



the Skyscraper

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February 2022

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

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Observing at Cerro Tololo Before and During the Pandemic

An Online Presentation by Ian Dell'Antonio
Saturday, February 5, 7:00pm EST via Zoom

Contact [Linda Bergemann \(LBergemann@aol.com\)](mailto:LBergemann@aol.com)
for Zoom Meeting link and information.

Synopsis:

Ian will talk about what goes into an observing run at the Blanco 4m telescope, based on experiences and pictures taken over his years of heading to Chile, and compare it with the experience of observing remotely from Providence as travel to the observatory has been impossible. He will also talk a bit about the research program they have been doing on the telescope.

Speaker Bio:

Ian Dell'Antonio has been a professor of physics at Brown since 1999, and a member of Skyscrapers since 2003. Before that, he was a postdoctoral researcher at Bell Labs and a research fellow at the National Optical Astronomy Observatories in Tucson, Arizona. His research involves using the bending of light due to gravity to study galaxies, galaxy clusters, and the contents of the Universe as a whole.



Seagrave Memorial
Observatory
Open Nights

Saturday, February 12
Saturday, February 26

Skylights: February 2022

by Jim Hendrickson

February opens with **Lunar New Year**, Year of the Tiger. New Moon occurs on the 1st, beginning Lunation 1226.

We are entering the time of year when the waxing crescent Moon sits high above the southwestern horizon after sunset, so if this is your favorite lunar phase, this is the best time of year to observe it. However, as the Moon lies well south of the ecliptic during this phase, we won't get the distinct U-shaped crescent, with the cusps pointed nearly perpendicular to the horizon.

As the Moon progresses through its phases this month, one of the more notable differences from the previous months is that, as it begins to traverse the Winter Hexagon, it is a distinct small gibbous, unlike around the time of solstice when it was nearly full. This is one of the sky's indicators that spring is fast approaching.

Continuing our journey with the waxing Moon, just after midnight on the 11th-12th, the Moon passes just over one degree north

of the open cluster **M35** in Gemini. On the 13th, the Moon joins the twins, **Pollux and Castor**, being in line with the pair at about 10pm. On the 14th, we find the Moon just 2.5° north of the Beehive Cluster, **M44**, in Cancer. This will make a nice binocular pair.

The **Full Snow Moon** rises just one minute before sunset on the 16th. When the sky darkens a bit, find **Regulus**, in Leo, just 4.5° to the right of the Moon.

As the Moon wanes, find it rising near **Spica** on the 20th, and early in the morning of the 22nd, it is just 1/2° from the double star **Zubenelgenubi** in Libra. An occultation occurs for observers a bit north and west of us, but we'll only get treated to the close encounter in southern New England.

On the 24th, the waning crescent Moon rises just 2.5° north of **Antares** in Scorpius, and on the 27th it is located near Mars.

The **Sun** crosses into Aquarius on the 16th, and by now you're probably noticing

Events in February

- 1 New Moon
- 2 Moon 4.4° S of Jupiter
- 3 Moon 3.8° S of Neptune
- 3 Mercury Stationary
- 4 Saturn Conjunction
- 5 Mars 0.2° N of M22
- 7 Moon 1.6° SE of Uranus
- 8 First Quarter
- 12 Venus Greatest Brillancy (mag. -4.9)
- 16 Full Moon
- 16 Mercury Greatest Elongation West (26°)
- 23 Last Quarter
- 26 Mars 1.6° S of Vesta
- 27 Moon 4.3° S of Mars
- 28 Moon, Mercury & Saturn in 10° line

Ephemeris times are in EST (UTC-5) for Seagrave Observatory (41.845N, 71.590W)

that it is higher in the sky than it was just a few weeks ago, as it is now close to halfway in declination between solstice and equinox. As it is higher in declination, we're also enjoying its presence in our sky longer, and the days of the post 5pm sunsets are upon us beginning on the 1st.



Skyscrapers Presentations on YouTube

Many of our recent monthly presentations on Zoom have been recorded and published, with permission, on the Skyscrapers YouTube channel. Go to the URL below to view recent presentations.

<https://www.youtube.com/c/SeagraveObservatorySkyscrapersInc>



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 **February 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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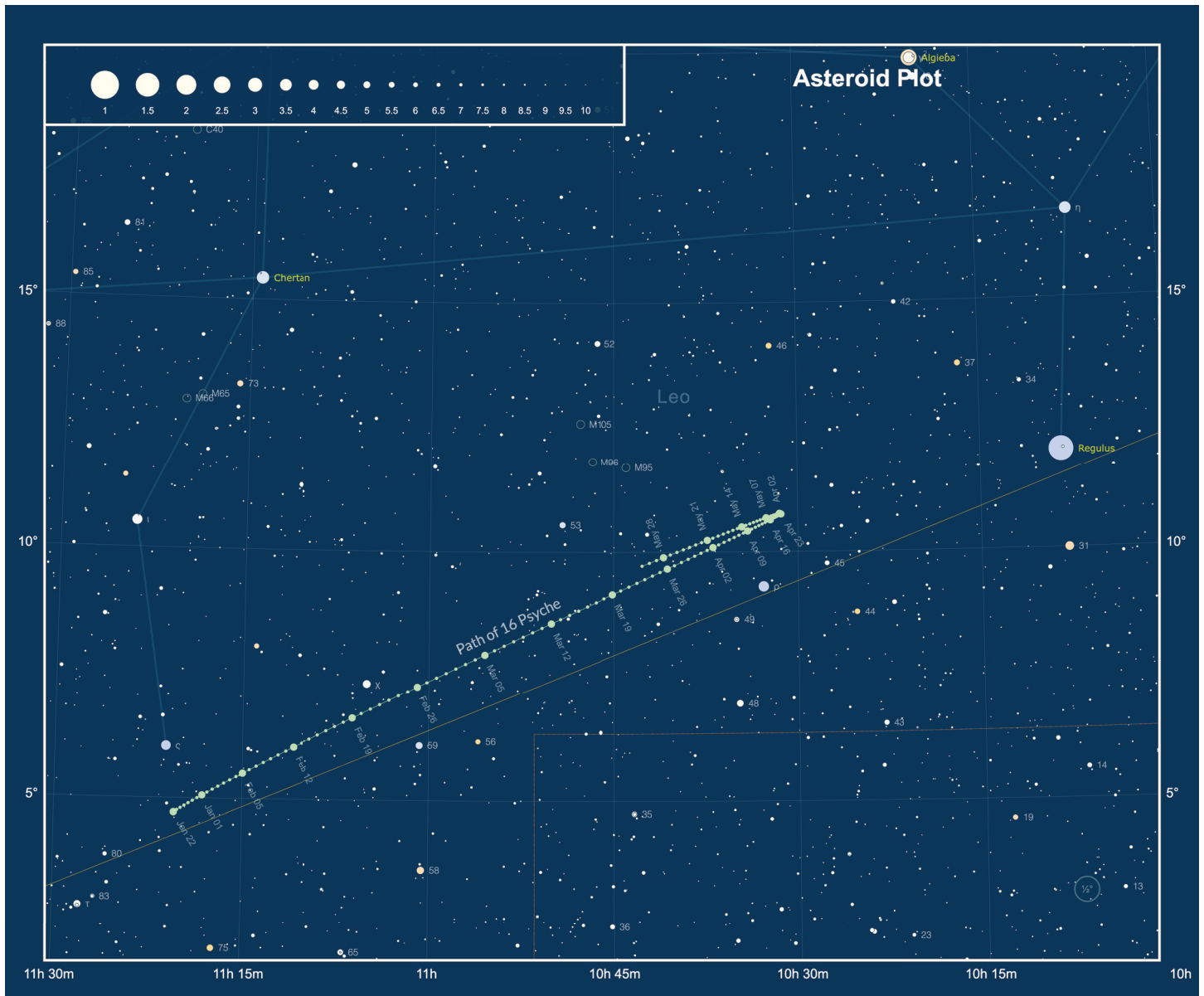
The **Sun** crosses into Aquarius on the

