Volume 28, Number 6
April 2021

Event Horizon

© Peter Wolsley

From The Editor

One needs not look beyond this month's stunning image submissions to the E.H. to realize that the H.A.A. is an emerging astrophotography *powerhouse*!

Thank you, everyone who has contributed!

Bob Christmas, Editor

editor 'AT' amateurastronomy.org

Chair's Report by John Gauvreau

What a great start to spring!

I was able to do a little lunar observing this month and thanks to a heads-up from other club members, I got out to see the Lunar X. Once a month, for a few hours, the lunar terminator (the line between the day side and the night side of the moon) falls along the crater rims and mountain peaks in just such a way that the illuminated crests seem to form a big letter X hanging in the darkness of the lunar night. At just the right time there also appears a letter V and L. Many members were able to see them this month and I had a great view from my backyard. The Moon is something you can observe in a light polluted area and it was so nice to have a cold but clear night to see this fascinating sight.

HAA Meetings

What a great presentation from Tom Field last month! He really made me want to try some spectroscopy! I also want to tell you that Tom really enjoyed his evening with us and had high praise for the club. Here's a direct quote from

(Continued on page 2)

IN THIS ISSUE:

Chair's Report (continued)

Tom; *"Your group really was one of the best informed and asked some of the best questions that I've gotten in over 300 presentations."* And I agree completely. The HAA really is a group to be proud of.

This month we will have a virtual visit from *Mary Beth Laychak*, outreach manager for the famed *Canada-France-Hawaii Telescope*! Mary Beth will be giving us an overview of the facility and the exciting work they do there at the peak of Mauna Kea. We are fortunate to have such wonderful speakers able to virtually visit us from such distant locales. This one is definitely not to be missed!

A friendly reminder that all our meetings will be held online through the Zoom platform for the foreseeable future. If you have had any hesitation about joining in please feel free to get in touch and we will help you. And don't forget that you can always email 'zoomsupport@amateurastronomy.org' to get help joining the meeting, even once the meeting has started.

Also, since we are holding our meetings online there can be no collection for the foodbank, but don't let that stop you from contributing yourself. It doesn't matter if it comes from the club or straight from the club members; there are people in need and any donation is always welcome.

The April meeting begins at the usual time of 7:30 on Friday April 9th. Hope to see you there!

Club Activities

The club's *Beginner Group* is very active, and the club *Light Pollution Abatement Committee* has submitted a report to council that included many excellent suggestions for club activities. If you are interested in joining in any of these activities please feel free to get in touch. All club activities are open to all members.

The club's council debated which logo to use; one or the other or many! A decision was not reached and so there is still time to weigh in on this if you have any ideas. I would love to hear from you.

With the warm weather I hope to see more observing happening at our *dark sky site*. The park allows a few members to keep a key and open it for other members. It is a great responsibility (there are quite a number of guidelines and restrictions that come with this) and not a small amount of work, but if this is a responsibility you would like to take on for the benefit of other members, I would be happy to talk to you about it. Please get in touch. I would love to see lots more observing out there this year and if you can help make it happen then we should talk.

BASEF

The club was once again heavily involved in the Bay Area Science and Engineering Fair. This regional science fair is one step below nationals and as always, the HAA awarded a prize to the best astronomy related project. The winners will be announced later this week and I look forward to seeing that happen and sharing with you the wonderful project that receives the HAA James A. Winger Award. My thanks go out to club members *Jo Ann Salci* who acted as our point person this year, and *Chris Strejch* who joined her as a judge. They both put many hours into the fair this year and they both did a wonderful job. We

(Continued on page 7)

Masthead Photo: *The Elephant Trunk Nebula (IC 1396 / Sh2-131)*, by *Peter Wolsley*.

Taken on July 30, 2020 from Sauble Beach, ON. Taken through his BK80ED+0.85FR (510mm focal length) with his QHY294C astronomical camera. Calibrated using CaLIGHTs, stacked using Deep Sky Stacker, and processed using StarTools. Total exposure time: 2 hours, 56 minutes, 40 seconds.

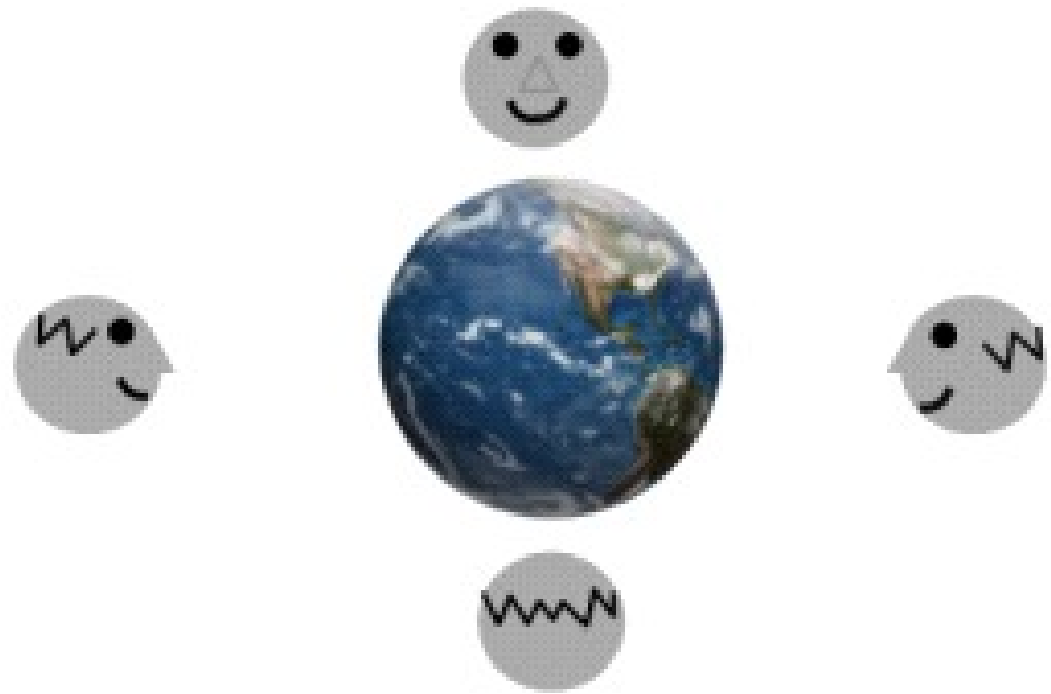
HAA Explorers by Jo Ann Salci

…A column for young astronomers - and those young at heart!

Welcome back! Last month we learned about our neighbour, the Moon. This month we are going to learn about the ways that our Moon moves! Were you able to draw any pictures of what the Moon looked like last month? If so, please share with us at education@amateurastronomy.org.

To the Moon! (Part 2)

The Moon travels around the Earth at the same time the Earth is traveling around the Sun. It takes the Moon almost a month, about 29.5 days, to go around the Earth one time. In fact, the word "Month" comes from the word "Moon"! While it's traveling around the Earth, it's also spinning slowly on its axis. As we learned last month, the Earth pulls on the Moon and this has resulted in *tidal locking* (the same side of the Moon is always looking at the Earth):

