



NEWSLETTER

# RITTENHOUSE ASTRONOMICAL SOCIETY

Founded 1888 [WWW.RITTENHOUSEASTRONOMICALSOCIETY.ORG](http://WWW.RITTENHOUSEASTRONOMICALSOCIETY.ORG)

December 2006

OPEN TO PUBLIC AND STUDENTS  
Upcoming Meeting on December 13th at  
7:30 PM  
Fels Planetarium  
The Franklin Institute  
20th Street and Benjamin Franklin Parkway

## December's Meeting:

*Earth to the Moon and Back in 2.6 Seconds/  
Tick-Tock, Tick-Tock - David Rittenhouse*

**Alan Daroff - Presentor**

**David Rittenhouse** (1732-1796), the maker of Drexel University's Astronomical Musical Clock, was Philadelphia's most noted astronomer, mathematician, scientific instrument maker and surveyor during the 18th century. His clock dates to c. 1773 and has been regarded as the most important clock in America.



## November's Meeting: Telescopes

As requested by our membership, we conducted a telescope workshop at our November meeting. Dave Walker started off by reviewing proper terminology and showing us some of the basics of selecting the proper tool to observe with. Dave talked about portability, and cost of various basic telescopes. He also helped us to understand how to properly buy binoculars for viewing the night sky.



Alan Daroff picked up the talk reviewing the light paths found in a variety of telescopes. He demonstrated what lenses do, and how they are classified. Both Dave and Alan showed us telescopes of various configurations, which were toted in for the evening on display planetarium.

This was a timely talk for those of us considering a purchase for the holiday season. Many people ask me as an educator what is the correct age for purchasing their child

a telescope. Although binoculars are a standard reply of mine for beginners, I have realized the best answer. The time when your child is showing you pictures and specifications from web sites or magazines, and can be actively involved in the purchase of their scope, is the right time. Too many telescopes are given as gifts only to sit and collect dust. If your child is mature enough to search out information on the topic, then he or she is probably ready for the challenge of observing. Telescopes are tools and unlike toys, require a skill to operate, tenacity to explore, and patience to discover.

~Ted Williams

## Special Event: Mercury Transit

Astronomical events occur all through the year, but there are a few rare events that capture the public's imagination. Rarer still is an astronomical event that takes place at a time and place that is accessible, convenient, and comfortable. The Transit of Mercury on Wednesday the 8th of November was one of those events. Mercury makes its transit only thirteen times in any given century; not as rare as the Transit of Venus, but still rare. Visible with proper filters, and starting at 2:14 in the afternoon, this transit was a perfect opportunity to welcome astronomy fans to the newly refurbished Joel Bloom Observatory at the Franklin Institute.



[Who Says Observatories Are Never Open in the Rain?](#)

The stage was set, the telescopes and filters prepared, and the hour arrived; so did the clouds and rain. In the past the weather could have ended a big event but now, thanks to the wonders of the internet, visitors were able to watch the small black disk of Mercury creep across the Sun; rain or shine. Even though the roof of the observatory remained closed the doors were open; images were displayed on a computer screen at the base of the seventy three year old Zeiss-Jena telescope.

New in the shadow of old the show went on for a crowd of between 20 and 30 people who came down despite the weather; truly fans indeed! Nothing is ever as easy as it sounds: the whole East Coast was socked in and traffic on web sites web-casting the event was high. It took almost half an hour to get a connection to the Big Bear Solar Observatory in California as well as the SOHO and spaceweather.com web site.



Derrick Pitts - Chief Astronomer of the Franklin Institute takes every opportunity available to demonstrate how telescopes work ... rain or shine!

The public was not disappointed despite the weather and visitors young and old received a close up demonstration of the new and refurbished equipment waiting for them on a clear day, or night. The Franklin Institute in partnership with the Rittenhouse Astronomical Society shone through when the Sun couldn't and proved to an admiring audience that when an event happens "Up There" that they will be "Down Here" to bring it to them.

~ David A. Walker, Jr.

