



the Skyscraper

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October 2015

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

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Phases of the Moon

Last Quarter Moon
October 4 21:06

New Moon
October 13 00:06

First Quarter Moon
October 20 20:31

Full Hunter's Moon
October 27 12:05

Join us for a local star party!

MONDAY OCTOBER 19TH, 2015 AT 7PM

We're celebrating the White House Astronomy Night and the International Year of Light 2015 on the Rhode Island State House Lawn.

82 Smith St. Providence, RI
Telescopes will be set up for night sky viewing.

CHANDRA X-RAY OBSERVATORY

Seagrave Memorial Observatory Open Nights

Saturday's at 7:00 pm
weather permitting

White House Astronomy Night

by Francine Jackson

Through the efforts of Kim Arcand, Skyscrapers, Inc., has the opportunity to be a part of White House Astronomy Night, Monday, October 19th, by setting up telescopes on the State House lawn. For those who haven't been to Downtown Providence in a while, the State House is conveniently situated up the hill from the Providence Place Mall.

I understand many of you might wonder

the feasibility of having telescopes on display at such a site, but, in addition to having the Moon at a good observing phase, right before first quarter, this will also be a demonstration of the need for more efforts in creating lighting that is necessary, but proper for all concerned.

If any of you would like to be a part of this, Skyscrapers, Inc., would be thrilled to have as many of you as possible come with

your instruments and be a part of a nationwide movement to spotlight science awareness. Kim has added us to the list of organizations that will be participating this year, and a good turnout would show our part in bringing informal science to the public. If you are available Monday evening, October 19th, please let Jim Hendrickson or Francine know you can come. Thanks.

Astronomy Workshops for Beginners

Following the successful series of workshops conducted in the spring, Skyscrapers is planning on hosting another set of Saturday afternoon workshops for beginning astronomers beginning in the second half of October. The schedule is still being worked out, and topics planned include learning the constellations, using binoculars and telescopes, and basic astrophotography. If interested in hosting or attending a workshop, contact Francine Jackson at francine_jackson@brown.edu.



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 **October 19** to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or e-mail to 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. Note that you will no longer receive the newsletter by postal mail.

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Globular Cluster in Aquarius

Messier 2 (NGC 7089)

by Glenn Chaple

October can be a depressing month for the globular cluster aficionado. Sagittarius, Scorpius, and Ophiuchus and their treasure trove of globular clusters have ridden off to the west, leaving us with the barren-looking skies of autumn.

But all is not lost! Pegasus is home to the wonderful globular M15, and Aquarius sports a pair of globs, M2 and M72. The former is our "Object of the Month" and a worthy rival to M15.

M2 was discovered by French astronomer Jean-Dominique Miraldi in 1746, and catalogued by Messier 14 years later. At magnitude 6.5, M2 is barely visible to the unaided eye from dark-sky locations. You can find it with binoculars or finderscopes by searching the area 5 degrees north of beta (β) Aquarii and looking for what appears to be an out-of-focus star. Viewed with small-aperture scopes and magnifications between 60-120X, M2 is an unresolved, condensed circular haze some 5 or 6 arcminutes in diameter. Larger scopes and magnifications in excess of 150X expand the overall dimensions to 8-12 arcminutes and reveal stars in the outer regions.

Recently, I compared M2 and M15 with my 13.1-inch Dob and an 18-inch Dob owned by fellow ATMob member Steve Clougherty. Both globulars appeared similar in size; their outer regions nicely resolved by the two scopes. M15 seemed more concentrated toward the middle – a surprise to me, as some observing guides describe M2

as having an almost stellar-looking center. I didn't see it; neither did Clougherty. What's your opinion?

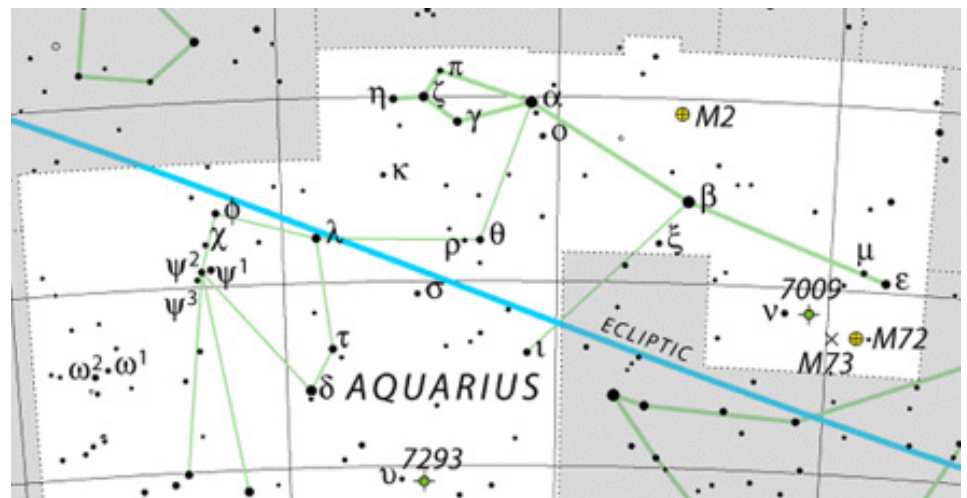
M2 lies about 37,000 light years away. It's one of the richer and larger globular clusters - an estimated 100,000 stars fill an area 175 light years across. At a calculated age of 13 billion years, M2 is also one of the oldest globular clusters in the Milky Way.