16th, and by now you're probably noticing that it is higher in the sky than it was just a few weeks ago, as it is now close to halfway in declination between solstice and equinox. As it is higher in declination, we're also enjoying its presence in our sky longer, and the days of the post 5pm sunsets are upon us beginning on the 1st.

We turn to the morning sky to explore our solar system's inner rocky planets this month, as Mercury, Venus and our nearest outer planet, Mars are visible before sunrise.

Mercury reaches maximum elongation of 27° west of the Sun on the 16th, although the ecliptic angle in the morning is not in its favor for this apparition, and it never rises more than 80 minutes before the Sun.

Venus and Mars perform a nice pairing, as they both track eastward at approximately the same rate throughout February, straddling the Teaspoon asterism of Sagit-



tarius through the middle of the month.

Turning your telescope on **Venus** reveals that it shows a widening crescent phase throughout the month, but as the planet moves away from Earth, its disk shrinks in apparent size from 48.5 to 31.6 arcseconds. It is 0.5 AU away on the 24th. Venus is at its greatest illumination (magnitude -4.9) on the 12th.

Mars remains over 2 AU away until the end of the month, and as such it remains rather small in a telescope, showing us its full face at under 5 arcseconds. It will be worth taking a gaze at Mars on the morning of the 5th, when it passes over the northern fringes of the large and bright globular cluster **M22**.

A notable conjunction occurs on the 27th, when the waning crescent Moon aligns with Venus and Mars. Asteroid 4 **Vesta**, shining at magnitude 8.0 at a distance of 2.760 AU, lies along the line between Venus and Mars as well, and if you're up for a challenge, dwarf planet Pluto is just a 3.0° to the east of Mars, at a distance of 35.215 AU and magnitude 14.5.

February is not a good month for viewing the outer solar system's gas and ice giants, as all but Uranus lie on the opposite side of the Sun from our perspective.

We're now in the final days of viewing **Jupiter** in our evening sky. The last notable event occurs on the 2nd, when the waxing crescent Moon lies 4° south of the brilliant planet. This should make a striking pair in

the twilight sky with the globe of the Moon illuminated by Earthshine.

Saturn will not be visible this month, as it passes through conjunction on the 4th.

Uranus remains in favorable viewing position, high in the southwest after dusk. Located in southern Aries, it can be found about halfway between Hamal (Alpha Arietis) and Menkar (Alpha Ceti). The 6-day waxing crescent Moon is 1.5° to its southeast on the 7th.

Although **Neptune** remains in the evening sky for about two hours after sunset, it is too low to permit any practical observation. If you do plan to observe it, an opportune night would be the 3rd, when not only the waxing crescent Moon lies 3.5° to its south, but it also makes a close pass (about 88 arcseconds) to the 6th magnitude star HD 221148 in eastern Aquarius. The star is a class K3 orange giant, which should make a fine color-contrasting pair. HD 22148 is 154 light-years distant, while Neptune is 257 light minutes from us.

Dwarf planet **Ceres** is once again moving prograde, tracking eastward through Taurus. Its 8th magnitude starlike appearance can be found within a few degrees of the Pleiades cluster throughout the month.

Turning our attention to the dome of the sky above us as twilight fades, we find that **Cygnus**, a summer constellation, is finally departing our evening sky in the northwest. The **Great Square** of Pegasus assumes the form of a diamond above the western

horizon in early evenings, as the **Winter Hexagon** maintains a prominent position throughout the month. The **Pleiades** cross the meridian just as twilight ends. Early and late February, the segments of the month not awash in bright moonlight, are good times to explore the winter Milky Way.

To the north, we find that the entire Big Dipper, and in turn, all of **Ursa Major**, is now visible just after dark, with the bear standing upright on its tail. Leo begins transiting the meridian at local midnight, indicating that this is the beginning of galaxy season. Likewise, the end of February presents the first of this year's two best opportunities to conduct the annual Messier Marathon. The next one occurs in late March.

There are two notable asteroids near opposition over the coming weeks. **20 Mas-salina**, a 150 kilometer main belt asteroid, reaches opposition on February 5, and is visible in Cancer, southeast of the Beehive cluster. It is closest to Earth on the 2nd at a distance of 1.12 AU, and fades from magnitude 8.5 in early February to 9.3 towards the end of the month.

Finally, **16 Psyche**, the target object of NASA's Psyche mission set to launch in August, reaches opposition on March 5. Psyche is a 220-kilometer metallic asteroid believed to hold clues to protoplanetary formation in our early solar system. At closest approach it will be 2.226 AU away in Leo, shining at magnitude 10.5, so it will be best observed with a telescope.

