



the Skyscraper

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

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Saturday, July 13, 5:30pm at Seagrave Observatory

Memories of Apollo 11

5:30pm Pot Luck Supper. Please bring something to share. There will be no grills available.

We will provide drinks and paper products. There is some room for warming trays.

You may need an extension cord. (Please contact Kathy Siok if you plan to attend. kathys5@cox.net)

7:00pm Members will share their memories from Apollo 11

(Please contact Jim Hendrickson if you wish to speak. hendrickson.jim@gmail.com)

Our program will begin a week of activities celebrating the 50th Anniversary of the Landing of Apollo 11 on the Moon.

Will you help by participating in a member event by sharing stories about your Apollo memories?

For many, July 20, 1969 was a game-changing day, when 2 men first walked on the Moon.

If you were watching this happen, what were your feelings on it?

Did it change your opinion as to science, and give you a hope for the future?

Many members weren't born when this historic event happened.

Share your memories of this with them, and what, if anything, it did to shape your future.

Also, if you can write some of your memories, this would be a great way for Skyscrapers to memorialize one of the most important days in history through the eyes of those who witnessed it.

Seagrave Memorial Observatory Open Nights

Saturdays at 9:00 pm
weather & conditions permitting

Phases of the Moon

New Moon
July 2 19:16

First Quarter Moon
July 9 10:55

Full Buck Moon
July 16 21:38

Last Quarter Moon
July 25 01:18

Contribute to Your Apollo Memories Book

By Francine Jackson

For many of us, July 1969 was a very historic time, when we were actually able to watch two men set foot on a celestial body other than ours. Yes, I realize there are some of you who were either too young, or not born yet, which is why Skyscrapers, Inc., is asking all who do remember that time to give us remembrances of that time. Here is mine:

I had always wanted to be an astronomer, and enrolled in RIJC (yes, I know, it's CCRI, but for us who went to the school in its early days, it will always be "rejec") for their astronomy classes. Unfortunately, the professor's sabbatical and course conflicts resulted in my having to concentrate in physics instead, so the summer of 1969 was my graduation from there and my awaiting to go to Illinois. You might say watching the Moon landing on July 20th was what truly

ly cemented my desire to be a part of the astronomical community. In all the years since, I have never regretted my decision. It led me to go to places never before dreamed of, and to meet people from around the world.

Now that you have learned a bit about the result of my television watching 50 years ago, let's hear about yours. Surprisingly, other organizations, including the Planetary Society, seem to have taken our lead, and the interest in this appears to be strong.

Also, as we have mentioned, please write your memories and send them to Jim Hendrickson. He will collate them, along with images of any memorabilia you might have, into a booklet for, not only those who didn't, or were too young to watch it, but will be ready to read by future generations.

President's Message

by Steve Hubbard

This month marks the 50th anniversary of Apollo 11. Hard to believe that much time has passed for some of us since then. I was around then and have very fond, distinct memories of both the first landing and of how exciting our space program seemed back then.

The space program brought a lot of members into Skyscrapers and while some of the excitement of going to the Moon has worn off, the excitement and enjoyment than many of us get from viewing the night sky hasn't.

To further this enjoyment, we have some fun and exciting things planned for the summer season.

Firstly, there will be a special meeting on Saturday, July 13 at Seagrave. We will start early with a potluck dinner and social time, then as of right now, have an Apollo retrospective with reminiscences and memorabilia.

Next, we'll be holding member star parties on Saturday, July 20, Saturday August 31 and September 21. Put these dates in your calendar and bring a scope, binoculars or

just your eyeballs to share the sky.

Don't forget... Jupiter and Saturn share the southern sky in close proximity for the next few months. This is a great time to see them, especially if we get some of those hazy, humid nights where the air gets really steady. We have some great telescopes that can give exceptional views of both, especially our venerable Alvan Clark 8 inch. Be sure to get to Seagrave some time and take a look!

Sharing the Universe

by Linda Bergemann

Watch this space each month for opportunities to share your passion with astronomy with the public. Our goal is to spark curiosity in astronomy and provide basic tools to get started with observing. And, have some fun doing it.

At a planning meeting this spring, the Board decided to focus our resources on enhancing the experience for visitors to Seagrave Memorial Observatory on our weekly Open Nights. Change has begun. For each night, the Observatory Committee will have an observing plan for each telescope so visitors can see a variety of objects. Telescope operators will have data available

on the objects to share with observers. The Clark will be used primarily for the moon and planets, and the 12-inch and 16-inch will be used for deep sky objects. Plus, we have added astronomical hand-outs in the anteroom for visitors to take home to continue their experience. More is planned, but more help is needed. Friendly faces are needed to greet visitors and answer questions; no observing experience is required. We also need more trained telescope operators. I will be compiling a list of willing volunteers. My goal is to have every member volunteer for at least one open night during the year. Please contact me at lbergemann@aol.com

aol.com to add your name to the list.