Glenn Chaple is a member of the *Amateur Telescope Makers of Boston*, *American Association of Variable Star Observers*, and contributes the monthly "Observing Basics" column for *Astronomy Magazine*. See more at <http://theskyscrapers.org/glenn-chaple>



Image by Mario Motta M.D.



www.constellation-guide.com

Planetary Nebulae imaged by Steve Hubbard with 14" SCT and Malincam



M57 in Lyra



NGC 6804 in Aquila



NGC 6772 in Aquila

October's Morning Planetary Parade and Two Meteor Showers

by Dave Huestis

Are you a morning person? Well, if you wish to view an absolutely beautiful grouping of planets during October you'll need to forgo your beauty sleep and rise before the Sun.

If you begin your planetary observing adventure on October 1, the eastern sky before dawn's early light will feature Venus (brightest), Jupiter (second brightest) and much dimmer Mars stacked above the horizon. Try observing every couple of days to see the planets shift position relative to one another. On the ninth a waning crescent Moon will join the sky scene. Each morning Jupiter and Mars will draw closer to one another, being in conjunction on the 18th. Jupiter and Venus will approach each other, coming to conjunction on the 25th. Venus will then approach Mars, and they will have a conjunction on November 2-3.

At the end of the first week in October Mercury will rise out of the Sun's glare and will be visible in morning twilight below Venus, Jupiter and Mars. If you have difficulty locating Mercury, the waning crescent Moon will pass nearby on the morning of the 11th. Each morning it will rise higher and higher into the sky, reaching a maximum elevation above the horizon on the 14th. Mercury will then sink lower and lower each morning, soon lost to the solar glare by month's end.

This opportunity to observe four planets will be quite rewarding. I would recommend using any camera to capture an image. If you are successful, email your images to astronomygolocal@gmail.com and I'll try to get them posted on the Skyscrapers website.

During October there are two meteor

showers of any importance. First up on the night of October 8-9 is the minor display of shooting stars called the Draconids. This shower currently only produces ten or less yellowish slow moving meteors per hour. A waning crescent Moon will be in the early morning sky, so it won't interfere with observing. Besides, this shower of particles is best observed between sunset and midnight when the constellation Draco is highest in the northern sky.

All you have to do is find Ursa Major (the Big Dipper asterism). Draco will be above it. While the meteors will emanate from this region of the sky, scan east and west up to zenith (directly overhead). These particles are fairly slow moving, hitting our atmosphere at only 12.5 miles per second. Draco stretches between Ursa Major and Polaris, the pole star, which is the end star



in Ursa Minor (Little Bear), the Little Dipper asterism handle.

The best meteor shower of the month occurs on the night of October 20-21. That's when the Earth passes through the remnants of Halley's Comet. The First Quarter Moon will set around midnight local time, so it will not interfere with observing about 20 or so yellow and green meteors per hour at peak between then and dawn. Orionids disintegrate in our atmosphere at around 41.6 miles per second, and they are also noted for producing fireballs that create persistent dust trains as they blaze across the sky.

The meteors appear to radiate out of the sky just above Orion's head (hence the name of the shower) and not far from the bright red super giant star Betelgeuse, which marks his right shoulder. While Orion is an easy star pattern to identify, at 3:00 a.m. this giant constellation can be found high in the southeast sky. Maximize your meteor count by observing between midnight and dawn.

