



# the Skyscraper

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AMATEUR ASTRONOMICAL SOCIETY OF RHODE ISLAND \* 47 PEEPTOAD ROAD \* NORTH SCITUATE, RHODE ISLAND 02857 \* WWW.THESKYSCRAPERS.ORG

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**Skyscrapers  
Board Meetings**  
Third Monday of the Month  
All Members Welcome

## Friday, September 16, 7:00pm at Seagrave Memorial Observatory

This is a joint meeting with the Rhode Island Section of the American Chemical Society.

**7:00 pm Light Refreshments**

**7:30 pm Featured Speaker: Adam Sarafian**, PhD candidate at the MIT/Woods Hole Oceanographic Institute Joint Program in Marine Geology and Geophysics. He is a NASA Jenkins Graduate Fellow. He received his BS and MS in geology from the University of Georgia.

**How Did the Earth Get its Oceans?**

This is a very old question. Two theories exist. Either our water came from inside the Earth, stored during its early formation or the water came from comets or other wet bodies hitting the Earth much later in its

history.

Oddly enough, the answers lay in solid rocks and not our liquid water. The team at the Institute have obtained and extracted evidence from rare samples of ancient meteorites that have fallen to Earth.

Adam and his colleagues have analyzed the isotopic ratios of hydrogen in these rocks, as this ratio varies in different parts of the solar system. We will find out how this difficult analysis was conducted and what answers it has uncovered.

**9:00pm Observing** the skies through the 138-year-old Alvan Clark Refractor at Seagrave Observatory. Mars, and the nearly Full Moon will be visible (weather permitting)

## AstroAssembly

September 30 & October 1



October 8

## Phases of the Moon

- New Moon**  
September 1 09:03
- First Quarter Moon**  
September 9 11:49
- Full Harvest Moon**  
September 16 19:05
- Last Quarter Moon**  
September 23 09:56



# President's Message

by Steve Siok

Lots of exciting news and events to tell you about.

The biggest news is the prestigious award to Al Hall and Dick Parker at Stellafane in August. As you know Al and Dick spearheaded the refurbishment of our 8" Alvan Clark. When they were done they set out to replicate the Clark in the form of twin 6" scopes, one made by each of them. The only changes from the original were the use of modern glass and a modern optical design. In addition they manufactured the mount out of aluminum bar instead of the cast iron of the original. These two instruments, "side by each" were entered into the Stellafane mechanical and optical competitions and they came home like Michael Phelps, sweeping all categories including the new award of Master Craftsman. Our congrats go out to Al and Dick.

Next I am happy to announce two generous donations to Skyscrapers. Richard King, a former member, has donated two telescopes, a Meade ETX-90EC Maksutov/Cass and an Orion XT8 f6 Dobsonian. Richard also donated eyepieces, filters and books. We plan to use the Dob right away for star parties. It will join our 8" Odyssey Dob for this purpose. Plans for the Meade are still being worked out. We have also received a generous donation of a Telescopes 20" Dobsonian By Dr. Tim Barker

of Wheaton College in Norton, Mass. Although this is a BIG set of optics it stores very compactly. Again this is a great star party scope and will make quite an impression on our younger visitors. The scope can be handled and set up by two people. Lots of deep sky potential!

We have many events coming this fall. Please take advantage of meetings and please come and help out at star parties. First up is the Blackstone Valley star party in Uxbridge Mass. This event draws lots of folks. Contact Francine Jackson if you can help in order to get directions. The star party is Sept 9. Setup is at 7:00PM.

Sept 16 is our monthly meeting at Seagrave. Our speaker will be Adam Sarafian, PhD candidate from Woods Hole Oceanographic Institute and MIT. He will discuss theories on the origin of the earth's water, right now a much discussed topic.

AstroAssembly falls on Sept 30/Oct1. The theme this year is the changes that have overtaken Amateur Astronomy in the last few decades. There will be two talks on Friday night. Stephen La Flemme will discuss his efforts in astrophotography. Our featured banquet speaker, Dennis Conti of the AAVSO, will conduct a workshop on exoplanet monitoring with amateur class instrumentation! If you would like to participate in an actual measurement,

please let me know. You will have to devote about 4 hours to observe a transit. Saturday afternoon will feature three talks by Scott MacNeill of Frosty Drew Observatory, Jeff Norwood of Camera Concepts and Mike Rudenko, of the Minor Planet Center at Harvard. In the evening we will have our banquet, again we will have an Italian theme. Dennis Conti will discuss more about exoplanet monitoring. See the details elsewhere in this issue.

Finally, the Saturday after AstroAssembly, October 8, is International Observe the Moon night. Skyscrapers will set up at two locations. First Seagrave Observatory will be open as usual on a Saturday night. Also we will set up on the Rhode Island Statehouse lawn at 7:00PM. Contact Francine if you can help.

So there you have it! Glad I could share so much news. Please come to our meetings and events and keep looking up.



Steve Siok is president of Skyscrapers, Inc. See more at <http://www.theskyscrapers.org/steve-siok>



The Skyscraper is published monthly by Skyscrapers, Inc. Meetings are held monthly, usually on the first or second Friday or Saturday of the month. Seagrave Memorial Observatory is open every Saturday night, weather permitting.

## Directions

Directions to Seagrave Memorial Observatory are located on the back page of this newsletter.

## Submissions

Submissions to The Skyscraper are always welcome. Please submit items for the newsletter no later than **September 15** to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or e-mail to [jim@distantgalaxy.com](mailto:jim@distantgalaxy.com).

## E-mail subscriptions

To receive The Skyscraper by e-mail, send e-mail with your name and address to [jim@distantgalaxy.com](mailto:jim@distantgalaxy.com). Note that you will no longer receive the newsletter by postal mail.

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# Upcoming Star Parties

Star party requests: As of September 10, 2016

## Date not yet set

Jenn Tierney with 20 homeschoolers at Seagrave Observatory

## September 24, 2016

Jerry Scala: at Fort Hill Farms,

Thompson Connecticut, about 50 public members

## December 17, 2016

Toni Arruda with Cub Scout group at Seagrave Observatory

Please contact Francine if you are interested in being a part of any of these.

## Date not yet set

In addition, Jim Crawford is scheduling one at Portsmouth Middle School some time in October. Please speak to him on this one.

Star parties are always fun, and it's a great way to interest people of all ages on the wonders of the sky. Please be a part of them when you can. You don't need a telescope, just a love of astronomy.







*International*  
OBSERVE THE  
**MOON**  
NIGHT  
2016

*October*

SAVE THE DATE

8<sup>TH</sup>



#observethemoon

OBSERVETHEMOONNIGHT.ORG

# International Observe the Moon Night

Saturday, October 8

7-10pm

Rhode Island State Capitol Grounds

Skyscrapers Inc., the Amateur Astronomical Society of Rhode Island is pleased to announce that we will be having a star party for International Observe the Moon Night on the Rhode Island State Capitol grounds!

This FREE public outreach event will be held on Saturday, October 8th 2016 from 7 pm to 10 pm to view our nearest Celestial Body...the Moon! Donations are always welcome to support our non-profit organization.

Many thanks to Kim Arcand, and the Governor's office for making this event possible.

Special guests that evening will be Kim Arcand, T.J. Del Santo and Jason Major.

Kim Arcand is NASA's Visualization Lead for the Chandra X-ray Observatory. She has inspired many young children in

STEM/STEAM education by volunteering her time and sharing her knowledge at many schools and and public outreach events. Her acumen of the electromagnetic spectrum called "Light" is 2nd-to-None. She has co-authored several books such as "Light The Visible Spectrum and Beyond," "Coloring the Universe," and "Your Ticket to the Universe - A Guide to Exploring the Cosmos." Recently, Kim gave a wonderful presentation at TEDxProvidence about "Light!" She's involved in "Coding for Girls," 3-D Printing and supports Women in STEM/STEAM.