All Skyscrapers events are posted on the Night Sky Network calendar at <https://nightsky.jpl.nasa.gov>. This Events Calendar is also embedded on Skyscrapers' website for easy access. Clicking on a calendar entry brings up details of the event, as well as information on the sky for that date. Check it out!

July 6, 13, 20 and 27 @ 9 PM: Open Nights at Seagrave Memorial Observatory. Hosts: Members of the Observatory Committee.

July 8 @ 8 PM: Apollo 11 Celebration at WaterFire Arts Center, 475 Valley Street,



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 **July 15** 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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Providence, RI 02908. Skyscrapers has been asked to provide volunteers with telescopes for viewing the first quarter moon. Details for this event are still developing. Contact Bob Horton at Robert.Horton@brown.edu if you are able to bring a telescope.

July 10 @ 8:30 PM: Observe the Moon Night at Ladd Observatory, 210 Doyle Ave., Providence, RI 02906. We are looking for volunteers to set up telescopes on the observatory's front lawn. Please contact Bob Horton at Robert.Horton@brown.edu if

you are interested in helping out.

July 19 @ 8 PM: Star Party at River Bend Farm Visitor Center, 287 Oak Street, Uxbridge MA 01569. Hosts: Jim Hendrickson and Francine Jackson. 4 volunteers with telescopes are needed. Contact Jim at hendrickson.jim@gmail.com if you are able to help.

July 20: WaterFire Celebrates the 50th Anniversary of the Apollo 11 Mission at Market Square, Providence, RI 02903. Details for this event are still developing, but

we anticipate solar observing in the afternoon (about 3 PM) and lunar observing following moonrise at about 11 PM. Please contact Bob Horton at Robert.Horton@brown.edu if you are interested in helping out.

July 24 @ 6 PM: Presentation at Newport Public Library, 300 Spring St, Newport, RI 02840. Stargazing & Astronomy: An introduction to stargazing and using a telescope in your back yard! Host: Francine Jackson. No additional help is needed.

The Return of Jupiter and Saturn to the Evening Sky

by Dave Huestis

Quite a few months have passed since the local observatories have had the opportunity to provide detailed images of some of our planetary companions in the solar system. When weather conditions have allowed, the Moon has been a good substitute. When the Moon has not been available, telescope operators have turned to double stars and faint fuzzies like star clusters, galaxies and nebulae. However, these celestial objects don't often elicit the wow factor that planetary viewing can do. Add some high thin haze, atmospheric turbulence, a little bit of moisture and light pollution, and it has been a challenge to provide decent views of the heavens. Our observing opportunities have now greatly improved.

While amateur astronomers have been observing Jupiter and Saturn during hours when most people are in REM dreamland, from now through November telescopes throughout Rhode Island will focus on exquisite views of these two gas giant worlds and all their glory. All I can say is, "It's about time!!" This month's column will provide a brief observing guide to Jupiter. Next month I will feature Saturn.

Back on June 10 Jupiter reached opposition. That means it rose as the Sun was setting. This date was also the date of Jupiter's closest approach to the Earth for this year—about 397,850,855 miles. By July 1 this distance will have increased to 403,576,313 miles as the Earth pulls out ahead of Jupiter in our respective orbits. Fortunately, views of the Jovian system do not suffer dramatically from rapidly increasing distance.

However, Jupiter currently traverses a shallow arc across the sky because it, and

all the planets, follows the ecliptic (path of the Sun and the plane of the solar system). Unfortunately because the ecliptic is low in our summer night sky, this scenario will keep Jupiter within some of summer's often murky atmospheric conditions no more than 26 degrees above the southern horizon. Regardless, Jupiter reveals much detail even with small amateur telescopes.

First, you need to locate Jupiter among the constellations. Currently Jupiter resides among the stars of a not so obvious pattern of stars called Ophiuchus. Lucky for us a more recognizable Scorpius is a neighboring star pattern. (See the accompanying star map.) Bright Jupiter will be to the east (left) of Scorpius' brightest star, red Antares. Focus in on Jupiter with your own telescope and begin your exploration, or let the volunteers at the local observatories guide your viewing pleasure.

It's hard to predict what you will notice first. Will it be Jupiter's large striped disk, or will it be some of his moons that grab your attention?

