



# the Skyscraper

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September 2020

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## Phases of the Moon

**Full Corn Moon**  
September 2 05:22

**Last Quarter Moon**  
September 10 09:26

**New Moon**  
September 17 11:00

**First Quarter Moon**  
September 24 01:55

## Galaxies: Inside the Universe's Star Cities

An online presentation by David Eicher from Astronomy Magazine.

Saturday, September 5 @ 7:00 PM via Zoomt Steve Hubbard ([cstahhs@gmail.com](mailto:cstahhs@gmail.com)) for Zoom Meeting link and information.

This slide-illustrated talk will explore the vast explosion of knowledge astronomers have gained about the basic units of stars, gas, and dust over the past two decades. The 100 billion galaxies in the cosmos tell us a tale of the formation and evolution, and secrets in our own Milky Way tell us about how galaxies formed. The talk will explore such topics as the ubiquitous nature of black holes, the classification of galaxies, and how the discovery of galaxies opened up the cosmic distance scale.

Dave Eicher is Editor-in-Chief of Astronomy Magazine, where he has been a staff member for 38 years. He was founder and editor of Deep Sky Magazine, and has written 25 books on science and history. He is a board member of the Starmus Festival and of Lowell Observatory, and has been recognized with the minor planet designation 3617 Eicher.

## Upcoming Presentations

### Saturday, October 3

AstroAssembly Online featuring Adam Block, Travis Rector & Babak Tafreshi

### Saturday, November 7

Dr. Jonathan Grindley from Center for Astrophysics: The DASCH Project – Ten Years Later

### Saturday, December 5

Member Greg Shanos: A Guide to Collecting Meteorites

### Saturday, January 2

Mike Wenz: A Behind The Scenes Look At The Hubble Telescope

**Seagrave Observatory is closed until further notice.**

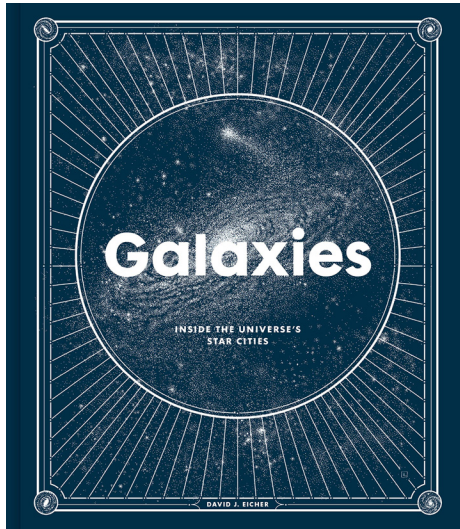
Due to the outbreak of coronavirus, Seagrave Memorial Observatory will remain closed to the public until further notice.

## Book Review

# Galaxies: Inside the Universe's Star Cities

by David J. Eicher, illustrated by Irene Laschi, New York: Clarkson Potter, 2020, ISBN 978-0-525--57431-6, hardbound, \$30.00 US

Reviewed by Francine Jackson



This is a beautiful book: The images of galaxies are unprecedented, showing the true beauty of our universe. The illustrations, also, are incredible, often complimenting the text as not often seen in books such as this. Even the cover is a thing of beauty, compared to the normal hard cover of a nonfiction book.

The author begins with a “history” of galaxies, taking us back to 1923, and the events that occurred around Los Angeles at that time: Amelia Earhart was taking flying lessons; Walt Disney arrived with nothing

in his pocket; Robert Millikan, a physicist at the California Institute of Technology, won a Noble prize for both measuring proton and electron charge and work on the photoelectric effect; and astronomer Edwin Hubble, using measurements determined by Henrietta Swan Leavitt, realized that a puffy nebula in the constellation Andromeda was actually a galaxy, like our own. This changed the face of the universe, from our single Milky Way to one of an untold size.

From there we go outward to the Local Group, the band of galaxies near and dear to the Milky Way, Although there are a few that rival ours in size, such as Andromeda and M33, many of them are rather small, considered more “satellites” or “dwarf” galaxies. Counted among them are our two naked-eye southern companions, the Large and Small Magellanic Clouds, although the names of the close to four dozen others don't roll off our tongues as easily, such as the Canis Major Dwarf, Barnard's Galaxy, and IC 10.

And, then it's on to other clusters or superclusters of galaxies, most notably the Virgo supercluster, containing, with M87, possibly 1,500 separate galaxies. M87, of course, was in the news recently as having a “picture” of its massive black hole imaged,

a body millions of time more massive than the Sun. M87 is also home to 12,000 globular clusters.

But, there is much more, as we are shown galaxies shaped like rings, galaxies in a “train wreck” - is this the future of our eventual merger with Andromeda? - galaxies appearing to be symbiotically related, and others just too unique to be imagined, yet, here they are, a part of our universe.

The only glitch that seemed to come up is that, when mentioning certain characteristics of galaxies, often that section ends with a list of similar ones, including those in catalogs not very common to the average reader, such as the Arp and ESO. But, that's okay. There are sure to be many general readers who will pass over much of the words and enjoy the absolute beauty of the incredible, varied galaxies just overhead. Although many can never be seen visually, to know they are there, such wondrous creations, should be reason enough to want to learn more about them. And, in Galaxies, you will.



*Francine Jackson is a NASA Solar System Ambassador, writes the weekly newsletter for Ladd*

*Observatory See more at <http://theskyscrapers.org/francine-jackson>*



*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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# A Brief Observer's Guide to Jupiter and Saturn

by Dave Huestis

It is unlikely the local observatories will re-open for in-person observing any time soon due to the surging coronavirus pandemic. (See Frosty Drew Observatory exception below.) Regardless, the heavens above continue to provide a wide assortment of beautiful sky objects to explore if you have the equipment to do so. So, if you have a small telescope in the attic, closet, or garage or shed, now is a great time to resurrect it and put it to good use. Telescopes should be collecting starlight, not dust. And from now until the end of the year, you should focus your attention on the two largest planets in our solar system—Jupiter and Saturn.

On September 1, Jupiter and Saturn will be approximately 414,600,000 and 860,000,000 miles from the Earth respectively. But don't let that distance deter you from exploring these beautiful worlds. They will exhibit much detail, especially when you know what to expect. This brief guide will highlight some of the key features and events that can be readily observed with a telescope you may already own. Let's get started on our journey of exploration.