Two Snowstorms & a Cross-Quarter Day

by Francine Jackson

Right now, looking out my window, the remains of what is being called the Blizzard of 2022 are all over my yard, the neighborhood, and still a part of the roads the plows weren't able to pick up. Around the Southern New England area, we received as much as two feet, with some gale-force winds blowing the snowfall sideways, and, the temperatures all around the area teasing around the single digits.

For many, this storm brought us back to February 6, 1978, when a "light snow" stopped moving, dropping way over two feet all over Rhode Island, Connecticut and Massachusetts. The snow came so fast, that many people found themselves stranded in their cars, which littered the freeways. Over 3,000 cars were counted on Rhode Island highways alone. Many couldn't leave their

workplaces, schools, or stores: Those who found themselves stuck in grocery stores were the luckiest. With the National Guard racing to our aid, we were finally back to normal a week later.

The unique side of these two storms is that this year's took place four days before Groundhog Day, while 1978 happened four days after. February 2nd, when we celebrate the famed cuddly mammal, is actually one of the four cross-quarter days, the day marking the middle of a season. According to legend, the first day of the season to the cross-quarter day marks the main force of the seasonal weather, culminating in the middle of it. Afterwards, the season is expected to slow down, in anticipation of the change to whichever season is to come.

Although our famed groundhog, Punx-

sutawney Phil, is believed by his handlers to accurately predict the rest of the winter season, the weather services state he's closer to 39%. This year's storm came before Phil could let us know what to expect. I tried to go back in time to learn whether he predicted our 1978 blizzard, but couldn't seem to find it. Perhaps he wasn't as accurate as his handlers believed he was that year, and squelched his result.

Whichever prediction we receive this year, we have to remember: This is only temporary. Within six weeks, we will begin the new season of spring. Sorry, Phil, we may listen to you, with tongue in cheek, but we'll take Nature's cycle over you, whatever it may bring us.

The Sun, Moon & Planets in February

This table contains the ephemeris of the objects in the Solar System for each Saturday night in February 2022. Times in Eastern Standard Time (UTC-5). 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	5	21 14.4	-15 59.8	Cap	-26.8	1946.7	-	-	-	0.99	06:54	12:00	17:07
	12	21 42.3	-13 46.4	Cap	-26.8	1944.4	-	-	-	0.99	06:45	12:00	17:16
	19	22 09.5	-11 21.9	Aqr	-26.8	1941.7	-	-	-	0.99	06:36	12:00	17:24
	26	22 36.2	-8 48.6	Aqr	-26.8	1938.6	-	-	-	0.99	06:25	11:59	17:33
Moon	5	0 22.4	-2 21.1	Psc	-10.7	1882.7	49° E	17	-	-	09:30	15:47	22:16
	12	6 02.3	25 52.8	Tau	-12.3	1801	127° E	80	-	-	13:11	21:13	05:13
	19	12 01.8	4 07.7	Vir	-12.6	1865.6	152° W	94	-	-	19:34	02:02	08:18
	26	18 19.4	-26 45.1	Sgr	-11.3	1918.1	63° W	27	-	-	03:52	08:16	12:41
Mercury	5	19 43.4	-18 45.9	Sgr	0.8	8.7	22° W	32	0.39	0.78	05:35	10:27	15:18
	12	19 57.6	-19 30.4	Sgr	0.3	7.5	26° W	51	0.43	0.90	05:26	10:15	15:04
	19	20 25.9	-19 17.4	Cap	0.1	6.7	26° W	64	0.45	1.01	05:26	10:17	15:07
	26	21 01.5	-18 02.3	Cap	0.1	6.1	25° W	73	0.47	1.11	05:29	10:25	15:22
Venus	5	18 49.4	-16 23.5	Sgr	-4.4	46.7	35° W	19	0.72	0.36	04:32	09:33	14:35
	12	19 00.1	-16 41.1	Sgr	-4.5	41.6	39° W	25	0.72	0.41	04:16	09:17	14:17
	19	19 16.5	-16 54.9	Sgr	-4.4	37.2	42° W	31	0.72	0.46	04:06	09:06	14:06
	26	19 37.1	-16 57.0	Sgr	-4.4	33.4	44° W	36	0.72	0.51	03:59	08:59	13:59
Mars	5	18 36.5	-23 42.8	Sgr	1.4	4.4	38° W	96	1.49	2.14	04:51	09:21	13:52
	12	18 58.9	-23 22.5	Sgr	1.4	4.5	40° W	95	1.48	2.10	04:44	09:16	13:49
	19	19 21.2	-22 50.6	Sgr	1.3	4.5	42° W	95	1.47	2.06	04:36	09:11	13:46
	26	19 43.5	-22 07.2	Sgr	1.3	4.6	44° W	94	1.46	2.01	04:27	09:06	13:44
1 Ceres	5	3 51.1	20 11.2	Tau	8.3	0.5	104° E	97	2.69	2.28	11:14	18:33	01:53
	12	3 55.2	20 43.6	Tau	8.4	0.5	98° E	97	2.68	2.37	10:48	18:10	01:32
	19	4 00.3	21 17.2	Tau	8.5	0.5	92° E	96	2.68	2.46	10:23	17:48	01:12
	26	4 06.5	21 51.4	Tau	8.6	0.5	86° E	96	2.67	2.55	09:59	17:26	00:54
Jupiter	5	22 40.6	-9 25.1	Aqr	-1.9	33.4	22° E	100	4.99	5.89	07:55	13:24	18:52
	12	22 46.8	-8 47.9	Aqr	-1.9	33.2	17° E	100	4.98	5.92	07:32	13:02	18:33
	19	22 53.1	-8 10.0	Aqr	-1.9	33.1	11° E	100	4.98	5.95	07:08	12:41	18:14
	26	22 59.3	-7 31.5	Aqr	-1.9	33.0	6° E	100	4.98	5.97	06:44	12:20	17:55
Saturn	5	21 14.8	-16 51.8	Cap	0.7	15.2	1° W	100	9.91	10.9	06:58	11:58	16:57
	12	21 18.1	-16 37.1	Cap	0.7	15.2	6° W	100	9.91	10.89	06:33	11:33	16:34
	19	21 21.4	-16 22.5	Cap	0.8	15.2	13° W	100	9.91	10.87	06:08	11:09	16:11
	26	21 24.7	-16 07.9	Cap	0.8	15.3	19° W	100	9.91	10.84	05:42	10:45	15:48
Uranus	5	2 34.6	14 44.5	Ari	5.8	3.6	85° E	100	19.72	19.78	10:20	17:16	00:13
	12	2 35.1	14 47.0	Ari	5.8	3.5	78° E	100	19.72	19.9	09:53	16:49	23:46
	19	2 35.7	14 50.3	Ari	5.8	3.5	71° E	100	19.72	20.02	09:25	16:22	23:20
	26	2 36.5	14 54.3	Ari	5.8	3.5	64° E	100	19.71	20.13	08:58	15:56	22:53
Neptune	5	23 30.8	-4 22.7	Aqr	8.0	2.2	35° E	100	29.92	30.72	08:27	14:13	19:59
	12	23 31.6	-4 17.1	Aqr	8.0	2.2	29° E	100	29.92	30.78	08:00	13:46	19:33
	19	23 32.5	-4 11.3	Aqr	8.0	2.2	22° E	100	29.92	30.83	07:33	13:20	19:07
	26	23 33.5	-4 05.2	Aqr	8.0	2.2	15° E	100	29.92	30.87	07:06	12:53	18:41
Pluto	5	19 58.0	-22 29.2	Sgr	14.4	0.2	19° W	100	34.46	35.39	06:05	10:41	15:17
	12	19 58.9	-22 27.4	Sgr	14.4	0.2	26° W	100	34.46	35.35	05:38	10:14	14:50
	19	19 59.8	-22 25.7	Sgr	14.4	0.2	33° W	100	34.47	35.29	05:12	09:48	14:24
	26	20 00.6	-22 24.2	Sgr	14.5	0.2	40° W	100	34.47	35.23	04:45	09:21	13:57

