



NEWSLETTER

# RITTENHOUSE ASTRONOMICAL SOCIETY

Founded 1888 WWW.RITTENHOUSEASTRONOMICALSOCIETY.ORG November 2010

OPEN TO PUBLIC AND STUDENTS  
Upcoming Meeting on November 10th at  
7:15 PM  
The Franklin  
20th Street and Benjamin Franklin Parkway

## November's Meeting *Joyce Towne - Spitz, Inc.*



### Joyce Towne

Joyce Towne of Spitz, Inc. will cover the history of Spitz planetariums - from the origination of the model A1 in 1946, to the wildly popular A3P planetarium of the 1960s. Other Spitz company innovations, such as a very early push-button student response system, and unidirectional seating under the dome will also be covered. Dome manufacture and technology, as well as modern, digital planetarium software (ie: Starry Night Dome) play big roles in today's teaching theaters. We are currently experiencing a renaissance in planetariums - the switch over to digital star projectors is causing a huge boost to planetarium business, which is reminiscent of a period in the 1960s when the Spitz company was receiving a planetarium order each week.

## October's Meeting

Our last meeting featured a surprise opening as we were treated to a performance of Spontaneous Fantasia to celebrate the opening of our 122nd academic year. J-Walt is the performance artist who takes his artwork and splashes it over the dome to music. Spontaneous Fantasia is an enveloping experience that takes what used to be the planetarium laser shows to a new level of artistic creativity. Instead of lasers, the full dome projections are the results of the artist's ability to create worlds, environments and creature like pulsations on a pad with a stylus that are transformed by the Sky-Scan software into seamless projections on the dome that surround the viewer.

Planispheres were distributed to members along with a lesson on how to use the paper version. A comparison to a version created by computer software (Starry Night) was conducted by Ted Williams.

Our October meeting featured Dr. Ken Kremer. Ken offers us a unique perspective with his access to many areas at the Kennedy Space center that are not accessible to spectators observing a shuttle launch. Ken also shared some viewpoints, as did our members, about the diminishing governmental support for many of the current space programs, including the disappointment over some that have been abandoned.

Our meeting closed with a Question Mixer. A few members were introduced to all by name and topic of interest that they would be willing to discuss with interested visitors. Name tags for these members with the topic of interest were distributed. Visitors and guests were informed they could approach any of these members with their observations or questions. It is an attempt to help those visiting or new to RAS an easy way to approach members and enter into discussion. Our first Question Mixer was held in the observatory where Dave Walker

### Visible Planets 11/10/2010

	Rises	Transit	Sets
Mercury	06:58 am	01:41 pm	06:24 pm
Venus	06:11 am	11:25 am	04:39 pm
Mars	09:31 am	02:13 pm	06:54 pm
Jupiter	03:30 pm	09:19 pm	03:07 am
Saturn	04:39 am	10:31 am	04:23 pm

assisted members viewing Jupiter through the observatory telescopes. Pretzels and juice rounded out the experience allowing a little more social atmosphere at the conclusion of the evening.

## President's Message

*Dr. Milton Friedman*

Nineteen Eighty-Eight was an important year for the Rittenhouse Astronomical Society. It was the one-hundredth anniversary of the society and in recognition of the happening, Mayor W. Wilson Goode proclaimed November 16 as Rittenhouse Astronomical Society Day in the City of Philadelphia. On that day we gave our Silver Medal to Eugene and Carolyn Shoemaker at the Franklin Institute.

The Society had begun in 1888 as the Camden Astronomical Society. On October 12, 1927, the name, Rittenhouse Astronomical Society was adopted because most of the members were residents of Philadelphia.

Back in 1888 when the Rittenhouse Astronomical Society first started as the Camden Astronomical Society, astronomy was in its infancy compared to discoveries of today. On November 6, 1888, Benjamin Harrison, a Republican won in the Electoral College and was elected president, defeating Grover Cleveland who had won the popular vote. In the same year, Carl Zeiss, an optician and founder of the Zeiss Company, died. Also, a famous but little known astronomer, Richard A. Proctor died in New York City of yellow fever. Proctor had made one of the earliest maps of Mars and had named many areas on the planet but Schiaparelli's work was accepted and Proctor's names of areas on Mars were changed.

Eleven years before our astronomical society came into existence in 1888, Asaph Hall, using the 26 inch Alvan Clark refractor at the U.S. Naval Observatory, discovered the two moons of Mars: Phobos and Deimos.