T.J. Del Santo, prior to being a Meteorologist on Channel 12, worked as a marine forecaster at Weather Routing, Inc. in Glens Falls, NY where he forecast weather information for ships all around the world. He also has worked as a computer special-

ist at the Harvard-Smithsonian Center for Astrophysics in Cambridge, Massachusetts where he participated in research for the Chandra X-ray Observatory.

Jason Major is a space and photography enthusiast and has written articles for Universe Today, Discovery News, National Geographic News, and is featured on Science Channel's 'NASA's Unexplained Files. Jason built the website "Lights in the Dark", which provides a wealth of current astronomical and space exploration information!

Please feel free to bring family and friends to this wonderful educational event! See you there!

Tracy Prell, Member-at-Large



LUNAR AND PLANETARY INSTITUTE



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Science Festival Alliance



# The Sun, Moon & Planets in September

This table contains the ephemeris of the objects in the Solar System for each Saturday night in September. Times are in Eastern. Time calculated for Seagrave Observatory (41.845N, 71.590W).

Object	Date	RA	Dec	Const	Mag	Size	Elong	Phase(%)	Dist(S)	Dist(E)	Rise	Transit	Set
<b>Sun</b>	5	10 54.1	7 00.5	Leo	-26.8	1903.3	-	-	-	1.01	06:15	12:45	19:13
	12	11 19.3	4 22.7	Leo	-26.8	1906.6	-	-	-	1.01	06:22	12:42	19:01
	19	11 44.4	1 41.2	Vir	-26.8	1910.1	-	-	-	1.00	06:30	12:40	18:49
	26	12 09.5	-1 02.0	Vir	-26.8	1913.9	-	-	-	1.00	06:37	12:37	18:37
<b>Moon</b>	5	4 25.2	15 55.6	Tau	-12.0	1884.6	95° W	55	-	-	23:19	06:38	14:00
	12	10 21.7	6 52.4	Leo	-8.0	1765.8	14° W	2	-	-	05:42	12:15	18:41
	19	15 45.8	-16 06.8	Lib	-11.1	1810.7	63° E	27	-	-	12:18	17:25	22:31
	26	22 16.8	-8 55.4	Aqr	-12.7	2004.6	150° E	93	-	-	17:47	23:45	05:52
<b>Mercury</b>	5	12 29.7	-5 55.6	Vir	0.3	7.2	27° E	54	0.46	0.93	08:39	14:20	19:57
	12	12 47.4	-8 49.6	Vir	0.5	8.1	26° E	41	0.44	0.83	08:39	14:09	19:38
	19	12 52.1	-9 53.9	Vir	1.1	9.3	20° E	24	0.41	0.73	08:18	13:44	19:10
	26	12 38.7	-8 01.0	Vir	3.0	10.3	10° E	6	0.37	0.66	07:28	13:02	18:36
<b>Venus</b>	5	8 59.1	9 37.5	Cnc	-4.4	49.5	29° W	13	0.73	0.34	04:10	10:47	17:25
	12	9 02.5	10 26.3	Cnc	-4.5	44.6	34° W	19	0.73	0.38	03:43	10:24	17:04
	19	9 12.6	10 50.8	Cnc	-4.5	40.0	39° W	25	0.73	0.42	03:25	10:07	16:49
	26	9 27.9	10 48.0	Leo	-4.5	36.0	42° W	31	0.72	0.47	03:13	09:55	16:37
<b>Mars</b>	5	9 20.6	16 44.4	Cnc	1.8	3.7	25° W	98	1.64	2.5	04:05	11:10	18:15
	12	9 38.1	15 22.6	Leo	1.8	3.8	27° W	98	1.64	2.47	04:01	11:00	17:59
	19	9 55.4	13 56.4	Leo	1.8	3.8	30° W	98	1.65	2.44	03:56	10:50	17:43
	26	10 12.3	12 26.5	Leo	1.8	3.9	32° W	97	1.65	2.41	03:51	10:39	17:27
<b>1 Ceres</b>	5	19 58.8	-31 49.7	Sgr	8.2	0.6	132° E	98	2.96	2.18	17:56	21:45	01:34
	12	19 57.4	-31 43.2	Sgr	8.4	0.5	125° E	98	2.96	2.26	17:27	21:16	01:06
	19	19 57.4	-31 31.7	Sgr	8.5	0.5	119° E	98	2.96	2.34	16:59	20:49	00:39
	26	19 58.6	-31 15.8	Sgr	8.6	0.5	112° E	97	2.96	2.43	16:31	20:23	00:15
<b>Jupiter</b>	5	10 29.9	10 22.7	Leo	-1.6	30.8	7° W	100	5.39	6.39	05:39	12:18	18:58
	12	10 35.6	9 49.7	Leo	-1.6	30.9	12° W	100	5.39	6.37	05:19	11:57	18:34
	19	10 41.3	9 16.8	Leo	-1.6	31.0	17° W	100	5.39	6.34	04:59	11:35	18:10
	26	10 46.8	8 44.2	Leo	-1.6	31.2	23° W	100	5.40	6.31	04:39	11:13	17:46
<b>Saturn</b>	5	15 49.6	-18 10.5	Lib	0.5	16.3	77° E	100	9.99	10.17	12:43	17:37	22:31
	12	15 51.2	-18 17.1	Lib	0.6	16.1	71° E	100	10.00	10.28	12:17	17:11	22:05
	19	15 53.1	-18 24.5	Lib	0.6	15.9	64° E	100	10.00	10.39	11:52	16:46	21:39
	26	15 55.3	-18 32.4	Lib	0.6	15.8	58° E	100	10.00	10.49	11:28	16:20	21:13
<b>Uranus</b>	5	1 14.4	7 09.1	Psc	5.7	3.7	142° W	100	19.99	19.18	20:36	03:04	09:32
	12	1 13.6	7 04.1	Psc	5.7	3.7	149° W	100	19.99	19.11	20:08	02:36	09:03
	19	1 12.7	6 58.5	Psc	5.7	3.7	156° W	100	19.98	19.06	19:36	02:03	08:30
	26	1 11.7	6 52.5	Psc	5.7	3.7	163° W	100	19.98	19.02	19:08	01:35	08:01
<b>Neptune</b>	5	22 41.0	-9 12.8	Aqr	7.8	2.4	176° E	100	29.96	28.96	18:58	00:27	05:56
	12	22 40.3	-9 17.1	Aqr	7.8	2.4	169° E	100	29.96	28.97	18:30	23:59	05:27
	19	22 39.6	-9 21.2	Aqr	7.8	2.4	162° E	100	29.96	29.00	18:02	23:30	04:59
	26	22 38.9	-9 25.2	Aqr	7.8	2.4	155° E	100	29.96	29.05	17:34	23:02	04:30
<b>Pluto</b>	5	18 56.0	-20 56.8	Sgr	14.2	0.3	121° E	100	32.94	32.41	16:00	20:43	01:25
	12	18 55.8	-20 58.1	Sgr	14.2	0.3	114° E	100	32.95	32.52	15:33	20:15	00:57
	19	18 55.7	-20 59.4	Sgr	14.2	0.3	107° E	100	32.95	32.64	15:05	19:47	00:30
	26	18 55.6	-21 00.5	Sgr	14.2	0.3	100° E	100	32.95	32.76	14:38	19:20	00:02

# Darkest Skies in Southern New England

by Dave Huestis

It's the best kept secret in/of \_\_\_\_\_. You've all heard the phrase before. Just fill in the blank. It would be hard to believe there are any secrets in Rhode Island, the smallest state in the Union. But it is true because native Rhode Islanders are such provincial citizens. We even joke about packing an overnight bag and a passport if we have to cross one of the bridges spanning Narragansett Bay.