Hang Out with the Twins of Gemini

By David Prosper

The night skies of February are filled with beautiful star patterns, and so this month we take a closer look at another famous constellation, now rising high in the east after sunset: Gemini, the Twins!

If you're observing Orion, as discussed in last month's article, then Gemini is easy to find: just look above Orion's "head" to find Gemini's "feet." Or, make a line from brilliant blue-white Rigel in the foot of Orion, through its distinct "Belt," and then on through orange Betelgeuse. Keep going and you will end up in between the bright stars Castor and Pollux, the "heads" of the Gemini Twins. While not actually related – these stars aren't bound to each other, and are almost a magnitude apart in brightness – they do pair up nicely when compared to their surrounding stars. Take note: more than one stargazer has confused Gemini with its next-door neighbor constellation, Auriga. The stars of Auriga rise before Gemini's, and its brightest star, Capella, doesn't pair up as strikingly with its second

most brilliant star as Castor and Pollux do. Star-hop to Gemini from Orion using the trick above if you aren't sure which constellation you're looking at.

Pollux is the brighter of Gemini's two "head" stars - imagine it has the head of the "left twin" - and located about 34 light-years away from our Solar System. Pollux even possesses a planet, Pollux b, over twice the mass of Jupiter. Castor - the head of the "right twin" - by contrast, lies about 51 light-years distant and is slightly dimmer. While no planets have been detected, there is still plenty of company as Castor is actually a six-star system! There are several great deep-sky objects to observe as well. You may be able to spot one with your unaided eyes, if you have dark skies and sharp eyes: M35, a large open cluster near the "right foot" of Gemini, about 3,870 light-years away. It's almost the size of a full Moon in our skies! Optical aid like binoculars or a telescope reveals the cluster's brilliant member stars. Once you spot M35, look around

to see if you can spot another open cluster, NGC 2158, much smaller and more distant than M35 at 9,000 light-years away. Another notable object is NGC 2392, a planetary nebula created from the remains of a dying star, located about 6,500 light-years distant. You'll want to use a telescope to find this intriguing faint fuzzy, located near the "left hip" star Wasat.

Gemini's stars are referenced quite often in cultures around the world, and even in the history of space exploration. NASA's famed Gemini program took its name from these stars, as do the appropriately named twin Gemini North and South Observatories in Hawaii and Chile. You can discover more about Gemini's namesakes along with the latest observations of its stars and related celestial objects at 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 to find local clubs, events, and more!



Castor and Pollux are Gemini's most prominent stars, and often referred to as the "heads" of the eponymous twins from Greek myth. In Chinese astronomy, these stars make up two separate patterns: the Vermilion Bird of the South and the White Tiger of the North. What do you see? The Night Sky Network's "Legends in the Sky" activity includes downloadable "Create Your Own Constellation" handouts so you can draw your own star stories: bit.ly/legendsinthesky Image created with assistance from Stellarium.



Montage of Gemini North, located on Mauna Kea in Hawaii, and Gemini South, located on Cerro Pachón in Chile. These “twin” telescopes work together as the Gemini Observatory to observe the entire sky.

Image Credit: NOIRLab Source: <https://www.gemini.edu/gallery/media/gemini-northsouth-montage>

December Reports

Minutes-Skyscrapers Executive Committee Meeting via Zoom

Tuesday December 28, 2021 7PM

Meeting called to order at 7:02PM by President Steve Siok

Present: Steve Siok, Kathy Siok, Steve Hubbard, Sue Hubbard, Linda Bergemann, Francine Jackson, Jim Hendrickson, Bob Janus, Ian Dell'Antonio, Jim Crawford, Rich Doherty, Michael Corvese, Angella Johnson, Ed Walsh, Bob Horton, Dave Huestis, Dan Fountain

President Steve Siok introduced some new faces to the committee: Ed Walsh, Rich Doherty, Dan Fountain, Mike Corvese, Angella Johnson

1. Decision about the next 2 Member Meetings- Scheduled for January 8 and February 5. All agreed that they will meet via Zoom. The March 5 meeting date might be in person as the community center has been reserved.

2. Upcoming Speakers/Steve Hubbard- January 8-Tim Rehm, PHD candidate at Brown, will share his exo-planet research. February 5- Ian Dell'Antonio, Professor at Brown and Skyscraper member, will report on his observing trip to Cerro Tololo Observatory in Chile before and after the pandemic. March 5-Rick Lynch, Skyscraper member, will present details of his visit to Galileo's birthplace in Italy.

