any constellations at my house in the night sky. Once again thank you for bringing in the Star Lab!*

*Your Friend,*

*Mariah, River Ridge Junior High School*

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## QUEEN FOR THE DAY: CELEBRATING VIOLETTA DUPONT'S 100<sup>TH</sup> BIRTHDAY

**By: Diane M. Sipiera**

As some of you may remember from the spring issue of *PSF News*, we had a very special member celebrate her 100th birthday back in April. Paul, myself and the girls traveled to Watchung, New Jersey on April 7, 2012 to attend Violetta's very special birthday party. My family felt very privileged to have the opportunity to attend this event. Her children invited one hundred guests to help celebrate the unique occasion including; city dignitaries, former opera colleagues, as well as family and friends from all around the country. "Vi" was so very pleased to have been so loved and honored for the day, that she felt as though she was "Queen for the day". The DuPont's had wonderful food and entertainment to make the day that much better. Many of her family and friends could not believe we traveled all the way from the Mississippi River area of Illinois to attend. What was so nice for Paul and I was to once again see her children; Richard, Joe, Robert, Maggie and Claudette. It had been a very long time since we've seen them all together in one place.

The trip went great and I really can't stress what a special event this was for us. Violetta and her late husband, Jim, have done so much for both our family and the Planetary Studies Foundation. We could never repay her for her generous contribution to our science programs and especially, for the James M. DuPont Meteorite Collection. My immediate family, and the entire PSF family sincerely wish her good health in the future. She's touched so many lives and we're so grateful to have such a dear friend.

## TRANSIT OF VENUS: PHOTOS FROM THE EVENT

We hope many of our members took advantage of the amazing opportunity to see the “never again in our lifetime” moment of the Transit of Venus. Some of our members made it to the Banwarth House and JETS Observatory, while others were able to tune-in via internet. Below are some pictures that were sent in, enjoy!