Let's begin our examination with the planet itself. Jupiter is quite large; you could fit 1,321 Earths within its volume. Despite its distance from the Earth, this giant world is exciting to observe through any sized telescope. The striped appearance of the primary dark bands and lighter zones are easy to see, though the famous centuries old Great Red Spot (GRS) is no longer very great. Over the last 150 years or so detailed measurements have revealed that the GRS has shrunk by 50%, and in more recent years its oval shape has become more circular.

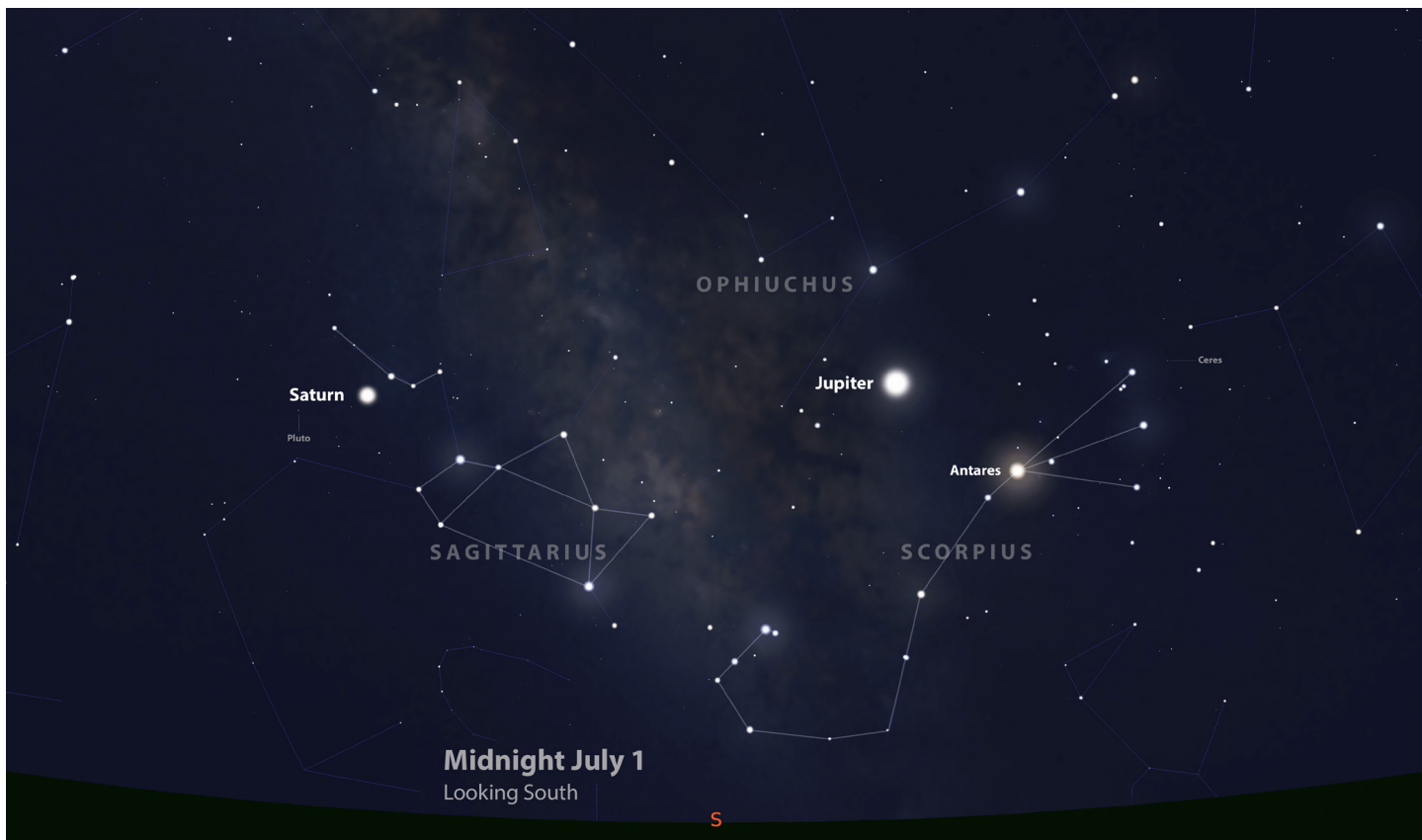
In fact, some astronomers have speculat-

ed that this long-lived storm may be dissipating. Recent observations have revealed that the GRS exhibits indications that it may be "unraveling." We may be witnessing an historical event in the near future if this degeneration continues. Review this link for details about the recent GRS event:

<https://www.skyandtelescope.com/astronomy-news/jupiters-great-red-spot-unfurls-see-it-in-your-scope/>.

