



# Event Horizon



**Volume 26, Number 4  
February 2019**



## From The Editor

There's definitely a lunar-eclipse theme to this month's E.H. with all the images and stories of last month's eclipse by H.A.A. members!

...And look what's back, the "Through the Looking Glass" column.

*Bob Christmas,  
Editor  
editor 'AT'  
amateurastronomy.org*



## Chair's Report by John Gauvreau

Last month I started by saying that the weather had not been too co-operative this winter but now I am looking back fondly on what now seems to have been positively balmy in comparison to this month. As I sit this evening to write this report it is -23 outside, coincidentally the same temperature as the night of the lunar eclipse. And though I sit here, warm and toasty in front of the keyboard now, I did venture out to see the eclipse and it was well worth it.

I thought I was smart by getting my mount set up while it was still light in the sky and before the temps dropped too much with nightfall, but that turned out to be a mistake. My equatorial mount was going to carry my scope and camera for some pics of the eclipse while I observed through binoculars. I have always found, through the many lunar eclipses I have observed, that I prefer a view through binoculars over a telescope. Well, the scope got set up fine but by the time I went out several hours after dark, near the time of first contact with the umbra, the mount had frozen stiff. I suspect the grease inside had become too viscous to allow the declination axis to turn. The RA axis was fine, but still, I didn't want any harm to

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## Chair's Report (continued)

come to the mount so I took it down and brought it inside to the kitchen. I got my alt-az mount set up, popped the scope on and was taking pics in no time. Sure I had to reposition the mount by hand every couple of minutes (and wow, I only had to try that once without gloves to learn my lesson on that cold night!), but it's the moon so how hard can it be to find it in the sky? At the beginning of the eclipse, under the fully illuminated moon, I even used the scope's shadow on the ground to point the telescope. As the moon fell into shadow though I noticed how much darker my back yard became and eventually I couldn't use the shadow of the scope on the ground anymore because it didn't cast a shadow!

Well, I enjoyed the eclipse (the view was wonderful through my 8x50 binoculars!), I got some satisfactory shots through my 90mm refractor, and my equatorial was working perfectly by the time the eclipse was over, having had a chance to warm up in the house. As cold as I was on that frigid night I was working fine too once I had also had a chance to warm up inside. I hope you enjoyed the eclipse just as much as I did.

## February Meeting

Our next general meeting will be on Friday February 8th at 7:30pm. The guest speaker will be our very own Bernie Venasse who will be drawing on his great observing experience to deliver a talk on Planning a Successful Observing Session.

Steve Gemann will be delivering another edition of the Sky This Month and I hope to hear tales of everyone's lunar eclipse adventures. And of course our Library will be present, the member services table will be set up at the back, food donations will be gathered for Hamilton Food Share, and there will be free door prize tickets for everyone who arrives before our start time of 7:30. And as always, a quick reminder to please be respectful of the speakers and your fellow audience members.

Speaking of our door prizes, a big thank you goes out to Matthew and Janice Mannering who braved the icy roads of winter to venture out on a book finding expedition. They returned with a year's worth of bounty and you will see the spoils of their labour in the fine new titles being offered as door prizes. And of course another big thank you is always deserved by Les Webb and Alex Tekatch who do such a great job finding homes for these great prizes by handing out and drawing the tickets. Alex also writes our newsletter's Cartoon Corner, which I honestly think is my personal favourite part of the newsletter. I couldn't come up with all those ideas and I am delighted every month when I see a new cartoon from her. Thanks Alex!

## Social Media

In this electronic age the HAA has not lagged behind. We have been well represented in the print media over the years and that is still going strong there, but our online presence is evident to you even now as you are reading the newsletter online. Christopher Strejch is our Digital Platforms Director and oversees both our website and our social media presence. This is not a small task as it needs constant attention and Chris has been vigilant and creative in his role. You can find us here on the website with new content for upcoming events, the history of the club, contact info for all your councillors and a cool countdown to the 2024 total solar eclipse. If you haven't already, be sure to 'like' the HAA on Facebook ([www.facebook.com/hamiltonamateurastronomers/](http://www.facebook.com/hamiltonamateurastronomers/)) and follow us on Twitter (@HAATweet). One glimpse at our Twitter page and you will realize just how much work Chris does. And this just scratches the surface,  
*(Continued on [page 3](#))*

**Masthead Photo:** *The Lunar Eclipse of January 20/21, 2019, by John Gauvreau.*

Composite of 2 images, one exposed for the moon and one for the background stars. Taken with his Canon 80D through his William Optics Megrez 90mm refractor.

See [many more Lunar Eclipse images taken by HAA members on pages 17 through 20.](#)

## Chair's Report (continued)

as like many others in the club, he works tirelessly behind the scenes to make all this look good for the members (an example is how Chris got me set up to send out club wide meeting reminders, and taught me how to do it!). A big thank you, and well done Chris!