Within one-half hour after sunset (7:18 p.m.) on September 1, look towards the south-southeast sky about 21 degrees above the horizon. The first planet to emerge from the bright evening twilight will be brilliant Jupiter. Soon thereafter a dimmer Saturn will become visible about eight degrees to the left (east) of Jupiter. You may begin observing immediately, though waiting for the sky to darken will certainly provide a better view. During this viewing season these planets are located in the constellation of Sagittarius.

## Jupiter

What will you notice first? My guess is Jupiter's four Galilean moons, named for Galileo Galilei who first observed them in 1610. On this night, Ganymede will be very close to Jupiter's limb (edge) on one side of his disk, while on the opposite side will be Io, Europa and Callisto in that order outward from the planet. Watch carefully as Ganymede moves away from the disk. This moon will begin to slide into Jupiter's shadow and will be eclipsed by around 8:37 p.m.

After watching this special event, turn

your attention to Jupiter's banded atmosphere. You will be observing Jupiter's cloud tops, comprising dark bands and light zones. Since Jupiter rotates in ten hours, you can easily watch features in the cloud structure move over time. The Great Red Spot (GRS) may or may not be visible, depending on when you look. It has been shrinking in size, and is also now more round than oval-shaped. However, its color has reddened over the last couple of years which should help you find it if it providing the GRS is facing the Earth. The GRS resides in the southern part of the dark South Equatorial Belt and extends into the light south tropical zone. Good seeing conditions will help you to detect it.



Jeff Padell

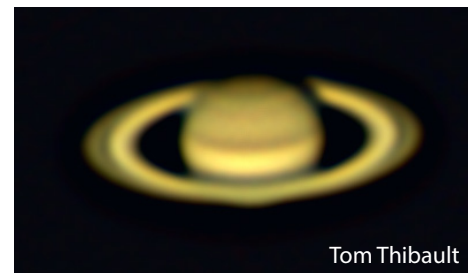
While the Galilean moons parade around Jupiter, other events besides eclipses can be viewed. When a moon passes in front of Jupiter and casts a shadow onto the Jovian cloud tops, it is called a shadow transit. Besides seeing the satellite's shadow, you may also see the bright disk of the satellite traversing Jupiter's clouds at the same time, though this event is more difficult to observe. A moon may also pass behind the planet, which is called an occultation. There are websites which provide predictions for such events, but it can be just as fun to be surprised when you just happen to "catch" one during the time you are observing. Every night you observe Jupiter and his moon's you will have a unique experience.

## Saturn

Could there possibly be a more beautiful planet than Saturn in the universe? Most likely, considering the billions of worlds out there in the cosmos. However, we are only able to observe Saturn and its magnificent system of rings that orbit the planet. And that is where Saturn's beauty lies. Without rings Saturn would be fairly boring.

Currently the rings are tilted about 21 de-

grees towards the Earth providing us a view of the north face of the ring plane. It is really amazing that Saturn's rings are visible at all, considering the planet's great distance from the Earth and the fact that the main A, B and C rings are only about 32 feet thick. The rings are composed of irregularly shaped dirty snowballs (99 percent water ice with some rocky material), ranging in size from



Tom Thibault

grains of dust to pebbles. There are also some "boulders" as large as 30 feet across. Look for gaps within the ring system.

Titan, Saturn's largest moon, is larger than the planet Mercury and will be readily apparent. Depending upon the size of your telescope you may also spot Rhea, Iapetus, Dione and Tethys. These last four moons are nowhere near as bright as Jupiter's Galilean satellites, so you'll need a dark sky to glimpse them.

Frosty Drew Observatory (<http://www.frostydrew.org/>) in Charlestown has reopened for Friday night public viewing under strict COVID-19 mitigation protocols. Access this link for the latest information, <https://frostydrew.org/2020-contagion.php>, as the pandemic is surging nationwide as I write this column in mid-July.

As the year progresses, Jupiter and Saturn will be moving closer to one another in the sky from our vantage point here on the Earth. On December 21 they will be so close that they will appear as one object to the naked-eye just after sunset 15 degrees above the western horizon. This "Great Conjunction" will be the closest these two worlds have been since 1623, and will be a spectacular event to behold.

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>

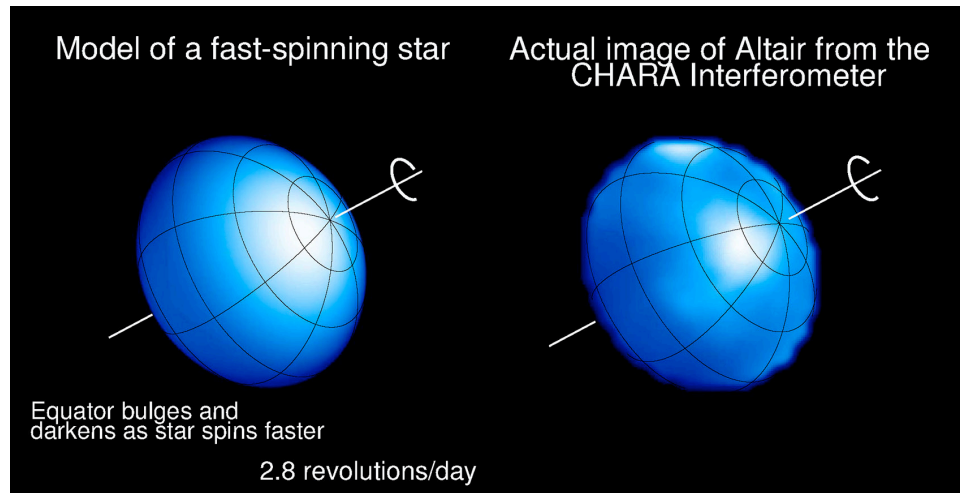
# NASA Night Sky Notes: Summer Triangle Corner: Altair

By David Prosper

Altair is the final stop on our trip around the Summer Triangle! The last star in the asterism to rise for Northern Hemisphere observers before summer begins, brilliant Altair is high overhead at sunset at the end of the season in September. Altair might be the most unusual of the three stars of the Triangle, due to its great speed: this star spins so rapidly that it appears “squished.”

A very bright star, Altair has its own notable place in the mythologies of cultures around the world. As discussed in our previous edition, Altair represents the cowherd Niulang in the ancient Chinese tale of the “Cowherd and the Weaver Girl.” Altair is the brightest star in the constellation of Aquila the Eagle; while described as part of an eagle by ancient peoples around the Mediterranean, it was also seen as part of an eagle by the Koori people in Australia! They saw the star itself as representing a wedge-tailed eagle, and two nearby stars as his wives, a pair of black swans. More recently one of the first home computers was named after the star: the Altair 8800.