3. Treasurer's Report/ Kathy Siok- Notable details to date • About \$1600.00 was cleared from AstroAssembly this year. • Our donations increased to over \$5600

partly due to a large gift from one of our members. • Additional income was received from selling items donated by the families of deceased members of Skyscrapers. Thanks to Bob Horton and Dave Huestis for their efforts. • Our finances are very sound and expenses are low at this time.

4. Trustees' Report/Bob Janus • The roll off roof observatories have been refurbished. • The Patton motor has been removed and is in the process of being refurbished. • Our sound system was configured for use during a remote Zoom broadcast into the meeting hall and also into the Community Center. • Thanks to Bob Napier who has arranged for our use of WIFI set up by the Scituate Boy Scouts in the Community Center. • The family of Kent Cameron has donated his Orion Cassegrain telescope, which will be used for observing at Seagrave, and a 5" Dobsonian, which will be used as a loaner to members. Eyepieces and other accessories were also part of this donation. • Bob Janus has trained several new members to use the 12" telescope and Bob Horton will serve as a mentor to those members who would like to learn how to use the Alvan Clark telescope. All new operators will help during open nights.

5. Program Committee/Linda Bergemann • The Program Committee will meet on January 12th. • January 15 and 29 are planned open nights. • A Library telescope was awarded to Skyscrapers from the Night Sky Network and will be donated to the Scituate Library in late January. We

New Members Welcome to Skyscrapers

Roger & Sarah Houle
of North Scituate

Christine & Richard
Chretien of Slatersville

Bonnie England
of Wakefield

Katie Silva of Fall River

will try to get some media coverage for the event. • Upcoming Workshops this month via Zoom: Michael Corvese – Astronomical League Lunar Observation Program • Conrad C. – Introduction to Astro-Photography (a 3 night workshop) • **Still hoping for more members to host future workshops.

6. Timeline for 2022 Elections • January: Nominations Committee Appointed by President • March: Nominations Closed, Membership Balloting electronically • April: Election results announced at Annual Meeting • May: New Officers take over • Job Descriptions for each officer are part of the Skyscraper Bylaws – available on the website.

7. Other- • Dave Huestis has been using “AstroMart” to sell our surplus books/magazines, but has encountered some problems. It was suggested he use “Cloudy Nights”. • There was a brief discussion of what to do with the boxes of astronomical maps donated to Skyscrapers. It was agreed that they hold little value and may be recycled.

There being no further business, we adjourned at 8:12PM.

Respectfully submitted,
Sue Hubbard, Secretary
1/07/2022

Emission Nebulae in Orion: M42 & M43

by Glenn Chaple for LVAS

M42 (Magnitude 3.6, Size 70'x60')

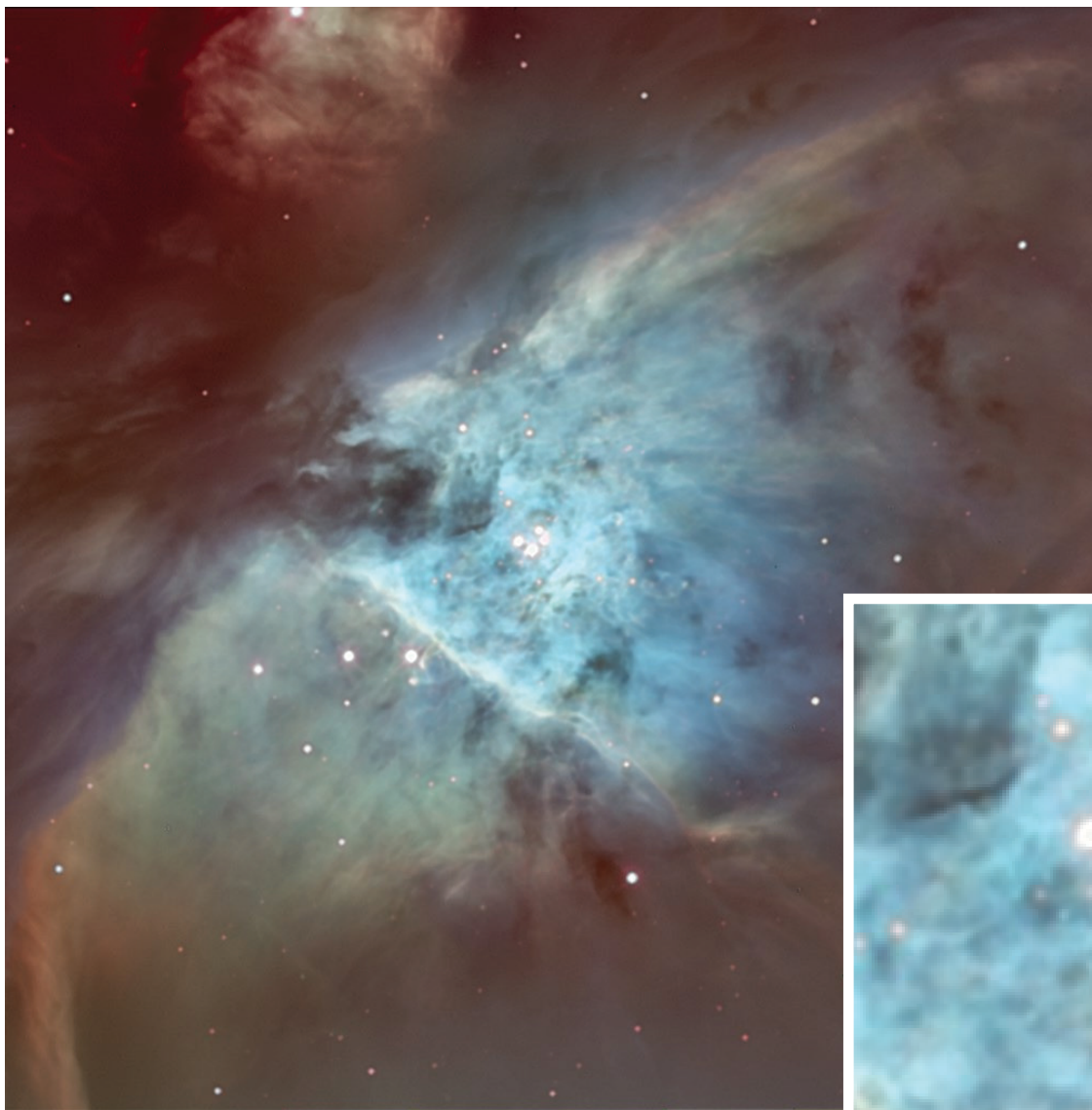
M43 (Magnitude 9.0, Size 20'x15')

This month's Observer's Challenge is (drum roll) M42/M43, the Orion Nebula! You might ask why a deep-sky object that's easy to find (it's in the Sword of Orion) and see (it's bright enough to be viewed with binoculars) would be considered a challenge.