But if you wish to observe the heavens from perhaps the darkest site in Southern New England then you must shrug off those inhibitions and visit Frosty Drew Observatory (FDO), located in Ninigret Park off Route 1 in Charlestown. For you GPS folks, the address is 62 Park Lane, Charlestown, Rhode Island, 02813.

While it may be a secret to most folks north of North Kingstown, Frosty Drew Observatory is a jewel of an astronomical facility located down on Rhode Island's south coast. On many a clear Friday night up to 600 stargazers of every knowledge level come to enjoy skies so dark you can almost reach up to touch the sky and scoop up a handful of stars. With so many visitors on one night, we can assume it is not a secret in the southern environs of our state.

The Frosty Drew story started back on July 3, 1983, when a nature center opened on the grounds of the former Charlestown

Naval Auxiliary Landing Field. It is located on the edge of the Ninigret National Wildlife Refuge and the Ninigret Conservation Area. The center, built next to a small pond, displays a variety of sea shells and other objects of the natural world. A deck on the edge of the pond allows one to watch birds and other wildlife close-up.

Then in 1988, a domed observatory was erected across the street. It currently contains a 16-inch Meade LX200 Schmidt-Cassegrain telescope. Every clear Friday night the facility is open to the public free-of-charge, though a donation of \$1 per person is suggested. One should make every opportunity to visit Frost Drew because the skies are the darkest ones I know of anywhere in Rhode Island. Meteor observing is exceptional from this location, and if you have a telescope of your own, the incredible dark skies will provide excellent and unmatched views of our beautiful universe.

The only problem one could encounter during certain times of the year would be the fog. While it may be clear up in Pascoag, Scituate, Warwick, Coventry and even Wakefield, by the time one travels closer to Ninigret Park and Block Island Sound, you may soon find yourself in a dense fog bank. However, if the skies remain clear you are in for a treat.

The knowledgeable staff, including Director Scott MacNeill, and a complement of volunteers will be your guides to the wonders of the heavens. Whether it is the Moon, a planet, open clusters, globular clusters, galaxies, double stars or simply constellation identification, the views will be magnificent under steady and haze-free sky conditions. And during September our own Milky Way Galaxy stretches across the sky.

In addition, in 2010 a Sky Theatre was added to the Nature Center. This auditorium provides an indoor facility to hear astronomy and nature lectures alike. So should clouds keep the telescopes closed, Scott told me, "...we will open with presentations in the Sky Theatre and tours of the facilities." He also noted, "...we do post updates from the Observatory on Friday nights to our Twitter (<http://twitter.com/FrostyDrewOBSY>) and Facebook (<http://www.facebook.com/FrostyDrewObservatory>) about onsite conditions and what we are looking at, as well as a "Closing Up" post when we decide to start our shutdown procedures."

The Frosty Drew Observatory is open every clear Friday night year-round. Please check out the web page for weather closures before venturing down: <http://frostydrew.org>. Click on "Observatory and Sky Theatre" to access the Observatory home page. The website also contains other interesting information for stargazers of every interest level.

While the drive from northern Rhode Island to Frosty Drew can take upwards of one hour and fifteen minutes, if the night sky is clear your journey will be well worth the effort. Or, if you have a Friday off from work and have spent the day in the sun and surf at one of the south coast beaches, you can stop over at the Observatory before the drive home. Depending upon the day you may also wish to explore the Nature Center. Either way you'll most assuredly enjoy your visit.

Recently, Bill Heath of Oxford, Massachusetts, visited FDO with his daughter and granddaughter for the first time. They not only viewed Jupiter and a couple of its moons, but also observed "the rings of Saturn for the first time (that) gave us all





a thrill and confirmed our unique place in the Milky Way” he commented. “We concluded the hour and 15 minute ride was worth it and wondered how many other small observatories there may be within the same distance from home. The ‘tease’ of our Drew visit sparked a lively discussion of space exploration and the hopes of grand discovery in our lifetime. Keep up the good work ‘Drew’—your viewing sparks the curiosity of young and old alike!”

There are a couple of astronomical events to bring to your attention in September. If you have an unobstructed view of the western horizon after sunset on the 2nd, you will see bright Jupiter just above a very thin crescent Moon, with even brighter Venus to the upper left. The following evening the Moon will be positioned to the upper

left of Venus.

Since June 20 (the summer solstice) the Sun has been moving steadily southward in our sky. On September 22 at 10:21 a.m. EDT, the autumnal equinox (the beginning of the fall season) occurs. A person standing on the Earth’s equator will see the Sun directly overhead at local noon on this date. And here in Rhode Island we will experience earlier sunsets and cooler temperatures, more conducive to observing the heavens.

For those provincial northern Rhode Island stargazers among you, you can still visit the three observatories from Warwick northward to Scituate. Seagrave Memorial Observatory (<http://www.theskyscrapers.org>) in North Scituate is open every clear Saturday night. Ladd Observatory (<http://www.brown.edu/Departments/Physics/>

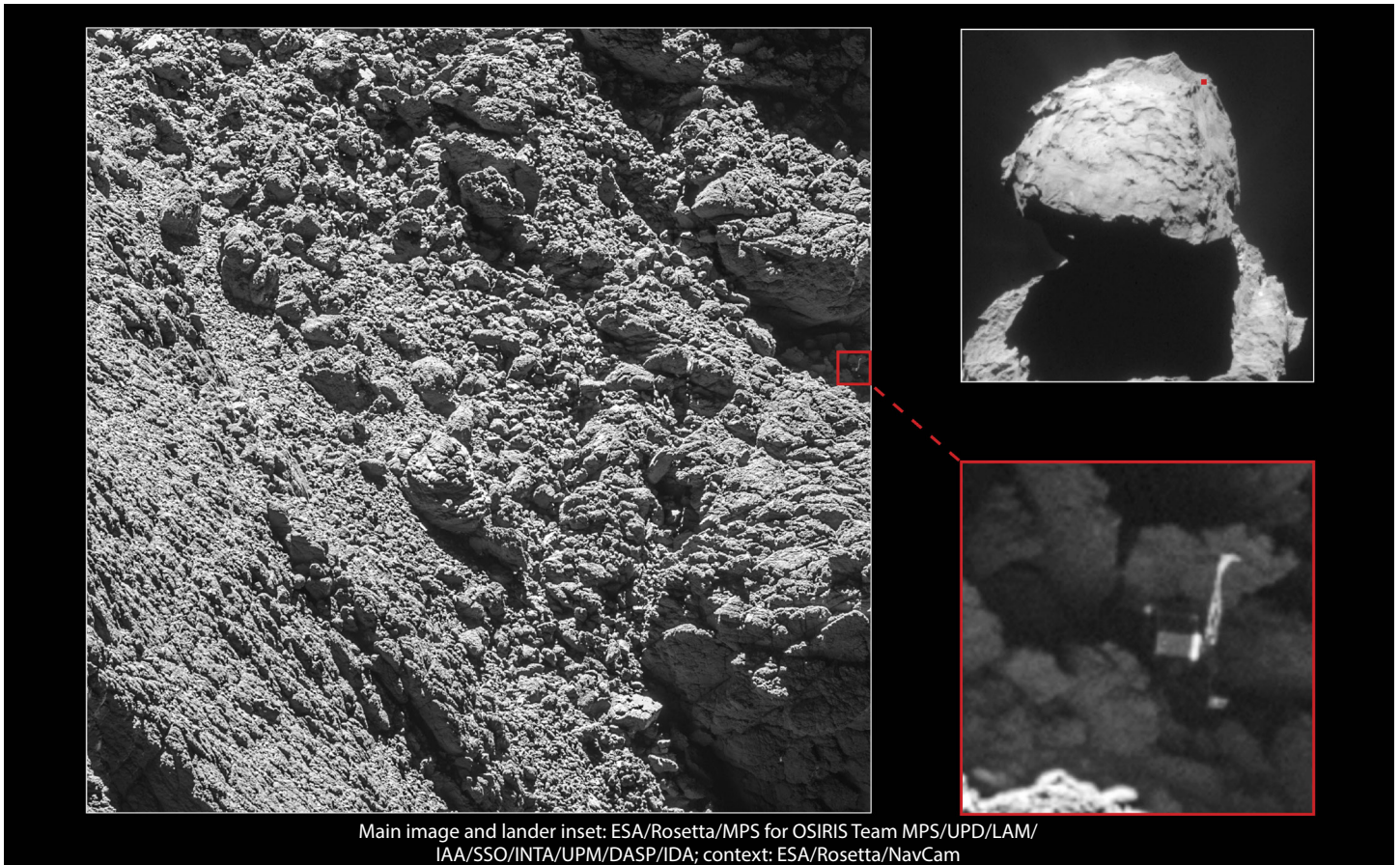
[Ladd/](http://www.brown.edu/Departments/Physics/Ladd/)) in Providence is open every clear Tuesday night. The Margaret M. Jacoby Observatory at the CCRI Knight Campus in Warwick (<http://www.ccri.edu/physics/observatory.htm>) is open every clear Wednesday night.