Altair’s rapid spinning was first detected in the 1960s. The close observations that followed tested the limits of technology available to astronomers, eventually resulting in direct images of the star’s shape and surface by using a technique called interferometry,




The image on the right was created using optical interferometry: the light from four telescopes was combined to produce this image of Altair’s surface. Image credit: Ming Zhao. More info: [bit.ly/altairvsmode](http://bit.ly/altairvsmode)

which combines the light from two or more instruments to produce a single image. Predictions about how the surface of a rapidly spinning massive star would appear held true to the observations; models predicted a squashed, almost “pumpkin-like” shape instead of a round sphere, along with a dimming effect along the widened equator, and the observations confirmed this! This equatorial dimming is due to a phenomenon called gravity darkening. Altair is wider at the equator than it is at the poles due to centrifugal force, resulting in the star’s mass bulging outwards at the equator. This

results in the denser poles of the star being hotter and brighter, and the less dense equator being cooler and therefore dimmer. This doesn’t mean that the equator of Altair or other rapidly spinning stars are actually dark, but rather that the equator is dark in comparison to the poles; this is similar in a sense to sunspots. If you were to observe a sunspot on its own, it would appear blindingly bright, but it is cooler than the surrounding plasma in the Sun and so appears dark in contrast.

As summer winds down, you can still take a Trip Around the Summer Triangle with this activity from the Night Sky Network. Mark some of the sights in and around the Summer Triangle at: [bit.ly/TriangleTrip](http://bit.ly/TriangleTrip). You can discover more about NASA’s observations of Altair and other fast and furious stars at [nasa.gov](http://nasa.gov).



 This article is distributed by NASA Night Sky Network. The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](http://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

Altair is up high in the early evening in September. Note Altair’s two bright “companions” on either side of the star. Can you imagine them as a formation of an eagle and two swans, like the Koori?

# The Sun, Moon & Planets in September

This table contains the ephemeris of the objects in the Solar System for each Saturday night in September 2020. Times in Eastern Daylight Time (UTC-4). Ephemeris times are 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>	<b>5</b>	10 56.9	6 43.0	Leo	-26.8	1903.6	-	-	-	1.01	06:16	12:44	19:12
	<b>12</b>	11 22.1	4 04.8	Leo	-26.8	1906.9	-	-	-	1.01	06:23	12:42	19:00
	<b>19</b>	11 47.2	1 23.0	Vir	-26.8	1910.5	-	-	-	1	06:30	12:39	18:48
	<b>26</b>	12 12.4	-1 20.4	Vir	-26.8	1914.3	-	-	-	1	06:38	12:37	18:36
<b>Moon</b>	<b>5</b>	1 00.9	0 27.4	Cet	-12.4	1768.9	149° W	93	-	-	20:43	02:57	09:21
	<b>12</b>	6 36.3	23 28.2	Gem	-11.4	1838.5	71° W	34	-	-	00:31	08:24	16:15
	<b>19</b>	13 11.6	-3 38.2	Vir	-9.2	1997.4	22° E	4	-	-	08:58	14:47	20:26
	<b>26</b>	19 57.6	-24 21.0	Sgr	-12.2	1862.8	113° E	70	-	-	16:29	21:15	02:06
<b>Mercury</b>	<b>5</b>	11 55.8	0 57.2	Vir	-0.4	5.1	16° E	89	0.44	1.31	07:39	13:45	19:49
	<b>12</b>	12 34.6	-4 11.1	Vir	-0.2	5.4	20° E	83	0.46	1.25	08:09	13:56	19:41
	<b>19</b>	13 10.2	-8 53.9	Vir	0.0	5.7	23° E	77	0.47	1.17	08:34	14:03	19:32
	<b>26</b>	13 42.6	-13 00.6	Vir	0.1	6.2	25° E	69	0.46	1.08	08:53	14:08	19:21
<b>Venus</b>	<b>5</b>	8 01.4	18 52.2	Cnc	-4.1	19.1	44° W	61	0.72	0.88	02:35	09:49	17:04
	<b>12</b>	8 33.4	17 40.4	Cnc	-4.1	18.1	43° W	64	0.72	0.94	02:44	09:54	17:03
	<b>19</b>	9 05.5	16 04.5	Cnc	-4.0	17.1	42° W	67	0.72	0.99	02:55	09:58	17:01
	<b>26</b>	9 37.6	14 05.7	Leo	-4.0	16.3	41° W	70	0.72	1.04	03:08	10:03	16:57
<b>Mars</b>	<b>5</b>	1 50.0	6 46.0	Psc	-1.9	19.5	135° W	93	1.39	0.48	21:10	03:36	10:03
	<b>12</b>	1 50.5	6 51.3	Psc	-2.1	20.5	141° W	95	1.39	0.46	20:43	03:09	09:36
	<b>19</b>	1 48.2	6 45.4	Psc	-2.3	21.4	149° W	96	1.40	0.44	20:13	02:39	09:06
	<b>26</b>	1 43.2	6 29.7	Psc	-2.4	22.1	157° W	98	1.40	0.42	19:37	02:02	08:27
<b>1 Ceres</b>	<b>5</b>	22 48.5	-24 18.1	Aqr	7.7	0.6	162° E	100	2.98	2.00	20:08	00:35	05:02
	<b>12</b>	22 42.7	-24 45.7	Aqr	7.8	0.6	157° E	100	2.98	2.02	19:32	23:57	04:22
	<b>19</b>	22 37.2	-25 03.8	PsA	7.9	0.6	151° E	99	2.98	2.06	19:01	23:24	03:48
	<b>26</b>	22 32.5	-25 11.9	PsA	8.1	0.6	144° E	99	2.97	2.10	18:29	22:52	03:15
<b>Jupiter</b>	<b>5</b>	19 16.1	-22 42.1	Sgr	-2.4	43.8	125° E	99	5.14	4.50	16:25	21:00	01:34
	<b>12</b>	19 15.7	-22 43.2	Sgr	-2.3	42.9	118° E	99	5.13	4.59	15:57	20:32	01:06
	<b>19</b>	19 15.9	-22 43.1	Sgr	-2.3	42.0	111° E	99	5.13	4.69	15:30	20:05	00:39
	<b>26</b>	19 16.9	-22 41.7	Sgr	-2.2	41.1	104° E	99	5.13	4.79	15:03	19:38	00:13
<b>Saturn</b>	<b>5</b>	19 51.4	-21 16.0	Sgr	0.3	17.8	133° E	100	10.00	9.29	16:54	21:35	02:16
	<b>12</b>	19 50.4	-21 19.0	Sgr	0.4	17.7	126° E	100	10.00	9.38	16:25	21:06	01:47
	<b>19</b>	19 49.8	-21 21.1	Sgr	0.4	17.5	119° E	100	10.00	9.48	15:57	20:38	01:19
	<b>26</b>	19 49.5	-21 22.3	Sgr	0.4	17.3	112° E	100	10.00	9.58	15:30	20:10	00:51
<b>Uranus</b>	<b>5</b>	2 33.0	14 31.9	Ari	5.7	3.7	122° W	100	19.79	19.23	21:24	04:19	11:15
	<b>12</b>	2 32.5	14 29.4	Ari	5.7	3.7	129° W	100	19.79	19.13	20:56	03:51	10:47
	<b>19</b>	2 31.8	14 26.1	Ari	5.7	3.7	136° W	100	19.79	19.05	20:28	03:23	10:18
	<b>26</b>	2 31.1	14 22.3	Ari	5.7	3.7	143° W	100	19.78	18.97	20:00	02:55	09:50
<b>Neptune</b>	<b>5</b>	23 24.0	-5 05.3	Aqr	7.8	2.4	173° W	100	29.93	28.93	19:23	01:07	06:50
	<b>12</b>	23 23.3	-5 09.9	Aqr	7.8	2.4	179° E	100	29.93	28.92	18:55	00:39	06:22
	<b>19</b>	23 22.6	-5 14.5	Aqr	7.8	2.4	173° E	100	29.93	28.93	18:27	00:10	05:53
	<b>26</b>	23 21.9	-5 19.0	Aqr	7.8	2.4	166° E	100	29.93	28.96	17:59	23:42	05:25
<b>Pluto</b>	<b>5</b>	19 38.8	-22 35.0	Sgr	14.3	0.2	130° E	100	34.11	33.46	16:47	21:22	01:57
	<b>12</b>	19 38.4	-22 36.3	Sgr	14.3	0.2	123° E	100	34.12	33.56	16:19	20:54	01:29
	<b>19</b>	19 38.1	-22 37.4	Sgr	14.3	0.2	116° E	100	34.12	33.67	15:51	20:27	01:02
	<b>26</b>	19 38.0	-22 38.2	Sgr	14.4	0.2	109° E	100	34.13	33.79	15:24	19:55	00:34