While the color of the GRS has changed throughout the decades, its lighter salmon coloring has made it a little more difficult to detect during the last decade. However, according to a recent Sky and Telescope article, "Over the last few years, the GRS has been sporting a rich, orange-red color..." This color enhancement makes the GRS much easier to detect if it is facing the Earth. Transit times of the GRS are available at this web site: <http://www.skyandtelescope.com/observing/interactive-sky-watching-tools/transit-times-of-jupiters-great-red-spot/>. Keep in mind that Jupiter rotates once in ten hours, so each night you will see different views of the planetary disk.

Or exploration of Jupiter will now focus on his four prominent satellites, called the Galilean moons in honor of their discoverer Galileo Galilei on January 7, 1610. These moons, given names from Greek mythology, are Io, Europa, Ganymede and Callisto. They are easily observed in small telescopes as they orbit around Jupiter. When several of the moons are visible at the same time, they often appear in a straight line, parading around Jupiter in the plane of its equator. This arrangement presents many interesting phenomena for us earth-bound astronom-



mers to observe.

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. Jupiter's shadow can even eclipse a satellite as well; gradually the moon will either blink out or reappear. Also, it's fun to watch all four moons line up on one side of the planet. I love to watch Jupiter over an extended period of time during the course of one evening because the view is dynamically changing as you watch.

In conclusion, if you just can't wait for my Saturn observing guide next month, this beautiful ringed world comes to opposition

on July 9 in the constellation of Sagittarius. Since Saturn also tracks across the sky on the ecliptic it will take some time to rise high enough above horizon haze to observe. If you wait until July 15 at 11:00 p.m. you will find Saturn to the left of Sagittarius' "teapot handle" asterism. About one degree to the right will be a waxing gibbous Moon, just one day from Full. More details next month.

Over the next five months I encourage you to drag those telescopes you may own out of the attic or up from the basement and have them collect the light of Jupiter instead of dust! If you don't have a telescope, or you wish to observe greater detail than what it could provide, please visit one of the local observatories for incredible views of Jupiter, Saturn and other astronomical objects. Seagrave Memorial Observatory (<http://www.theskyscrapers.org>) in North Scituate

is open every clear Saturday night. Ladd Observatory (<http://www.brown.edu/Departments/Physics/Ladd/>) in Providence is open every Tuesday night. The Margaret M. Jacoby Observatory at the CCRI Knight Campus in Warwick (<http://www.ccri.edu/physics/observatory.htm>) is open every clear Wednesday night. Frosty Drew Observatory (<http://www.frostydrew.org/>) in Charlestown is open every clear Friday night. Be sure to check the respective websites for any schedule update before venturing out for a visit.



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>

Welcome to our newest members!

John Roe of Uxbridge

Peter Barry of Portsmouth

Christopher Lyddy & Sagree Sharma of Providence



amazonsmile
You shop. Amazon gives.

<https://smile.amazon.com/ch/05-0382371>

Observe the Moon and Beyond: Apollo 11 at 50

By David Prosper

Saturn is at opposition this month, beckoning to future explorers with its beautiful rings and varied, mysterious moons. The **Moon** prominently passes Saturn mid-month, just in time for the 50th anniversary of **Apollo 11!**

Saturn is in opposition on July 9, rising in the east as the Sun sets in the west. It is visible all night, hovering right above the teapot of Sagittarius. Saturn is not nearly as bright as Jupiter, nearby and close to Scorpius, but both giant planets are easily the brightest objects in their constellations, making them easy to identify. A full **Moon** scrapes by the ringed planet late in the evening of the 15th through the early morning of the 16th. Some observers in South America will even see the Moon occult, or pass in front of, Saturn. Observe how fast the Moon moves in relation to Saturn throughout the night by recording their positions every half hour or so via sketches or photos.

While observing the Saturn-Moon celestial dance the early morning of the 16th,

you can also contemplate the 50th anniversary of the launch of the Apollo 11 mission! On June 16, 1969, **Apollo 11** blasted off from Cape Canaveral in Florida on a journey of almost a quarter million miles to our nearest celestial neighbor, a mission made possible by the tremendous power of the Saturn V rocket – still the most powerful rocket ever launched. Just a few days later, on July 20, 1969 at 10:56 pm EDT, Neil Armstrong and Buzz Aldrin set foot on the lunar surface and became the first people in history to walk on another world. The astronauts set up equipment including a solar wind sampler, laser ranging retroreflector, and seismometer, and gathered up almost 22 kilograms (48 pounds) of precious lunar rocks and soil samples. After spending less than a day on the Moon's surface, the duo blasted off and returned to the orbiting Columbia Command Module, piloted by Michael Collins. Just a few days later, on July 24, all three astronauts splashed down safely in the Pacific Ocean. You can

follow the timeline of the Apollo 11 mission in greater detail at bit.ly/TimelineApollo11 and dig deep into mission history and science on NASA's **Apollo History Site**: bit.ly/ApolloNASA.