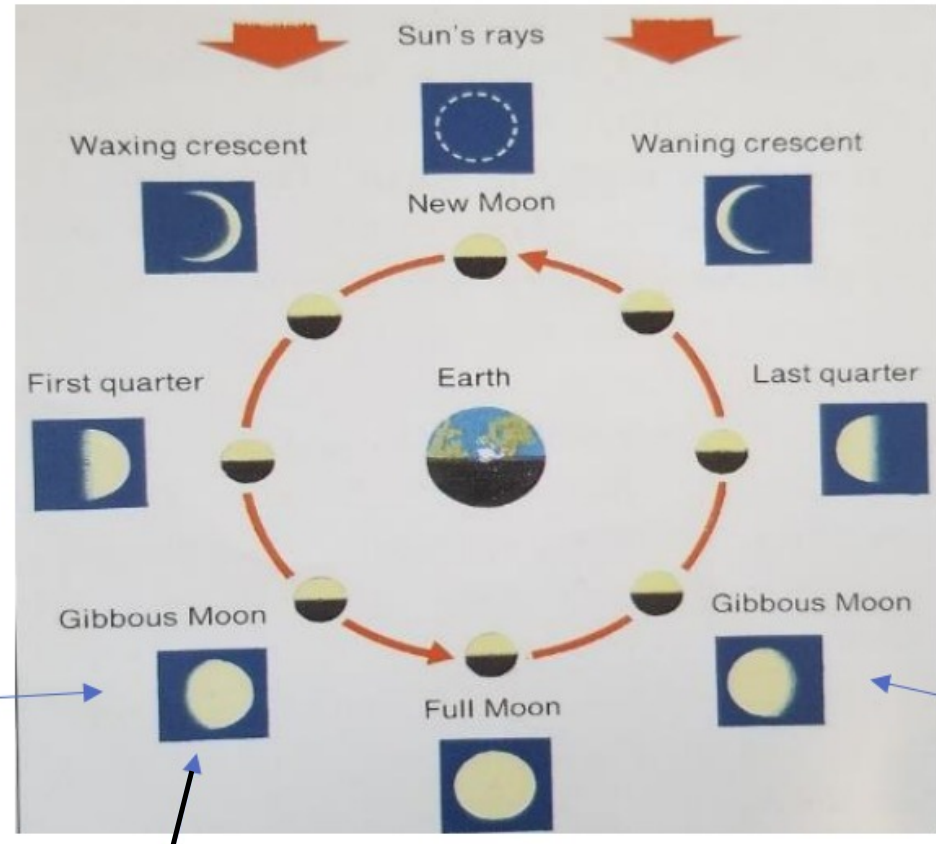


Tidal Locking, Courtesy Manoa.Hawaii.edu.

Well, guess what?! The Moon also pulls on the Earth! This results in our oceans rising and falling every day, which is called *tides*. The Sun also pulls on the Earth contributing to our ocean's tides, but the Moon's pull is stronger because it's closer to Earth. Remember this because we will talk about it more a little later…

So, even though the same side of the Moon is always facing Earth, it has a different look every time we see it! The Moon is lit by the Sun. The Sun creates shadows which make the Moon look different depending on the angle of where it and the Earth are located. This cycle repeats itself every month. The different steps along the way are called *phases*. For example, in the diagram on the next page, when the Moon is between the Sun and the Earth, it is called the "New Moon" phase.

(Continued on page 4)



This is a Waxing Gibbous Moon

Also known as Third Quarter

This is a Waning Gibbous Moon

Diagram Credit: The World Around Us: Space

This is sometimes hard to picture in our heads, so have a look at this helpful video created by Discover the Universe: https://www.youtube.com/watch?v=iF8k9ibNKo8

Photo Credit: Waxing Gibbous Moon taken by Anika Shrivastava Garrioch (one of our young HAA Astronomers and Swapna's daughter!) on May 6, 2020 with an iPhone SE 2020 on a Vixen RF130 (f/5) from Oakville, Ontario.

(Continued on page 5)

HAA Explorers (continued)

The Moon's orbit around our Earth is not a circle and is shaped more like an egg. This is called an ellipse. That means that sometimes the Moon is closer to Earth than others. When it's closest, it's called *perigee* (pronounced PEAR-i-gee) and when it's furthest, it's called *apogee* (pronounced AP-oh-gee).

Remember we learned about tides above? What do you think might happen to our ocean's tides when the Moon, Earth and Sun line up with each other? (That would happen when there is a Full or New Moon.) There is extra pull on our oceans, so the rise and fall of the water is more extreme. This is called a *spring tide*. Now what do you think might happen when there is a Full Moon AND the Moon is at perigee? This is called a *"perigean spring tide"* (pronounced pear-IJ-ee-an), or some call it a *"King Tide"*. Water levels around the Earth rise and fall more than usual. This will happen on April 27th!

Another way our Moon moves as it travels around its orbit is called *libration*. The Moon speeds up and slows down slightly, which causes it to move a little like a bobblehead! This little wobble allows us to see about 59% of the face of the Moon instead of 50% over a month's time.

So now you can see how busy our Moon really is!

During April, look for the Moon in the sky:

1. April 6th between 6 and 6:30 in the morning: Saturn will be above the waning crescent Moon in the Southeastern sky. Jupiter will be to its left!

2. April 7th between 6 and 6:30 in the morning: Jupiter will be above the waning crescent Moon in the Southeastern sky. Saturn will be to its right!

3. April 27th in the evening: Full Moon happens at the same time as perigee! This means higher tides around the world that day!

Things to do until next time**:

** Check with your parents or caregivers before checking out websites.

1. Watch this video and do this activity: https://www.youtube.com/watch?v=wz01pTvuMa0

2. Check out the Moon's phases at: https://spaceplace.nasa.gov/moon-phases/en/

3. This website will show you a picture of what the Moon looks like at this very minute!
https://svs.gsfc.nasa.gov/4874

Finally:

Why wasn't the Moon hungry? Answer: *Because it was Full!* See you next month!

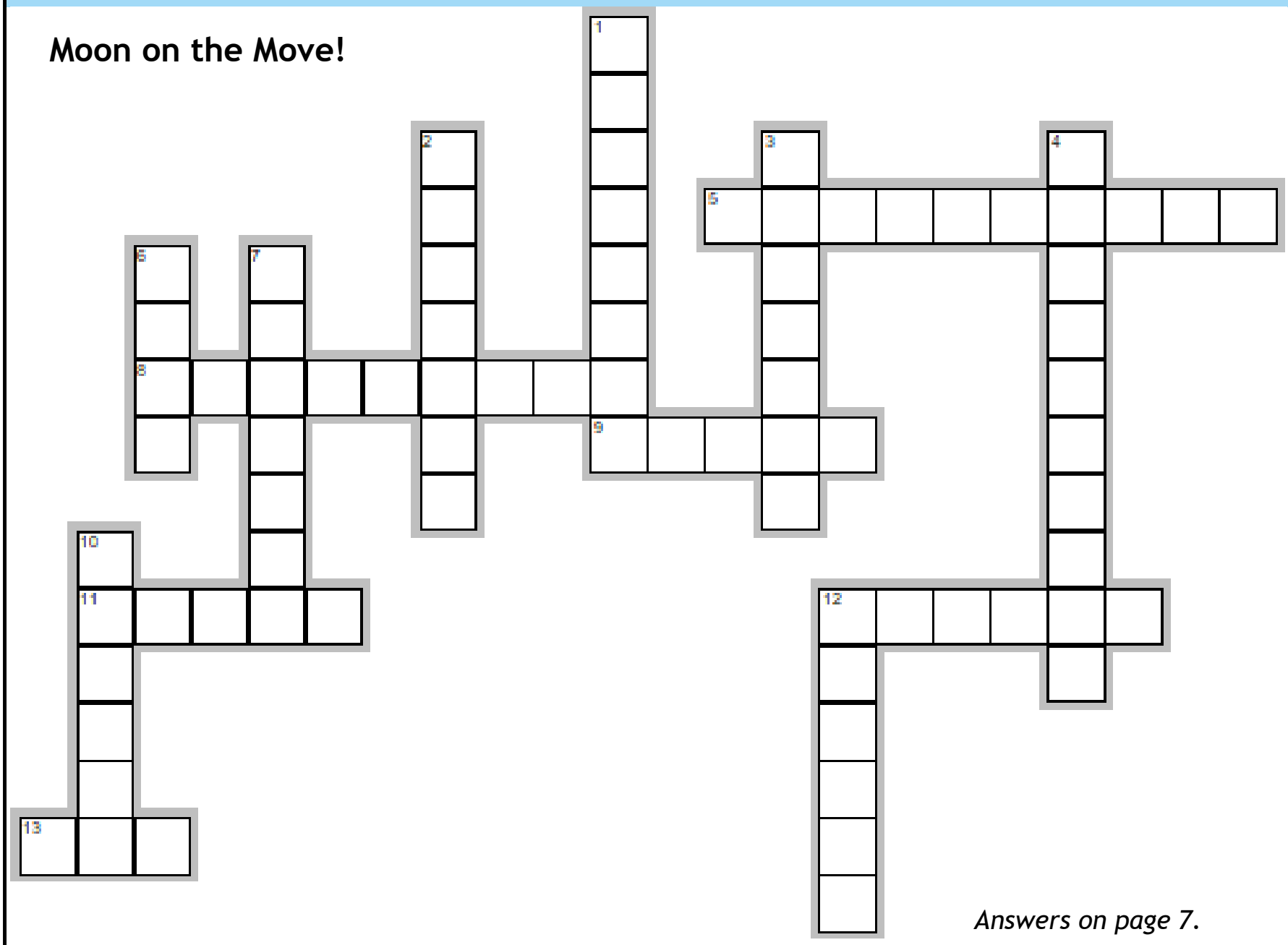
If you have a question you would like answered in the newsletter, please send it to education@amateurastronomy.org Thank you to An, Br, and Mi for their review of this article! 😊

References:

National Geographic Kids: Ultimate Space Atlas. 2017.
National Geographic Kids: Ultimate Explorer Field Guide: Night Sky. 2016.
The World Around Us: Space, Kingfisher Books, 1991, p.7.