## Upcoming Meetings:

Month	Lesson	Speaker
January	Constellations: <i>Marking the Galactic Plane</i>	Chris Sommer <i>Exobiology</i>
February	Stars of Color: <i>Winter color wheel</i>	Dr. Ken Kremer <i>Mars, Saturn, Comets and Beyond in 3-D</i>
March	Star Maps: <i>Operating a Planisphere</i>	Dr. Albert Lamperti <i>The Universe in 3-D</i>

## Meeting Agenda

Student Check In	7:15 - 7:30 pm
Astronomy Lesson	7:30 - 7:50 pm
Call to Order: Dr. Milton Friedman	
Sky Tonight: Alan Daroff	
Guest Speaker	
Rooftop Observing: Weather Permitting	

## It Was a Cold and Rainy Afternoon

A number of people visiting the Franklin Institute on the afternoon of Wednesday November 8<sup>th</sup> had the opportunity to visit the rooftop observatory with Derrick Pitts on hand to be their transit event guide. Mr. Pitts (unwilling to let the rain deter us) took the opportunity to explain how the roof retracts, how the telescopes are aimed and why filters are used for observing the Sun during daylight hours.

Due to the inclement weather in Philadelphia it was not possible to use the telescopes to view the transit of Mercury across the Sun, so several observatory sites streaming their view across the internet, were utilized. Locations in Arizona, California and Hawaii were clear and offered us a glimpse of their view by streaming it live on the World Wide Web.

There was a lively conversation going on for several hours with a number of good questions about sunspots, solar flares and prominences, frequency of planetary transits, types of telescopes and public viewing or access available at these observatories. Meanwhile, we kept busy navigating through the many bogged down steaming sites trying to log on to a real-time streaming video of Mercury in front of our Sun. Most of the East coast was cloudy so web traffic was at an all time high.

Many smiles and an opportunity to learn how telescopes work indicated a great time was had by all. We hope you will all plan to join us the next time: in approximately 7 years for the next transit of Venus and in about 10 years until the next transit of Mercury. Mark your calendars; hopefully we will see you there.

~Peg Labosh

Undaunted observers use the high speed Internet connection from the Franklin Institute to view the transit of the Sun





## Student Lesson: *Celestial Motion*

This coming meeting, we will look at some real motions that cause apparent movement in our day and night sky. Observing the sky can be complicated to those who do not keep in mind we are observing the Universe around us from a moving platform (Earth.) Earth's real motions of rotation, revolution and precession, cause an array of apparent motions we see over time in our sky. Understanding the real reason for an apparent motion we observe can be key to finding the constellations we have talked about on our first two lessons (reviewed below). We will use the Fels planetarium to show the different apparent motions by speeding up time, and we will discuss the real cause of each of those motions.

With our first two astronomy lessons, we have broken down the sky into groups of constellations. In October we looked at Circumpolar stars, how they get that distinction, and we spotted them with a "dipper clock"

in the northern night sky. They became circumpolar due to Earth's Rotation, and are perceived differently depending on the latitude one is observing from. You can review the visuals at our web site on our Student page.

On our second lesson in November, we took the Mercury transit as a good time to talk about eclipses, transits, and occultation. Due to the fact that major bodies of our solar system are members of a common geometric plane (the ecliptic plane), these events naturally occur. After showing examples of the events, we visualized the ecliptic plane by tracing out the Zodiac constellations. That became our second group of stars, Zodiac signs on the Ecliptic plane. We observe them as a large arc shaped path generally running east and west across the southern sky up to the zenith point depending on the time of year.

~ Ted Williams

### Visible Planets 12/13/2006

	Rises	Transit	Sets
Mercury	06:09 am	10:57 am	03:44 pm
Venus	08:10 am	12:45 pm	05:20 pm
Mars	05:58 am	10:44 am	03:31 pm
Jupiter	05:51 am	10:41 am	03:31 pm
Saturn	09:28 pm	04:19 am	11:10 am

Our Mailing Address:

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Checks Payable to "Rittenhouse Astronomical Society"

## Holiday Greetings From Rittenhouse:

December is the month of darkness! On Dec. 21 we can enjoy a long night of sleep when the winter solstice gives us the shortest day of the year from sunrise to sunset and the longest night from sunset to sunrise. If we're upset with the Earth tilting the Northern Hemisphere away from the sun, we should spend that date in the Southern Hemisphere where the summer solstice will take place on Dec. 21. In fact, while down there, if we spend it below the Antarctic Circle (66.5 degrees south of the equator) we can enjoy 24 hours of daylight. For those of us who will observe the winter solstice, it happens at 7:22 p.m. EST on Dec. 21. Pleasant dreams that long night.

~Milt Friedman - President

Happy Holidays  
From the  
Rittenhouse Astronomical Society!