Have you ever wanted to see the flag on the Moon left behind by the Apollo astronauts? While no telescope on Earth is powerful enough to see any items left behind the landing sites, you can discover how much you can observe with the **Flag on the Moon** handout: bit.ly/MoonFlag

You can catch up on all of NASA's current and future missions at nasa.gov



This article is distributed by the NASA Night Sky Network, a coalition of hundreds of astronomy clubs across the US dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, stargazing info and more.

The Moon

Copernicus

This crater (left) is easy to spot. It formed about 800 million years ago, and is 57 miles (92 km) wide. Note central peaks and terraced walls, caused by impact.

Aristarchus

Young crater. So bright that Sir William Herschel thought it was an active volcano.

Kepler

Small version of Copernicus

Grimaldi

Lava-filled crater is one of the darkest spots you can see on the Moon. It's 145 miles wide (233 km).

Mare Humorum

The Sea of Moisture is about 220 miles (350 km) across. You can spot it with the naked eye. With a telescope, you might notice two craters along its edge.

Tycho

Young crater best seen during a full Moon. Rays of bright material are ejecta blasted out of the crust when a large asteroid struck about 109 million years ago.

Mare Serenitatis

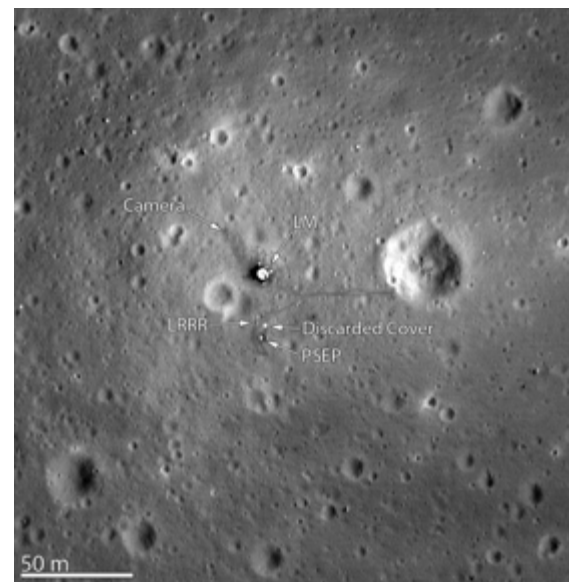
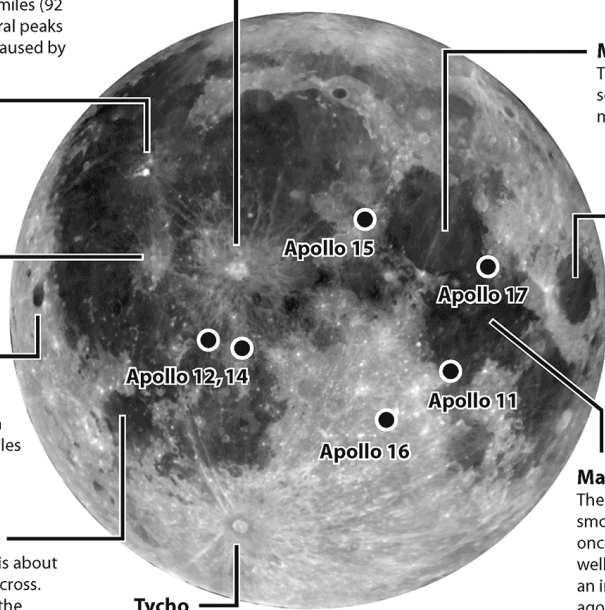
The Sea of Serenity is solid lava, some 380 miles (610 km) across.

Mare Crisium

The Sea of Crisis is about 340 miles wide (550 km) and visible to the naked eye.

Mare Tranquillitatis

The Sea of Tranquility is a smooth plain filled with once-molten lava that welled up from below after an impact billions of years ago. The first humans to walk on the Moon, Apollo 11 astronauts, landed near the edge.