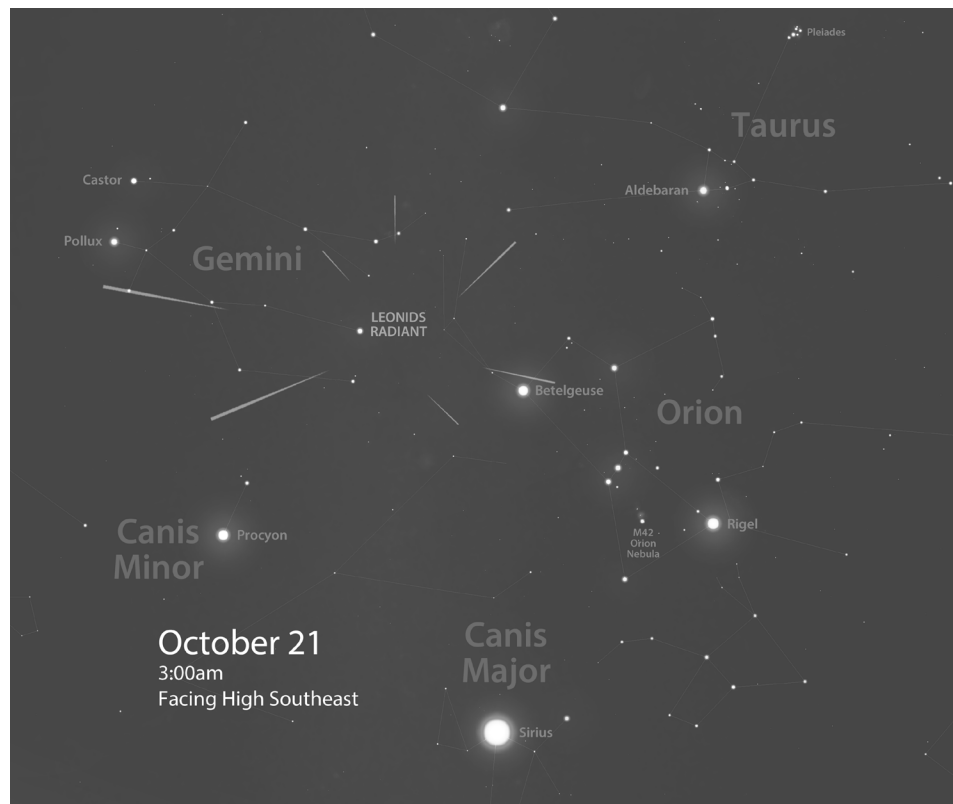
In conclusion, please remember that the local observatories are open for your viewing pleasure. Visit their respective websites for public observing schedules. Seagrave Memorial Observatory (<http://www.thesky-scrapers.org>) in North Scituate is open every clear Saturday night. Ladd Observatory (<http://www.brown.edu/Departments/Phys->

[ics/Ladd/](http://www.frostydrew.org/)) in Providence is open every Tuesday night. Frosty Drew Observatory (<http://www.frostydrew.org/>) in Charlestown is open every clear Friday night. And don't forget 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.

htm) is open every clear Wednesday night.



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



Enjoy the Wonders of the World at the University of Rhode Island Planetarium!

University of Rhode Island Planetarium
Upper College Road
Kingston, RI

Friday, October 23rd, 2015
6:00 P.M.

Contact: Francine Jackson: 401-527-5558

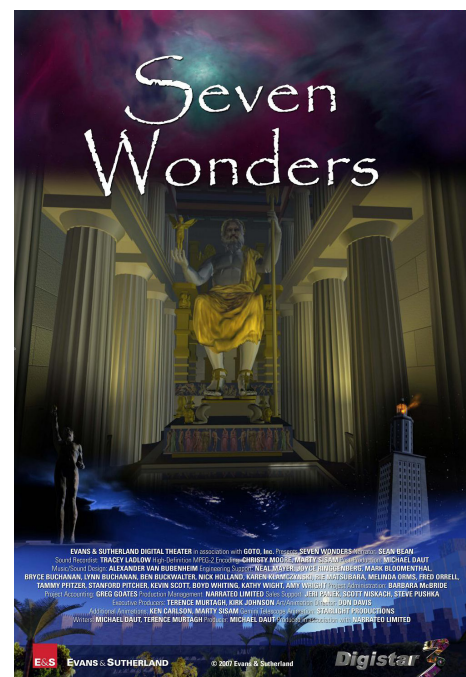
Come enjoy a tour of the Seven Wonders of the Ancient World! These incredible features were built before modern-day equipment was even a thought, and yet, today, one of these is still a major feature. Why were these made? How? Come learn of the beauty and majesty of the Seven Wonders of the Ancient World. In addition, learn

what are considered the Seven Wonders of the Universe, through the beauty of 21st century technology.

In addition to the featured presentation, *Losing the Dark*, a short introduction to light and its problems in our society will be given, as well as a tour of The Skies above the URI campus.

Admission to this presentation is \$5.00, to benefit the URI Planetarium Fund. The URI Planetarium is on Upper College Road, at the end of Engineering Row and across the parking lot from East Hall.

The University of Rhode Island Planetarium is available for programs of many varied topics of astronomical interest. For more information, please call 401-527-5558.