And for those of you who’ve been keeping Frost Drew one of the best kept secrets of South County, I hope you will make the journey north to visit the astronomical facilities of your northern neighbors. It’s not that far. This is Rhode Island after all!!

Keep your eyes to the skies.



*Dave Huestis is Skyscrapers Historian and has been contributing monthly columns to local newspapers for nearly 40 years. See more at <http://theskyscrapers.org/dave-huestis>*



Main image and lander inset: ESA/Rosetta/MPS for OSIRIS Team MPS/UPD/LAM/IAA/SSO/INTA/UPM/DASP/IDA; context: ESA/Rosetta/NavCam

# Philae Found

by Francine Jackson

If you haven't already heard, there was good news from the now departing Rosetta mission, as a final image of Philae has been taken. The craft, which was released from Rosetta, was supposed to attach itself to the body of Comet 67P/Churyumov-Gerasi-

menko, did so after bouncing off the comet, then settled in an area named Abydos. Philae was able to send information from its position on the ground, but the ESA was thrilled that it was actually located and photographed. As seen in the image, its body and two of its legs – almost in a “split” position – are clearly shown.

The Rosetta mission isn't finished yet, as it will be imaging the comet from close up

until at least September 30th.



*Francine Jackson is Skyscrapers Public Relations Spokesperson, writes the weekly newsletter for Ladd Observatory and serves as planetarian at the University of Rhode Island. See more at <http://theskyscrapers.org/francine-jackson>*



# Is there a super-Earth in the Solar System out beyond Neptune?

by Ethan Siegel

When the advent of large telescopes brought us the discoveries of Uranus and then Neptune, they also brought the great hope of a Solar System even richer in terms of large, massive worlds. While the asteroid belt and the Kuiper belt were each found to possess a large number of substantial icy-and-rocky worlds, none of them approached even Earth in size or mass, much less the true giant worlds. Meanwhile, all-sky infrared surveys, sensitive to red dwarfs, brown dwarfs and Jupiter-mass gas giants, were unable to detect anything new that was closer than Proxima Centauri. At the same time, Kepler taught us that super-Earths, planets between Earth and Neptune in size, were the galaxy's most common, despite our Solar System having none.

The discovery of Sedna in 2003 turned out to be even more groundbreaking than astronomers realized. Although many Trans-Neptunian Objects (TNOs) were discovered beginning in the 1990s, Sedna had properties all the others didn't. With an extremely eccentric orbit and an aphelion taking it farther from the Sun than any other world known at the time, it represented our first glimpse of the hypothetical Oort cloud: a spherical distribution of

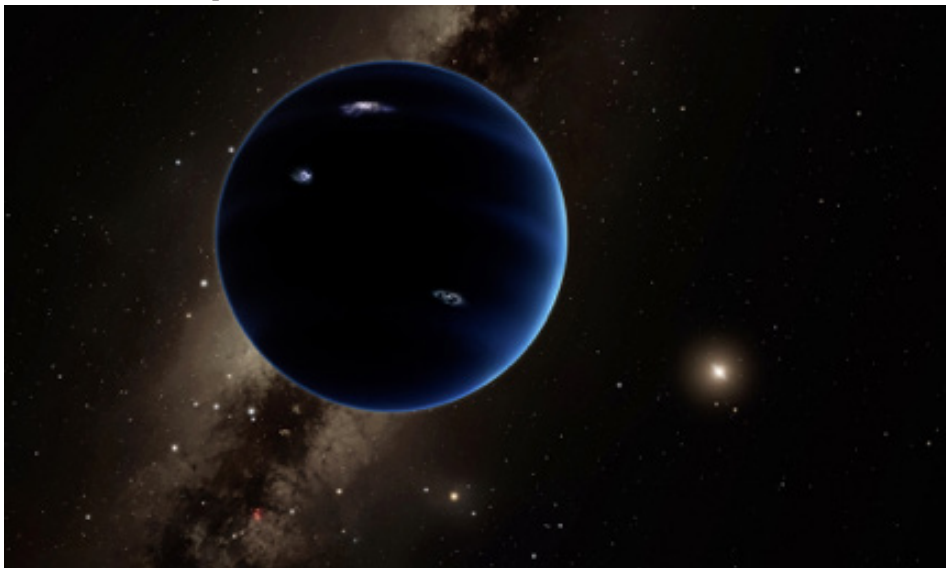
bodies ranging from hundreds to tens of thousands of A.U. from the Sun. Since the discovery of Sedna, five other long-period, very eccentric TNOs were found prior to 2016 as well. While you'd expect their orbital parameters to be randomly distributed if they occurred by chance, their orbital orientations with respect to the Sun are clustered extremely narrowly: with less than a 1-in-10,000 chance of such an effect appearing randomly.

Whenever we see a new phenomenon with a surprisingly non-random appearance, our scientific intuition calls out for a physical explanation. Astronomers Konstantin Batygin and Mike Brown provided a compelling possibility earlier this year: perhaps a massive perturbing body very distant from the Sun provided the gravitational "kick" to hurl these objects towards the Sun. A single addition to the Solar System would explain the orbits of all of these long-period TNOs, a planet about 10 times the mass of Earth approximately 200 A.U. from the Sun, referred to as Planet Nine. More Sedna-like TNOs with similarly aligned orbits are predicted, and since January of 2016, another was found, with its orbit aligning perfectly with these predictions.

Ten meter class telescopes like Keck and Subaru, plus NASA's NEOWISE mission, are currently searching for this hypothetical, massive world. If it exists, it invites the question of its origin: did it form along with our Solar System, or was it captured from another star's vicinity much more recently? Regardless, if Batygin and Brown are right and this object is real, our Solar System may contain a super-Earth after all.