(Crossword on page 6)

Moon on the Move!



Answers on page 7.

Across

5. The line between the dark and light sides of the Moon which creates amazing shadows of craters and mares!
8. The Moon's wobble as it travels along its orbit.
9. The rise and fall of the oceans caused by the pull of the Sun and Moon, and Earth's rotation.
11. Different fractions of the Moon's surface seen as it orbits the Earth each month.
12. After the Full Moon, the phases get smaller, or wane, as they approach New Moon.
13. We can't see the Moon because it's in front of the Sun!

Down

1. A banana-shaped Moon that we see before and after New Moon.
2. A half-circle Moon shape; It is a quarter of its way around the Earth!
3. The point in the Moon's orbit around the Earth when it is at its closest.
4. The Sun's light reflecting off of Earth onto the Moon, creating a dull glow on the Moon.
6. The phase of the Moon that rises at sunset, where we can see a full circle.
7. The shape of the Moon when it is between half and full; kind of like a hump-backed shape.
10. The point in the Moon's orbit around the Earth when it is at its furthest.
12. After the New Moon, the phases get larger as they approach Full Moon.

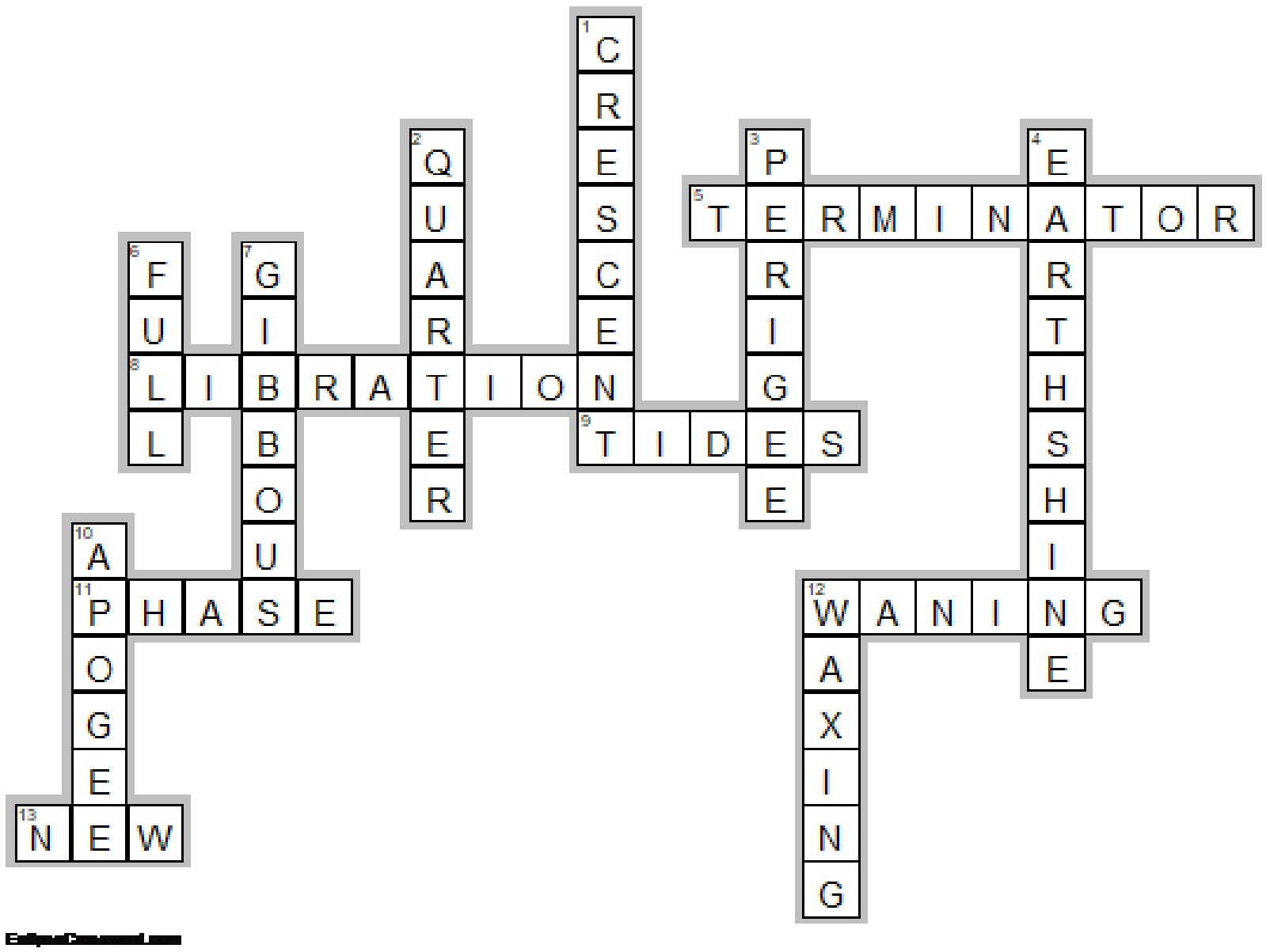
Chair's Report (continued from page 2)

also presented an online evening talk about astronomy to science fair participants and I enjoyed the chance to one again talk to the students, at least virtually!

Conclusion

I also invite you to get in touch with me about participating in any club activities like outreach, education, booking speakers, writing articles, giving talks and presentations, award programs or other behind-the-scenes work of the club. I would be very happy to see more members involved in these and other areas. The club's council is made of regular members who work behind the scenes to make all this happen for the other members benefit. I invite you to participate in any area of the club that interests you. You might have a great idea that nobody on council has thought of. Please feel free to join in any way you like. Reach out to me any time.

Solution to "Moon on the Move!" Crossword.

