



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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Reports & photos from Skyscrapers Pluto Party coming in September.

Friday, August 7, 7:00pm at Seagrave Memorial Observatory

Considerations and Techniques for Fabricating Telescope Mirrors and Lenses by Dick Parker

The speaker is our own Richard Parker, who is also a member of the Astronomical Society of Greater Hartford. Al Hall and Dick completed the restoration of our Alvan Clark telescope in 2010 and are now

building 6-inch replicas of the Clark.

Observing with the telescopes at Seagrave Observatory will follow the presentation, weather-permitting.

Enjoy A Starry Tale at the University of Rhode Island Planetarium

University of Rhode Island Planetarium
Kingston Campus, Upper College Road
Friday, August 14th, 2015, 6:00 P.M.

Contact: Francine Jackson 401-527-5558

On Friday, August 14th., the University of Rhode Island Planetarium will present the program A Starry Tale. This planetarium program, a presentation of the Japanese optical company GOTO, is a beautiful introduction to sky mythology. Join us as we venture back in time to the gods and their interactions with the inhabitants of Earth, and their hope in our ability to live here in compassion and justice.

A Starry Tale, suitable for all ages, will be offered at 6:00 P.M. Admission is only

\$5.00, to benefit the University of Rhode Island Planetarium fund. The program will include a short presentation of Saving the Night, why we all should do our best to keep the skies as dark as possible, then, after the main program, you will witness a live planetarium introduction to The Skies above the URI campus.

The University of Rhode Island Planetarium is located on the URI campus, on Upper College Road, across from the Art Center. It is available for school and other group presentations. For further information, please call Francine Jackson at 401-527-5558.

Phases of the Moon

Last Quarter Moon
August 7 2:03

New Moon
August 14 14:53

First Quarter Moon
August 22 19:31

Full Surgeon Moon
August 29 18:35



Seagrave
Memorial
Observatory
Open Nights

Saturday's at 9:00 pm
weather permitting

A Note of Thanks

by Tracy Prell

Hi Dave,

I just read your column on “Thunderstones” of August: the Perseid Meteor Shower!” All of your articles Dave are very well written and provide a wealth of information! Your accompanying photos are always “Spot On” making it a much more enjoyable read! I think narratives with accompanying visuals are the best form of communication.

After reading your column Dave, I started to think about Skyscrapers, the members and what this all means to me.

I first visited the Seagrave Observatory on one of its public viewing nights...it was on a Saturday night, October 25th 2014 at 7 pm. This is the first time I met Jim Hendrickson, Kent and Connie. I’m sure there might have been a few other Skyscrapers members there, but I am terrible remembering names. So for those members that might have been there and I did not mention your name, please forgive me.

It immediately struck me that these people were really passionate about astronomy and they were very anxious to share their knowledge. Their excitement and enthusiasm were addicting. As they invited me into the Seagrave Observatory, I was stunned at the size and beauty of the 8” Alvan Clark refractor! This was the first time I saw such

a large telescope in-person. Considering its age, I can see it has been very well maintained and its fully operational. Wow! I was certainly impressed with the telescope and the unique operation of the dome and the amazing history behind it.

At this moment, I knew then that I wanted to become a Skyscrapers member!

I always look forward to and enjoying reading the Skyscrapers newsletter with its “Observatory Logs,” “The Sky This Month,” “The President’s Message,” “Meteor Showers,” and many other articles with stunning photos with well written narratives provided by our highly knowledgeable members, like Francine, Jim, Bob, Tom, Ian, and Matt to name a few.

The trustees also do an amazing job. People like Thomas Thibault who has held many positions since joining Skyscrapers about 7 years ago. He’s been President for several years, a Member-at-Large, Secretary. He’s done it all! Tom is currently working on new design concepts for housing a new Planeave telescope.

We can’t forget about Jim Crawford! This guy is in warp drive every time I see him. He’s always doing something like working on repairs, setting up and cleaning up after events. He’s always enthusiastic and never seems to slow down. His genuine concern

for our organization and hard work is displayed on a daily basis!.

We have other outstanding members like Francine, Ed, Stephen, Tina, Linda and others that assist Skyscrapers, Inc. in many other ways. The scheduling and arranging of meetings, lectures, parties, and maintaining our finances which are so critical to our success.

I enjoy all of our meetings, lectures, potluck dinners and barbecues and this all culminates to the best part of the night... star gazing together with our members and the public. Opening our eyes to the Universe that we all live in and are a part of. It doesn’t get better then this!

The Universe...that reminds me, Skyscraper’s is extremely fortunate to have as our member, Professor Ian P. Dell’Antonio. Ian’s research areas are cosmology, dark matter, gravity and physics.

Reading his articles and listening to his presentations in these areas are an integral part of star gazing...that’s what we do. His vast technical knowledge and his presentation skills coupled with all of our members who are experts in astronomy, astrophotography, telescope building and so many related fields, provides Skyscrapers with information that is second-to-none!

Ian is currently working diligently with



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 **June 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.