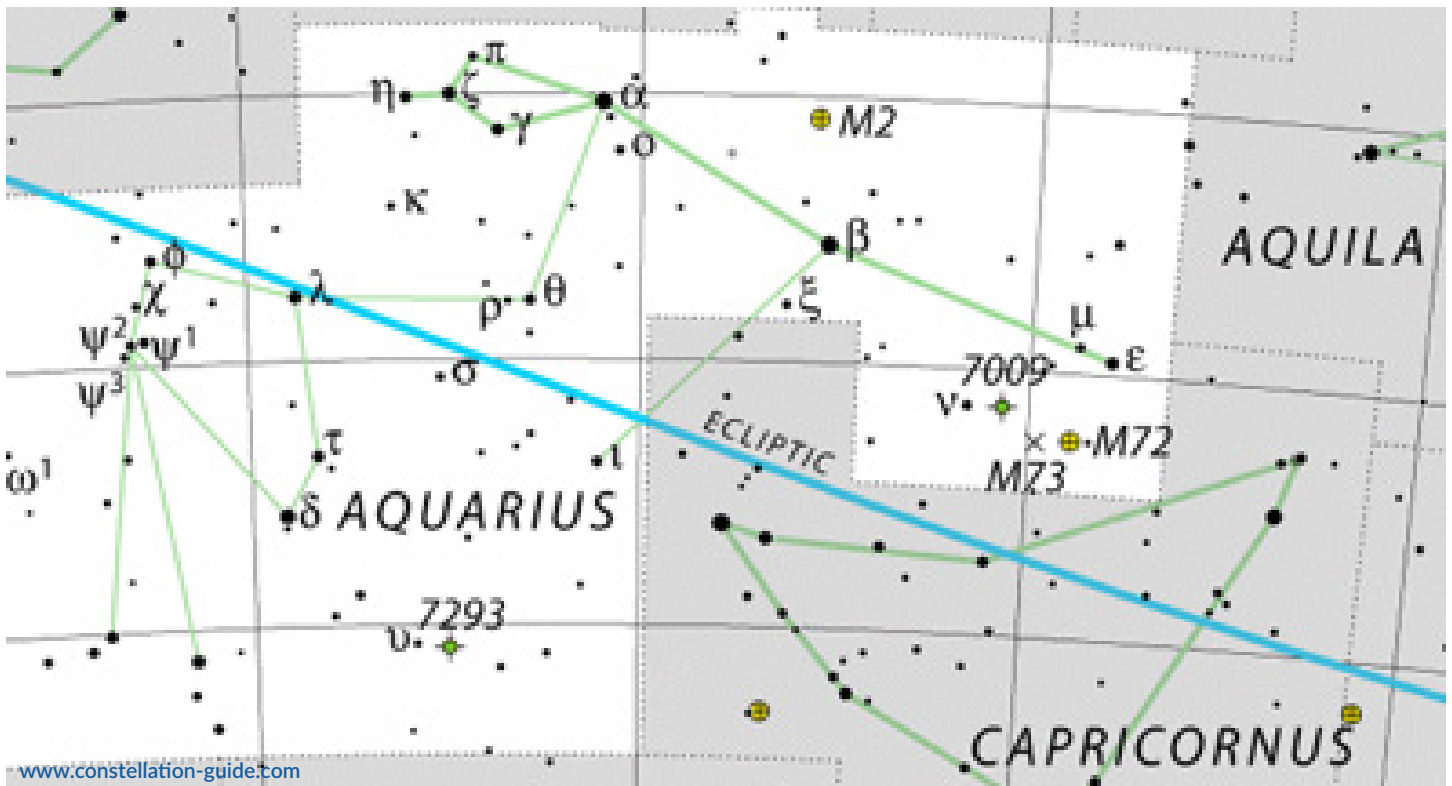
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*This article is provided by NASA Space Place. With articles, activities, crafts, games, and lesson plans, NASA Space Place encourages everyone to get excited about science and technology. Visit [spaceplace.nasa.gov](http://spaceplace.nasa.gov) to explore space and Earth science!*



A possible super-Earth/mini-Neptune world hundreds of times more distant than Earth is from the Sun. Image credit: R. Hurt / Caltech (IPAC)





## Planetary Nebula in Aquarius

# NGC 7009: Saturn Nebula

by Las Vegas Astronomical Society

Discovered in 1782 by William Herschel, NGC 7009 (the “Saturn Nebula”) is located a little over one degree west of the 4.5 magnitude star nu ( $\nu$ ) Aquarii and just a few degrees northeast of the Messier objects M73 (a four-star asterism) and M72 (a small globular cluster). It gets its nickname from a pair of thin extensions, or ansae, that

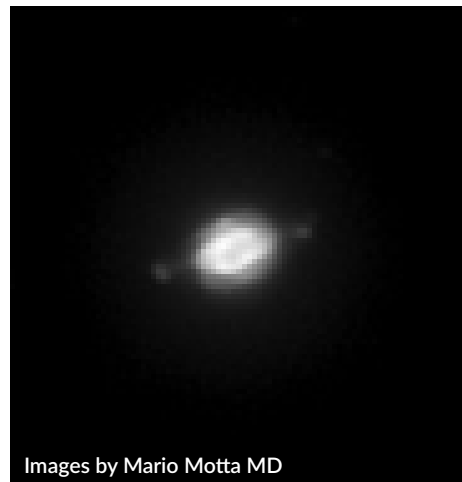
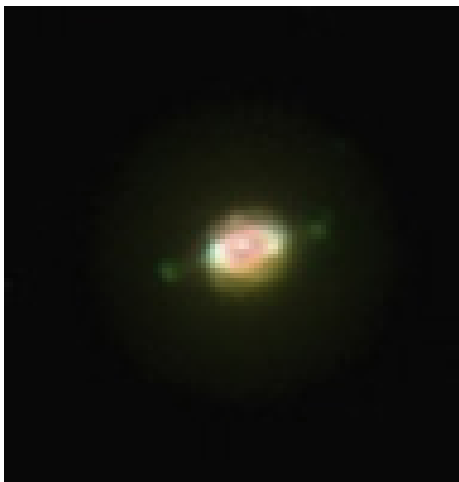
stretch out to the sides of the main nebula, giving it the appearance (and apparent size) of the planet Saturn.

The Saturn Nebula is readily glimpsed in small-aperture scopes, appearing as a slightly oval object blue-green in color. The ansae require larger instruments. The challenge is to determine the smallest aperture

needed to view them. Another challenge is to spot the central star which shines at magnitude 11.5, but which is masked by the surrounding nebulosity.

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*The purpose of the LVAS Observer’s Challenge is to encourage the pursuit of visual observing. It is open to everyone that is interested, and if you are able to contribute notes, drawings, or photographs, the LVAS will be happy to include them in our monthly summary. If you would like to contribute material, submit your observing notes, sketches, and/or images to either Roger Ivester (rogerivester@me.com) or Fred Rayworth (queex@embarqmail.com). To find out more about the LVAS Observer’s Challenge or access past reports, log on to [lvastronomy.com/observing-challenge](http://lvastronomy.com/observing-challenge).*



Images by Mario Motta MD

# Observing Reports

## Wednesday, August 17 Skyscrapers Holds Star Party for “Gabrielle’s Heart Camp” at Cub World

Our Public Outreach Coordinator Francine Jackson was contacted by one of the staff members of the Gabrielle’s Heart Camp. He asked her if she could arrange a Skyscrapers “Star Party” on Wednesday, Aug 17th, 2016 for about 50-75 children that were born with congenital heart defects.

Francine informed him that she would contact our members to see if she could assemble enough people to volunteer on that day for a star party and she would get back to him.

Prior to the event at one of our executive board meetings, Francine talked about the request from the camp staff member and asked if anyone would like to attend. Myself, Steve Siok, and Jim Henderson said we would love to attend!

Let me tell you a little bit more about this wonderful organization.

Gabrielle’s Heart Camp provides several days of fun and activities for kids within their medical restrictions. The kids are able to share their experiences and feelings with other children that have similar issues building a lifelong support network. They form a special friendship where each child watches out for the other.

This event is held every August at Cub World in Burrillville, RI and is staffed with medical professionals such as; Dr. Lloyd Feit, Pediatric Cardiologist, Hasbro Children’s Hospital; Dr. Nathan Beraha, Pediatric Cardiologist, office in Lincoln, RI; Dr. Seth Lapuk, Pediatric Cardiologist, Connecticut Children’s Medical Center; and Dr. Carolina Cerezo, Pediatric Gastroenterologist, Hasbro Children’s Hospital Feeding Team.

Steve Siok, Jim Hendrickson, myself and of course our own “Lady of the Constellations” Francine Jackson were prepared to put on a great “Star Party for these deserving kids!

I refer to Francine as the “Lady of the Constellations” because of her great breadth and wisdom of these intriguing and beautiful stars along with the many mythical stories that surround them.