# TRANSIT PHOTOS

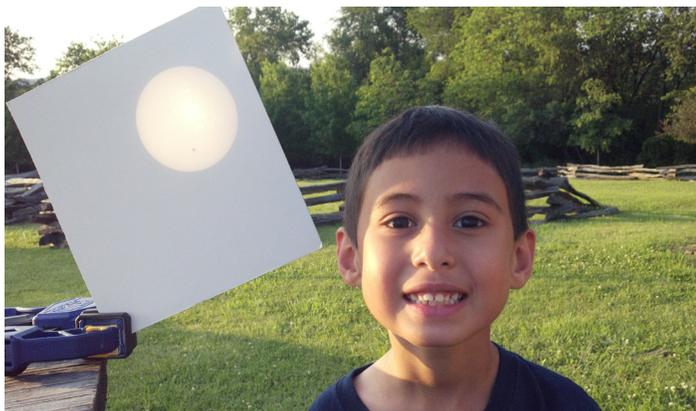


Photo courtesy of Jeff & Philip (pictured) Glenn - Elizabeth, Illinois



Photos courtesy of Ray Pickard - Bathurst Observatory, Australia



Photos courtesy of Jim Dole - JETS Observatory, Freeport, Illinois

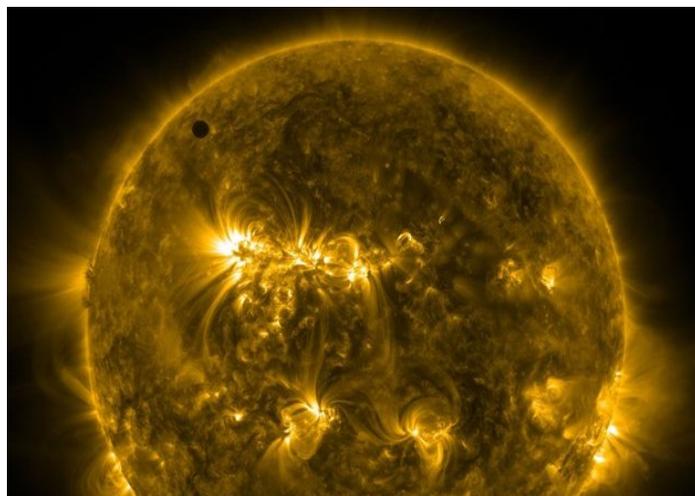


Photo courtesy of NASA - Solar Dynamics Observatory, Earth's orbit

## MEMBER SPOTLIGHT: *Sheila Magnus*

**PSF: Can you provide us with a brief background of growing up and your family life?**

Sheila Magnus (SM): I grew up on the west side and Northwest sides of Chicago and attended 12 years of Catholic education. I'm the youngest in a family of two boys and two girls. My dad was born in 1903 and lived on a farm in the area of Newark, IL before migrating to Chicago in the late 1920s. My mother was born and raised on the West side of Chicago and her mother was a burlesque performer in one of the local theatres. My Mom became a teacher in the Chicago Public Schools.

**PSF: What college did you attend and what was your major?**

SM: After graduating high school, I attended Wright Community College in Chicago and was accepted into their radiologic technology program where I graduated with an associate degree in 1978. I worked part time at Northwestern Memorial Hospital (NMH) in diagnostic radiology. During that time, I was accepted into the Radiological Sciences program at the Chicago Medical School University of Related Health Sciences. I was working toward a Bachelors of Science degree. I quit in my senior year due to health reasons and I was offered a full time position with supervisory duties at NMH. I pursued the radiologic technology field because I fell in love with physic in high school.

**PSF: What is your current career and how did you get started?**

SM: After being in radiology I took the

test for the Chicago Police Department in 1981 and joined their ranks in the summer of 1982. In 1990, I went back to school at Lewis University, where I obtained a BA in Criminal Social Justice. I continued my part time course work at Lewis and received a MS in CSJ in 2000. I went into Law Enforcement because it provided a steady income and a variety of activities. There was also a greater potential for job advancement. I rose through the ranks where I am currently a Lieutenant working in patrol. I am planning on retiring in November of this year after 30 years with the CPD.

**PSF: Have you ever considered any other careers?**

SM: I once thought of being a long haul trucker, an airplane pilot, or a train engineer because it would give me an opportunity to go to different places.

**PSF: What are some of your hobbies?**

SM: I enjoy counted cross stitching, stamp collecting, needle felting, collecting Japanese anime, and of course, astronomy.

**PSF: Where is your favorite place you have traveled and why?**

SM: Norway. I went to Norway because I am half Norwegian and I fell



Sheila on her deck in Hanover, Illinois

in love with the Scandinavian simplicity in their design and friendliness. There were some towns where it was like walking back in time, as if the town never changed from when it was built. I especially enjoyed the town of Flam, which overlooked a fjord. Herds of goats would walk freely down the hill in the town and graze where they may. I was also taken by the remnants of a Nazis machine gun bunker that was embedded in the side of the hill overlooking the fjord.

**PSF: How did you become involved with the organization?**

SM: I've been always interested in astronomy. We had bought property in rural Hanover about 11 years ago and were amazed by the very dark starlit skies, something we couldn't really appreciate in Chicago. I hadn't seen skies like that since I had been in Hawaii as a teenager. In 2004, I bought a Celestron 90mm telescope, but really didn't know what the heck I was doing with it. I felt I needed some guidance and knew that there had to be a group of people out in the Galena area that knew what they were looking at. As it

happened, my partner Karen and I were reading the Galena Gazette and discovered a small article from the PSF about astronomy and how to use your telescope; to come join them on a Saturday afternoon by the 1876 Banwarth House. So we brought our telescope and met Chris, Diane, and Doc S. and the rest is history. We were hooked and soon after, became members.

***PSF: What is one of your favorite things about the organization?***

SM: My favorite thing about PSF is the wealth of knowledge from Diane during her lectures and how she gets the children involved. I enjoy talking to Dr. Sipiara about meteorites and his travels to Antarctica. He rubbed elbows with astronauts! I love the friendliness of everyone in the group and making the both of us feel included in the activities.