President

Bob Horton Robert_Horton@brown.edu

1st Vice President

Steve Siok ssiok@cox.net

2nd Vice President

Kathy Siok kathys5@cox.net

Secretary

Tina Huestis qthuestis@gmail.com

Treasurer

Ed Haskell haskell.ed@gmail.com

Members at Large

Ian Dell’Antonio ian@het.brown.edu

Tracy Prell registration@computerwebguru.com

Trustees

Jim Crawford jcrawford@cox.net

Tom Thibault DeepSpaceViewer@aol.com

Matt Ouellette matt80844@yahoo.com

Public Outreach Coordinator

Francine Jackson Francine_Jackson@brown.edu

Public Relations Spokesperson

Francine Jackson Francine_Jackson@brown.edu

Observatory Committee Chairperson

Jim Crawford jcrawford@cox.net

Membership Activities Coordinator

Pat Landers pblanders5@gmail.com

Librarian

Alex Bergemann astroalex@verizon.net

Historian

Dave Huestis dhuestis@aol.com

Archivist

Jim Crawford jcrawford@cox.net

Editor

Jim Hendrickson jim@distantgalaxy.com

Brown University and networking with many other organizations in writing grants to help us obtain a spectacular Planewave telescope. I think Frank Seagrave and Dr. Charles Smiley and others that were instrumental in Skyscrapers existence would be so elated and proud of what their future generations are doing.

We have so many other members that contribute to our newsletter and the organization as well. Each one of you deserve many accolades for providing your time, experience, and sharing your knowledge within the organization and to the public

Jim Hendrickson, who I consider (I think we all do) to be our official Skyscraper's photographer provides images that speak for themselves...beautifully captured and presented, these images intrigue us all stimulating our minds and wanting to see and learn more about the night sky! Jim also captures the moments of our lectures, day-to-day activities, and of course our other important events such as our AstroAssemblies and star parties! Jim creates a visual historical experience that will be viewed for generations to come. He also puts a lot of time and effort into our very professional newsletter and website which is an invaluable resource.

Our youngest member Alex, who just became an Eagle Scout, volunteered so many hours of his time and hard labor in building that beautiful and functional gazebo, saving our organization money that we were spending on tents every year for our outdoor events. Now these monies can be better spent in helping to maintain and upgrade our observatories and other facilities.

I want to thank all of our members that provide the sweat labor in cutting the grass and trimming the brush on our property,

and those that make the necessary repairs maintaining our meeting hall, the observatories and our telescopes which are our pride and joy.

Everyone plays a roll and everyone is equally as important as the other...we all work together as a team to carry out the Skyscrapers tradition and its mission. Every contribution is important no matter how large or small that contribution is... when you combine them all, we become a successful organization...which we certainly are.

I think Bob Horton has done an exceptional job in leading the organization. He listens to all of our members and weighs the pros and cons of so many ideas and suggestions provided by every member. This certainly can be overwhelming. He has to make the hard choices that will provide long-term benefits to Skyscrapers to keep us thriving. It's a balancing act that takes a lot of finesse, and he does it so eloquently. Thank you Bob!

I commend each and every one of you who volunteer and contribute so much and so often and without pay. I don't think we say "Thank You" enough in this world of ours! We always hear the negative comments when something goes wrong...and it always will because of Murphy's Law...no, that is not a new particle theory discovered by "ALICE," the Large Hadron Collider's Detector!

But we seem to take the volunteerism for granted when everything is working smoothly and we never hear the words thank you enough to those that make that it happen.

That is why I am writing this letter to all of you... to thank you for your unwavering commitment, hard work, and dedication to

Skyscrapers, Inc. Let's listen to each other, not with just our ears, but with our hearts and minds and share with each other our experiences, knowledge, ideas, and our hopes and dreams! Our common goal is to explore the night sky and to be awed by its amazing views.

I remember being at our recent star party at Lincoln Woods. Our members were so excited about setting up their telescopes and aligning them to the stars...getting them ready for the public. Kent was so excited about bringing and setting up his new telescope...he was like a young kid in a candy store! I love his smile and the happiness on his face. I was also amazed to see the excitement on the faces of public both young and old, peering through a telescope for the first time and being blown away by what they saw. This is what it's all about and it is so rewarding to all of us. That is what we are all about.

Without you our members, there would be no Skyscrapers and that would be so sad, because I would have never met so many fine people like you... my friends! The education and camaraderie that you provide to me and many others is priceless!

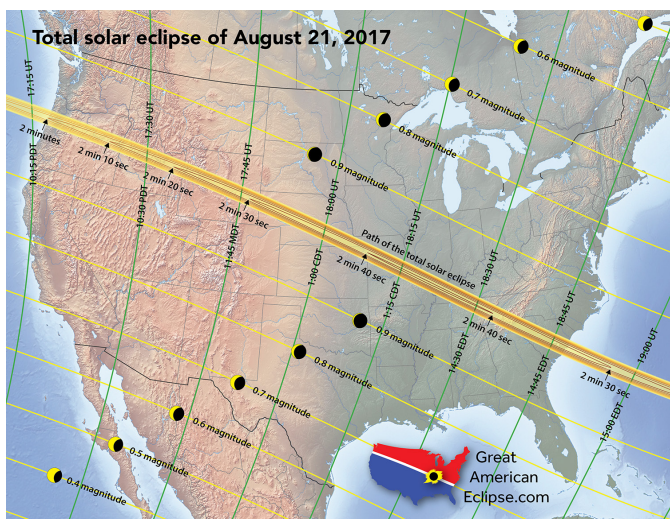
My comments about our members, comes from my heart and I have the deepest respect for each and every one of you!

Thank you all so much for what you do, and I am very proud and honored to be a member of such a fine organization...Skyscrapers, Inc. I will do my "Very Best" to assist Skyscrapers, Inc. in reaching its goals and dreams!

Sincerely, Tracy Karin Prell



Tracy Prell is Member-at-Large. See more at <http://www.theskyscrapers.org/tracy-prell>



Have you started planning for the August 21, 2017 eclipse yet? With just two years to go, now is the time to start making travel plans. Skyscrapers members are already planning trips to John Day Fossil Beds National Monument in Oregon, Grand Teton National Park in Wyoming, and Princeton, Kentucky. Eclipse maps and information that will help you plan for this memorable celestial event can be found at GreatAmericanEclipse.com.