### Public Education Events

Wasting no time to dive into this year's line-up of activities, this month we have already done our first public education events of the year. We started off by visiting a Girl Guide troop in Binbrook. Yes, it was one of those bitterly cold nights, but Jo Ann Salci, our Education Director, did a great job with about 25 enthusiastic girls. I was there to help out along with Jim Wamsley and we all had a great time. Jo Ann has taken over the education portfolio this year and is clearly a natural. Her gentle manner and knowledge captivated her audience while she taught them how to use planispheres. Jim followed up with an engaging showcase of his meteorite collection and everyone went home very happy. There are many more public events coming up this year and if you would like to come out and join in, just get in touch with Jo Ann.

### Scope Clinic

As I write this the Scope Clinic is a few days away, but as you read this the clinic is probably over. I hope you made it out, I hope you had fun and I hope I did too! A big thank you to all who came to help out. It really is group effort and shows the HAA at its best.

### HAA Helps Hamilton

To support our community, we collect non-perishable food items and cash for local food banks at our general meetings. Please bring a non-perishable food item to the meeting or a donation of cash and help us help others.



Our donations go to [Hamilton Food Share](#), which delivers them to various food banks around the Hamilton area.

If you would like to help or have any questions about this initiative, please contact the H.A.A.



### H.A.A.'s Loaner Scope Program



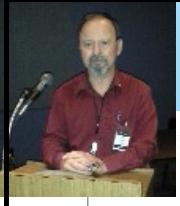
We at the HAA are proud of our Loaner Scope Program.

If you don't have a telescope of your own and want to make use of one for a month or so, you can borrow one of our fine loaner scopes.

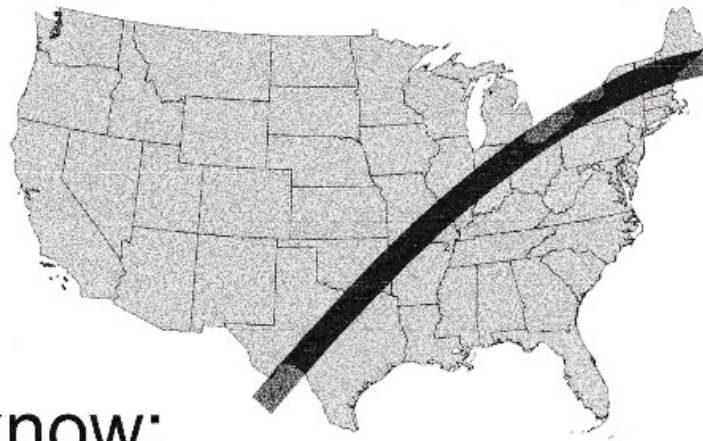
Please contact Jim Wamsley, at:  
905-627-4323  
or e-mail Jim at:  
*secretary 'AT' amateurastronomy.org*

and we'll gladly get one signed out for you.





# What are your plans for viewing the 2024 Solar Eclipse?



Let me know:

[eclipse@amateurastronomy.org](mailto:eclipse@amateurastronomy.org)





## January Astrophysics Group Meeting Summary by Mike Jefferson

Our group met at Doug Black's home to hear about and discuss topics on supernovae and fast radio bursts.

Doug Currie was the main presenter with information on *Type Ia, Ib, Ic and II supernovae*. Types III, IV and V do not cleanly fit the parameters for Types I and II. His main emphasis was on Type Ia supernovae. Much of what he said had been researched on the Internet, YouTube and Wikipedia. He treated us to a very complete dissertation of the this very complex and quite 'unknown' topic. The classification of supernovae has been revised and updated a number of times in recent history as new information becomes available and new types are discovered.

A number of years ago, I was engaged in a conversation with a member of the American Society for Astronomical Sciences about Mira variables. He and a number of his colleagues were convinced that these were the stars that seeded the universe. A later conversation with Dr. Doug Welch of McMaster University convinced me otherwise - ie. - that it had to be supernovae that carried the heritage of the universe. Supernovae are very important. Without them, we would just not be here!

Mike Jefferson was the secondary presenter with information about *fast radio bursts* found in "Sky and Telescope" (July 2016) and "The Washington Post". This is a very new topic which has been known only for the last few years. Large radio telescopes have intercepted these bursts, but the leading research on them, to date, has been accomplished by Canada's newest radio observatory in British Columbia, near the U.S. border, called CHIME (Canadian Hydrogen Intensity Mapping Experiment). It has detected a repeating burst which comes from the same location in the sky. It is a very strange phenomenon.

Mike also presented an article about "New Horizons" by Ivan Semeniuk from the 01/01/19 "Globe and Mail". This was just hours before it passed Ultima Thule but captured a very fuzzy image of it, which showed its 'dumb-bell' shape.

9 people were present this month. Several members brought refreshments to add to Doug Black's generous pantry.

We thank Doug B. for his kind hospitality and we meet again in February, on Friday evening, the 15th.

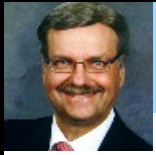
Please watch the HAA website for any changes or cancellations.