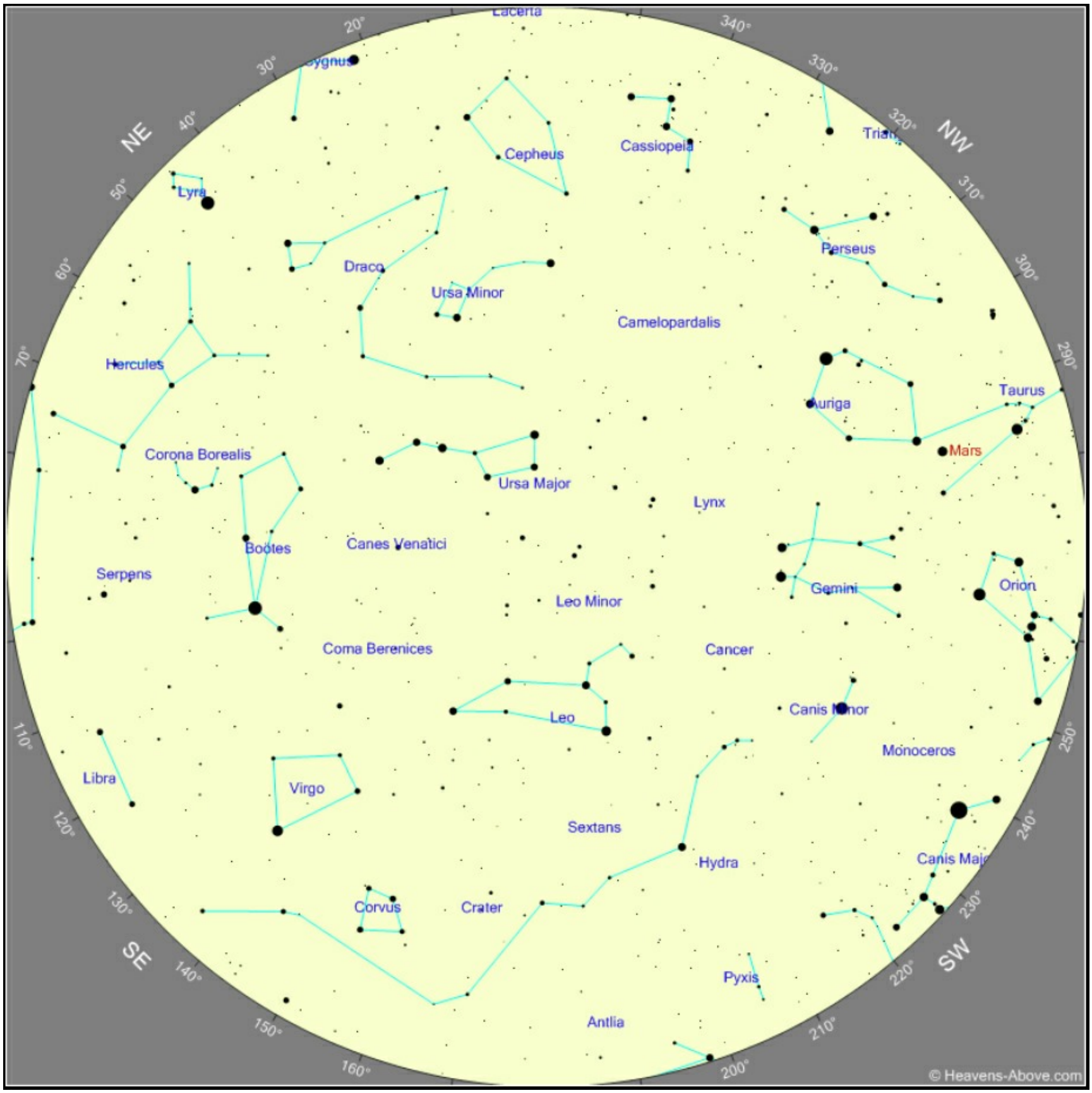


The Sky This Month for April 2021 by Bob Christmas

HAA Observing Director *Matthew Mannering* has to step aside for a period of time for personal reasons. So, once again, I am happy to stand in for this month's TSTM.

The Sky at a Glance

This April heralds the return of the Spring sky. Here's an all-sky chart for *April 7, 2021, at 11:00 pm EDT* as seen from the general area of Hamilton, ON. This chart was generated using the Heavens Above website. This month, *Leo* is at its highest point in the sky (see this month's NASA Night Sky Notes article on pp 15 & 16), as are other Spring groupings such as *Ursa Major, Bootes, Virgo, Coma Berenices* and *Canes Venatici*. Spring is the time of year when lots of *galaxies* are visible.



(Continued on page 9)

The Sky This Month for April 2021 (continued)

April is also the last chance to see the Winter sky, including Taurus, Orion and Canis Major in the prime-time sky for several months. Mars is still in the evening sky after sunset for a short while longer.

My source for all Moon and Planet info is the *RASC Observer's Handbook 2021*.

The Moon

Libration this month is as follows: The Eastern limb will be most exposed on the 6th, and the Western limb will be most exposed on the 22nd. The Northern limb will be most exposed on the 9th and the Southern limb will be most exposed on the 24th.

Phases this April:

- April 4 10:02 UT — Last Quarter
- April 12 02:30 UT — New Moon
- April 20 06:59 UT — 1st Quarter
- April 27 03:31 UT — Full Moon

The Planets

- *Mercury* starts the month in the morning sky before being lost in the glare of the Sun and it not safely observable at this time. It reaches superior conjunction on the 19th. It re-emerges very low in the evening sky at the end of the month.

- *Venus* is too close to the Sun to be safely observable for most of April. It emerges very very low in the bright twilight of the evening sky at the tail end of the month.

- *Mars* is in the evening sky after sunset in Taurus, but is setting earlier and earlier. On the 17th, the moon makes a very close pass to Mars, and occults Mars as seen from parts of Africa and Asia, but not in North America.

- *Jupiter* is in the southeast morning twilight on the Capricornus-Aquarius border this month. Not one but *two* double-shadow transits of its moons are visible within an hour and a half of each other in the very very early morning of the 7th. See the RASC Observers Handbook 2021 pp 104,105 for more details.

- *Saturn* is in the southern morning sky in Capricornus, rising just before Jupiter does. The waning crescent Moon passes with 4° of Saturn on the 6th.

- *Uranus* is lost in the glare of the Sun and is not observable this month.

- *Neptune* starts to emerge from the Sun's glare in morning twilight at the tail end of the month in Aquarius, but is not observable until then.

Minor Planets

- *(4) Vesta* is very well-placed high in the sky in Leo all night long. Its magnitude is about 6.5.

Galaxies, etc.

This is Spring. And Spring is GALAXY season! There are boatloads of galaxies peppered around the sky all night long this time of year, as well as other prominent deep sky objects.

(Continued on page 10)

The Sky This Month for April 2021 (continued)

Here's a list of DSOs that are well within the range of small telescopes in Springtime constellations. There are so many DSOs in the Spring sky, so I'll stick to just some of the brightest Messier and NGC objects. [G=galaxy; OC=open cluster; GC=globular cluster; PN=planetary nebula]:

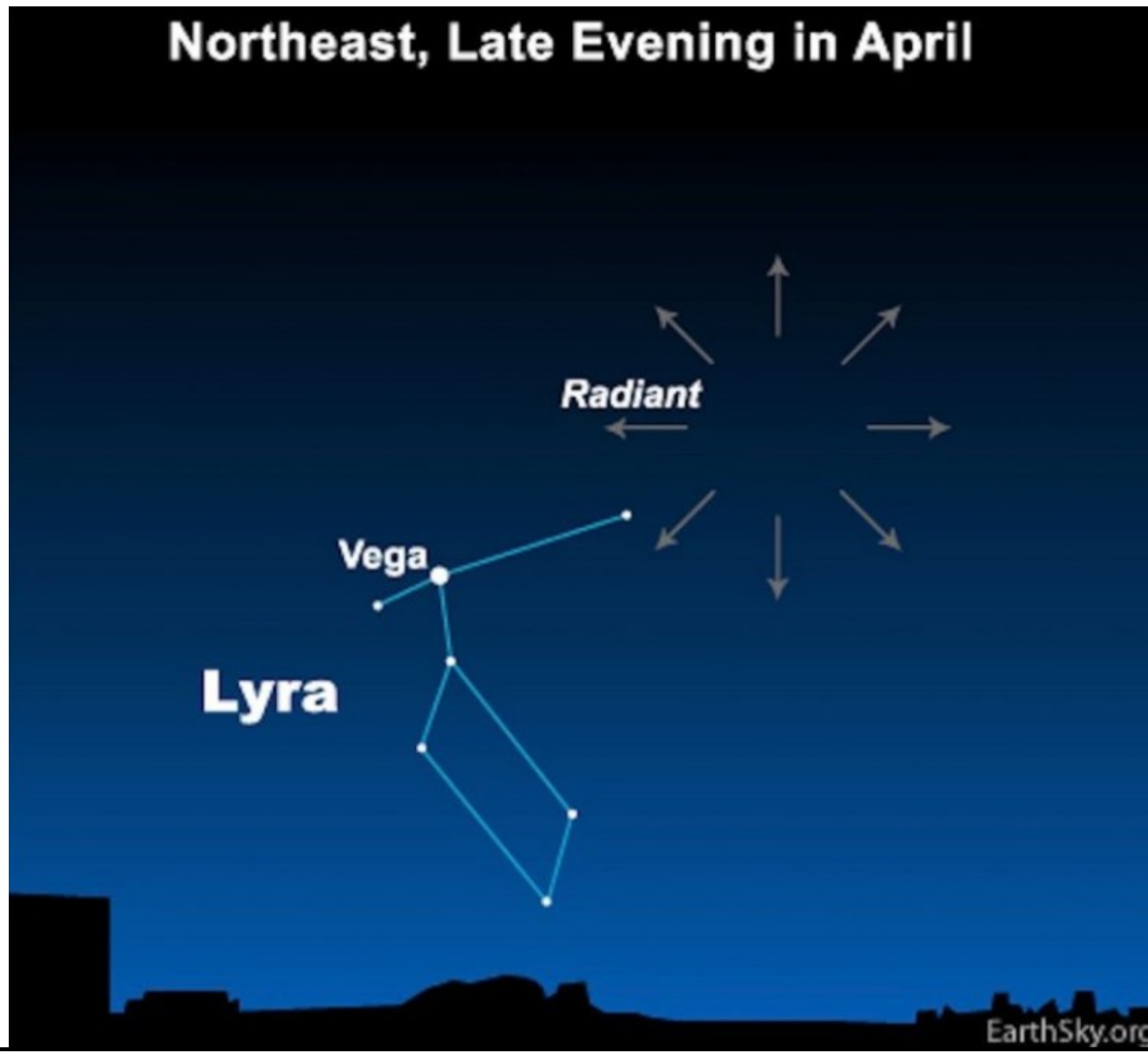
Cancer:	M44 (OC; the Beehive Cluster)
Leo:	NGC2903 (G), M65* (G), M66* (G), NGC3628* (G)
Ursa Major:	M81 (G), M82 (G), M97 (PN), M101 (G)
Coma Berenices:	M64 (G), NGC4565 (G)
Virgo:	M84 (G), M86 (G), M87 (G), M104 (G)
Canes Venatici:	M3 (GC), M51 (G), M63 (G), M106** (G), NGC4631 (G), NGC4656 (G)
Serpens:	M5 (GC)
Hercules:	M13 (GC; the Hercules Cluster)