“Thunderstones” of August: the Perseid Meteor Shower

by Dave Huestis

Rocks have been falling from the sky since the Earth coalesced out of the solar nebula 4.6 billion years ago. At the dawn of civilization, early cultures believed their gods were responsible, hurling these projectiles at the populace for some transgression. Around 357 BCE, Aristotle postulated that meteors formed in the upper atmosphere, either from solar heat producing gases, or “vapors” puffed out by the Earth itself. Many other astronomical phenomena were thought to be atmospheric in origin, including aurorae and comets. And as the title of this column suggests, meteorites were also thought to be somehow produced within thunderstorms. While the atmospheric nature of these phenomena continued well past the Renaissance (generally 14th -17th century), scholars did not ascribe to the idea that “burning rocks” could fall from the sky. Despite many eyewitness accounts, scientists were unable to support such a premise.

The idea that meteorites had their origin in space didn’t happen until a booklet was published in 1794 advancing that theory based on research into reported falls and examination of fragments. It met with much ridicule. It wasn’t until 1803 that a

well-documented meteorite fall in Normandy France showered thousands of meteorite fragments on the French countryside that the concept of an extraterrestrial origin gained support.

Still, a few years later on December 14, 1807, a fireball fragmented, produced three loud explosions, and showered the Connecticut town of Weston with meteorites. Yale professors Benjamin Stillman and James L. Kingsley investigated and recovered 330 pounds of a stony meteorite. In 1808 they published their findings, concluding that the “rocks” did indeed fall from the sky. Thomas Jefferson, an amateur scientist, is alleged to have stated, “I would more easily believe that two Yankee professors would lie than that stones would fall from heaven.” There are several versions of this “quote,” and some historians call it apocryphal, like Newton’s alleged falling apple revelation.

Today we know that the meteor showers we experience result from the Earth passing debris left in orbit around the Sun by the tails of comets. Solitary fireballs are fragments of asteroids that have drifted through space before being pulled in by the Earth’s gravity. There are about a dozen ma-

nor meteor showers and hundreds of minor ones. And during August we are fortunate to encounter the second most productive meteor display of the year — the Perseids.

The Perseids are the northern hemisphere’s most widely observed meteor shower because people spend more time with outdoor activities during late summer. And this year the conditions will be ideal, as long as the skies are clear.

This annual display of shooting stars will peak on the night of August 12-13, with the best time to observe as many meteors as possible between midnight and dawn. A waning crescent Moon (New on the 14th) will not brighten the sky at all. All you’ll have to do is find a dark sky location well away from light pollution. Achieving this goal will maximize your viewing enjoyment as 60 to 80 meteors per hour will rain down from the sky at peak.

The best way to observe any meteor shower is to get comfortable on a chaise lounge or blanket and protect yourself from the hungry mosquitoes. The Perseids appear to radiate from an area of sky, called the radiant point, in the constellation Perseus. Use the accompanying sky map to locate this star pattern above the northeast

horizon. (If you can identify the constellation of Cassiopeia, which looks like an “M” or “W” tipped sideways, then it’s close enough.) As Perseus rises higher the number of meteors will increase. Don’t simply concentrate your gaze in that direction. The meteors can appear anywhere in the sky, so constantly scan as much of the heavens as possible without straining your neck. Since the Sun rises about 5:51 a.m. locally, you’ll only have until around 5:00 a.m. to conduct your observing session before dawn’s early light overwhelms the stars.

With the Moon absent, and assuming a minimum of light pollution, an observer may see between 60 and 90 meteors blazing across the heavens at 134,222 miles per hour. These particles shed by Comet 109P/Swift-Tuttle completely disintegrate as they plunge through our atmosphere. The Perseids are usually green, red or orange in color. And some members of this shower are

bright and often produce exploding fireballs. Also, fireballs may be more prevalent as we approach morning twilight. Why? At that time we are hitting the meteor stream head-on! Hopefully you’ll see more shooting stars than fireflies.

Mother Nature has not been very kind to us this year when it comes to astronomical events. So, if bad weather is forecast for peak morning, try observing the morning before and/or the morning after if the weather cooperates. You’ll see about one quarter of the peak night rates, or about 15-25 meteors per hour at best.

Though one does not need a telescope to observe a meteor shower, Rhode Island’s fine observatories do offer free public open nights to explore a wide variety of objects in the heavens. Seagrave Memorial Observatory (<http://www.theskyscrapers.org>) in North Scituate is open to the public every clear Saturday night. Also, Ladd

Observatory (<http://www.brown.edu/Departments/Physics/Ladd/>) in Providence is open every clear Tuesday night. Frosty Drew Observatory (<http://www.frostydrew.org/>) in Charlestown is open every clear Friday night year-round. 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. Be sure to check all the websites for the public night schedules and opening times before visiting these facilities.

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>

AstroAssembly

October 2 & 3

International Year of Light & Dwarf Planets
<http://www.theskyscrapers.org/astroassembly2015>

Speakers include J. Kelly Beatty, Kim Arcand, Andrew Vanderburg
Friday Evening Informal Talks and Stargazing, Saturday: full day of Astronomy, the Starlight Grille for Lunch, raffles, Astrophotography Contest, and time with friends, Saturday Evening banquet

A Caution About Lasers

by Francine Jackson

One of the advantages of taking a few days’ vacation is you end up doing things you normally wouldn’t at home. For example: Watching the evening news. Last week I did so, and for the most part was amazed at what a nonviewer misses; however, one very surprising section of the news had to do with something we should all continue to keep an awareness of: green laser pointers.