Let's begin with M42, the brighter of the two. It was discovered in 1610 by the French astronomer Nicolas-Claude Fabri de Peiresc and cataloged by Charles Messier on March 4, 1769. Binoculars and small-aperture telescopes will reveal the bright northeast part of M42, which resembles the outspread wings of a celestial eagle. One challenge is to visually capture the nebula's faint southerly region. Because M42 spans 85' by 60', you'll

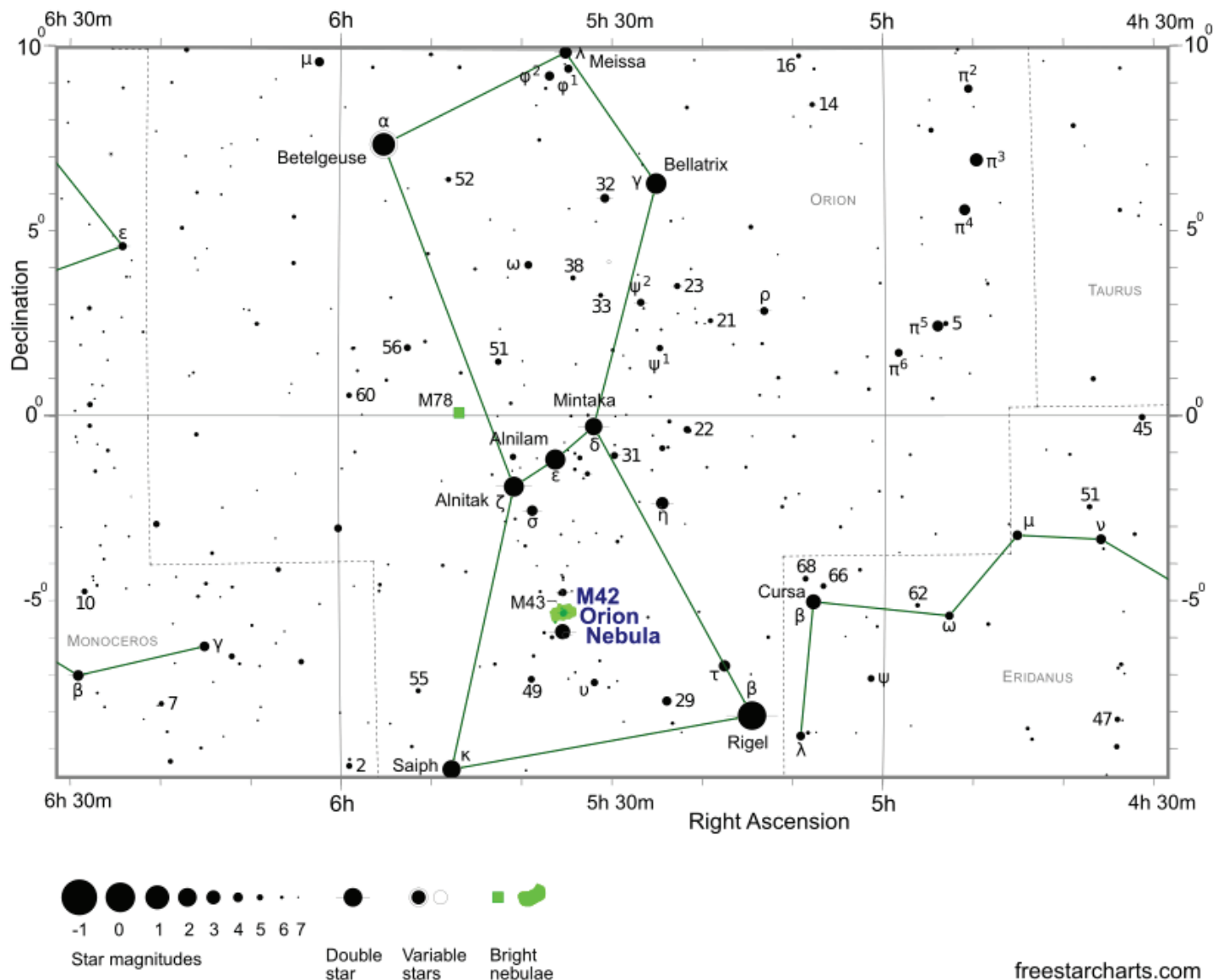
want to work with a low-power, wide-field eyepiece. A second visual challenge is to detect M42's greenish hue. I've seen it with a 13.1-inch f/4.5 scope, but not with a 4.5-inch. What is the smallest aperture that will reveal this subtle hue? Find out, and forward your result to Challenge coordinator Roger Ivester.

Being fainter and thus overshadowed by M42, M43 eluded detection until reported by Jean-Jacques Dortous de Mairan in 1731. Messier entered it in his catalog on the same date as M42. It is separated from M42 by a dark, dusty lane and surrounds the irregular variable star NU Orionis (magnitude range 6.5 to 7.6). The nebula's published magnitude of 9.0 might be on the low side, as I've seen M43 with a 60mm refractor. Admit-



Messier 42 and 43 Image
(Insert: Trapezium)
(Mario Motta, MD [ATMoB] 32-
inch scope, Using NB imaging.
One hour total of the center
of M42

Messier 42 - M42 - Orion Nebula



tedly, it was small and faint, and only visible when I ramped up the magnification to 140X to remove M42 from the field of view. What I saw was a roundish haze surrounding NU Orionis. In larger instruments, M43 will take on a comma shape.

Looking for another challenge? At the heart of M42 is theta-1 (θ1) Orionis, a stunningly beautiful multiple star birthed from the surrounding nebulosity. The four brightest members, all hot and massive O- and B-type stars, form a lop-sided diamond known as the Trapezium. Labeled A to D in order of increasing right ascension, they shine at magnitudes 6.7, 7.9, 5.1, and 6.7, respectively. A and B are eclipsing binaries—the former, bearing the variable star designation V1016 Orionis, fading to magnitude 7.5 every 65.4 days, the latter (BM Orionis) dipping to 8.5 every 6.5 days. Galileo discov-

ered the three brightest members (A, C, and D) in 1617. The fourth (B), was discovered by the French astronomer Jean Picard in 1673. It can be difficult in a small-aperture scope, especially at the low magnification needed to view the entire Orion Nebula. If seeing conditions allow for a magnification of 200X or more, a 6-inch telescope will reveal two more stars – E (magnitude 10.3) and F (magnitude 10.2). Four other members- G, the tight double H1 and H2, and I- are extremely faint at magnitudes 14.5 to 15.5 and require large scopes and optimum seeing conditions. These are a true challenge!