***PSF: What events have you attend of the PSF's and is there one you liked the most?***

SM: I've attended The Solar Astronomy demonstration, How to use your telescope, and stargazing at the Apple Fort. I would have to say that the stargazing sessions are my favorite. I love interacting with the kids too. Some of them know a lot more than me!

***PSF: Which is your favorite area of science and why?***

SM: Physics. Physics covers the macro and micro worlds. From the behavior of subatomic particles to figuring out the existence of black holes there is a discipline of physics for everyone. Due to my training in Radiologic Technology, I guess I'm partial to radiation physics, but I am interested in the bigger picture of physics as it applies to astronomy.

***PSF: What advice would you give to our younger readers and science enthusiasts?***

SM: The advice is we came from the stars. We are made of star "stuff". While we were born on the earth, everything around us came from the stars. From the big bang theory, to the formation of this earth, everything on our planet was formed by a spinning, molten glob of material from the universe. Our biosphere is, so far, unique and we must understand what we've come from to understand where we're going. The technological advances that have occurred since the late 50's and early 60's have been phenomenal. We are now exploring places and reaching out into the universe with space-based telescopes and unmanned vehicles. Watch the stars; someday you'll be among them again! ♦

**SUMMER CELESTIAL EVENTS**

**July 28, 29**

***Southern Delta Aquarids Meteor Show***

The Delta Aquarids can produce about 20 meteors per hour at their peak. The radiant point for this shower will be in the constellation Aquarius. Best viewing is usually to the east after midnight.

**August 2**

***Full Moon***

The Moon will be directly opposite the Earth from the Sun and will be fully illuminated as seen from Earth.

**August 6**

***Curiosity Rover to land on Mars***

NASA's Mars Science Laboratory is scheduled to land on the red planet between August 6th and August 20th. Officially named Curiosity, it is an autonomous rover similar to the Spirit and Opportunity rovers that previously visited Mars. This much larger rover will carry many more instruments and experiments than its previous cousins. Curiosity's high-definition color cameras will photograph the Martian surface while a host of instruments will sample the soil and air, as well as search for organic compounds.

**August 12, 13**

***Perseids Meteor Shower***

The Perseids is one of the best meteor showers to observe, producing up to 60 meteors per hour at their peak. The radiant point for this shower will be in the constellation Perseus.

**August 24**

***Neptune at Opposition***

The blue planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. Due to its distance, it will only appear as a tiny blue dot in all but the most powerful telescopes.

**August 31**

***Full Moon***

## **2012 SUMMER LECTURE SERIES & OTHER EVENTS**

The summer events for the PSF are listed below. If you plan to attend an event at the 1876 Banwarth House, please contact Diane Sipiera at 815.858.2014 or dsipiera@planets.org to confirm your attendance - or - if you have any questions. Additional details can be found on the PSF website by visiting [www.planets.org](http://www.planets.org).

### **MEMBERS-ONLY TRIVIA & POTLUCK**

**Saturday, July 14<sup>th</sup>**  
**Banwarth House, Elizabeth, IL**

*Join other PSF members for an afternoon of trivia and delicious food! This event is a great way to meet new people and fun for the whole family. Please contact Diane Sipiera to confirm your attendance and which dish you wish to bring.*

### **SOCK MONKEYS**

**Saturday, July 14<sup>th</sup>**  
**Banwarth House, Elizabeth, IL**  
**Presented by Jolene Foat & Diane Sipiera**

*Join us for a day full of fun and crafts as we learn to make sock monkeys. This is a great activity for the whole family. Please contact Diane Sipiera to confirm your attendance and to make sure we have enough supplies.*

### **GLOBAL CLUSTERS IN THE SUMMER SKY**

**Saturday, July 14<sup>th</sup>**  
**Harper College, Palatine, IL**

*Experience the wonder of the universe and the excitement of discover. Not only can you observe objects near and far, volunteers provide interpretation of what is being seen.*