Earth-based telescopes can't see any equipment left behind at the Apollo 11 landing site, but the cameras onboard NASA's Lunar Reconnaissance Orbiter (LRO) can. This is Tranquility Base as seen from the LRO, just 24 kilometers (15 miles) above the Moon's surface, with helpful labels added by the imaging team. Image Credit: NASA Goddard/Arizona State University. See more landing sites at: bit.ly/ApolloLRO

SOURCES: NASA; ADVANCED SKYWATCHING; CAMBRIDGE ATLAS OF ASTRONOMY; DK VISUAL ENCYCLOPEDIA

Photos: James Scala. Layout and text for Moon map used with permission: Robert Roy Britt/SPACE.com.

Observe the larger details on the Moon with help from this map, which also pinpoints the Apollo landing site. Full handout available at bit.ly/MoonHandout

Elliptical Galaxy in Hercules: NGC 6482

by Glenn Chaple for LVAS

Mag: 11.3 Size: 2.1' X 1.8'

Our Observer's Challenge "Galaxy Quest" continues this month with NGC 6482, an elliptical galaxy tucked away in the southeast quadrant of Hercules. Missed by William Herschel, it was discovered by his son, John, on July 12, 1830. In Dreyer's New General Catalogue (1888), NGC 6482 is described as, "a remarkable object, very faint, small, round, very suddenly very much brighter middle and very small round nucleus."

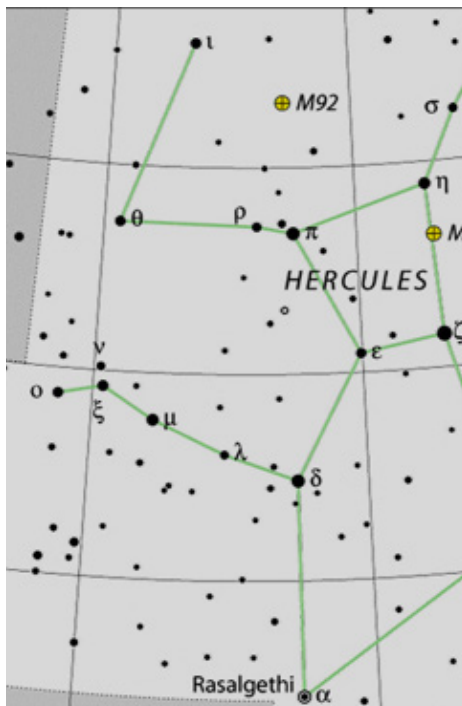
NGC 6842 is located at 2000.0 coordinates 17h51m48.8s, +23°04'19.0". The accompanying charts will show the way should you prefer to find it by star-hopping. You can either work your way SSE from mu Her or NW from 95 Her. I recommend the latter path, as 95 Her is a showpiece double whose magnitude 4.9 and 5.2 components are currently separated by 6.4 arc-seconds.

The elder Herschel likely missed NGC 6482 because of its small size. The nucleus is a planetary-nebula-sized 40 by 30 arc-seconds, mandating a magnification of 200X or more. Viewed with my 10-inch f/5 reflector at 208X, NGC 6482 looked stellar when viewed directly, a roundish smudgy patch when viewed with averted vision.

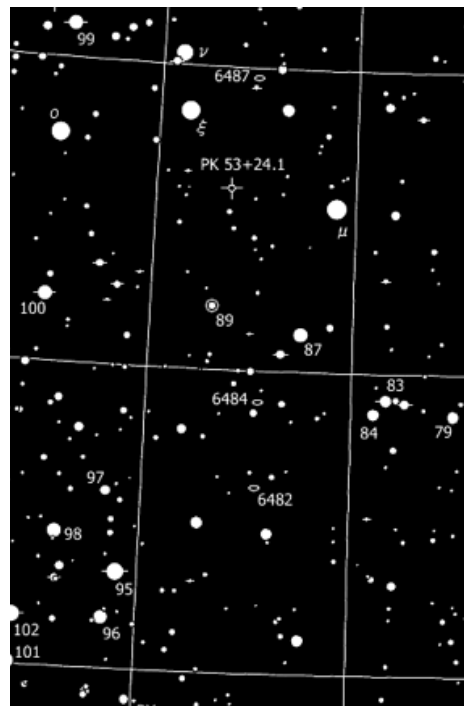
Before you dismiss NGC 6482 as just another run-of-the-mill elliptical galaxy, think again. That insignificant-looking puffball is the nearest example of what astronomers refer to as a "fossil galaxy" or "fossil group" – an isolated giant galaxy whose mass (particularly in dark matter) and X-ray luminosity are comparable to those of an entire group of galaxies. It's possible that NGC 6842 is a result of the mergers of a group of galaxies into one. Distances to NGC 6842 are uncertain, with several sources citing 190 million light years.