Star Party Update

Mercy Ecology New Dawn Earth Center, Cumberland, RI: September 18

To Jim Crawford, Matt and Lauren Ouellette, Jim Hendrickson, Francine Jackson, Kent & Connie Cameron and Laurita at the New Dawn Earth Center.

I would like to thank Matt Ouellette for a very enjoyable private tour he provided for my family and friend at the Seagrave Memorial Observatory on September 17th. Jim Crawford who was kind enough to contact Matt for me, allowed my family and friend to visit Seagrave Observatory and learn what Skyscrapers is all about. They also enjoyed the Star Party Event hosted at New Dawn Earth Center located in Cumberland, RI which was setup by Francine Jackson, along with our members Jim Hendrickson, Kent and Connie Cameron who brought their telescopes for us to view under a very clear night sky. I would also like to thank Laurita at New Dawn Earth Center for allowing Skyscrapers to use their property and facilities and providing a tour and presentation of their beautiful grounds.

On such a short notice, Matt volunteered his time away from his family to show my sister Diane, her husband Earl and my friend Donald our facilities at Seagrave. Matt was extremely enthusiastic and accommodating displaying a very positive image of our Soci-

ety. He first opened up our meeting hall, and then on to the Main Observatory where we first viewed our history room and then climbed the stairs to see our pride and joy the 8 inch Alvan Clark Refractor Telescope.

When Matt uncovered the 8 inch Alvan Clark, everyone was amazed on how beautiful the telescope still is considering it's age. They've never seen anything like it before. We first showed them the operation of the telescope using the weights and governor that allows the telescope to accurately track the objects in the sky and then showed them how the observatory dome operates. They were very much impressed with the precision technology for that time period. We explained how some of our Skyscraper members came to the rescue to rebuild the governor that was stolen when the observatory was vandalized, and explained how the dome originally used canon balls to rotate the dome which would drop out of their tracks occasionally but were later replaced with precision shot puts which are much more safer and reliable.

Matt and I also showed them our 16-inch Meade Schmidt-Cassegrain telescope explaining that the newer telescopes have much more light gathering power because of their newer design technologies and they don't have to be as large as the Alvan Clark. We also informed them that these newer telescopes are computer-con-



Photos by Tracy Prell and Jim Hendrickson



trolled allowing a more efficient way of locating the planets and other objects in the night sky.

We had a beautiful clear sky for stargazing at the New Horizons Dawn Center on September 18th in Cumberland and everyone had a great time. The images that Jim and Kent were able to display with their telescopes were absolutely amazing. This was the first time my sister and my friend Donald ever looked through a telescope and were awed by the views before their eyes.

After talking to Jim, Francine, Kent and Connie, they will be looking to visit other observatories in NJ and NY areas or maybe even attend a local star party. We surely sparked their interest in astronomy. Francine's presentation was very detailed and presented in such a way that she made looking at the night sky easy for everyone to understand...including me. I think Francine's extensive knowledge about the night sky is much more than what you find in the new computerized go-to telescopes. Jim's expertise in astrophotography always astounds me and I always enjoy Kent and Connie's company and enthusiasm when setting up their telescope allowing the public to see what they had found for them in the night sky. This is what Skyscrapers does best.

I wish my family wasn't leaving so soon, but they must return to NJ to take care of dad in the nursing home. He is 89- years old

and a Navy Vet and he is very lonely without them visiting him. He told them that being away for 3-days was a long time for him, so I am sure he will be happy to see once they return home. I will send my sister photos of her short visit at Seagrave and the Star Party in Cumberland to show my dad. I think he will be very happy viewing these photos.

My son Jason will be flying in on Thanksgiving from Chicago to visit me. This is when I will see my son and my dad again. I wish I could take a plane or a helicopter from TF Green to Teterboro airport in NJ...only a mile from my dad's home, but after calling TF Green and finding out they did not offer any service to Teterboro, which is a small private airport which would have been much more convenient and easier for me.

So I will take an arduous trip by car and that's why I don't go to see my dad as often as I would like. But I must visit him because I don't know how much time he has left to live. Considering what's my dad's been through and with some dementia, he is doing Great and they take excellent care of him at the nursing home.

Thanks again to everyone for all that you've done for my family and friend...you made it a very enjoyable and memorable visit for both them and me.

Tracy Karin Prell



International Observe the Moon Night: September 19

What a great evening it was, clear and transparent, we had about 25 visitors. Several members brought their personal scopes, from 3 in up to a 14 inch, the moon was center stage but Saturn also got rave reviews. Then our members put on a great show with a host of objects: M57, M31 and M15 and many more.