# Supernova Remnant in Cygnus: Veil Nebula

by Glenn Chaple for LVAS

Mag: 6.9, Size: 3.5° X 2.7°

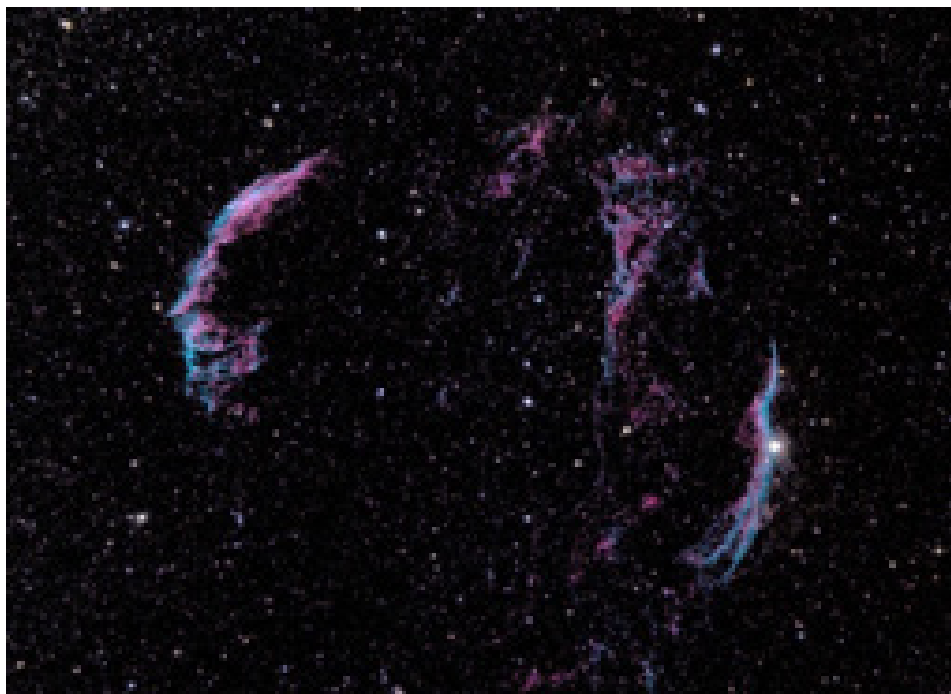
A few degrees south and slightly east of the 2nd magnitude star epsilon (ε) Cygni is a large wreath-shaped nebula known as the Cygnus Loop. Two of the Loop's brightest portions form what is more commonly known as the Veil Nebula.

William Herschel discovered the eastern part of the Veil on the evening of September 5, 1784 and captured its westerly partner two nights later. He catalogued them as H14<sup>5</sup> and H15<sup>5</sup> - the 14th and 15th of his Class 5 (Very Large Nebulae) objects. Today, they are identified by the New General Catalog designations NGC 6992/5 and NGC 6960, respectively.

The best way to find the Veil Nebula is to arm your scope with a low-power, wide-field eyepiece and point it towards the 4th magnitude star 52 Cygni. This yellow-orange K-type giant is a foreground star that lies near the center of the western Veil. Once you've spotted it, continue peering into the eyepiece as you gently nudge your scope about 3 degrees eastward and slightly north. The eastern Veil should come into view. Both portions of the Veil Nebula may be glimpsed with small-aperture scopes from dark sky areas. During the 1981 Stellafane Convention in Springfield, VT, I captured the western Veil with a 3-inch f/10 reflector and both eastern and western Veils with a 4 1/8-inch f/4.2 RFT (Edmund Astroscan).

More recently, I viewed the Veil from my backyard in suburban north-central Massachusetts (limiting magnitude 5.5). It was barely visible with a 4 1/2-inch f/8 reflector and still faint through a 10-inch f/5 reflector. Both scopes needed an assist from an O-III filter and (even better) an Orion UltraBlock narrowband filter.

The Veil Nebula presents a variety of Observer's Challenges. It is said to be visible with the unaided eye with the help of an O-III filter and extremely dark skies. In his book *Cosmic Challenge*, Phil Harrington reports seeing the eastern Veil and (with difficulty!) the western



Cygnus Loop Image by Doug Paul (ATMoB) taken with Canon 6D, 400mm f/2.8 (143mm (5.6 inch) aperture), ISO 1600, 51 subs x 2 min = 1.7 hr total exposure, 1/4 scale. North is up.