### **LECTURE: SO YOU WANT TO BUILD A POND?**

**Thursday, July 19<sup>th</sup> (7-8pm)**  
**Banwarth House, Elizabeth, IL**  
**Presented by Jim Paglin**

*Join PSF member, Jim Paglin, as he explains how to create a backyard pond.*

### **ADLER AFTER DARK**

**Thursday, July 19<sup>th</sup> (6:30-10:30 p.m.)**  
**Adler Planetarium, Chicago, IL**

*Kick-off your weekend early every third Thursday at the Adler Planetarium's 21+ event. Enjoy cocktails and appetizers against the award-winning view of the Chicago skyline seen only from the Adler. See Saturn's rings or Jupiter's great red spot with your own eyes using the Adler's telescopes. For more information, visit: <http://www.adlerplanetarium.org/calendar/adlerafterdark>*

### **SPACE MEMORABILIA FOR SALE**

**Friday & Saturday, July 20-21<sup>st</sup>**  
**Banwarth House, Elizabeth, IL**

*The PSF will be selling selected space memorabilia at the 1876 Banwarth House & Museum on Friday from 1-4 p.m. and Saturday 9-4 p.m. Paul Sipiera will need at least two volunteers to help him at the tables. Please contact Diane Sipiera for more information or if you would like to volunteer to help.*

### **SKYWATCH**

**Saturday, July 21<sup>st</sup> (Begins at sunset)**  
**Apple River Fort, Elizabeth, IL**  
**Partnered with Apple River Fort**

*Welcome to a new year of stargazing and constellation story-telling! This event is weather sensitive. If it is overcast or raining, the event will be cancelled. Dr. Paul Sipiera and his wife, Diane will also present a program spotlighting spring constellations. Dr. Sipiera is the adjunct curator of meteorites at the Field Museum of National History in Chicago. If any guests think they may have a meteorite for Paul to analyze, please bring it with you to this event. This event is free.*

**LECTURE: PRESERVING AT ITS BEST**

**Saturday, July 28<sup>th</sup> (1-3 p.m.)**  
**Banwarth House, Elizabeth, IL**  
**Presented by Jolene Foat**

*Join Jolene Foat for an afternoon of preserving. She has been preserving for many years and will teach you the tricks of the trade in a fun and informative afternoon session.*

**FREE PUBLIC VIEWING**

**Saturday, July 28<sup>th</sup> (8:30-10 p.m.)**  
**Harper College, Palatine, IL**

*Experience the wonder of the universe and the excitement of discover. Not only can you observe objects near and far, volunteers provide interpretation of what is being seen.*

**MARS CURIOSITY LANDING**

**Sunday, August 5<sup>th</sup> (9:30 a.m.-5 p.m.)**  
**Adler Planetarium, Chicago, IL**

*Join the Adler to celebrate this historic moment and to learn about the rovers with hands-on activities. This event is recommended for all ages. For more information, visit:*  
<http://www.adlerplanetarium.org/mars-curiosity-landing>

**FREE PUBLIC VIEWING**

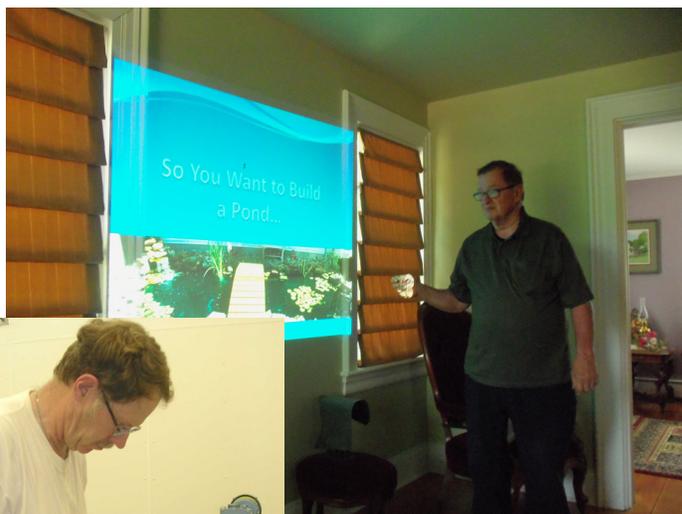
**Saturday, August 11<sup>th</sup> (8:30-10 p.m.)**  
**Harper College, Palatine, IL**