Francine did a great job in her Moon presentation, 3 sessions in all. Thanks Francine

Thanks to all members for a memorable evening, we received a total of \$47.00 in donations.

Each visitor was greeted and invited back for public nights and also to AstroAssembly. Each received a Seagrave calling card and they were directed to the event calendar to get info on AstroAssembly.

Jim Crawford

It was a great night. Even though it wasn't much larger turnout than our typical Saturday night, I enjoyed having the gathering of members and scopes in the front yard, it makes for a different and more festive atmosphere than just having people gathered under the dome or in one of the roll-offs. I am definitely in favor of promoting more events like this in the future, and just having member scope nights in general.

Once the Moon set we had some great views of star clusters and double stars and a preview of some of the fall constellations.

Did anyone else see the plane fly in front of the Moon? I had a good look through my 8x40 finder.

Some photos from the event, which were also shared with the InOMN group in Flickr:

<https://www.flickr.com/photos/30623046@N08/sets/72157658851459111>

Jim Hendrickson



Photos by Tracy Prell
and Jim Hendrickson





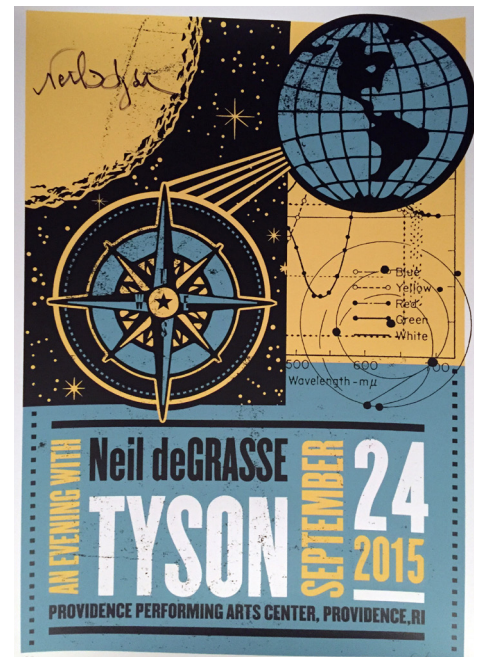
An Evening with Neil deGrasse Tyson

On Thursday, September 24, Francine Jackson, Jim Hendrickson and Tracy Prell attended a performance by Hayden Planetarium director Neil deGrasse Tyson and had the chance to meet him after the show.

Dr. Tyson talked about a variety of subjects in a presentation called “Universe Bizarre,” from his stance on how people who continue to bemoan Pluto’s planethood status to “get over it” to how the Universe and space travel is so inhospitable that instead of trying to terraform or colonize other planets, it would be far easier just to fix and take better care of Earth.

He emphasized the importance of science education and literacy, that we should elect leaders that have at least a basic understanding of the workings of nature and the physical world, and closed with a recitation from Carl Sagan’s *Pale Blue Dot*.

Following the show, attendees who purchased an after-show meet and greet ticket had the opportunity to speak briefly with Dr. Tyson, get a photo taken, and received a signed show poster. Jim Hendrickson used the opportunity to present him with a framed 5x7 photo of Seagrave Memorial Observatory.