If any of our readers want to follow in the footsteps of a giant in the history of astronomy, they should study the life of James Lick. He was born in Fredericksburg, Pennsylvania on August 25, 1796. In his younger years, Lick became involved in building pianos. He went to South America but came back and lived for a few days at Eighth and Arch Streets in Philadelphia. Lick went on to New York City and Boston but ended up in the San Francisco area in 1847. Lick bought land in Santa Clara County where he established a flour mill and built a hotel in San Francisco. He became instrumental in the gold rush in California. Lick became wealthy buying land in San Francisco, Lake Tahoe and the island of Santa Catalina. He donated land he had

owned in Santa Clara County and \$700,000 for the world's largest telescope at that time and an observatory to be built on Mt. Hamilton.

Lick died in 1876 and was buried, as he had requested, in the foundation of the telescope pier of the observatory. In June, 1888, the telescope was in place at the Lick Observatory which was first opened that year. Ownership was given to the University of California in 1888. The observatory is located 4,029 feet high on Mt. Hamilton. The diameter of the telescope objective is 36 inches and the focal length of the telescope is 56 feet, 2 inches. The Lick refractor would be the largest refractor in the world until the Yerkes Observatory 40 inch telescope was built in Wisconsin in 1897.

1888 was a special year. The National Geographic Society was founded, the East suffered through the Great Blizzard of '88 and the Eastman Kodak Company formed. The Washington Monument opened on October 9, 1888 and was the tallest structure in the world until the Eiffel Tower was built in 1889 in Paris, France. Of all the major events of 1888, none can surpass the gathering of astronomers in Camden, New Jersey, to form the Camden Astronomical Society which would later become the Rittenhouse

### Upcoming Speakers

November	Joyce Towne, Spitz, Inc.
December	Dr. Dave Goldberg Associate Professor Drexel University Department of Physics
January	Robert Nemiroff Astronomy Picture of the Day: Creator, Lead Writer, Editor Best Space Pictures of 2010 Major review of Astronomy developments in 2010
February	Laura Misajet Zeiss Planetaria / Optics
March	Dr. Bill Metz Author: Inquiry By Design
April	Dr. Milton Friedman - RAS President
May	Dave Walker - Franklin Institute, Fels Planetarium
June	Members Night: Members Presentations





*Orion Launch Abort System (LAS) on display at the front entrance of the Franklin Institute Science Museum in Philadelphia, PA during the weekend of Oct. 16 & 17, 2010. The abort motor (center nozzles) generates 500,000 pounds of thrust to accelerate the Orion from 0 to 445 MPH in under 3 seconds in case of an emergency. .  
Credit: Ken Kremer*

## Orion Launch Abort System Stops in Philadelphia during Cross Country Trek

*Dr. Ken Kremer*

A full scale mock-up of the Orion Launch Abort System (LAS) is hitting the road for a cross country trek of several museums and science centers. The public can see the LAS spacecraft hardware up close and personal and learn about the Orion crew vehicle and abort system. I visited the LAS in Philadelphia, PA where it was on display at the Franklin Institute Science Museum during the weekend of Oct 16 & 17, 2010. The Franklin is home to the Rittenhouse Astronomical Society.

It is a rather startling and rare sight to behold the 45 ft long rocket assembly mock up sitting pretty on a long flatbed tractor trailer outside the steps of the architecturally grand museum in the midst of the bustle of a major American city with cars driving by. The spacecraft hardware was far too large to bring inside the museum.

The impressive rocket display and information panels were popular with kids and adults passing by. The outdoor display was accompanied by an exhibition booth inside the museum atrium which was manned by engineers from Orion prime contractor Lockheed Martin and sub contractor ATK to explain Orion spacecraft operations.

Orion is NASA's next generation manned spacecraft and is designed to eventually replace the Space Shuttle. The shuttle will be retired sometime in 2011. The first Orion orbital test flight - dubbed OFT-1 - is set for 2013.

The LAS is designed to immediately pull the Orion crew module away from the launch vehicle during an emergency on the pad or during the climb to orbit and saves astronauts lives.

Known as the LAS pathfinder, the mock up is traveling the roadways from the U.S. Army's White Sands Missile Range in New Mexico to NASA's Kennedy Space Center (KSC) in Florida. At KSC, it will undergo future pathfinding operations for investigation with the Orion crew exploration vehicle to prepare for the OFT-1 flight.