Veil with 10X50 binoculars. Can you match these feats? Again, don't bother trying if you live in a light-polluted area. Owners of small-aperture scopes are encouraged to try their luck with the Veil. Having seen it with my 3-inch reflector, I'm going to challenge my observing skills by tackling it with a 60mm (2.4-inch) refractor. Mario Motta's close-up images of the eastern and western Veil reveal their complex filamentary structure. Can you capture this visually with a medium to large aperture scope?

Three portions of the Cygnus Loop not mentioned in this article are Pickering's Triangle, located a degree northeast of the western Veil, and NGC 6974 and NGC 6979,

the most northerly portions of the Cygnus Loop. All appear in the accompanying wide-field image of the Cygnus Loop, taken by Doug Paul. What size telescope (and which filter) will give you a visual sighting?

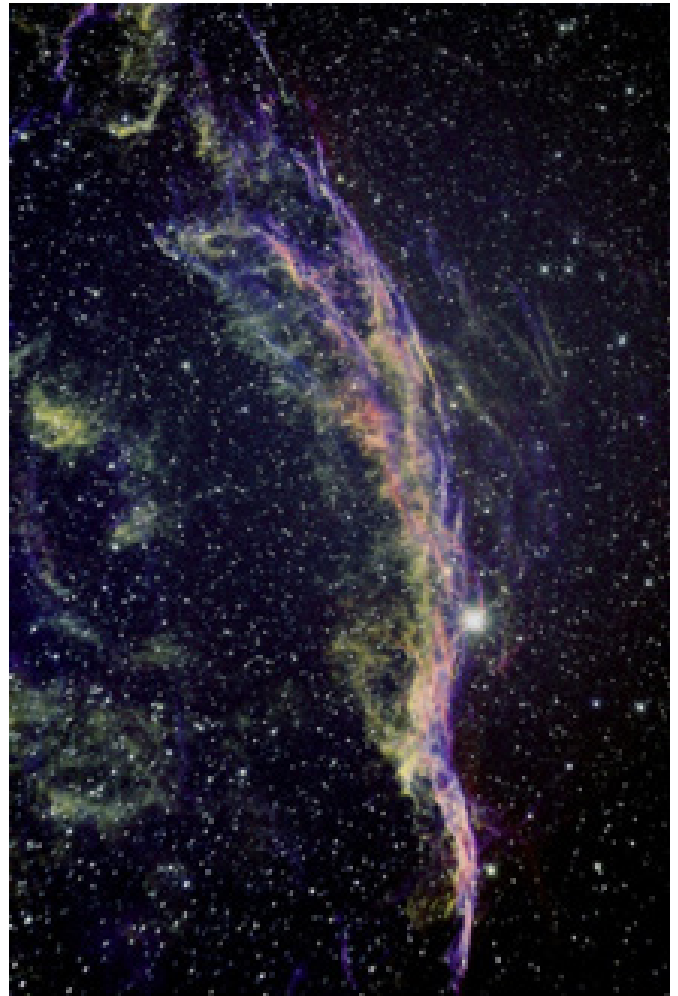
The Cygnus Loop is a supernova remnant, the result of a supermassive star that suffered an explosive death some 5,000 to 10,000 years ago. Recent GAIA parallax measurements of stars embedded in the Cygnus Loop gases indicate a distance of 2400 light years, suggesting a true diameter of 130 light years.

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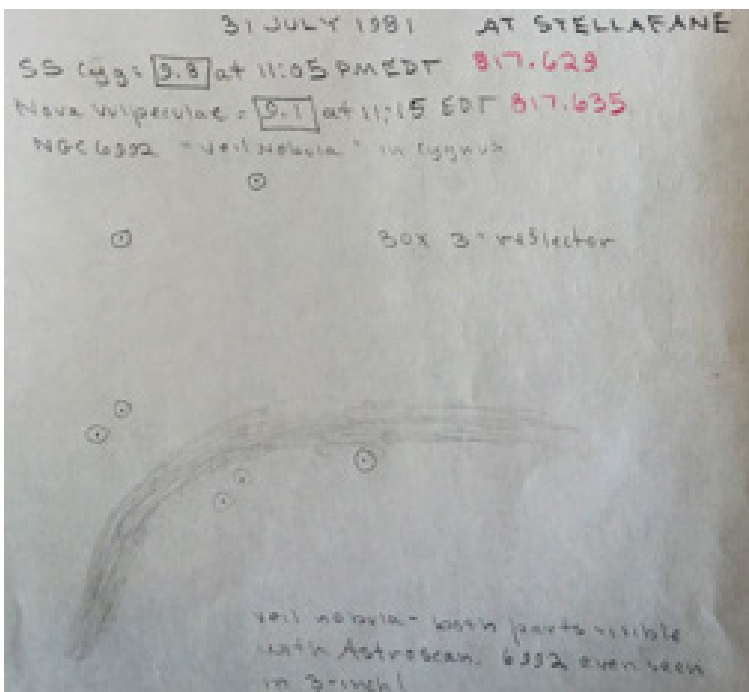
*The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested. If you'd like to contribute notes, drawings, or photographs, we'll be happy to include them in our monthly summary. Submit your observing notes, sketches, and/or images to Roger Ivester ([rogerivester@me.com](mailto:rogerivester@me.com)). To find out more about the Observer's Challenge or access past reports, log on to [rogerivester.com/category/observers-challenge-reports](http://rogerivester.com/category/observers-challenge-reports).*