Francine had been checking the weather forecast for that area a few days before the event. She also checked the weather before we left our homes. The weather looked

promising and we were all looking forward to having a clear evening for the children to view the Moon. But unfortunately Rhode Island’s weather can change from one hour to the next.

When we arrived, the weather was not looking very good. We were thinking the clouds would clear out soon so the kids could look through our telescopes and cameras to enjoy our closest celestial body... the Moon! Our optimism prevailed and we decided to setup up our equipment and hoped for the best! We were quite surprised that a staff member from the camp even brought his own telescope and tripod...hey the more the merrier!

Well the weather became a real disappointment and the moon was behind a thick blanket of never ending clouds, but that did not dampen our spirits! The children gathered around in a large semi-circle in wide open field where our telescopes and cameras were setup. The kids were really amazed at seeing several different types of “Real” telescopes like Jim Hendrickson’s Refractor, Francine’s red tabletop Astroscan and the Dobsonian telescope that Steve Siok had setup. They were also interested in my Canon camera with a 200mm f/2.8 lens sitting upon a tripod as well.

To make the best of it, we decided to have a question and answer session for the kids. Both Francine and Steve were answering many of the questions fielded by the children. Some of those questions were; “What effect does the Moon have on the Earth? Is Saturn the only planet with rings?

Not only did we receive questions from the children but the medical staff as well. The question and answer session lasted for about 1 1/2 hrs.

We all enjoyed seeing the excitement and enthusiasm on the faces of so many children and young adults. It’s a shame that the weather did not cooperate for us that night, but everyone sure had a wonderful time. I know we’ve captured and ignited the interest of many children in the Science of Astronomy. STEM Education is what it’s all about helping to build a better future for our children and humanity through Science.

We would certainly appreciate more volunteers from our organization donating a few hours of our time and equipment to assist in the Skyscrapers public outreach program. By doing so, you can help make a positive impact in a child’s life and have fun doing it at the same time! Thank you!

To learn more about Gabrielle’s Heart Camp, you can visit their website at: <http://heartandhopefund.com/our-events/gabrielles-heart-camp/> They also have social media sites on Facebook <https://www.facebook.com/groups/HeartandHopeFund/> and Twitter at: <https://twitter.com/heartandhopefund>



Bill Gucfa aims the 8-inch refractor at Mars during open night on August 20.



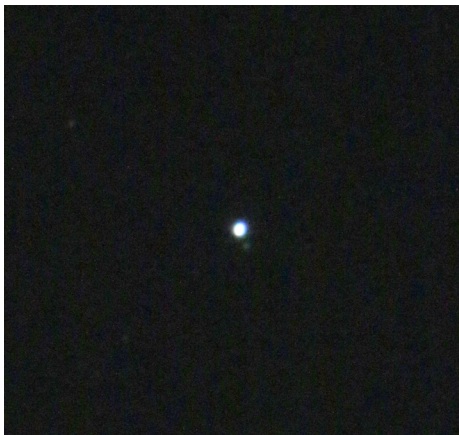
# Observing Neptune

by Jim Hendrickson

With an orbital period of 165 years, Neptune returns to our skies only about two days later each subsequent year. As has been for the past five years, the rising of Aquarius brings with it our solar system's farthest planet. It will reside in the constellation representing the water-bearer until the year 2023.

Neptune reaches opposition on September 2, but because of its great relative distance at 30 astronomical units from the Sun, it isn't as prominently larger or brighter at opposition that at any other time of the year like the other superior planets. Neptune's diminutive 2.4 arcsecond blue-hued globe reveals little detail in even the largest telescopes, and at magnitude 7.8 it requires at least 7x50 binoculars to track down visually.

Due to its great distance, Neptune is the

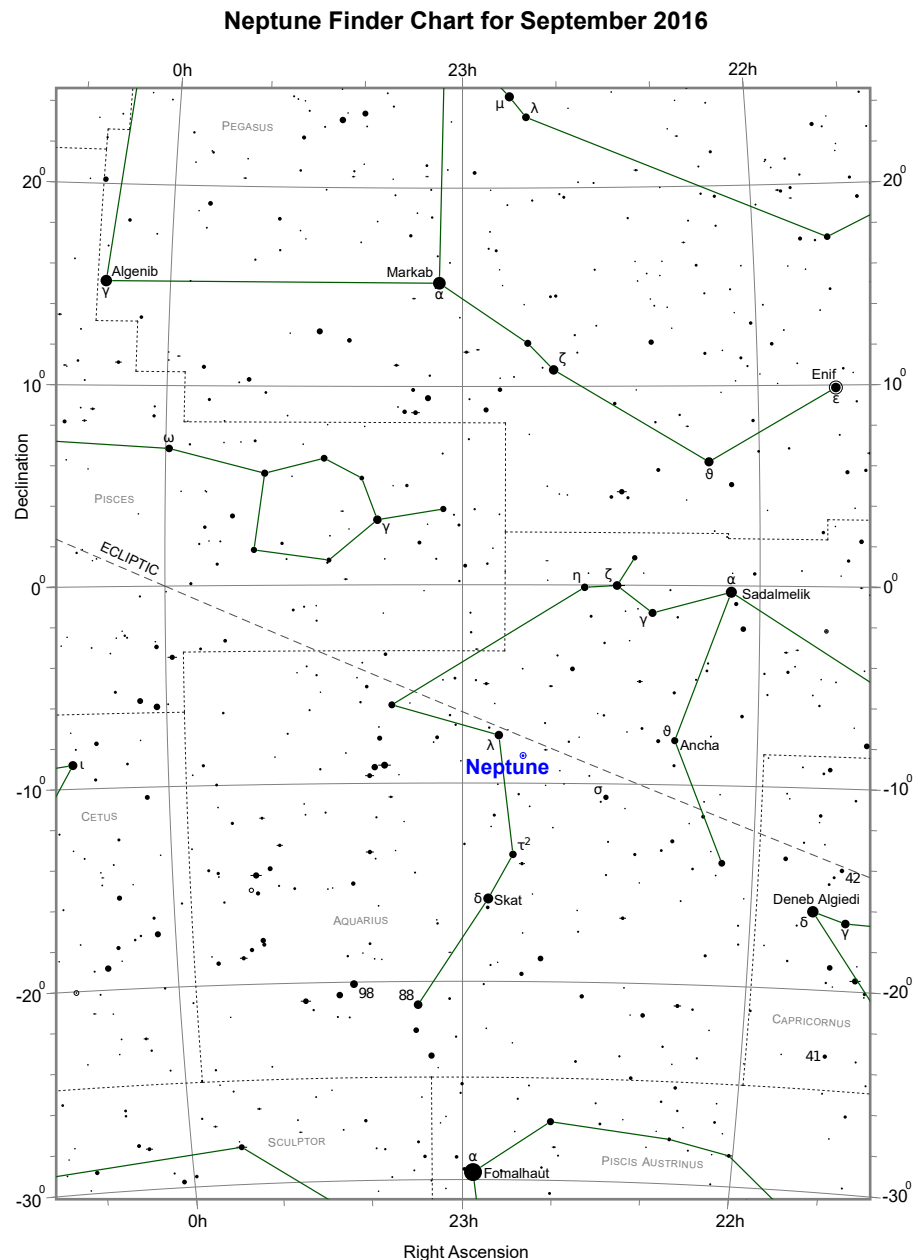


Neptune & Triton taken with the 12-inch SCT at Seagrave Observatory on August 23.

least observed planet, and is therefore the most rewarding to hunt down.

Throughout 2016, Neptune is fairly easy to locate as it lies within three degrees of 3.7 magnitude gamma Aquarii. Use the chart to locate Neptune to the southwest of this star.