The Sun, Moon & Planets in October

This table contains the ephemeris of the objects in the Solar System for each Saturday night in October. Times are in Eastern Daylight 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
Sun	3	12 34.8	-3 45.2	Vir	-26.8	1,917.7	-	-	-	1.00	06:44	12:35	18:25
	10	13 00.3	-6 26.2	Vir	-26.8	1,921.5	-	-	-	1.00	06:52	12:33	18:13
	17	13 26.2	-9 03.2	Vir	-26.8	1,925.4	-	-	-	1.00	07:00	12:31	18:02
	24	13 52.6	-11 33.7	Vir	-26.8	1,929.2	-	-	-	0.99	07:08	12:30	17:52
	31	14 19.6	-13 55.6	Vir	-26.8	1,932.9	-	-	-	0.99	07:16	12:29	17:42
Moon	3	5 04.7	16 51.8	Tau	-12.3	1,897.6	113° W	70	-	-	22:01	05:24	12:48
	10	10 56.7	4 15.0	Leo	-9.8	1,755.4	32° W	8	-	-	04:33	10:57	17:13
	17	16 23.6	-17 28.0	Oph	-10.5	1,810.1	44° E	14	-	-	11:08	16:12	21:14
	24	22 49.4	-6 27.1	Aqr	-12.6	1,993.9	131° E	83	-	-	16:18	22:24	04:39
	31	5 40.7	17 26.8	Tau	-12.5	1,911.8	132° W	84	-	-	20:42	04:06	11:31
Mercury	3	12 14.0	-3 21.9	Vir	4.1	10.0	5° W	2	0.33	0.67	06:19	12:10	18:01
	10	12 04.2	0 08.2	Vir	0.8	8.4	15° W	24	0.31	0.80	05:32	11:35	17:38
	17	12 22.4	0 26.6	Vir	-0.5	6.8	18° W	58	0.31	1.00	05:27	11:28	17:28
	24	12 57.9	-3 59.1	Vir	-0.8	5.7	16° W	81	0.34	1.17	05:48	11:37	17:24
	31	13 39.6	-8 35.9	Vir	-0.9	5.2	11° W	93	0.38	1.30	06:20	11:51	17:21
Venus	3	9 47.3	10 17.1	Leo	-4.4	32.6	44° W	36	0.72	0.52	03:07	09:47	16:27
	10	10 09.6	9 18.8	Leo	-4.4	29.6	45° W	41	0.72	0.57	03:06	09:42	16:18
	17	10 34.1	7 54.9	Leo	-4.3	27.2	46° W	45	0.72	0.62	03:08	09:39	16:10
	24	11 00.1	6 08.0	Leo	-4.3	25.0	46° W	49	0.72	0.68	03:13	09:38	16:02
	31	11 27.1	4 01.1	Leo	-4.2	23.2	46° W	53	0.72	0.73	03:20	09:37	15:54
Mars	3	10 29.0	10 53.5	Leo	1.8	3.9	35° W	97	1.65	2.38	03:46	10:28	17:10
	10	10 45.4	9 18.0	Leo	1.8	4.0	37° W	97	1.66	2.34	03:41	10:17	16:53
	17	11 01.7	7 40.5	Leo	1.8	4.1	40° W	96	1.66	2.30	03:36	10:06	16:35
	24	11 17.7	6 01.7	Leo	1.7	4.1	42° W	96	1.66	2.26	03:30	09:54	16:18
	31	11 33.5	4 22.0	Leo	1.7	4.2	45° W	95	1.66	2.21	03:24	09:42	16:00
1 Ceres	3	20 01.0	-30 56.3	Sgr	8.7	0.5	106° E	97	2.97	2.53	16:04	19:54	23:52
	10	20 04.6	-30 33.4	Sgr	8.8	0.5	100° E	97	2.97	2.62	15:38	19:34	23:30
	17	20 09.2	-30 07.5	Sgr	8.9	0.5	95° E	97	2.97	2.72	15:13	19:11	23:10
	24	20 14.7	-29 38.8	Sgr	9	0.4	89° E	97	2.97	2.82	14:48	18:49	22:51
	31	20 21.0	-29 07.4	Sgr	9.1	0.4	84° E	97	2.97	2.91	14:24	18:28	22:32
Jupiter	3	10 52.2	8 12.1	Leo	-1.6	31.4	28° W	100	5.40	6.26	04:19	10:51	17:22
	10	10 57.5	7 40.8	Leo	-1.6	31.7	34° W	100	5.40	6.20	03:58	10:28	16:58
	17	11 02.6	7 10.4	Leo	-1.6	32.1	39° W	100	5.40	6.13	03:38	10:06	16:34
	24	11 07.4	6 41.2	Leo	-1.6	32.5	45° W	100	5.40	6.06	03:17	09:43	16:09
	31	11 12.1	6 13.4	Leo	-1.7	32.9	51° W	99	5.40	5.98	02:56	09:20	15:45
Saturn	3	15 57.7	-18 40.9	Lib	0.6	15.6	52° E	100	10.00	10.59	11:03	15:55	20:47
	10	16 00.3	-18 49.7	Lib	0.6	15.5	45° E	100	10.00	10.67	10:39	15:30	20:22
	17	16 03.1	-18 58.8	Sco	0.6	15.4	39° E	100	10.00	10.75	10:15	15:05	19:53
	24	16 06.1	-19 08.1	Sco	0.6	15.3	33° E	100	10.00	10.82	09:51	14:41	19:31
	31	16 09.3	-19 17.4	Sco	0.5	15.2	27° E	100	10.00	10.88	09:27	14:17	19:06
Uranus	3	1 10.7	6 46.3	Psc	5.7	3.7	171° W	100	19.98	19.00	18:40	01:06	07:32
	10	1 09.6	6 39.9	Psc	5.7	3.7	178° W	100	19.98	18.98	18:12	00:37	07:03
	17	1 08.6	6 33.4	Psc	5.7	3.7	175° E	100	19.98	18.99	17:43	00:09	06:34
	24	1 07.5	6 27.1	Psc	5.7	3.7	168° E	100	19.98	19.01	17:15	23:40	06:05
	31	1 06.5	6 21.1	Psc	5.7	3.7	160° E	100	19.98	19.04	16:47	23:12	04:37
Neptune	3	22 38.3	-9 28.8	Aqr	7.8	2.3	148° E	100	29.96	29.11	17:06	22:34	04:02
	10	22 37.8	-9 32.0	Aqr	7.8	2.3	141° E	100	29.96	29.18	16:39	22:06	03:34
	17	22 37.3	-9 34.9	Aqr	7.8	2.3	134° E	100	29.96	29.26	16:11	21:38	03:05
	24	22 36.9	-9 37.2	Aqr	7.8	2.3	127° E	100	29.96	29.35	15:43	21:10	02:37
	31	22 36.5	-9 39.0	Aqr	7.9	2.3	120° E	100	29.96	29.45	15:15	20:42	01:10
Pluto	3	18 55.7	-21 01.5	Sgr	14.2	0.2	94° E	100	32.96	32.88	14:10	18:52	23:34
	10	18 55.9	-21 02.3	Sgr	14.2	0.2	87° E	100	32.96	33.01	13:43	18:25	23:07
	17	18 56.2	-21 03.0	Sgr	14.2	0.2	80° E	100	32.97	33.13	13:16	17:58	22:40
	24	18 56.5	-21 03.5	Sgr	14.3	0.2	73° E	100	32.97	33.25	12:49	17:31	22:13
	31	18 57.0	-21 03.9	Sgr	14.3	0.2	66° E	100	32.98	33.37	12:22	17:04	21:46