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

Challenge or access past reports, log on to rogerivester.com/category/observers-challenge-reports-complete.



IAU and Sky & Telescope



bristolweather.org.uk (Map by Toshimi Taki. Stars shown to magnitude 8.5)



Mario Motta, MD (ATMoB)

The Sun, Moon & Planets in July

This table contains the ephemeris of the objects in the Solar System for each Saturday night in July 2019. 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
Sun	6	6 59.4	22 43.9	Gem	-26.8	1887.6	-	-	-	1.02	05:17	12:51	20:24
	13	7 28.0	21 53.6	Gem	-26.8	1888	-	-	-	1.02	05:22	12:52	20:21
	20	7 56.3	20 44.9	Gem	-26.8	1888.6	-	-	-	1.02	05:28	12:52	20:16
	27	8 24.1	19 19.1	Cnc	-26.8	1889.7	-	-	-	1.02	05:34	12:52	20:10
Moon	6	10 00.1	15 01.7	Leo	-10.6	1989.2	44° E	14	-	-	09:37	16:40	23:32
	13	16 15.6	-18 21.8	Sco	-12.4	1872.6	134° E	85	-	-	17:39	22:33	03:23
	20	22 21.4	-14 55.9	Aqr	-12.4	1761.1	146° W	91	-	-	22:11	03:28	08:52
	27	3 40.5	14 35.1	Tau	-11.3	1842.2	67° W	31	-	-	01:20	08:34	15:58
Mercury	6	8 24.4	17 04.9	Cnc	1.5	10.3	21° E	18	0.47	0.65	07:07	14:13	21:18
	13	8 19.4	15 37.0	Cnc	2.5	11.4	14° E	7	0.46	0.59	06:39	13:39	20:38
	20	8 02.5	15 27.4	Cnc	3.5	11.7	5° E	1	0.44	0.58	05:55	12:54	19:53
	27	7 45.1	16 30.6	Gem	2.9	10.8	10° W	4	0.41	0.62	05:06	12:10	19:14
Venus	6	6 12.6	23 25.3	Gem	-3.8	10.0	11° W	98	0.72	1.69	04:29	12:05	19:40
	13	6 50.0	23 14.2	Gem	-3.8	9.9	9° W	99	0.72	1.71	04:40	12:14	19:49
	20	7 27.2	22 29.6	Gem	-3.8	9.9	7° W	99	0.72	1.72	04:53	12:24	19:54
	27	8 03.9	21 12.7	Cnc	-3.8	9.8	5° W	100	0.72	1.72	05:08	12:33	19:57
Mars	6	8 20.5	20 43.9	Cnc	1.8	3.6	19° E	99	1.65	2.58	06:49	14:11	21:32
	13	8 38.9	19 39.2	Cnc	1.8	3.6	17° E	99	1.66	2.60	06:44	14:01	21:18
	20	8 57.0	18 28.0	Cnc	1.8	3.6	14° E	99	1.66	2.62	06:40	13:52	21:04
	27	9 14.9	17 10.7	Cnc	1.8	3.5	12° E	100	1.66	2.64	06:35	13:42	20:48
1 Ceres	6	15 56.8	-18 59.3	Lib	7.9	0.6	137° E	98	2.80	1.96	16:53	21:43	02:34
	13	15 55.0	-19 19.2	Lib	8.0	0.6	130° E	98	2.80	2.03	16:25	21:14	02:03
	20	15 54.4	-19 41.4	Lib	8.2	0.6	124° E	98	2.81	2.11	15:59	20:46	01:34
	27	15 55.0	-20 05.5	Lib	8.3	0.6	117° E	97	2.81	2.20	15:34	20:20	01:05
Jupiter	6	17 01.5	-22 14.0	Oph	-2.4	45.1	153° E	100	5.29	4.37	18:11	22:48	03:24
	13	16 58.6	-22 11.2	Oph	-2.4	44.5	145° E	100	5.29	4.42	17:40	22:17	02:54
	20	16 56.3	-22 09.1	Oph	-2.3	43.9	138° E	100	5.29	4.48	17:11	21:48	02:25
	27	16 54.6	-22 07.7	Oph	-2.3	43.1	131° E	99	5.28	4.56	16:41	21:19	01:56
Saturn	6	19 15.6	-21 58.3	Sgr	0.1	18.3	176° W	100	10.05	9.04	20:28	01:06	05:44
	13	19 13.4	-22 02.9	Sgr	0.1	18.3	177° E	100	10.05	9.03	19:54	00:32	05:09
	20	19 11.3	-22 07.3	Sgr	0.1	18.3	169° E	100	10.05	9.05	19:25	00:02	04:39
	27	19 09.2	-22 11.5	Sgr	0.1	18.2	162° E	100	10.05	9.08	18:56	23:33	04:10
Uranus	6	2 15.7	13 04.3	Ari	5.8	3.5	68° W	100	19.84	20.21	01:15	08:05	14:55
	13	2 16.4	13 07.9	Ari	5.8	3.5	74° W	100	19.84	20.09	00:48	07:38	14:28
	20	2 17.0	13 10.8	Ari	5.8	3.5	81° W	100	19.84	19.98	00:21	07:11	14:02
	27	2 17.4	13 12.8	Ari	5.8	3.5	87° W	100	19.84	19.86	23:53	06:44	13:35
Neptune	6	23 19.9	-5 25.6	Aqr	7.9	2.3	115° W	100	29.94	29.49	23:27	05:10	10:52
	13	23 19.7	-5 27.5	Aqr	7.8	2.3	122° W	100	29.94	29.39	22:59	04:42	10:24
	20	23 19.4	-5 29.8	Aqr	7.8	2.3	129° W	100	29.94	29.29	22:32	04:14	09:56
	27	23 19.0	-5 32.7	Aqr	7.8	2.3	135° W	100	29.94	29.20	22:04	03:46	09:28
Pluto	6	19 35.8	-22 01.5	Sgr	14.2	0.2	172° W	100	33.83	32.83	20:48	01:26	06:04
	13	19 35.1	-22 03.8	Sgr	14.2	0.2	178° W	100	33.84	32.82	20:20	00:58	05:35
	20	19 34.3	-22 06.1	Sgr	14.2	0.2	175° E	100	33.84	32.83	19:48	00:25	05:03
	27	19 33.6	-22 08.3	Sgr	14.2	0.2	168° E	100	33.85	32.85	19:20	23:57	04:34