The article noted that apparently four commercial airplanes were struck by green lasers within a 30-minute time frame May 28th. All of them were about two miles off the ground above Long Island, and two of them had just left JFK.

A surprising note to me was that some of the newer lasers have been known to hit the windshields of planes flying several miles in the air; one was even struck while 30,000 feet high. We are always kind

of kidding around when using them for sky identification, how we have to “be careful” where we point when an airplane is within our constellation, but, apparently both the FAA (Federal Aviation Administration) and the FBI are now involved in the process of identifying ground-based pilot hazards, with particular emphasis on laser hits. The FBI is even “rewarding” those who turn in a person who does so. And, of course, we all are aware of someone near here who was arrested for boasting that he struck a plane while it was believed to be readying for landing here in Warwick. We are now feeding and clothing him for awhile.

Several months ago, while in Upstate New York, I stopped at a Radio Shack to buy a red laser. The person there informed me that it was now illegal to buy any lasers in the state. “Even Radio Shack?” “Even Radio Shack.” Apparently lasers can still be bought by mail order, but none can be pur-

chased over the counter, and none can be ordered directly through electronics stores.

What this is telling me is that we probably should really be doubly careful when using these as teaching tools. I know very often kids have asked me to try my laser when I’ve been showing the sky with one. This should be an extra reason to tell the child’s family why a pointer can’t be handed over. “I don’t want the FBI to find me.” Before, we laughingly made comments like that; now, however, it appears to be a real threat, one we can’t take lightly anymore.



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

The Sun, Moon & Planets in August

This table contains the ephemeris of the objects in the Solar System for each Saturday night in August. 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	1	8 43.5	18 08.6	Cnc	-26.8	1,890.9	-	100	-	1.02	05:39	12:52	20:05
	8	9 10.5	16 17.1	Cnc	-26.8	1,892.6	-	100	-	1.01	05:46	12:52	19:56
	15	9 37.0	14 12.7	Leo	-26.8	1,894.7	-	100	-	1.01	05:53	12:50	19:47
	22	10 03.0	11 57.2	Leo	-26.8	1,897.3	-	100	-	1.01	06:01	12:49	19:36
	29	10 28.7	9 32.6	Leo	-26.8	1,900.2	-	100	-	1.01	06:08	12:47	19:25
Moon	1	21 12.6	-13 10.0	Aqr	-12.8	1,972.9	172° W	99	1.02	-	20:05	01:31	07:03
	8	3 42.5	14 32.5	Tau	-11.7	1,880.9	78° W	40	1.01	-	00:35	07:48	15:07
	15	9 46.6	9 22.0	Leo	-5.8	1,783	5° E	0	1.01	-	06:52	13:34	20:09
	22	15 10.5	-14 33.4	Lib	-11.6	1,817.1	81° E	42	1.01	-	13:29	18:42	23:51
	29	21 45.5	-11 08.0	Cap	-12.8	1,997.8	169° E	99	1.01	-	19:18	01:07	07:05
Mercury	1	9 21.5	17 17.2	Cnc	-1.2	5.1	9° E	95	0.36	1.33	06:25	13:33	20:39
	8	10 11.6	12 35.4	Leo	-0.6	5.3	15° E	88	0.4	1.28	07:06	13:55	20:42
	15	10 54.7	7 34.7	Leo	-0.2	5.6	20° E	80	0.44	1.21	07:40	14:10	20:38