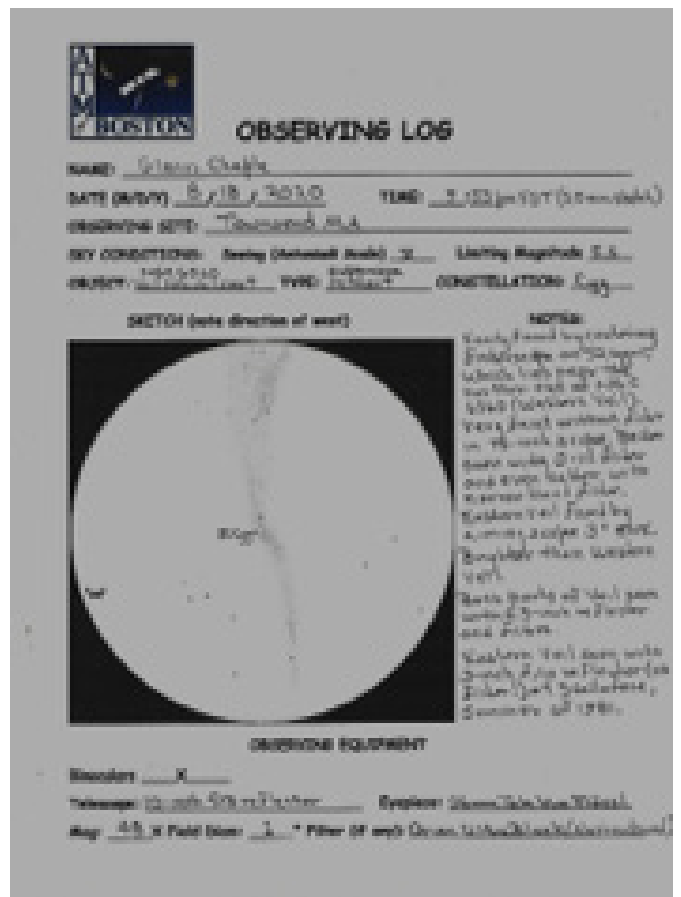
Finder Chart for the Veil Nebula, (Stellarium and Sky and Telescope)



(L) Veil Nebula East (NGC 6992/5) (R) Veil Nebula West (NGC 6960)  
 Images by Mario Motta, MD (ATMoB) taken with 8-inch F/8 RC;  
 Veil East, 1.5 hours Ha, 1 hour each S2 and O3 filters; Veil West, 1  
 hour each of Ha, and O2, and 30 min S3 filters. North is up.



(L) Veil Nebula East, as seen with 3-inch f/10 reflector at 30X (R) Veil Nebula West, as seen with 10-inch f/5 reflector at 48X. Sketches by Glenn Chaple (ATMoB)



# Perseid Meteor Shower Report

by Dave Huestis

August 12, 2020

It appears that the Perseid meteor shower was made aware of the coronavirus here on Earth. Why would I postulate that thought? Because it was obvious the meteors were practicing social distancing protocols! They were few and far between!!

I started my observing session at 2:00am from my back porch. It was still 76 degrees outside, with a light breeze from the west. A few scattered clouds were present, occasionally obscuring small regions of the sky. The Moon was just below the tree-line to my east, while bright Mars was high in the southeast sky. I settled onto my lounge chair facing east for a projected two hour stint of watching many shooting stars blaze across the sky.

My first Perseid wasn't observed until almost a half hour into my observing run. It was quickly followed by another. Perhaps the peak was approaching. It wasn't, at least not from our location here in the eastern part of the United States. At this same time, around 2:30am, I started seeing bright flashes coming from the west behind my house. I had noted a line of thunderstorms on the weather radar around 11:00pm out on the New York/Massachusetts border. Perhaps they were headed this way.

The clouds steadily increased as the morning progressed. The constellations began to disappear, soon followed by Mars and the Moon. From 2:00-3:35am I only counted 5 Perseids and 2 non-Perseids. It wouldn't have been a total loss if I had had the company of fireflies. During prior years' of observing the Perseids I've seen more fireflies than meteors. Unfortunately, the fireflies disappeared from my backyard about two weeks ago. Water is very critical to their lifecycle, and our drought conditions have impacted the development of their offspring.

The only saving grace was the total lack of blood thirsty mosquitoes. The lack of standing water has thwarted their lifecycle as well. Thank goodness for small favors.

I retired around 3:40am. When I awoke around 6:30 am I noticed that my rain gauge indicated it had rained only .02 inches. I looked out on the porch and everything was slightly wet. I watched the weather on the television and a brief shower had held together and had given us a sprinkle.

I hope we get some substantial rain soon. Our biosphere really needs it. And I hope the fireflies will make another appearance before summer's end. If they do, I will sit back on the porch and look out towards

the woods and imagine that the fireflies are the Perseid meteors I missed.

As for the mosquitoes, though I know they have an important roll in nature, I for one could do without them.

## A Perseid Fireball

by Jack Owens

Hi Jim and Francine,

On Tuesday, Wednesday, and Thursday I looked out my front door around midnight and saw only clouds, except last night (Aug 12-13) when I could see all of Cassiopeia and had a large gap in the clouds extending southward. I sat down and looked up at the sky around 12:30 and saw a white streak moving across the sky from near Cassiopeia going south - a fireball meteor! Ten minutes or so later I saw another brief streak, not a fireball, from south to north. Then thick clouds moved across the sky and covered the gap through which I was seeing the meteor shower - the Perseids. I've mostly given up looking for them because the summer night sky is usually so murky where I live.

Regards,

Jack Owens

Physics, Lincoln

## A Month of Observing Comet C/2020 F3 (NEOWISE)

by Craig Cortis

Those who read my piece about observing Comet NEOWISE in last month's newsletter might, I thought, appreciate seeing a list of all the dates subsequent to 7/21 on which I was able to view the comet. For my record to be all-inclusive, I'm starting at 7/18, which was the first night mentioned in my last article. In total, I saw NEOWISE on 23 nights, 21 from my back yard in Oxford, MA and the final 2 times - 8/19 and 8/20 - from a much better location nearby that permits viewing very low above the western horizon with no interference from trees; it is also a bit darker. I used a 15X70 mm binocular for nearly all observations, plus my 4.12 inch Astroscan reflector on 7/18, 7/20 and 7/28. The best and least humid night, 8/6, was the clearest. On that night, NEOWISE was very close to the globular cluster M53,

which was prominent in the binocular. The Moon was New on 7/20, First Quarter on 7/27, Full on 8/3, Last Quarter on 8/11, New again on 8/18 and would reach First Quarter on 8/25. Humidity was nearly always a factor throughout the 23 nights, except for just 2 of the evenings. Some nights were really damp and I was surprised to be able to see the comet at all. 7/18 9:30 to 9:50 p.m., 7/20 9:30 to 9:35 p.m., 7/21 9:30 to 10:05 p.m., 7/24 9:30 to 9:35 p.m., 7/25 same time, 7/26 same time, 7/27 same time, 7/28 9:25 to 9:40 p.m., 7/31 9:25 to 9:40 p.m., 8/3 9:20 to 9:25 p.m. Full Moon! 8/4 9:30 to 9:40 p.m., 8/5 9:30 to 9:40 p.m., 8/6 9:25 to 9:30 p.m., 8/7 9:25 to 9:30 p.m., 8/8 9:20 to 9:25 p.m., 8/9 9:25 to 9:30 p.m., 8/11 9:15 to 9:20 p.m., 8/12 9:05 to 9:10 p.m., 8/13 9:20 to 9:25 p.m., 8/14 9:25 to 9:30 p.m., 8/18 9:15 to 9:20 p.m.,

8/19 9:15 to 9:20 p.m., 8/20 9:15 to 9:20 p.m. Second of 2 nights at alternate location.