Uranus at Opposition

by Jim Hendrickson

The autumn constellations have taken center stage and a newcomer could become familiar with the star patterns visible unobstructed by the presence of naked-eye planets. After the show put on these past few months by the beautiful ringed planet Saturn, planetary observers may be interested in looking beyond, to the outer reaches of our solar system just beyond the limits of what just our eyes can show us.

At magnitude 5.7, Uranus, which reaches opposition on October 12, just might be visible to the unaided eye under ideal dark, transparent skies. However it is very easy to observe with binoculars.

At twice the distance of Saturn but only 44% its size, Uranus' methane atmosphere

exhibits a pale teal color with may be difficult to discern in binoculars, but is quite prominent in 4 or 6-inch telescopes.

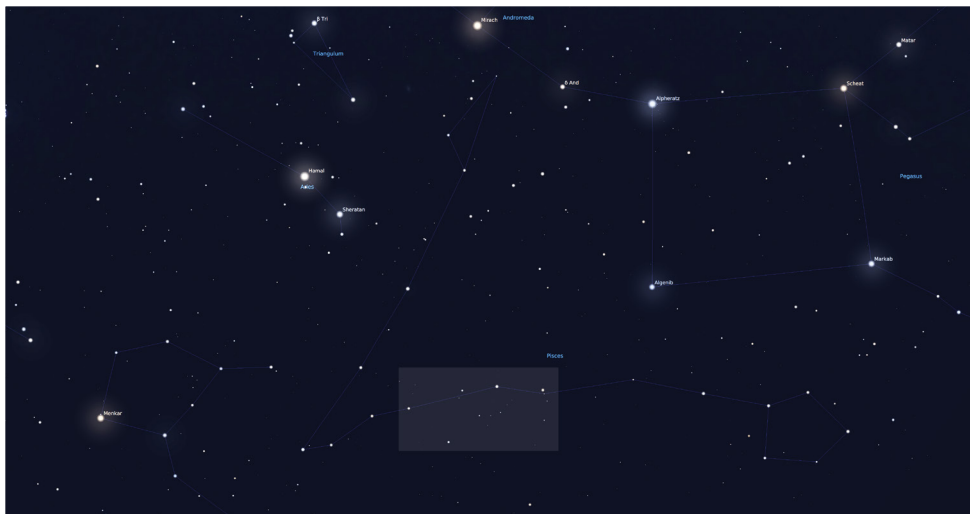
Our seventh planet is quite featureless visually. With binoculars you can easily note its changing location from night to night. With a large telescope you may be able to detect slight limb darkening, giving Uranus a three-dimensional appearance when conditions are right.