	22	11 31.9	2 38.0	Leo	0	6	24° E	72	0.46	1.13	08:07	14:19	20:29
	29	12 03.7	-1 57.9	Vir	0.1	6.5	26° E	64	0.47	1.04	08:27	14:22	20:16
Venus	1	10 00.6	6 36.6	Leo	-4.4	52.8	22° E	7	0.73	0.32	07:40	14:05	20:30
	8	9 48.3	6 09.1	Sex	-4.2	56.8	14° E	3	0.73	0.3	07:01	13:25	19:49
	15	9 31.7	6 27.2	Leo	-4.2	58.6	8° E	1	0.73	0.29	06:16	12:41	19:06
	22	9 15.3	7 21.1	Cnc	-4.2	57.6	13° W	2	0.73	0.29	05:29	11:57	18:26
	29	9 03.5	8 31.2	Cnc	-4.3	54.2	21° W	7	0.73	0.31	04:46	11:19	17:52
Mars	1	7 47.7	22 06.5	Gem	1.7	3.6	14° W	99	1.61	2.58	04:27	11:56	19:24
	8	8 07.0	21 15.8	Cnc	1.7	3.6	16° W	99	1.61	2.57	04:23	11:47	19:11
	15	8 25.9	20 17.6	Cnc	1.7	3.7	18° W	99	1.62	2.55	04:18	11:39	18:58
	22	8 44.5	19 12.6	Cnc	1.7	3.7	20° W	99	1.63	2.54	04:14	11:30	18:45
	29	9 02.7	18 01.3	Cnc	1.8	3.7	23° W	99	1.63	2.52	04:10	11:20	18:30
1 Ceres	1	20 22.3	-30 42.8	Sgr	7.5	0.6	167° E	100	2.95	1.95	20:35	00:30	04:25
	8	20 16.0	-31 11.0	Sgr	7.7	0.6	161° E	100	2.95	1.97	20:04	23:56	03:48
	15	20 10.2	-31 31.6	Sgr	7.8	0.6	154° E	99	2.95	2.01	19:28	23:18	03:08
	22	20 05.3	-31 44.6	Sgr	8	0.6	146° E	99	2.95	2.06	18:57	22:46	02:35
	29	20 01.4	-31 50.4	Sgr	8.1	0.6	139° E	99	2.96	2.12	18:27	22:15	02:03
Jupiter	1	10 01.0	13 03.1	Leo	-1.6	31.1	19° E	100	5.38	6.33	07:17	14:07	20:57
	8	10 06.7	12 32.2	Leo	-1.6	30.9	14° E	100	5.38	6.36	06:57	13:46	20:33
	15	10 12.5	12 00.5	Leo	-1.6	30.8	9° E	100	5.39	6.38	06:38	13:24	20:10
	22	10 18.3	11 28.3	Leo	-1.6	30.8	4° E	100	5.39	6.4	06:18	13:02	19:46
	29	10 24.1	10 55.6	Leo	-1.6	30.7	2° W	100	5.39	6.4	05:58	12:40	19:22
Saturn	1	15 46.0	-17 50.4	Lib	0.4	17.3	110° E	100	9.99	9.6	14:55	19:51	00:46
	8	15 46.1	-17 52.5	Lib	0.5	17.1	103° E	100	9.99	9.71	14:28	19:23	00:19
	15	15 46.5	-17 55.5	Lib	0.5	16.9	97° E	100	9.99	9.83	14:01	18:56	23:51
	22	15 47.2	-17 59.6	Lib	0.5	16.7	90° E	100	9.99	9.94	13:35	18:30	23:24
	29	15 48.2	-18 04.6	Lib	0.5	16.5	83° E	100	9.99	10.06	13:09	18:03	22:58
Uranus	1	116.7	7 23.8	Psc	5.8	3.6	108° W	100	19.99	19.65	22:55	05:24	11:53
	8	116.5	7 22.5	Psc	5.8	3.6	115° W	100	19.99	19.54	22:28	04:56	11:25
	15	116.2	7 20.3	Psc	5.8	3.6	122° W	100	19.99	19.44	22:00	04:28	10:57
	22	115.7	7 17.3	Psc	5.8	3.6	128° W	100	19.99	19.34	21:32	04:00	10:29
	29	115.1	7 13.6	Psc	5.7	3.7	135° W	100	19.99	19.26	21:04	03:32	10:00
Neptune	1	22 44.4	-8 51.7	Aqr	7.8	2.3	149° W	100	29.96	29.09	21:22	02:52	08:22
	8	22 43.8	-8 55.6	Aqr	7.8	2.4	156° W	100	29.96	29.03	20:54	02:24	07:54
	15	22 43.1	-8 59.7	Aqr	7.8	2.4	163° W	100	29.96	28.99	20:26	01:56	07:25
	22	22 42.4	-9 04.0	Aqr	7.8	2.4	170° W	100	29.96	28.97	19:54	01:23	06:53
	29	22 41.7	-9 08.4	Aqr	7.8	2.4	177° W	100	29.96	28.95	19:26	00:55	06:24
Pluto	1	18 58.5	-20 48.5	Sgr	14.1	0.3	155° E	100	32.92	32	18:20	23:03	03:46
	8	18 57.9	-20 50.3	Sgr	14.1	0.3	148° E	100	32.92	32.06	17:52	22:35	03:17
	15	18 57.3	-20 52.0	Sgr	14.2	0.3	141° E	100	32.93	32.13	17:24	22:06	02:49
	22	18 56.8	-20 53.7	Sgr	14.2	0.3	135° E	100	32.93	32.21	16:56	21:38	02:21
	29	18 56.4	-20 55.3	Sgr	14.2	0.3	128° E	100	32.94	32.31	16:28	21:10	01:53