Once you locate Neptune, try to observe it on subsequent nights, making note of its position among the background stars. If you have a telescope of 10 inches or larger aperture, you may be able to locate its largest moon Triton. Triton orbits Neptune in a highly inclined, retrograde orbit that extends as far as 17 arcseconds from the planet. It shines 200 times dimmer than



Neptune at 14th magnitude, making it a bit of a challenge to spot. Using a camera on a telescope as small as 6 inches will easily reveal its presence. None of Neptune's 13 satellites are accessible in amateur telescopes, although it may be possible to detect Nereid photographically through very large telescopes.

Our Moon will be positioned near Nep-

tune on September 15 and again on October 12.

Good luck hunting Neptune, and let us know if you're able to see Triton.



Jim Hendrickson is newsletter and web editor and has been a member for 20 years. See more at <http://theskyscrapers.org/jim-hendrickson>

freestarcharts.com

## Report of the Executive Board Meeting - Monday, August 15 2016 7pm

In attendance: Steve and Kathy Siok, Lloyd Merrill, Tracey Prell, Jim Hendrickson, Jim Crawford, Matt Ouellette, Francine Jackson, Steve Hubbard, Ian Dell 'Antonio

Before starting with the report from the Trustees, President Siok mentioned that Linda Bergemann has put together a list of things that we as a group need to attend to on an annual basis such as the certificate of incorporation to be filed with the state. This list will be send around to the E board members to review for completeness.

### Trustees Report:

Trustees report was preceded by approximately 2 to 3 minutes of Jim Hendrickson and Tracy Prell jockeying for the best photographic documentation position from which to take pictures of the same people they already have taken multiple thousands of pictures of already

The possibility of installing security cameras has not yet proceeded further. We have had no issue with security to date. Jim Crawford still intends to get together to discuss this with Bob Napier at some point as this is felt to be something of long term value to help prevent problems.

Work sessions have been put on hold during the hottest part of the summer. There is a meeting of the observatory committee members scheduled soon and needed repairs will be discussed. Jim also mentioned wanting to replace the stumps along



Steve Hubbard

the driveway with some arbor vitae trees or similar.

Jim has donated a wet / dry vacuum to Skyscrapers to help us keep the buildings more free of dust and dirt. He may also be possibly donating a used rider mower to us.

Training on the 12 inch Meade will be commencing shortly for anyone interested in using it on public nights. This would be followed by training on the 16 inch which is similar yet somewhat different to operate.

### Treasurer's Report:

Lloyd will be following up with unpaid members shortly. The list of unpaid members will be purged of those who have been unpaid for 2 years or more and personal reminders will go out to others to help encourage them to pay their dues.

### Star Parties:

As Francine started to report on this subject, Tracy and Jim commenced taking dueling J pegs with their cameras clicking and flashing. Mrs. Siok then joined in the fun with her smart phone as well as Steve Hubbard to take pictures documenting Tracy and Jim taking pictures. It was at this point that President Siok nearly stroked out and demanded that Jim hand over his camera and both Jim and Tracy cease and desist. Order was subsequently restored and the meeting continued on.

We have 3 star parties scheduled currently.

1. Wednesday, August 17th, at Cub World, Pascoag. This is for a great cause, children with degenerative heart disease, about 50 children are expected to be in attendance

2. Friday, September 9th at River Bend Farm, Uxbridge. This is for the Blackstone River Heritage Corridor and could have quite a few people in attendance. We'd love to have lots of scopes and people to help out.

3. Friday, October 21st, in Glocester, RI, for a 4 H group.

There was a discussion about getting the information on these to the secretary for distribution to the members which will be done in future.

There was discussion about the International Observe The Moon night on Saturday, October 8. We may host both an open night at the observatory for this and another group at the RI State House. Tracy has been talking with Kim Arcand about this possibility. More details and discussion to come.

Fall workshops were discussed. When

## Cash Flow YTD 2016 4/1/2016 through 8/31/2016

Category	4/1/2016-8/31/2016
<b>INFLOWS</b>	
AstroAssembly	
Banquet	150.00
Registration	100.00
TOTAL AstroAssembly	250.00
Donation	100.00
Misc Donation	1,894.37
TOTAL Donation	1,994.37
Dues	
Family	540.00
Junior	15.00
Regular	1,000.00
Senior	550.00
TOTAL Dues	2,105.00
Misc Income	
Interest Inc	3.05
TOTAL Misc Income	3.05
Star Party Donations	70.00
Subscription Income	
Astronomy	102.00
Sky & Telescope	65.90
TOTAL Subscription Income	167.90
<b>TOTAL INFLOWS</b>	<b>4,590.32</b>
<b>OUTFLOWS</b>	
Corporation, State Fee	125.00
Misc Expenses	96.68
PayPal Fee	39.42
Postage and Delivery	48.72
Subscription Payments	
Astronomy	102.00
Sky & Telescope	65.90
TOTAL Subscription Payments	167.90
Trustee Expense	
Property Maintenance	501.50
TOTAL Trustee Expense	501.50
Utilities	
Electric	39.14
Internet	349.95
Porta-John	99.00
Propane	80.25
TOTAL Utilities	568.34
<b>TOTAL OUTFLOWS</b>	<b>1,547.56</b>
<b>OVERALL TOTAL</b>	<b>3,042.76</b>

## Cash and Bank Accounts - As of 8/31/2016

Account	8/31/2016 Balance
<b>Bank Accounts</b>	
PayPal Account	58.38
PCU CD	20,008.88
PCU Checking	9,135.51
<b>TOTAL Bank Accounts</b>	<b>29,202.77</b>
<b>OVERALL TOTAL</b>	<b>29,202.77</b>

and what time would we have them? Would we charge for them or not? Would we try to roll them into public observing afterwards? It was anticipated that as soon as we firmed all of this up that if we do this again, we would start after the International Observe The Moon night on October 8.

### Astroassembly:

Kathy Siok reported that in large measure, all components were in place. She still needs to have volunteers set up for many of the tasks and will be getting notices out to that effect. Kathy will be asking the members if they might have any extra items to donate for our raffles.



Possible donation of a 20 inch Techtron Dobsonian type telescope:

Dr. Tim Barker of Wheaton College, Norton Ma has contacted us about donating an unused 20 inch telescope to us. This is large F5 focal ratio instrument. The tube is about 7 feet long and would require a ladder to be used. There was spirited discussion surrounding this topic. Where would we store this? How much would it be used? Should we consider replacing one of the telescopes already in one of our roll off roofs with it? Would it be suitable for imaging or would it be just a visual use instrument. No conclusion was reached, President Siok said that he would have further discussions with Professor Barker to try and find out what all of the options with the donation would be

and then we would try to reach a consensus from there.

Donation of 2 telescopes by former member Richard King:

We recently received the donation of 2 telescopes from Richard King. He has given us an 8 inch dobsonian mounted telescope and a 90mm Meade Maksutov complete with carry case, eyepieces and filters. It was felt that the 8 inch was small and portable enough to be suitable for our outreach programs and we would be keeping that one. The 90mm did not seem to have a place for us currently. Lloyd Merrill offered to bring it home and check it out to make sure that it was working properly as he has a similar model of his own. Once the scope has been checked out, it was thought that perhaps it

could be used as a raffle prize at Astroassembly to help with our finances.

27 inch Planewave project:

Ian recently had some discussions with Peter Schultz at Brown about looking into a grant from Nasa for this project as we were turned down by the Champlin Foundation.

This is in the early stages and more information is being gathered. Future reports to come.

Respectfully submitted, Steve Hubbard  
Secretary

# The Great Moon Hoax of 1835

by Francine Jackson

As we ramp up to celebrate this year's International Observe the Moon night October 8th, we have to look at one aspect of it: How its presence has affected us here on Earth. We often think of it as beautiful, romantic, or, of course, an object of scientific importance. But, in 1835, our Moon suddenly became an object of both a money grab, and a potential ruin to the reputation of one of the 19th century's most important scientists.