Oh yeah- here's a final challenge. See if you can view the Orion Nebula, its gaseous wreaths embracing a diamond-like clutch of newborn stars, and not feel a sense of awe and wonder.

The Orion Nebula lies some 1350 light-

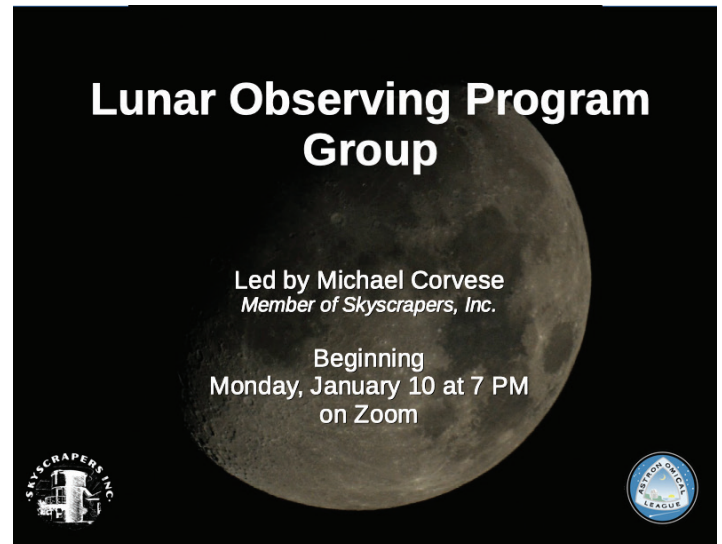
years away. Cosmically young, it is just 2 or 3 million years old. The stars in the Trapezium are even younger, perhaps no older than 300,000 years. M42 and M43 have linear diameters 23 and 7.5 light-years, respectively, while the brightest stars in the Trapezium span a distance of about 1.5 light-years.

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). To find out more about the Observer's Challenge or access past reports, log on to rogerivester.com/category/observers-challenge-reports-complete.

Lunar Observing Group Meeting

February 7 at 7 PM via Zoom



New participants are welcome to join at anytime. If you are interested in participating in this program, please send an email to corvesemichael@gmail.com



Lunar Observing Program Group

Led by Michael Corvese
Member of Skyscrapers, Inc.

Beginning
Monday, January 10 at 7 PM
on Zoom



Quest for the Northern Lights

Iceland Trip Rescheduled October 22-29, 2022

theSkyscrapers.org/iceland-2022

Launch of Skyscrapers Mobile App January 19, 2022

Submitted by Dave Huestis & Bob Janus

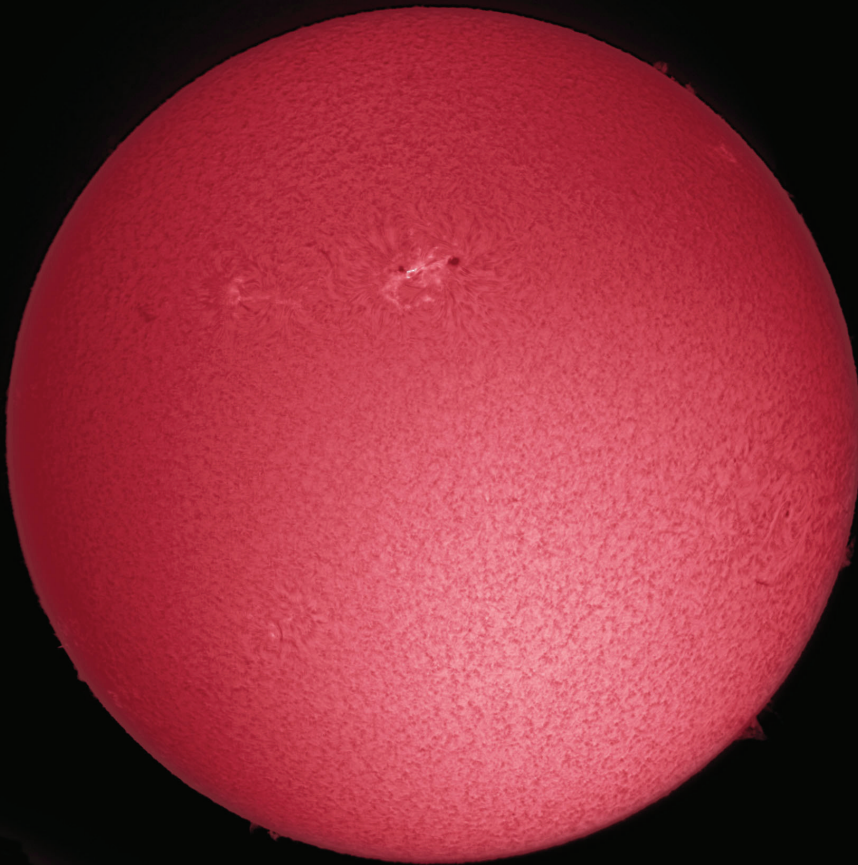
Skyscrapers, Inc., The Amateur Astronomical Society of Rhode Island, launched an astronomy app with the contents of over a thousand Astronomy and Sky and Telescope magazines today. It took brute force to upload all these issues into Bob Janus' Subaru Outback.

It was soon realized that access time to the contents would be limited, so they were downloaded to the Meeting Hall at Seagrave Observatory for future reference.





The Sun in white light & hydrogen-alpha taken on January 30, 2022 16h 52m UT by Greg Shanos. White light photosphere taken with a Meade 60mm refractor and thousand oaks solar filter. Hydrogen alpha chromosphere taken with a Coronado SolarMax II 60mm telescope.



STARRY SCOOP

Editor: Kaitlynn Goulette



WHAT'S UP

This month, the bright constellation Orion the Hunter dominates the skies. This star pattern is very recognizable because of its three belt stars, Alnitak, Alnilam, and Mintaka. These stars are almost directly on the celestial equator, making Orion visible from both the Northern and Southern Hemisphere.