Blue moon rising over Squam Lake on July 31st, taken from the top of Rattlesnake Mountain. Bob Horton



Attached is a shot Tom Thibault captured on July 10 of the Eagle Nebula though an Astro-tech 65EDQ with a Nightscape 8300. It is a stack of (20) unguided 3 minute exposures, (6) Darks, and (6) Bias. The shot was preprocessed with AstroFX, Canon DPP, and Photo-Shop. Image was cropped and reduced to send.



Blue Moon rises over Point Judith by Jim Hendrickson

We never know what will excite the public when it comes to scientific happenings; obviously, July's Blue Moon was one of them.

Thinking it would be an ideal place to image the simultaneous sunset and moonrise, we schlepped to the Fisherman's Memorial at Point Judith, in order to especially capture the Moon appearing to rise next to the lighthouse, visible in the eastern horizon. There seemed to be a surprising number of people there: Families, couples, others with camera equipment. We thought at first it was a regular grouping of people enjoying a nice summer evening by the sea.

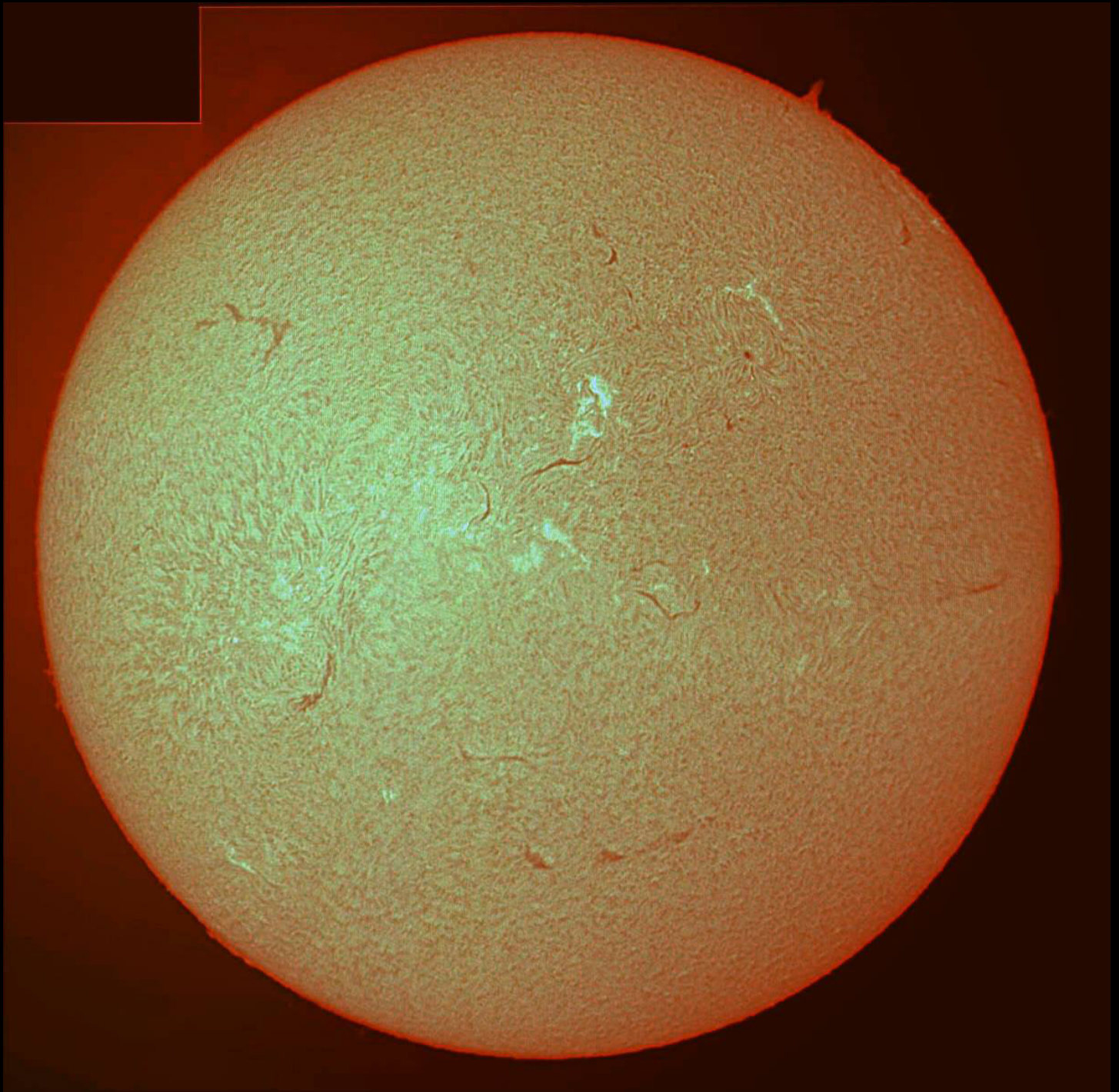
However, suddenly Jim called out, "There it is!" And a tiny reddish sliver of Moon showed through the slightly murky horizon. All at once, a cheer sounded all around us; people grabbed their phones, capturing the small piece of Moon, which continued to grow as it rose, first an unbelievable red – not blue at all – then,

as it rose higher, orangey, and finally silver. As it rose, it passed around the lighthouse, making a perfect pairing with the artificial light.

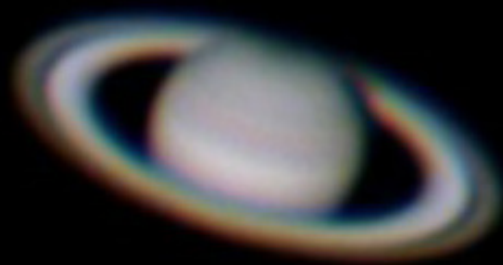
People continued to snap images with their cameras and phones; children made hearts with their hands to use as a frame for the Moon; others just gazed at the beauty of our neighbor, and the way it moved along its path; one couple even opened their night sky app, to see where exactly it was against the background stars.

Soon, however, the Moon's allure did fade, and the mosquitoes multiplied, so it was time for all to leave, but, as you can see, Jim took many memories of that beautiful night – and what you're seeing is just a tiny number of all he took. Ask him to see the others; they truly capture a great time of what surprisingly turned out to be a public observing night.

Francine Jackson



Sun in H-alpha, August 2.
Not much going on, some
artifacts due to stitching
process. 100mm Lunt DS used.
Photo by Steve Hubbard.



Saturn on August 1, using new camera
from ZWO by Steve Hubbard.

Dwarf Nova in Cygnus

SS Cygni

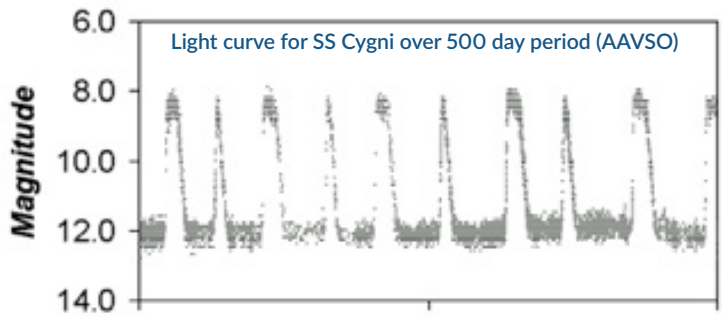
by Glenn Chaple

Having been a member of the American Association of Variable Star Observers (AAVSO) for the past 35 years, I was recently asked to name my favorite variable star. I answered without hesitation, “SS Cygni.” I’m not alone. It’s a favorite among many variable stars, and here’s why.