With the 1835 coming of Halley's Comet, John Herschel, son of William and nephew of Caroline, was in South Africa, intending to photograph the comet in as good

observing conditions as possible. Unfortunately for him, though, one of the daily penny newspapers so popular in New York City, *The Sun*, in attempts to retain as much readership as possible in the city's world of competition, created a "news story" by "Dr. Andrew Grant," a fictitious colleague of Herschel, stating that Herschel, with a new and improved telescope, was able to discern features on the Moon never before seen: trees, rivers, beautiful landscapes. In addition, he viewed creatures never before imagined on the Earth: human-sized, two-legged beavers, unicorns, even men with incredible wings, resembling those of bats.

Many readers were taken in by this. Even scientists from a reputable Connecticut University did their best to follow up on the story, not realizing it was a hoax. The paper didn't admit to this until a month later; however, in South Africa Herschel was visited by a colleague who asked about his "discoveries," not realizing he had been set up by a rag newspaper looking for profits. Upon his return to England, Herschel was treated with skepticism concerning his real research for quite a while, until final confirmation of the hoax was sent "across the pond."

Fortunately, with our several manned missions to the Moon, not one astronaut has met up with any humanoid bat creatures or beavers capable of seeing eye-to-eye with anyone, but this does serve to remind us that, even today, we must be careful with what we consider the truth, and do our best not to create scandalous research by any reputable scientists. However, with respect to the Moon, we can still enjoy it as a neighbor that is able to fill our lives with wonder and happiness, as we take time to observe it as often as we can.



*Francine Jackson is Skyscrapers Public Relations Spokesperson, writes the weekly newsletter for Ladd Observatory and serves as planetarian at the University of Rhode Island. See more at <http://theskyscrapers.org/francine-jackson>*



# Photo Gallery

On August 7 Tom Thibault captured the attached image of M8 & M20. "I only had a small window of time to image due to tree line. To top that off, clouds rolled in and not all captures could be used. End up with a stack of (6) 3 minute exposures with the Nightscape 8300 through the Astro-Tech 65EDQ."



Dick Parker with their reproduction Alvan Clark Telescopes, "Pollux" & "Castor" at Stellafane. Dick and Al won awards in Compound Optics Master Class, Mechanical Design Master Class & Craftmanship Master Class . Photo by Bob Horton





## Hubble Space Telescope

At about 9:30pm on August 22, Hubble Space Telescope made an appearance over Rhode Island skies. Most observers are aware that satellites can be observed crossing our skies, most notably the International Space Station and Iridium satellites, which are easily naked-eye visible, but there are a multitude of other satellites that pass overhead with little notice since they do not get very bright (remember they reflect sunlight, so the smaller and farther away they are, the dimmer they will appear).

I've known that Hubble Space Telescope could be spotted as it has been listed on

heavens-above.com for many years, but from our latitude it never makes it higher than about 13 degrees off the southern horizon. This makes it quite challenging as it is often behind local obstructions and atmospheric haze. It reaches about third magnitude but at this low elevation, it would require binoculars to pick out among the background. A long exposure is well suited to capture it as well.

I tried for it about a week ago but that part of the sky was mostly clouded out and I wasn't able to capture anything. Last night's spectacularly transparent skies presented a great opportunity and I was able to capture

it on 3 consecutive 20 second exposures, 2 of which are combined here. Additionally, the exposure reveals Mars, Saturn and several of the season's best Messier deep sky objects in the Milky Way.

We're all aware of the astonishing discoveries that have come from Hubble Space Telescope over the past 26 years, and have watched astronauts perform delicate servicing missions to upgrade its capabilities over those years, but to see it's tiny speck of reflected sunlight slowly passing in front of the Milky Way brings it closer to home.

By Jim Hendrickson, August 22, 2016



Waning Gibbous Moon on August 22  
by Jim Hendrickson using the 12-inch  
Meade SCT at Seagrave Observatory





**August 27 conjunction of Venus & Jupiter** over Providence. Photo by Bob Horton. Bob Horton and Francine Jackson view Venus & Jupiter through the 16-inch telescope at the Barus & Holley physics building at Brown University.



Stars, planets & fireflies on June 25 from Sandwich, New Hampshire by Bob Horton.





# AstroAssembly 2016 Sept. 30 & Oct. 1

47 Peeptoad Road North Scituate, Rhode Island

www.theskyscrapers.org/astroassembly2016

## How Technology Has Changed Amateur Astronomy

### Friday Evening Talks & Stargazing at Seagrave Observatory

If you would like to give a Friday Evening Talk, please contact Kathy Siok (kathys5@cox.net).

### All day Saturday at Seagrave Observatory

Poster Session, Swap Table (please bring your own table), Solar Viewing, Astrophotography Contest, Homemade Telescopes (bring yours!), Famous Astro Bake-off Contest!

**10:00am** Poster Session begins. Please contact Steve Siok (ssiok@cox.net) to present

**12:00pm** Lunch at the Skyscrapers Grille

**1:15pm** Recent Developments in Optical and Astronomical Equipment by **Jeffrey Norwood**, Camera Concepts

**2:30pm** The Elephant in the Dark Room: The Rise of Astrophotography by **Scott MacNeill**, Frosty Drew Observatory

**3:45pm** Near-Earth Objects: Finding Them Before They Find Us by **Michael Rudenko**, Minor Planet Center

### Saturday Evening Program at North Scituate Community Center

**5:15pm** Reception (antipasto bar with salad and real Italian accompaniments)

**6:00pm** Evening Banquet (pre-registration required) chicken parmesan, pastas, sauces, dessert and coffee catered by Quik Stop

**7:15pm** Words of Welcome, Awards, Raffle Drawing

**7:30pm** Detecting Other Worlds with a Backyard Telescope by **Dennis Conti**, American Association of Variable Star Observers

### Directions to Seagrave Memorial Observatory

**From the Providence area:** Take Rt. 6 West to Interstate 295 in Johnston and proceed west on Rt. 6 to Scituate. In Scituate bear right off Rt. 6 onto Rt. 101. Turn right onto Rt. 116 North. Peeptoad Road is the first left off Rt. 116. **From Coventry/West Warwick:** Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101. From Southern Rhode Island: Take Interstate 95 North. Exit onto Interstate 295 North in Warwick (left exit.) Exit to Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116. **From Northern Rhode Island:** Take Rt. 116 South. Follow Rt.

116 thru Greenville. Turn left at Knight's Farm intersection (Rt. 116 turns left) and follow Rt. 116. Watch for Peeptoad Road on the right. **From Connecticut:** Take Rt. 44 East to Greenville and turn right on Rt. 116 South. Turn left at Knight's Farm intersection (Rt. 116 turn left) and follow Rt. 116. Watch for Peeptoad Road on the right. • or • Take Rt. 6 East toward Rhode Island; bear left on Rt. 101 East and continue to intersection with Rt. 116. Turn left; Peeptoad Road is the first left off Rt. 116. **From Massachusetts:** Take Interstate 295 South (off Interstate 95 in Attleboro). Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

\_\_\_\_\_ Registrations x \$25 each = \$ \_\_\_\_\_

Name \_\_\_\_\_

\_\_\_\_\_ Registrations (Skyscrapers Member) x \$20 each = \$ \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_ Registrations (Children under 14) Free \_\_\_\_\_

\_\_\_\_\_ Banquet Tickets x \$25 each = \$ \_\_\_\_\_

Email \_\_\_\_\_

\_\_\_\_\_ Banquet Tickets (Children under 14) x \$15 each = \$ \_\_\_\_\_

Send completed form and check (Made payable to Skyscrapers Inc.) to: **Linda Bergemann**  
41 Ross Hill Road  
Charlestown, RI 02813-2605

Total = \$ \_\_\_\_\_

# Directions to Seagrave Memorial Observatory

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## From Massachusetts:

Take Interstate 295 South (off Interstate 95 in Attleboro). Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.



47 Peeptoad Road  
North Scituate, Rhode Island 02857