*Experience the wonder of the universe and the excitement of discover. Not only can you observe objects near and far, volunteers provide interpretation of what is being seen.*

**A very special thank you...**

*The PSF Board would like to thank the following PSF members who contributed their time and talent in creating a successful Saturday Lecture Series. A special thank you to Dr. Jim Hagen, Jim Paglin, John Yoder, Dr. Wanona Wellingspring, Andrea Dubnick and Allen Reed.*

*The PSF Board would also like to thank the following individuals who help set-up or give a continual hand to the Saturday events. A special thank you to Pat & Jim Tierny, Jim & Lu Paglin, Randy Shaw, Beth and her son, Alex Baranski, John Pokornik, Martha & Max Purchis, Janice and her son, Alan Myelle and the Dittmar Family. Their volunteered help truly makes the PSF's outreach programs a success!*



Jim Paglin - Building a Pond (above)



Allen Reed - Beekeeping (above)



John Pokornik & his grandson - Rocket Building Workshop (left) and Elizabeth Myelle - Wool Demonstration (above)



## HISTORY-MAKING SpaceX DRAGON

For the first time in history, a private corporation proved it can deliver cargo to the International Space Station. On May 31, 2012, at the Cape Canaveral Air Force Station in Florida, SpaceX successfully completed the historic mission that made Dragon the first commercial spacecraft to visit the International Space Station. Previously, only four governments - the U.S., Russia, Japan and the European Space Agency - had achieved this challenging technical feat.

### WHAT IS DRAGON?

Dragon is a free-flying, reusable spacecraft capable of hosting pressurized and unpressurized payloads. Subsystems include propulsion, power, thermal control, environmental control, avionics, communications, thermal protection, flight software, guidance, navigation & control, entry, descent & landing, and recovery.

### WHO IS ELON MUSK?

The California entrepreneur and CEO of Space Exploration Technologies (SpaceX), Elon Musk, is the man calling the shots for the first commercial spacecraft Dragon. Not only is he behind the historic mission, he is also the co-founder and CEO of Tesla Motors, an electric car company to deliver the first electric luxury sedans. And if that isn't enough, he is also the co-founder of online payment service PayPal.

Like many other Silicon Valley tycoons, Musk could have settled into early retirement to raise his five young sons, but he is a man who refuses to become complacent. Instead the 41 year old, invested his money and talent into two costly and high-risk ventures.

His investment of both time and money into Dragon paid off but he now devotes much of his time into his Tesla car company. With the economy in bad shape and Tesla struggling, Musk has had to take the leadership into a CEO role that even the visionary himself, never envisioned having to step into. Keep an eye out for more from SpaceX and the history-maker behind it.♦



*Liftoff of the Falcon 9 launch vehicle carrying Dragon C2 spacecraft, from the SpaceX launch pad at Cape Canaveral. Photo courtesy of SpaceX*



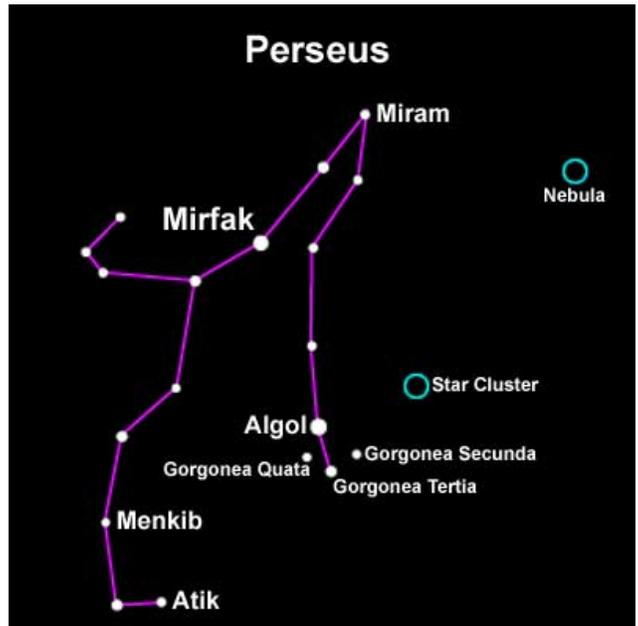
*View from the International Space Station of the SpaceX Dragon. Photo courtesy of NASA*