* The Leo Triplet; see this month's NASA Night Sky Notes article on pp 15 and 16.
** See Michel Audette's image of M106 on page 18.

The Lyrids Meteor Shower

The Lyrids meteor shower peaks on April 22nd. The radiant will be up in the sky most of the night.

As with all meteor showers, it is best to find a location away from city lights to see more meteors.



Notes from My *Virtual* Table, April 2021 by Bernie Venasse

This month at the table…
International Dark Sky Week, April 5-12, 2021; Astronomical League Herschel Hustle; Broadcasts of interest; SkyNews Photo of the Year 2021; Sky Maps; … Links

International Dark Sky Week…. April 5-12, 2021

International Dark Sky Week, held during the week of the new moon in April, is a week during which people worldwide turn out their lights in order to observe the beauty of the night sky without light pollution. This event was founded in 2003 by high school student Jennifer Barlow of Midlothian, Virginia.

It has been endorsed by the International Dark-Sky Association, the American Astronomical Society, the Astronomical League, and Sky & Telescope. [4]

The goals of the event are to:

- Temporarily reduce light pollution and raise awareness about its effects on the night sky,
- Encourage the use of better lighting systems that direct light downward instead of into the sky, and
- Promote the study of astronomy.

Willing participants in this project turn off all unnecessary lighting indoors and outdoors sources in order to reduce light pollution of the night sky.

The International Dark-Sky Association encourages light users to take precautions against outdoor light pollution by:

- Using outdoor light only when needed
- Confine light to specific areas
- Be aware that lights need only be as bright as is necessary
- Reducing the amount of blue light emissions used
- Use of lighting that faces downward, in order to avoid over illumination, called fully shielded fixtures

What's Up? Webcast from Sky-Watcher at 1:00 PM Eastern

March 26, 2021… Skies Away Observatory.
April 2, 2021… Foolish Astronomy.
April 9, 2021… April Night Skies (2021 edition).
April 16, 2021… Quattro Imaging Newtonians.
April 23, 2021… Preparing for Milky Way season.
April 30, 2021… Alan Hale, Celestron Chairman Emeritus.
May 7, 2021… May Night Skies (2021 edition).
May 14, 2021… Star Adventurer 2i.

From the Astronomical League… Herschel Hustle…

The Herschel Hustle: There are two versions of this certification. One is for anyone who attempts the Herschel Hustle. It may be downloaded directly form the Astronomical League's Downloadable Certificates web page. The second certification is for those who attempt and succeed at completing the Herschel Hustle. Information about the objects and requirements for the Herschel Hustle certification can be found on the Herschel Hustle web page. *Refer to the object checklist on pp 13 & 14 of last month's March 2021 Event Horizon.* *Note:* NGC 4209 is unknown, but may be the star visible with NGC 4185. For the Herschel Hustle certification we are using the star.

(Continued on page 12)

Notes from My *Virtual* Table, April 2021 (continued)

SkyNews Photo of the Year 2021

SkyNews magazine announces its 19th annual Photo of the Year contest. For information on this, here are the details on the SkyNews website:
https://skynews.ca/2020-21-photo-of-the-year-prizes/

What's Up in Awards, April 2021 by Bernie Venasse

This column tells you which objects are visible this next month for the HAA Observing Programs and other sights of interest. The information is based (excluding planets), on 9:00 PM Eastern Daylight Time on the night of the Full Moon… in this case, April 11, 2021. **BOLD** objects are most prominent.

HAA Rising Star Observing Award

Constellations (12 required)... Auriga, Canis Major, Cassiopeia, Gemini, **Leo**, Orion, **Ursa Major**, Ursa Minor
Planets (4 required)…
Mercury Superior conjunction on 10 April, re-emerging into a good evening position. Near Venus at the end of the month.
Venus Near Mercury at the end of April, and a 1%-lit waxing crescent Moon on 12 April.
Mars Near M35 on evenings of 26th and 27th. Moon nearby on 17th.
Jupiter Bright but low morning planet rising 70 minutes before sunrise. A 22%-lit waning crescent Moon lies close by on 7 April.
Saturn Morning planet in Capricornus. Poor altitude all month. A 31%-lit waning crescent Moon lies nearby on 6 April.
Uranus Evening planet. Difficult to spot between Venus and Mercury on 23 April. Solar conjunction on 30 April.
Neptune Not visible this month.

Planetary satellites.. **Moon** throughout the month, **Jupiter's moons**.
Stars (Polaris + 5 others)… **Polaris**, Arcturus, Aldebaran, Betelgeuse, Capella, Dubhe, Pollux, **Regulus**, Rigel, Sirius, Spica
Multiple stars (2 required)… Castor, Mizar
Galaxy pairs (1 pair required)… M65/M66, **M81/M82**
Messier objects (4 required)… M6, M11, M35, **M44**
Other (1 Required)… ISS passes… Check heavens-above.com.

Meteor Showers: Lyrids

Next period of activity: April 16th, 2021 to April 30th, 2021

The Lyrids are a medium strength shower that usually produces good rates for three nights centered on the maximum. These meteors also usually lack persistent trains but can produce fireballs. These meteors are best seen from the northern hemisphere where the radiant is high in the sky at dawn. Activity from this shower can be seen from the southern hemisphere, but at a lower rate.

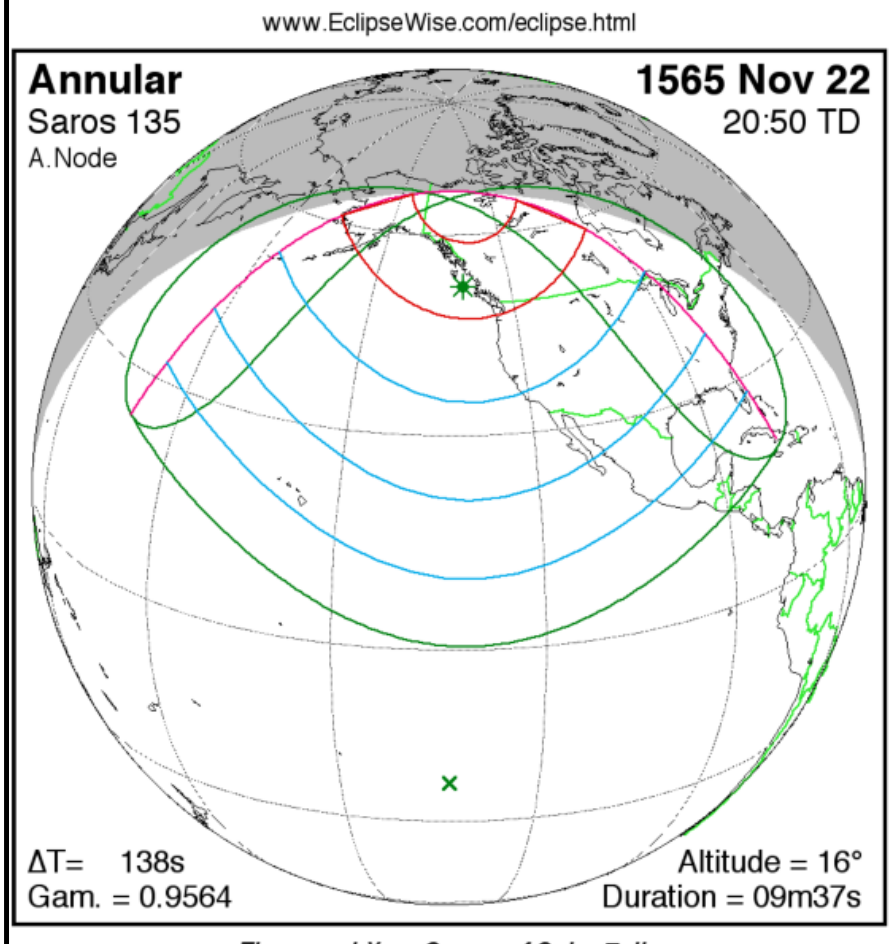
Shower details - Radiant: 18:04 +34° - ZHR: 18 - Velocity: 30 miles/sec (medium - 48.4km/sec)
Parent Object: C/1861 G1 (Thatcher)
Next Peak - The Lyrids will next peak on the Apr 21-22, 2021 night. On this night, the moon will be 68% full. — *American Meteor Society*