Between New Mexico and Florida, the LAS is making several public stops. The next stop was in Hampton, Va on Oct. 23 for the 2010 EarthFest at Sandy Bottom Nature Park near the NASA Langley Research Center.

"This LAS pathfinder was used by ground crews to practice lifting and stacking operations at the launch pad to help prepare for handling the actual flight hardware used in the flawless Pad Abort 1 (PA-1) test flight," Heather McKay told me. McKay is a propulsion engineer for Lockheed Martin in Denver. "The LAS is the highest thrust and fastest acceleration abort system ever tested. This is the only abort system of its kind in the world and its state of the art. It is equipped with three types of solid rocket motors. The innovative abort system will significantly improve astronaut safety for future human space flight."

The PA-1 test took place on May 6, 2010 at the U.S. Army's White Sands Missile Range near Las Cruces, N.M. During the test, the system fired the abort motor thrusting the crew module mock-up off the pad, reaching a speed of about 445 mph in three seconds.

PA-1 Test Flight Youtube Video: <http://www.youtube.com/watch?v=JLdP-L7D58g>

See more pictures here:

<http://www.spaceref.com/news/viewnews.html?id=1455>

At this moment in late October, I am now at the Kennedy Space Center for STS-133. The LAS has arrived and I will report further next month.



*Philadelphia City Skyline and NASA's Orion LAS on 16 Oct. 2010 .  
Credit: Ken Kremer*





*Lockheed Martin propulsion engineer Heather McKay explains operation of the abort motor she helped develop and which activates in milliseconds to save astronauts lives in case of an emergency abort. The abort motor was built by ATK in Utah. Credit: Ken Kremer*



*Engineers from ATK explain the rocket propellant system of the Orion LAS inside the Franklin Institute Science Museum, Philadelphia, PA. Credit: Ken Kremer*

## Astronomy Outreach:

*Dr. Ken Kremer*

Please contact me for more info or science outreach presentations by email. My upcoming Astronomy talks include:

- **Plantation Astronomy Club:** Leesburg, Florida, Oct 18, 7 PM. "Whats Beyond for NASA with Orion, Falcon 9 & Heavy Lift". Website: <http://www.palhoa.com/id103.html>
  - **Philcon Science Fiction Conference at Crowne Plaza Hotel,** Cherry Hill, NJ, Nov 20, Sat, 1PM, 7 PM. "6 Years Roving Mars, the Search for Life and a Journey in 3-D" & "Eyewitness to the Final Shuttle Missions, Orion & Falcon 9". Website: <http://2010a.philcon.org/>
  - **Washington Crossing State Park:** Titusville NJ, Nov 21, Sun 1 PM. "6 Years of Mars Rovers and the Search for Life (in 3-D)"
  - **Gloucester County College Astronomy Club:** Sewell, NJ, Dec 7, 7:30 PM. "6 Years of Mars Rovers and the Search for Life (in 3-D)" Website: [http://www.gccnj.edu/news\\_and\\_alerts/rotating\\_ads/ken\\_kremer.cfm](http://www.gccnj.edu/news_and_alerts/rotating_ads/ken_kremer.cfm)
  - **Rittenhouse Astronomical Society (RAS) at the Franklin Institute:** Philadelphia, PA, Dec 8, Wed, 8 PM. "6 Years of Mars Rovers: Update." Website: <http://www.rittenhouseastronomicalsociety.org>
  - **Hayden Planetarium:** NY, NY, Dec 20, Mon, 6:30 PM. "Lunar Eclipse Night at the Hayden Planetarium"
  - **Amateur Astronomers Association of Princeton:** Princeton, NJ, Jan 11, Tue, 8 PM "Whats Beyond for NASA with Orion, Falcon 9 & Heavy Lift". Website: <http://www.princetonastronomy.org/>
- Dr. Ken Kremer Email:** [kremerken@yahoo.com](mailto:kremerken@yahoo.com)  
**NASA JPL Solar System Ambassador & The Planetary Society Web site:**  
<http://www.rittenhouseastronomicalsociety.org/Dr.Kremer/K.htm>

## Important Announcement

*Dr. Milton Friedman*

Be advised!! The Rittenhouse Astronomical Society membership dues will be raised to \$25.00 as of January 2011, so save and re-join now! Student membership and Premium memberships will remain at their current levels.

Our Mailing Address:

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