SS Cygni is a prime example of a dwarf nova. Most of the time, it shines at a magnitude of around 12. Suddenly and without warning, it brightens to 8th magnitude – the four-magnitude jump taking a day or less. Such an outburst lasts for several days to a week before SS Cygni returns to quiescence. The outbursts occur at approximately 50-day intervals (see accompanying light curve). If you were to start observing SS Cygni now and each clear night to follow (you never know when the next outburst might occur), you might catch 2 or 3 before Cygnus drops low in the northwest sky in

December.

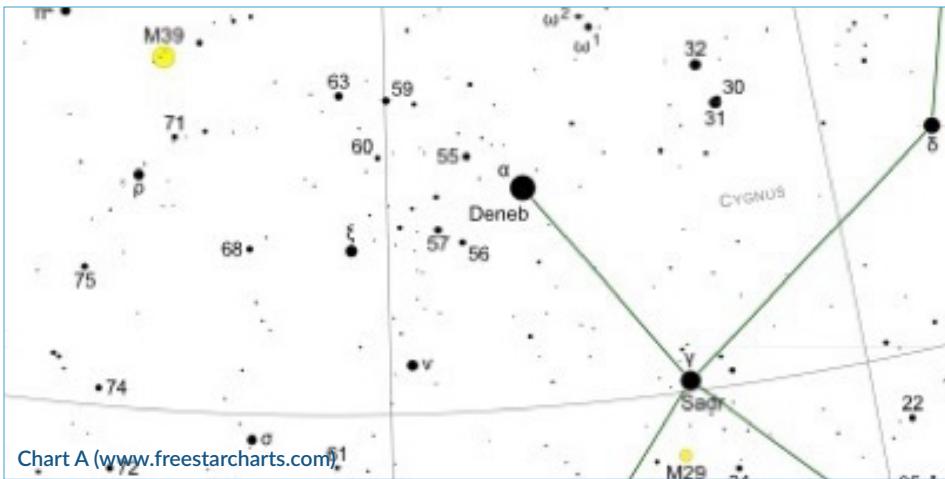
The accompanying finder charts show the way to SS Cygni. Begin by centering your finder on the 5th magnitude star 75 Cygni, found by tracing a line from delta Cygni through Deneb and extending it an equal distance beyond and slight northward (Chart A). Using a low-power eyepiece, you should encounter a V-shaped group of stars headlined by 75 Cygni (labeled by its magnitude [5.1 with decimal omitted] in Chart B). The opening of the V leads to a triangle of 8th and 9th magnitude stars. Chart C is a close-up of the triangle, showing the magnitudes of nearby stars (again, decimals omitted) and the location of SS Cygni itself. A star hop to SS Cygni might take 10-15 minutes on your first attempt – perhaps 5-10 on the next. After a few evenings,




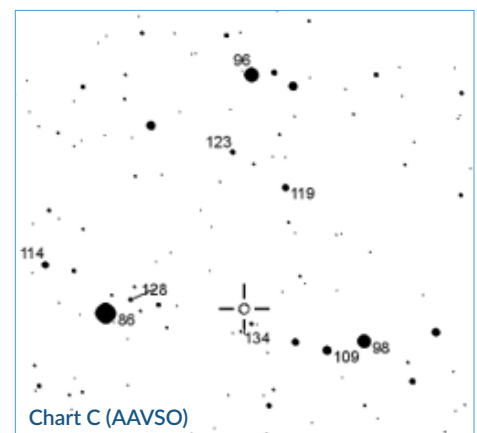
you should be able to lock onto SS Cygni in a minute or less. Then the fun begins. SS Cygni might even be at outburst that first night. If not, keep a nightly vigil. That first night an 8th magnitude star greets your eye where a 12th magnitude one had been the night before should have you hooked!

About 372 light-years away, SS Cygni was discovered in 1896 by Louisa D. Wells of the Harvard College Observatory, and has been observed nonstop ever since. Like its kindred dwarf novae, of which over 375 are known, SS Cygni is a tight binary comprising a red dwarf and white dwarf orbiting each other – in this case every 6 ½ hours. Material from the red dwarf is gravitationally pulled towards the white dwarf, spiraling inward to form an accretion disk. Instabilities in the accretion disk lead to the outbursts.

For reasons I’ve already mentioned, SS Cygni is one of the most-observed variable stars in the night sky. It’s bright enough, even at quiescence, to be glimpsed in a 4-inch scope. I encourage you to join the crowd and discover for yourself the allure of this fascinating variable star.



 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>





On The Brightness Of Venus

by Ethan Siegel

Throughout the past few months, Venus and Jupiter have been consistently the brightest two objects visible in the night sky (besides the moon) appearing in the west shortly after sunset. Jupiter is the largest and most massive planet in the solar system, yet Venus is the planet that comes closest to our world. On June 30th, Venus and Jupiter made their closest approach to one another as seen from Earth—a conjunction—coming within just 0.4° of one another, making this the closest conjunction of these two worlds in over 2,000 years.

And yet throughout all this time, and especially notable near its closest approach, Venus far outshines Jupiter by 2.7 astronomical magnitudes, or a factor of 12 in apparent brightness. You might initially think that Venus's proximity to Earth would explain this, as a cursory check would seem

to show. On June 30th Venus was 0.5 astronomical units (AU) away from Earth, while Jupiter was six AU away. This appears to be exactly the factor of 12 that you need.