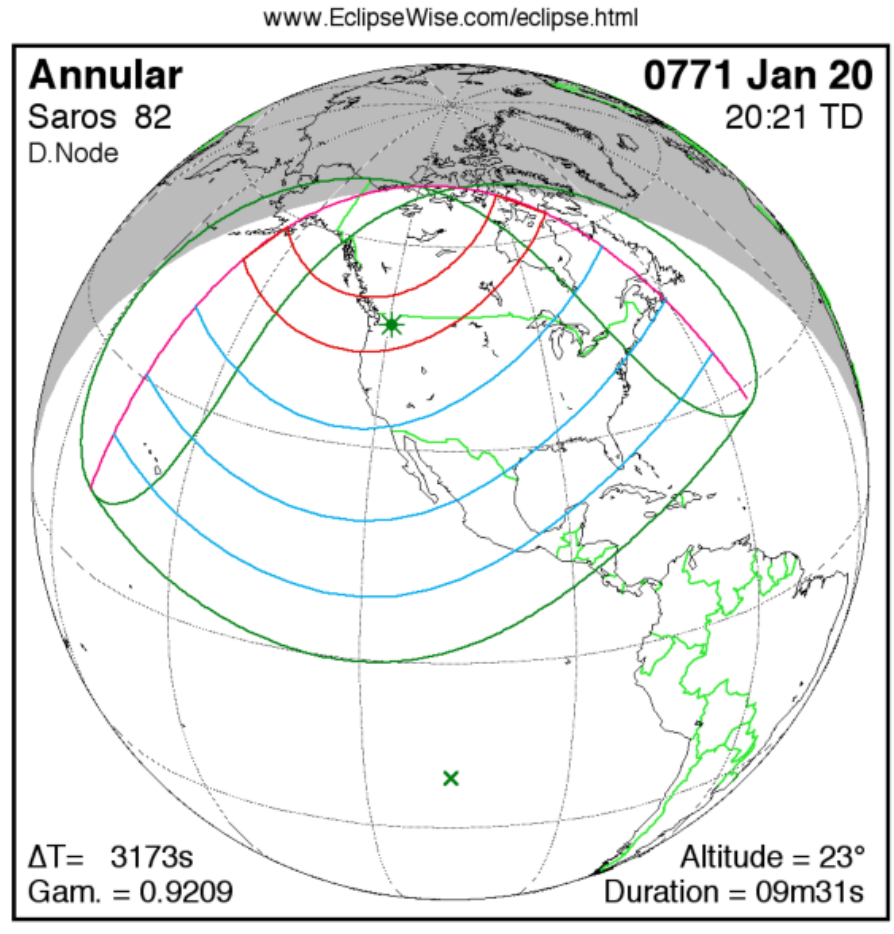
Annular Solar Eclipses of Long Duration in Canada by Ray Badgerow

Here is a list of the longest annular eclipses in Canada, during the period from 0-3000 AD. In theory, at temperate latitudes it is possible to have 10 minute annular eclipses, several do occur but unfortunately the point of greatest eclipse does not occur on Canadian territory. These long annular eclipses would likely not be apparent to a casual observer since the annulus of sunlight is rather large. In terms of visual observing a short duration annular eclipse, such as last June's eclipse from Central Asia are better spectacles to observe.

Date	Duration	Saros	Area of Visibilty
1565 Nov 22	9:37	135	BC,AB,SK,MN,YK,NWT
771 Jun 20	9:31	82	BC,AB,SK,MN,NUN
1620 Jan 04	9:23	135	BC,AB,SK,NWT
716 Dec 18	9:13	82	BC,ON,QUE,NB
662 Nov 16	8:45	82	NWT,AB,SK,MB
1674 Feb 05	8:20	135	YK,NWT

Based upon my analysis, the average duration of annular eclipses(n=276) is 3m36.9s at an average altitude of 25.5 degrees.





All images courtesy of Fred Espenak , http://www.eclipsewise.com.

When is Neighbourhood Light Pollution Not a Nuisance?

by Mike Jefferson

Over the last few months of "Event Horizons", I have been bemoaning the curses of local light pollution. This would apply not only to street lighting but also that which is created by the neighbours around me. Being perfectly honest about it, we do have to admit that light pollution in the modern world is a major nuisance factor, not only to amateur and professional astronomers, but also to many of the denizens of the natural world in which astronomers, of all types, operate.

In my subdivision there are 3 local streetlights, 2 giant streetlights over Hwy # 403, to the NW of me and numerous garage and porch lights all up and down the road in front of me. How does one deal with this photonic harassment? One can employ garbage bag light shields, utilizing dark green bags and bamboo garden stakes. Bushes, trees and buildings that are strategically located make for very effective light shielding. However, the most annoying obstacle to my plan was a neighbour two doors away from me who installed a candelabra lighting fixture 1/2 way between the road and his garage door. It consists of about 3-5 brilliant lights and stays on all night long, so that there is not a moment's rest from the darned thing. The obvious solution seemed to be a pellet rifle with a silencer. However, with recent shootings in the U.S. I discarded that idea very quickly.

Then I realized that I can use his light to calibrate my diffraction grating before getting any spectra. The next time I saw him I would sarcastically tell him how useful his lawn ornament is to me!! However, I do not see him that often.

Then the solution presented itself. Well, it was not really a solution but it did persuade me to keep using my methods above. It came in the form of our last big snowfall. I was shovelling out the driveway when the plough went past - a tractor with a blade. It went on down the street and I went on shovelling. Soon this guy came up to me with a shovel in his hands. I thought it must be the plough driver coming back to help me clear the extra snow he had put in front of my laneway. NOT A CHANCE. They don't do those kinds of things. It was my NEIGHBOUR, coming over to give me a hand! Did I say anything about his candelabra? NOT A CHANCE! A few weeks later, my wife and I gave him an Easter Lily!

Sometimes good things happen for all kinds of strange reasons. I decided it is best to work around the light pollution that I am 'blessed with' than to make enemies of people who do me a good turn.

HAA Helps Hamilton

While during the pandemic, the H.A.A. hasn't been able to collect donations from our members and guests for local food banks at our general meetings, the H.A.A. has always valued its relationships with food banks in the community, particularly Hamilton Food Share.

In that spirit, we encourage you to continue making donations directly to your local food banks.

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!

Watch the Lion: Celestial Wonders in Leo

David Prosper

Leo is a prominent sight for stargazers in April. Its famous sickle, punctuated by the bright star Regulus, draws many a beginning stargazer's eyes, inviting deeper looks into some of Leo's celestial delights, including a great double star and a famous galactic trio.

Leo's distinctive forward sickle, or "reverse question mark," is easy to spot as it climbs the skies in the southeast after sunset. If you are having a difficult time spotting the sickle, look for bright Sirius and Procyon - featured in last month's article – and complete a triangle by drawing two lines to the east, joining at the bright star Regulus, the "period" in the reverse question mark. Trailing them is a trio of bright stars forming an isosceles triangle, the brightest star in that formation named Denebola. Connecting these two patterns together forms the constellation of Leo the Lion, with the forward-facing sickle being the lion's head and mane, and the rear triangle its hindquarters. Can you see this mighty feline? It might help to imagine Leo proudly sitting up and staring straight ahead, like a celestial Sphinx.