Uranus has 27 moons, but only five of them are within reach of amateur telescopes. The largest two moons, Titania and Oberon, were discovered by William Herschel in 1787 and have diameters of just over 1,500 kilometers each. Their dark surfaces reflect sunlight back across twenty astro-

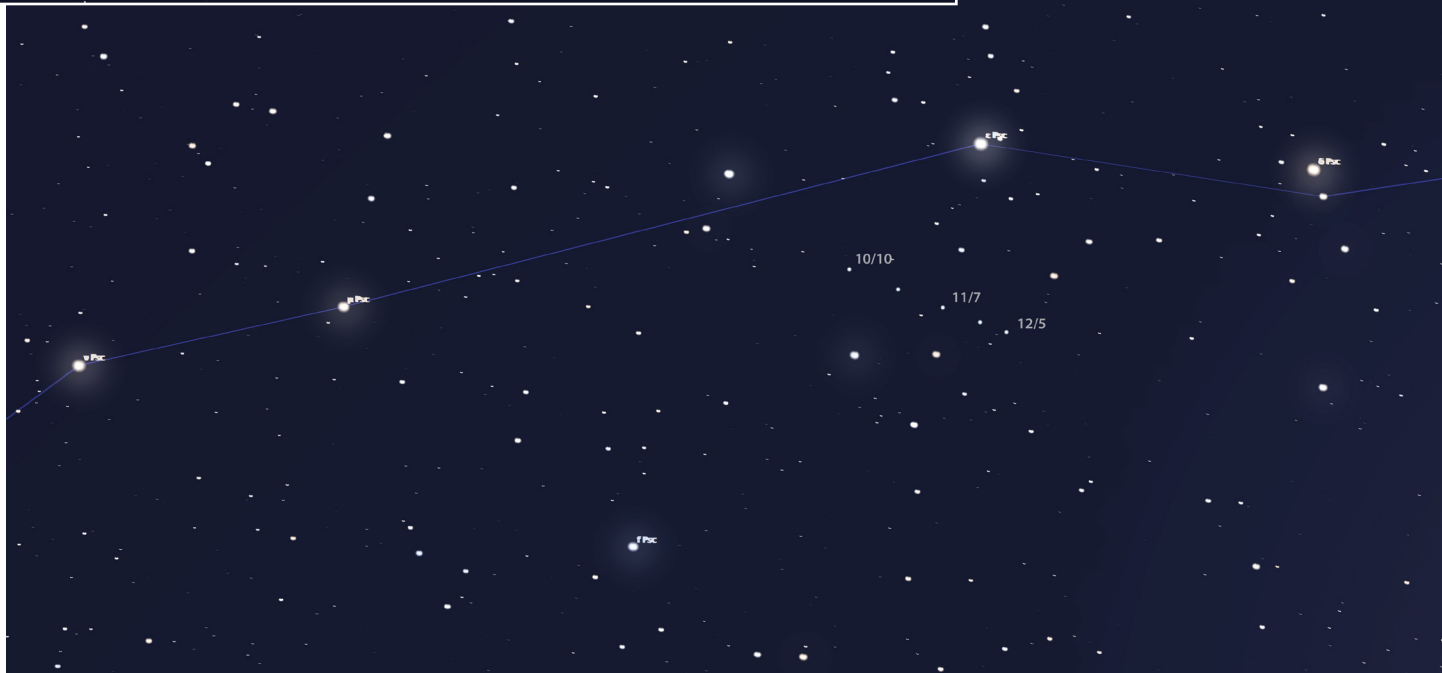
nomical units to appear in our sky at about magnitude 14.5. Near opposition, they may appear as far as 32 and 40 arcseconds from Uranus, respectively. If you have a tracking mount and any kind of camera, it's worth trying to photograph these moons.

The three other of Uranus' large Moons, Miranda, Ariel, and Umbriel, all shine brighter than 16th magnitude, but their close proximity to Uranus (brighter by a factor of 10,000) make them difficult to see visually. A very large telescope would be required to see them, but a skilled imager with a sensitive CCD camera, long focal length telescope, and favorable seeing conditions may be able to detect them as well.

Beyond the visual, if you have a large telescope, CCD camera, and some special filters, you may want to try to find cloud bands on Uranus. They are very challenging to detect, but not beyond the reach of amateur equipment and a dedicated observer.



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



Occultation of Aldebaran

We had good clear skies up until the occultation started, then instant fog (the whole sky, except Vega, was gone within a minute). This cleared (mostly) off about 5 minutes before the occultation was about to end. Only Tracy stayed with me as I scrambled to get my camera focused and in position, so my composition wasn't perfect, but I was able to capture it. By Jim Hendrickson

<https://www.youtube.com/watch?v=w2OmmiV7E6E>



Photos by Tracy Prell



Photos by Jim Hendrickson

Neptune captured on the night of Friday night September 11 by Steve Hubbard.



Venus taken at about 10:30am on September 26 with a 14" SCT and a ZWO ASI224 imager, processed with Registax.





NGC 7000: North America Nebula

Tom Thibault had a chance to get out on the night of September 18 to capture this 1 hour of exposure, of 12 5 minute unguided frames with an Astro-Tech 65mm with a 0.8x Reducer and Celestron Nightscape 8300.

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 area:

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.



47 Peeptoad Road
North Scituate, Rhode Island 02857