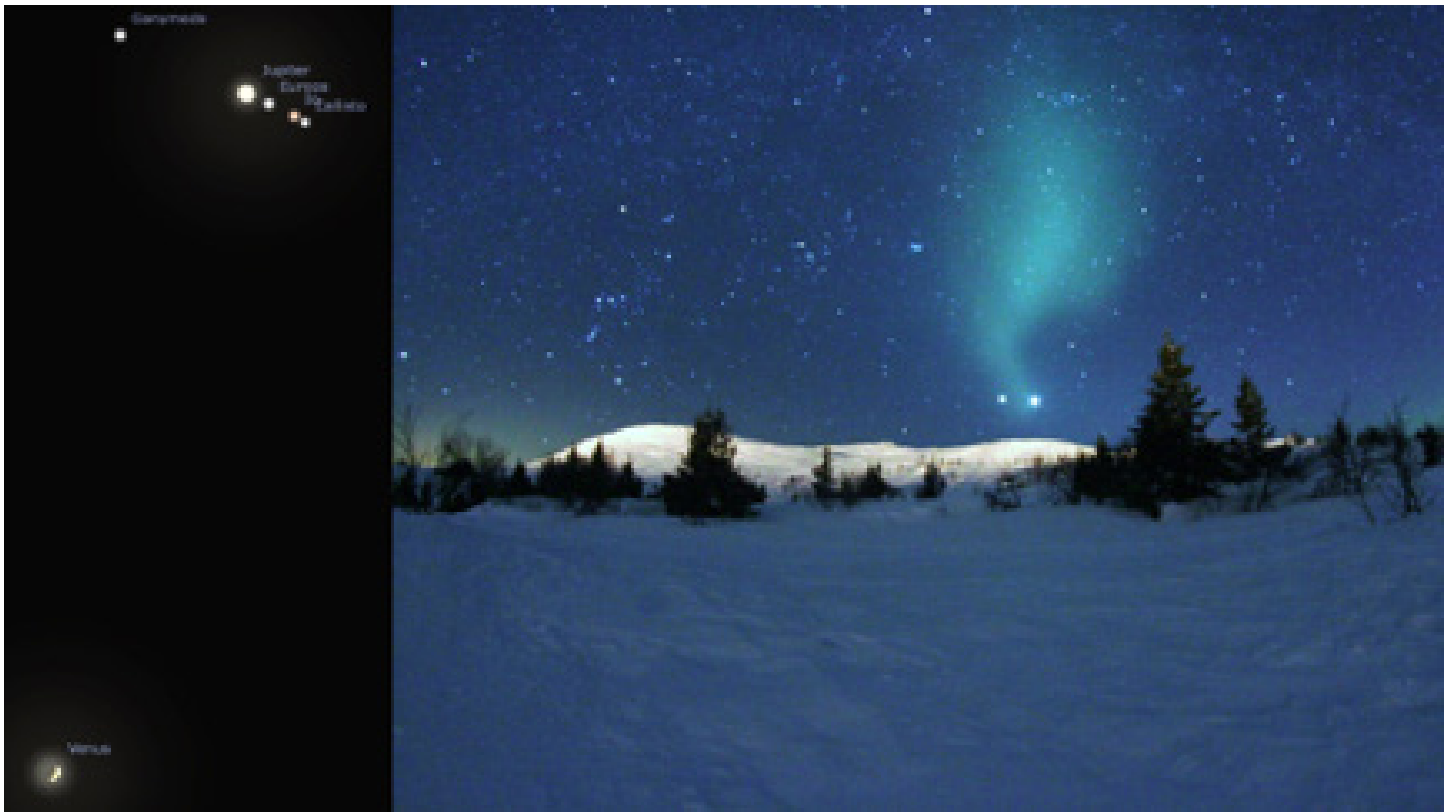
Only this doesn't explain things at all! Brightness falls off as the inverse square of the distance, meaning that if all things were equal, Venus ought to seem not 12 but 144 times brighter than Jupiter. There are three factors in play that set things back on the right path: size, albedo, and illumination. Jupiter is 11.6 times the diameter of Venus, meaning that despite the great difference in distance, the two worlds spanned almost exactly the same angular diameter in the sky on the date of the conjunction. Moreover, while Venus is covered in thick, sulfuric acid clouds, Jupiter is a reflective, cloudy world, too. All told, Venus possesses only a somewhat greater visual geometric albedo (or

amount of reflected visible light) than Jupiter: 67 percent and 52 percent, respectively. Finally, while Venus and Jupiter both reflect sunlight toward Earth, Jupiter is always in the full (or almost full) phase, while Venus (on June 30th) appeared as a thick crescent.

All told, it's a combination of these four factors—distance, size, albedo, and the phase-determined illuminated area—that determine how bright a planet appears to us, and all four need to be taken into account to explain our observations.

Don't fret if you missed the Venus-Jupiter conjunction; three more big, bright, close ones are coming up later this year in the eastern pre-dawn sky: Mars-Jupiter on October 17, Venus-Jupiter on October 26, and Venus-Mars on November 3.

Keep watching the skies, and enjoy the spectacular dance of the planets!



E. Siegel, using the free software Stellarium (L); Wikimedia Commons user TimothyBoocock, under a c.c.-share alike 3.0 license (R). The June 30th conjunction (L) saw Venus and Jupiter pass within 0.4° of one another, yet Venus always appears much brighter (R), as it did in this image from an earlier conjunction.

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