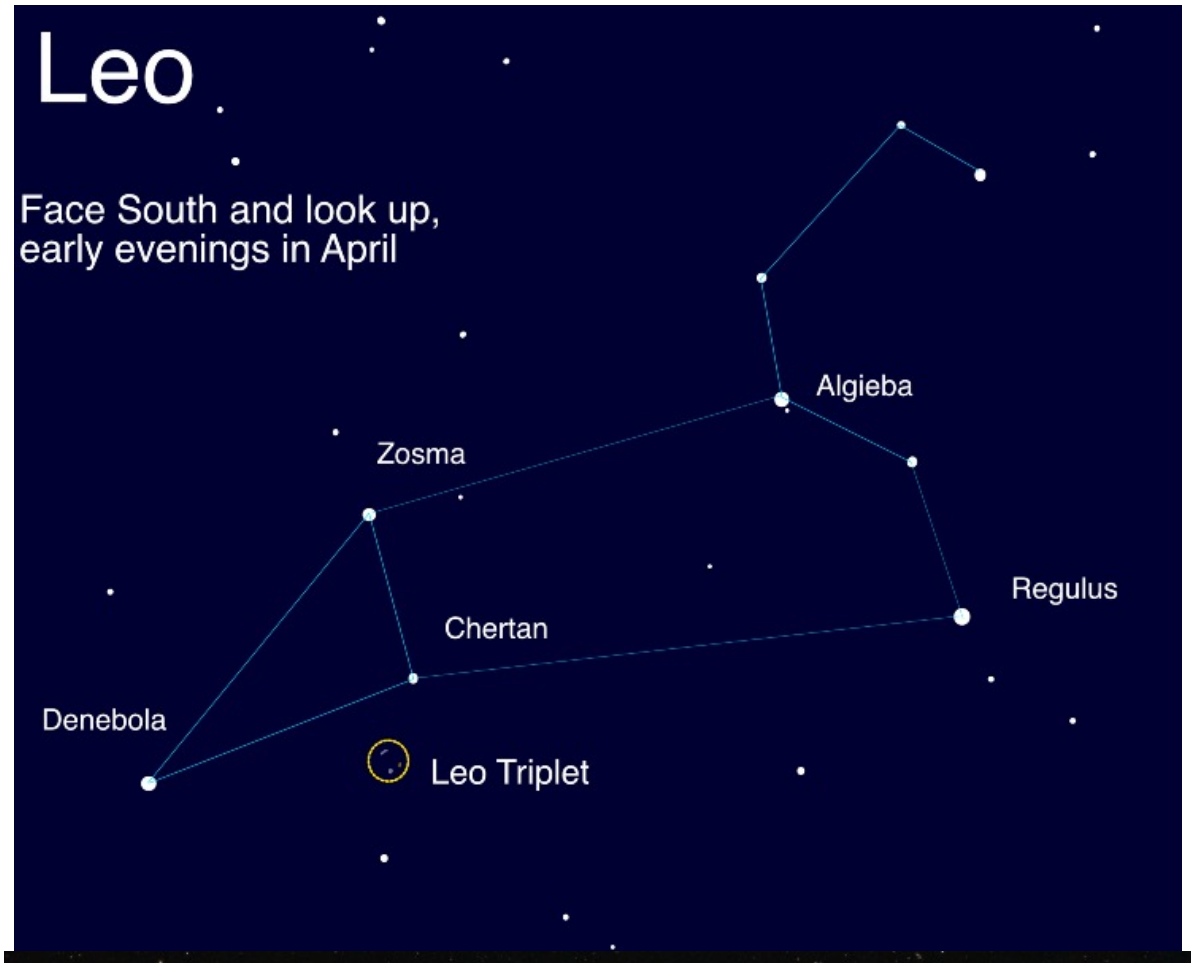
If you peer deeper into Leo with a small telescope or binoculars, you'll find a notable double star! Look in the sickle of Leo for its second-brightest star, Algieba - also called Gamma Leonis. This star splits into two bright yellow stars with even a small magnification - you can make this "split" with binoculars, but it's more apparent with a telescope. Compare the color and intensity of these two stars - do you notice any differences? There are other multiple star systems in Leo – spend a few minutes scanning with your instrument of choice, and see what you discover.

One of the most famous sights in Leo is the "Leo Triplet": three galaxies that appear to be close together. They are indeed gravitationally bound to one another, around 30 million light years away! You'll need a telescope to spot them, and use an eyepiece with a wide field of view to see all three galaxies at once! Look below the star Chertan to find these galaxies. Compare and contrast the appearance of each galaxy – while they are all spiral galaxies, each one is tilted at different angles to our point of view! Do they all look like spiral galaxies to you?

(Continued on page 16)

NASA Night Sky Notes (continued)

April is Citizen Science Month, and there are some fun Leo-related activities you can participate in! If you enjoy comparing the Triplets, the "Galaxy Zoo" project (galaxyzoo.org) could use your eyes to help classify different galaxies from sky survey data! Looking at Leo itself can even help measure light pollution: the Globe at Night project (globeatnight.org) uses Leo as their target constellation for sky quality observations from the Northern Hemisphere for their April campaign, running from April 3-12. Find and participate in many more NASA community science programs at science.nasa.gov/citizenscience. Happy observing!



The stars of Leo: note that you may see more or less stars, depending on your sky quality. The brightness of the Leo Triplet has been exaggerated for the purposes of the illustration - you can't see them with your unaided eye.

Your view of the three galaxies in the Leo Triplet won't look as amazing as this image taken by the VLT Survey Telescope, unless you have a telescope with a mirror 8 feet or more in diameter! Still, even a small telescope will help your eyes pick up these three galaxies as "faint fuzzies": objects that seem blurry against a background of pinpoint stars. Let your eyes relax and experiment with observing these galaxies by looking slightly away from them, instead of looking directly at them; this is called averted vision, a handy technique that can help you see details in fainter, more nebulous objects.

Image Credit: ESO, INAF-VST, OmegaCAM;

Acknowledgement: OmegaCen, Astro-WISE, Kapteyn I.

Eye Candy the Members' Image Gallery

The Flame Nebula (NGC 2024) and the Horsehead Nebula (Barnard 33/IC 434)

ES ED102CF with EQR6-Pro and ASI294MCPRO.
5.5 hours worth of 5 minute subs. Processed using StarTools and Lightroom

by **Mike Hamilton**

Eye Candy the Members' Image Gallery

Galaxy M106

76 pictures RGB color. 600mins max Gain -30C bin1; ASI 2600; VC200L 1800mm; ASI290 guide camera with 80mm guide scope; Vixen SXD2 mount; ASIAirPro; processing: Pixinsight, Astro pixel & PhotoShop.

by **Michel Audette**

The Orion Nebula (M42 / M43)

38 X 150sec = 95min. EOS Ra, at f/10, by **Andrew Brenyo**

Nikon D5600 with an 18-55mm lens, and the club's 8" dobsonian.

by **Brian Whitman**

Eye Candy the Members' Image Gallery

A Campfire in the Woods, under Orion, Taurus, the Moon and Mars

March 20, 2021, from Minden Hills, ON

5 second exposure with a Huawei P30 Pro

by **Kevin Salwach**

The Moon, Mars and Aldebaran

March 19, 2021, from Burlington, ON

Canon 40D with a 100mm lens;
2 second exposure at f/3.5 & ISO 400, with a 1/2 second exposure at f/4 for the Moon blended in.

by **Bob Christmas**

The Lunar 'X' (and the 'V' & 'L') — March 20, 2021

top left:

Janice Mannering
with her Canon T5i through her Redcat

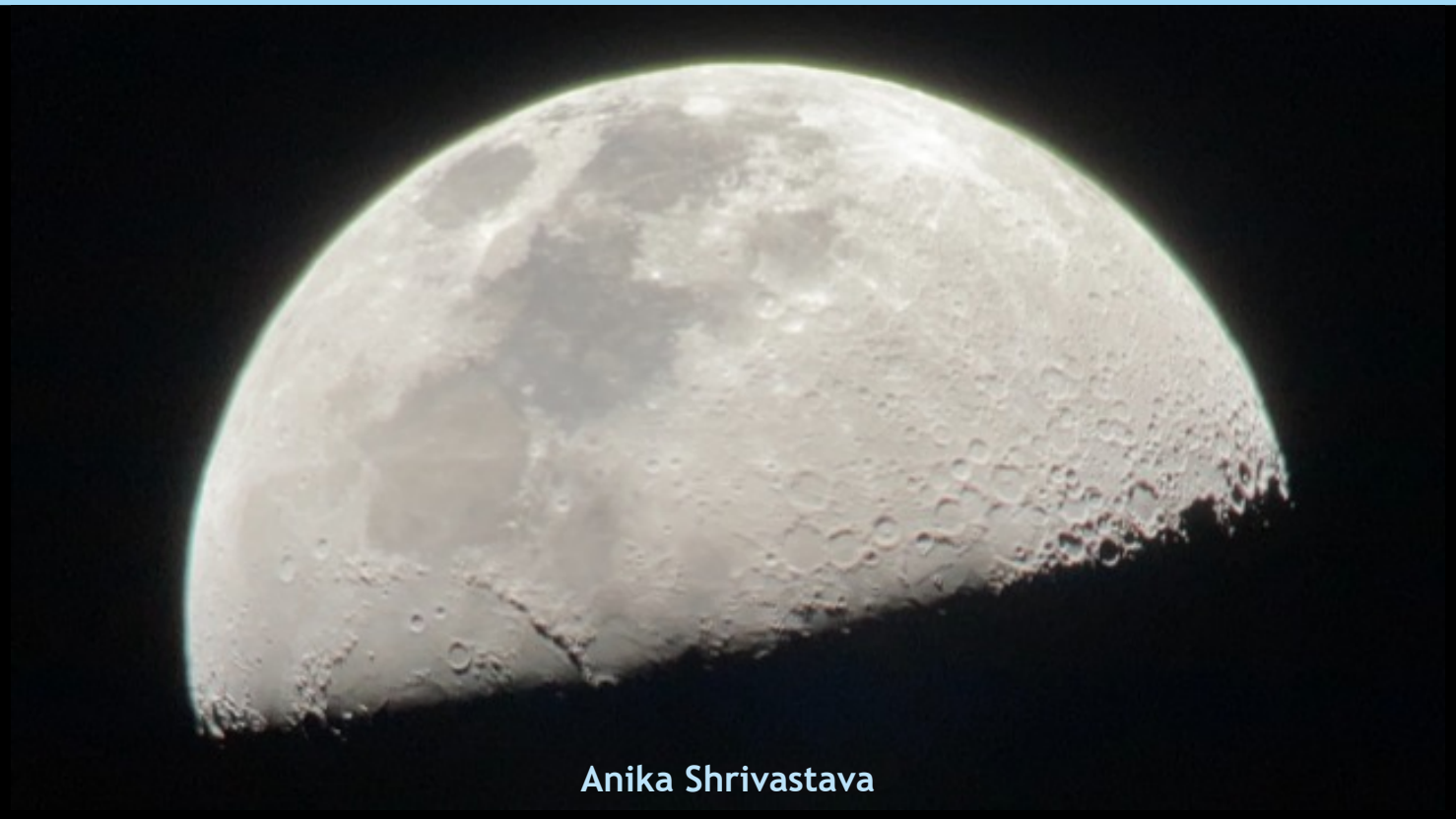
top right:

Serge Puksa
With his Nikon D500
through his 200-500mm telephoto lens

bottom:

John Gauvreau
through his 5" refractor

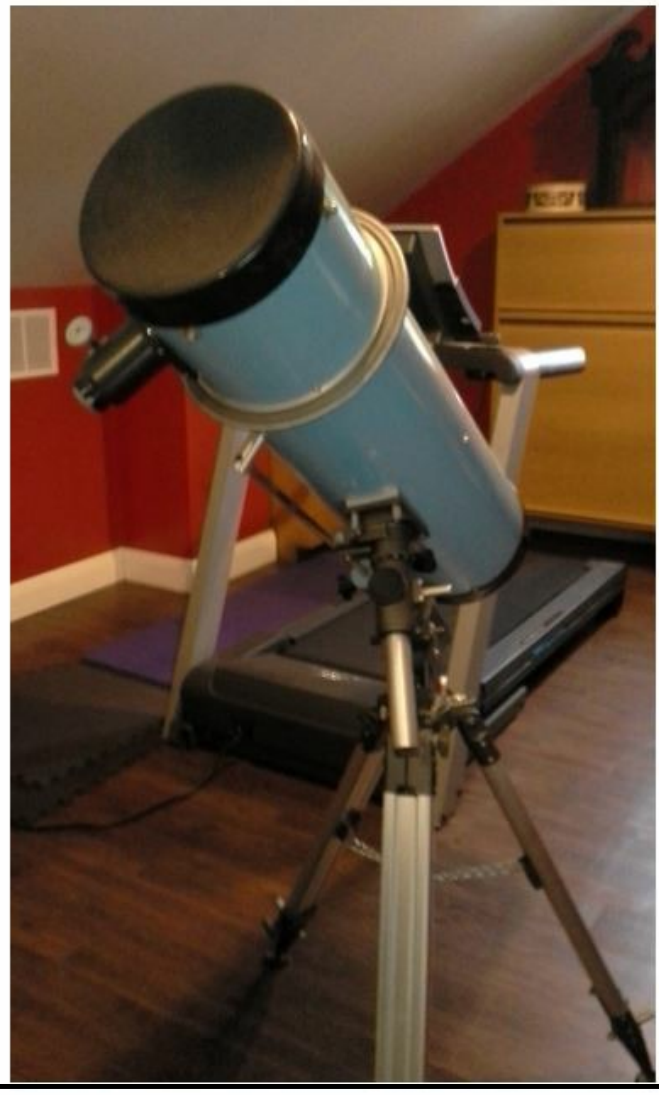
Eye Candy the Members' Image Gallery



Anika Shrivastava

Taken with her iPhone through the Shrivastavas' Vixen RF130 at f/5.
Look for the lunar 'L' just above the terminator at the right side.

For Sale



Vintage telescope for sale
Includes tripod, siting lenses
Some accessories
Contact-free PU w Burlington
Make me an offer!
Nicola nesimmons@cogeco.ca

UPCOMING EVENTS

April 9, 2021 - 7:30 pm — Virtual Online H.A.A. Meeting for members. The meeting will be conducted on the platform Zoom. Our main speaker will be Mary Beth Laychak, outreach manager for the Canada-France-Hawaii Telescope. Be on the lookout for an invitation e-mail with a meeting link.
You may download the Zoom app for various platforms from Zoom's Download Center

Due to the COVID-19 Coronavirus pandemic, all *in-person* Hamilton Amateur Astronomers meetings are suspended until further notice.

2020-2021 Council

Chair	John Gauvreau
Second Chair	Jim Wamsley
Treasurer	Ann Tekatch
Digital Platforms Director	Christopher Strejch
Membership Director	Leslie Webb
Observing Director	Matthew Mannering
Education Director	Jo Ann Salci
Event Horizon Editor	Bob Christmas
Recorder	Brenda Frederick
Secretary	Denise White
Publicity Director	Mario Carr
Councillors at Large	Barry Sherman Bernie Venasse Melissa Whitman Mike Jefferson Steve Germann Sue MacLachlan Swapna Shrivastava

Check out the H.A.A. **Website**
www.amateurastronomy.org

Follow us!

Contact Us
Hamilton Amateur Astronomers
PO Box 65578
Dundas, ON
L9H 6Y6

www.amateurastronomy.org

General Inquiries:
secretary@amateurastronomy.org

Membership:
membership@amateurastronomy.org

Meeting Inquiries:
chair@amateurastronomy.org

Public Events:
publicity@amateurastronomy.org

Observing Inquiries:
observing@amateurastronomy.org

Education:
education@amateurastronomy.org

Newsletter:
editor@amateurastronomy.org

Digital Platforms Director:
webmaster@amateurastronomy.org

All active HAA members have the privilege of access to an exclusive HAA members only dark sky location.

Be on the lookout for e-mails with dark sky observing details. Space is limited.

The Harvey Garden HAA Portable Library

Contact Information

E-mail: library@amateurastronomy.org