On a different note, I wonder if any of you might hold a similar opinion to mine regarding the "Spectrum" article on pages 4 - 5 of the October, 2020 issue of Sky & Telescope, entitled Amateur Astronomy for All. As soon as I'd finished reading the first paragraph, I could tell what was coming. This obsession with politics and ideological viewpoints has now fully infected Sky & Telescope, much to my annoyance. We all are entitled to our own opinions on such matters. Some might agree with me, some might not. I don't happen to think I need sermonizing on the "correct" ways to think from an astronomy magazine, thanks all the same. Best wishes to you all - Craig Cortis



# August Reports

## Skyscrapers Executive Committee Meeting via Zoom

**Monday, August 17, 2020 at 7PM**

Meeting called to order by Steve Siok @7:06 PM

Present: Steve Siok, Kathy Siok, Sue Hubbard, Steve Hubbard, Francine Jackson, Jim Crawford, Bob Janus, Jim Hendrickson, Linda Bergemann, Matt Ouellette, Ian Dell'Antonio, Total 11

This meeting was recorded.

**1. Monthly Meetings:** Feedback discussion on the current Zoom meeting format too place. Steve Hubbard will give speaker a time limit of about 45 minutes including Q&A. The audio and video will be be shut off so only the speaker view is visible. The facilitator will read the "chat" and ask all the questions. Kathy Siok will encourage members to attend the meetings and send out instructions on how to access Zoom. It was also suggested that multiple meeting reminders are send out to members with instructions on how to join in.

Future speakers are all set thru January 2021. (maybe even Feb.2021)

**2. Progress on Ongoing work on Social Media-NSN, Facebook, YouTube: (Linda Bergemann)**

The membership list has been loaded

onto the Skyscraper NSN website and message groups have been set up in NSN. Linda is working on "New Member" and PayPal features. We have a UTube channel on which the recordings of our meetings will be posted. Jim H. is working on our Facebook page.

Also, discussion about our domain name: Tracy P. has been the owner of the domain name "skyscrapersinc" for 4 years. She has asked if we wish to take it over (\$21.00 per year) or she will give it up. The advantage is that we can fashion email addresses using this domain. We would retain our present domain. The group felt that we should decline Tracy's offer. Kathy S. will contact Tracy.

**3. AstroAssembly: (Ian Dell'Antonio)**

The focus of the event will be astro-photography. The confirmed speakers are Adam Block, Travis Rector, Babak Tafreshi.

Format and Timing: (see draft schedule attachment)

Current plans include: to gather at the start; about 1 hour for each speaker, a 15 minute break in between with slide shows. After the last speaker, there will be a few closing words followed by a time to encourage people to interact by using breakout rooms. A trial run will be planned.

Scott Tracy is willing to be the MC and introduce the speakers.

Time of Event: 1-6PM to allow for scheduled breaks.

Registration process and cost to participants:

An online registration process has been set up and is ready to go live.

The following is a general idea of how we will advertise the cost.

"AstroAssembly is our annual fundraising event for Skyscrapers. Since we will be holding this via Zoom this year, we ask that you donate (not less than \$10.00) to Skyscrapers as your registration fee. All monies are tax deductible."

Recording Sessions: Yes, we will record each session separately. Jim Crawford volunteered to edit the talks and add titles. The sessions will be posted on UTube in November.

**4. Next Executive Board Meeting is planned for Sept.8, 2020 at 7PM via Zoom**

Meeting was adjourned at 8:15PM.

Respectfully submitted

Sue Hubbard

Secretary

Solar prominence on 8/26/2020  
1600 UTC; Skywatcher ED 120;  
Quark Chromosphere; ZWO  
ASI174mm by Jeff Padell



# Astrophoto Gallery



Two minute exposure of  
the Milky Way in Cygnus,  
taken with a Canon  
Ra by Bob Horton.



NGC 6888 & M27 taken on August 18 with 14" SCT, ZWO imager and Tri Band filter by Steve Hubbard.



A flock of Canada geese flies by as the waxing gibbous Moon rises over Chase Farm in Lincoln. By Jim Hendrickson.

# For Sale

Skyscrapers is offering for sale 163 issues of Science News from the early 1940's (1940-1943). These issues could sell for about \$2 each if I had the time to invest, but I would like to offer the entire run for an even \$100 (that's 61 cents per issue). See attached WORD doc for a list of the issues being offered. Also see attached image of a sample group being offered. They are all in

great condition. They are an interesting lot, since once WWII began, the science of war is covered.

Also being offered: The Observatory: A review of Astronomy (15 issues) and Publications of the ASP 9 issues).

I'm asking \$2 for each issue. See attached WORD doc for a list of the issues being offered. See attached image of these issues.

The proceeds will be used to help defray the cost of a new floor (water damage has taken its toll) in the Clark dome.

Payment and shipping will be arranged.

Let's find a good home for these vintage publications.

Be well.

Dave Huestis, [dhuestis@aol.com](mailto:dhuestis@aol.com)



## Science News Letter, Science Services, Inc., Washington, DC

### 1940 - 52 issues

January 6, 13, 20, 27; February 3, 10, 17, 24; March 2, 9, 16, 23, 30; April 6, 13, 20, 27; May 4, 11, 18, 25; June 1, 8, 15, 22, 29; July 6, 13, 20, 27; August 3, 10, 17, 24, 31; September 7, 14, 21, 28; October 5, 12, 19, 26; November 2, 9, 16, 23, 30; December 7, 14, 21, 28

### 1941 - 14 issues

August 2, 16, 23, 30; September 6, 13, 20, 27; October 4, 11; December 6 (2 copies), 13, 20

### 1942 - 48 issues

January 3, 10, 17, 24, 31; February 7, 14, 21, 28; March 7, 14, 21, 28; April 4, 11, 18, 25; May 2, 9, 16, 23, 30; June 6, 13, 20, 27; July 4, 11, 18, 25; August 1, 8, 15, 22, 29; September 5, 12, 26; October 3, 10, 17, 24, 31; November, 28; December 5, 12, 19, 26