**For more information about SpaceX, visit [www.spacex.com](http://www.spacex.com)**

## FUN WITH THE PERSEIDS METEOR SHOWER

For the past 2000 years, humans have had the unique opportunity to observe the Perseids Meteor Shower associated with the comet Swift-Tuttle. It is an annual meteor shower that is extremely regular in its timing and can potentially be visible for weeks in the late summer. For many, the Perseids Meteor Shower is one of the best meteor showers to observe, producing up to 60 meteors per hour at their peak.

The shower's peak usually occurs on August 13<sup>th</sup> & 14<sup>th</sup>, but you may be able to see some meteors any time from July 23<sup>rd</sup> through August 22<sup>nd</sup>. The radiant point for this shower will be in the constellation Perseus, hence how the shower got its name. This year, the near last quarter moon will be hanging around for the show, but shouldn't be too much of a problem for a shower with up to 60 meteors per hour. For best viewing, find a location far from city lights and look to the northeast after midnight.



**Now test your knowledge of the Perseids Meteor Shower with this word search below!**

T S A E H T R O N Z S T Y L U J N E E G  
 P P I E V C M U E W X H B D Q F R D K L  
 D J Q I I S F N I Z H G B V M E X S I T  
 W U U E Y E I F G J V I G C H A U K R W  
 S A P H E T T B M V D N L P Q E T A M O  
 M O V V H T S A O P O D S R S A C E W T  
 X S H N U X N D V P R I Q R N O D P B H  
 K R H T T S F I I A M M E T E O R J A O  
 A T T O D X C P G E O P D F G Z O A K U  
 H L G J W M E Q H H S K N I G N V M Z S  
 E E N S P E J N V G T R D R J L F V G A  
 I O A B X Y R C O N S T E L L A T I O N  
 Q B O C D E F P W G M B I P A O P U S D  
 A X W Q H B N A I S S P Q M A L O K X M  
 W R X T H Z A T P R U W W D E P W T B N  
 H F R Q A O U Q I S M W M O E S K I A X  
 X O Z W L R G W R N A M H Q X C K W D B  
 N Z O J Z W U H E N L Z V P L S W Y B N  
 I N X Y J Z S W X A O Z S O F M V U I E  
 C A S V Q B T W W O O P F G P M R O N J

- AUGUST**
- CONSTELLATION**
- JULY**
- METEOR**
- MIDNIGHT**
- MOON**
- NIGHTTIME SKY**
- NORTHEAST**
- NORTHERN HEMISPHERE**
- PEAK**
- PERSEIDS**
- PERSEUS**
- SHOWER**
- SWIFT-TUTTLE**
- TWO THOUSAND**
- ZENITH**

**Membership Form**

Regular Membership	___ \$	20.00	1 year	or ___ \$	35.00	for 2 years
Family Membership	___ \$	35.00	1 year	or ___ \$	60.00	for 2 years
Sponsoring Membership	___ \$	50.00	1 year	or ___ \$	90.00	for 2 years
Contributing Membership	___ \$	100.00	1 year	or ___ \$	180.00	for 2 years
Student Membership	___ \$	10.00	1 year			
Life Membership	___ \$	500.00				
Please accept this donation	___ \$	_____				

Please fill out the form completely and return it to:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

Please make checks payable to

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