Found in Orion, the bright star Rigel is part of a large asterism called the Winter Hexagon. This pattern is made of six bright stars that span more than 65 degrees from north to south and 45 degrees from east to west. The Winter Hexagon is a favorite for both beginners and seasoned stargazers because once you locate it, you can navigate your way around the winter sky with ease. It's comprised of the stars Rigel, Aldebaran, Capella, Pollux, Procyon, and Sirius.

Jupiter can be found shining low in the western sky directly after sunset in early February. As the month continues, it becomes more difficult to spot over the tree line as it follows the setting sun beyond the horizon. On February 2nd, the very thin waxing crescent moon can be spotted about 5 degrees south of Jupiter. Only 4% illuminated, this will be a good challenge for observers. Be sure to notice the earthshine, which occurs when sun light reflects off the earth and slightly reveals the unilluminated portion of the moon.

Venus dominates the southeastern morning sky, with ruddy Mars found about 5 degrees to its south. Mid-month, Mercury is at its greatest western elongation, shining brightly but challengingly low in the southeastern sky. On the 26th and 27th, the waning crescent moon will be joining these planets.

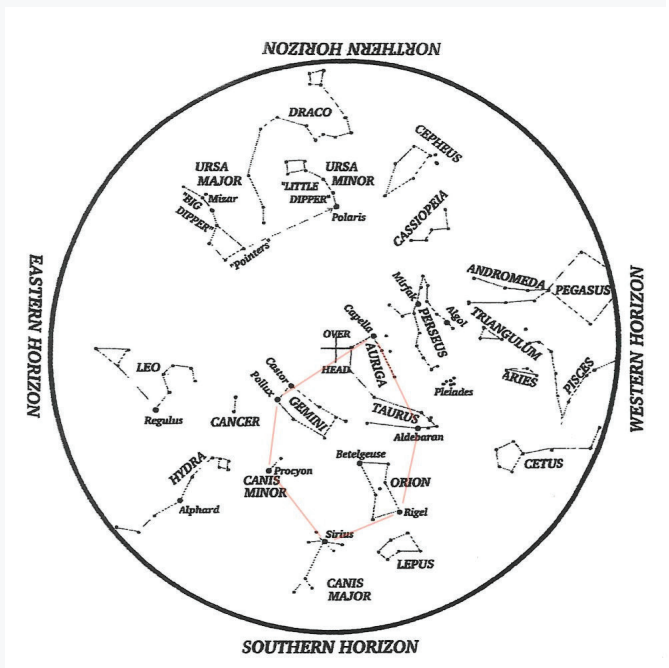
February 20th marks the 60-year anniversary of John Glenn becoming the first American to orbit the earth. He rode in the space capsule named Friendship 7. He circled the earth three times, which amounted to almost five hours. After his flight, John Glenn became a national hero and President John F. Kennedy awarded him the Space Congressional Medal of Honor for his achievements.

FEBRUARY'S SKY

1: New Moon

16: Full Moon

16: Mercury at Greatest Western Elongation



Credit: Roger B. Culver

Hold star map above your head and align with compass points.

WHAT'S UP (CONTINUED)

HESSI (High Energy Solar Spectroscopic Imager) was launched 20 years ago on February 5th. The following month, on March 29th, it was renamed to RHESSI in honor of Dr. Ramaty, a pioneer of high energy solar physics. That made it the first space mission named after a NASA scientist.

This observatory studied solar flares and coronal mass ejections (CMEs), and covered more than a complete 11-year solar cycle. Solar flares and CMEs are a constant threat to electronic technology and the electrical grid. RHESSI was originally designed as a 2-year mission, but lasted for more than 16 years, ending in 2018.

OBSERVATIONS

Unfortunately, my recent observations have been minimal. COVID-19 made its way through my house, which along with frigid outdoor temperatures, hampered my opportunities to stargaze.

Throughout the month, my phone gave me frequent alerts of the International Space Station (ISS) passing overhead. My father and I would rush outside and catch it moving across the sky. The ISS is a modular space station that is a multinational collaboration between five space agencies. Circling our planet in low Earth orbit, it serves as a laboratory for research in astrobiology, astronomy, meteorology, physics, and many other fields. I am amazed each time I see this point of light moving across the sky and realize that it contains people who are living in space!

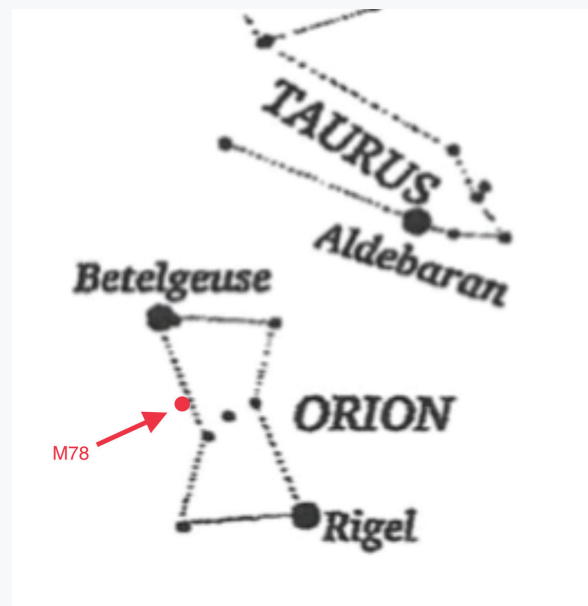


The purpose of the Starry Scoop is to communicate current astronomy and space events. If you want to share your observations or get digital copies of the Starry Scoop, contact starryscoop@gmail.com. The Starry Scoop is now on Facebook. Clear skies!

OBJECT OF THE MONTH

The object of the month for February is Messier 78 (M78). This is the brightest reflection nebulae in our sky and is located about 1,600 light years away in the constellation Orion. Reflection nebulae are illuminated by reflecting the starlight of nearby stars. M78 is located within one of the most active star-forming regions in our sky, called the Orion Complex. Throughout this area, you can find many bright and well-known nebulae.

Under dark skies, this nebula can be found using binoculars, but a telescope will reveal more detail. You can find M78 northeast of Alnitak, the eastern-most belt star in Orion.



M78
Photo by Jammie Thouin

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