### 1943 - 49 issues

January 2, 9, 16, 23, 30; February 6, 13, 20, 27; March 6, 13, 20, 27; April 3, 10, 17, 24; May 1, 8, 15, 22, 29; June 5, 12, 19, 26; July 3, 10, 17, 24, 31; August 7, 14, 21; September 11, 18, 25; October 2, 9, 16, 23, 30; November 6, 13, 20; December 4, 11, 18, 25

## The Observatory, A Review of Astronomy

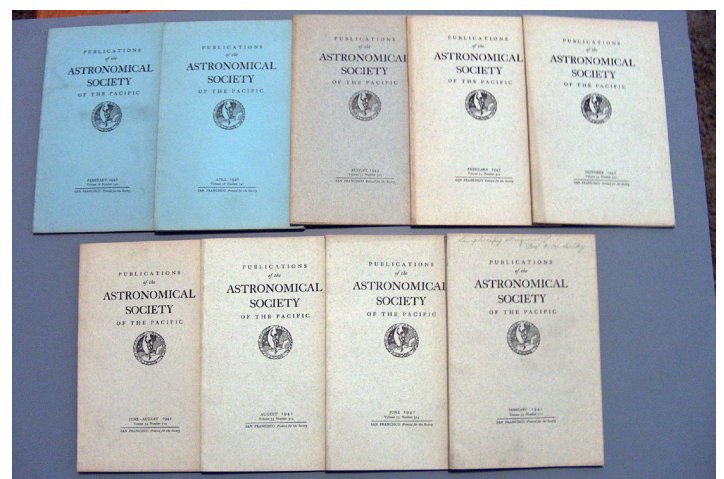
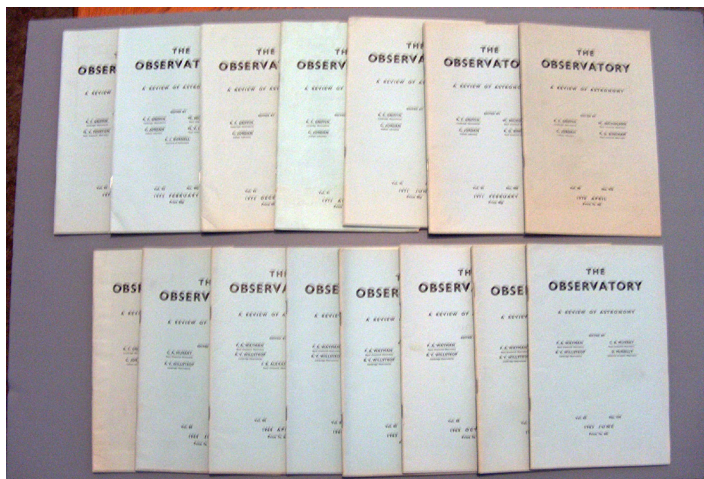
### 15 Issues

June 1963, August 1963, October 1963, December 1963, February 1964, April 1964, June 1964, February 1970, April 1970, February 1971, June 1971, August 1971, December 1972, February 1973, April 1973

## Publications of the ASP

### 9 Issues

February 1941, June 1941, August 1941, June - August 1942, October 1942, February 1943, August 1943, February 1946, April 1946



# AstroAssembly 2020

Skyscrapers, Inc.'s annual AstroAssembly will be held virtually this year on Saturday, October 3<sup>rd</sup>. The event will run from 1pm to 6pm, and focus on the topic of Astrophotography.

Our confirmed speakers are: Dr. Travis Rector, an astronomer at the University of Alaska Anchorage, who writes books on astronomical images for public outreach (he co-wrote *Coloring the Universe* with Kim Arcand); Adam Block, an astrophotographer from University of Arizona Mount Lemmon SkyCenter, runs an astrophotography/amateur observing institute; and Babak Tafreshi who photographs the night sky and terrestrial nighttime scenes for National Geographic.

Breaks and time to gather will be built into the schedule. Additional information will be posted at [www.theSkyscrapers.org/astroassembly2020](http://www.theSkyscrapers.org/astroassembly2020) and Night Sky Network.

Due to the fact that AstroAssembly is our sole annual fundraiser, we are asking participants to make a donation of \$10 or more to the society when registering. Registration is available online at the Skyscrapers website using PayPal or by check. The Zoom link will be sent to all those who have registered for the event.

## 1:30pm The World at Night by Babak Tafreshi

Babak Tafreshi spent the past two decades photographing surreal scenes of the night sky in all continents, an adventurous journey to the wonders of Earth under the stars. The work documents the last remaining starry skies on the planet to increase public awareness on values of natural night environment for all species. Together with his international group of 40 other dedicated nightscape photographers in The World at Night project, they also produce images. Many are classic single-exposure photographs that represent fundamentals of practical astronomy and are used world-wide by educators, science journalists and communicators. In his recently released book, *The World at Night*, the work of the entire group is presented with behind-the-scene stories and information that connects the Earth and sky.

Babak A. Tafreshi is a photojournalist and science communicator. The National Geographic night sky photographer, merging art and science, he is also the founder and director of The World At Night program, a board member of the Astronomers Without Borders organization, a contributing photographer to *Sky & Telescope* magazine, and the European Southern Observatory. Born in 1978 in Tehran, Babak lives in the Boston area, but he is often on the move and could be anywhere, from the heart of the Saha-

ra to the Himalayas or Antarctica. He received the 2009 Lennart Nilsson Award, the world's most recognized award at the time for scientific imaging, for his global contribution to night sky photography. [www.babaktafreshi.com](http://www.babaktafreshi.com) @babaktafreshi

## 2:45pm Interpreting Astronomical Images: The Choices and Aesthetics That Go Into Making Images by Adam Block

Adam Block is the founder of public imaging at the University of Arizona's SkyCenter, a columnist for *Astronomy Magazine*, and is on the Mountain Operations team at Steward Observatory.

## 4:00pm The Process of Choosing What and How to Image by Travis Rector

Dr. Travis A. Rector is a professor of astrophysics at the University of Alaska Anchorage. He also makes many of the color images released by Kitt Peak National Observatory, Cerro Tololo Inter-American Observatory, and the Gemini Telescopes. He is also a co-author of the book *Coloring the Universe*, a behind-the-scenes look at how images are made at the professional observatories.

\_\_\_\_\_ Registrations                      x \$10 each = \$ \_\_\_\_\_

\_\_\_\_\_ Donation    \$ \_\_\_\_\_

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

Name \_\_\_\_\_

Address \_\_\_\_\_

Email \_\_\_\_\_

Send completed form and check  
(Made payable to Skyscrapers Inc.) to:

Linda Bergemann  
41 Ross Hill Road  
Charlestown, RI 02813-2605

# 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