Photo Gallery



Waxing crescent Moon, June 8
from Seagrave Observatory by
.Laura Landen Photography
www.LauraLanden.com
Nikon D850 camera, Nikon 500mm f/5.6
PF lens, Nikon 1.4 TC14 iii teleconverter,
1/250 sec, f/8.0, ISO 800

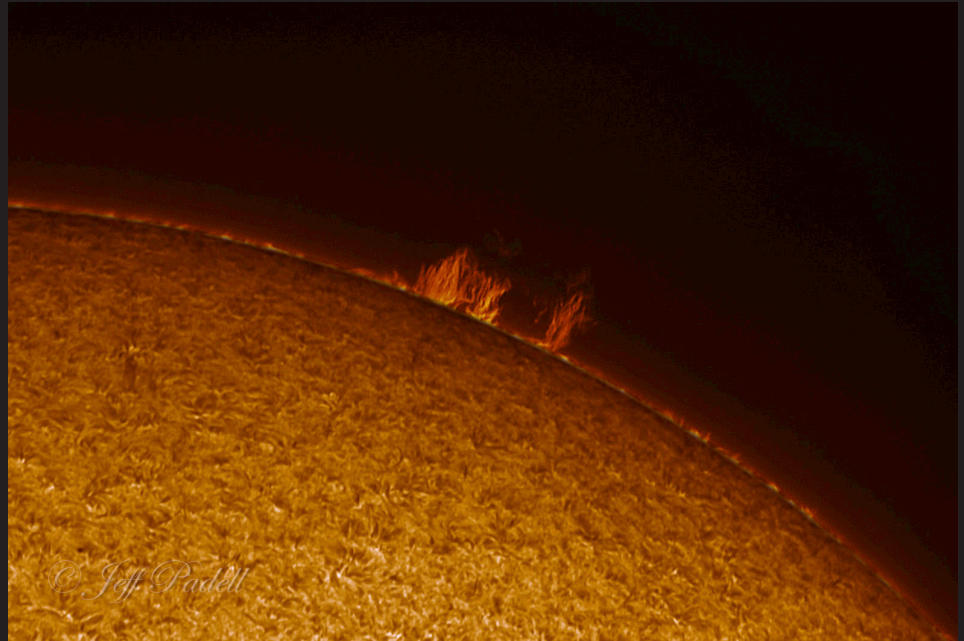


Waxing crescent Moon with
Earthshine on July 6 by Tracy Prell.



Globular cluster M13 taken with
the Slooh 17" Planewave and
processed by Jeff Padell.

Solar prominence on June 5th by Jeff Padell using Lunt ED102 F/7, Quark Chromosphere, ZWO ASI174mm



July 2 total solar eclipse near La Serena, Chile by Steve Hubbard using 24mm lens.



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