*Artist's concept of radio waves from a fast radio burst, being observed by the Green Bank Telescope in West Virginia.*

*Source: EarthSky.org*







## The Sky This Month for February 2019 by Steve Germann

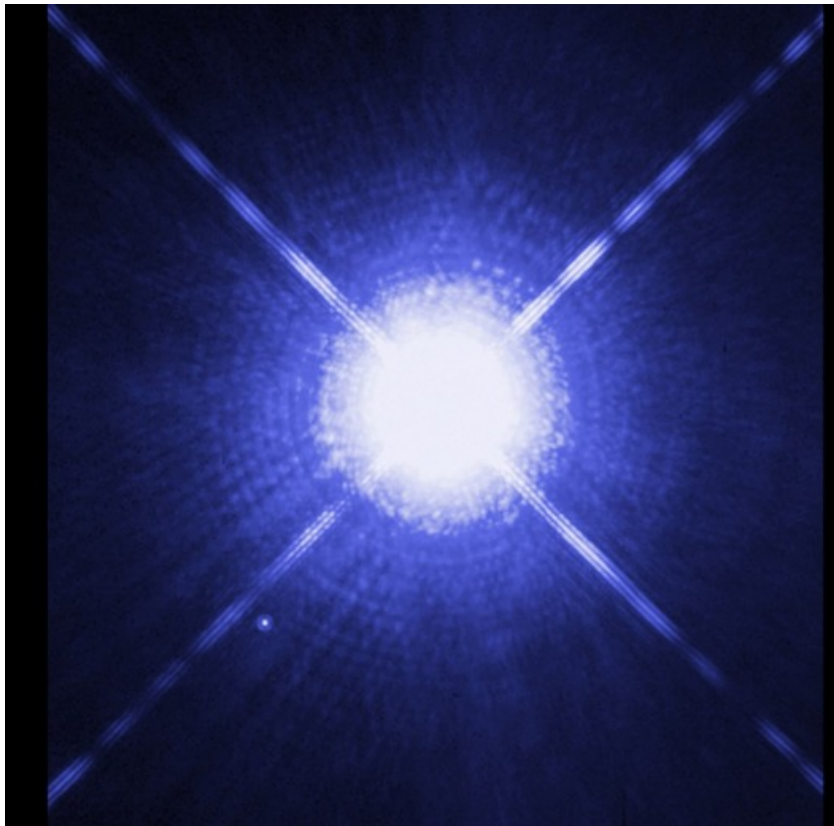
This month is the start of your best opportunity for many years to see *'The Pup' Sirius B*.

First discovered with the largest refracting telescope in the world, in 1844, the observation was confirmed with 'smaller' instruments.

Smaller instruments, we have.

The best plan is to position Sirius, the brightest star in the sky after our Sun, just off the edge of the eyepiece field of view, so that you only see some glare, and then look in the glare for the faint dot that will be Sirius B. I won't tell you which direction it will be, you will have to go 'around the clock' to find it.

But it will be plain to see when you find it.



*Image Credit: NASA, ESA, H. Bond (STScI), and M. Barstow (University of Leicester)*

The Hubble observes Sirius without intervening atmosphere. We can anticipate more glare in our instruments. When you finally see Sirius B, note how much the glare extends beyond it in your instrument. This is a measure of atmospheric seeing, collimation, clean optics, and good baffles in the edges of your telescope.

Or even better, use someone else's scope and make comparisons!

This wiki page tells a lot about Sirius.

<https://en.wikipedia.org/wiki/Sirius>

The separation right now is about 8 arc seconds, well within the ability of any optical device to separate, but the glare from Sirius A is intense, so you will probably need a tracking mount to keep the glare under control. Bonus marks if you can spot it with a Dob not tracking.

While you are observing Sirius, try this trick: Tap your telescope with a few fingers while looking through the eyepiece. You will observe twinkling of the star, spread over space, and see a small loop of light with different colours around its perimeter. Sirius is an excellent start to use for this test.

Imagine how hard that process would have been over a hundred years ago, when the discovery had not yet been made, and only a very few people could afford a telescope which we now consider average.

(Okay, I will admit that an 18.5 inch refracting telescope will never be an 'average' telescope)

### Lunar Eclipse

I hope you saw last month's Lunar Eclipse. The conditions, except for the cold, were ideal, with a clear sky and the Moon high in the sky. I watched it all from my front yard.

At the February 2019 meeting, I will be showing your photos of the eclipse with some comments. Please send if you have not yet done so.

*(Continued on [page 7](#))*

# The Sky This Month for February 2019 (continued)

## Solar Eclipse

On July 2, 2019, the Moon will occult the Sun as viewed from South America. So far, I am not aware of anyone planning to travel there... and perhaps the good question is, why should we? A Solar eclipse is coming to us on April 8, 2024 and we won't have to travel at all, (well, perhaps to at least as far south as Binbrook Conservation Area would be good, where totality will be a little longer).

The key thing is this. In a total eclipse, you want to be as close to the center line as possible, because near the edge, the sky does not get nearly as dark, even though the sun is obscured.

Stay tuned for news of our Club's growing plans to celebrate this Astronomical event in style.

## Moonrise

Although it's not the Super Moon, February's Moon-rise will be almost as large, and will be observable from several vantage points. Tuesday February 19th, 18:06 is the date and time.

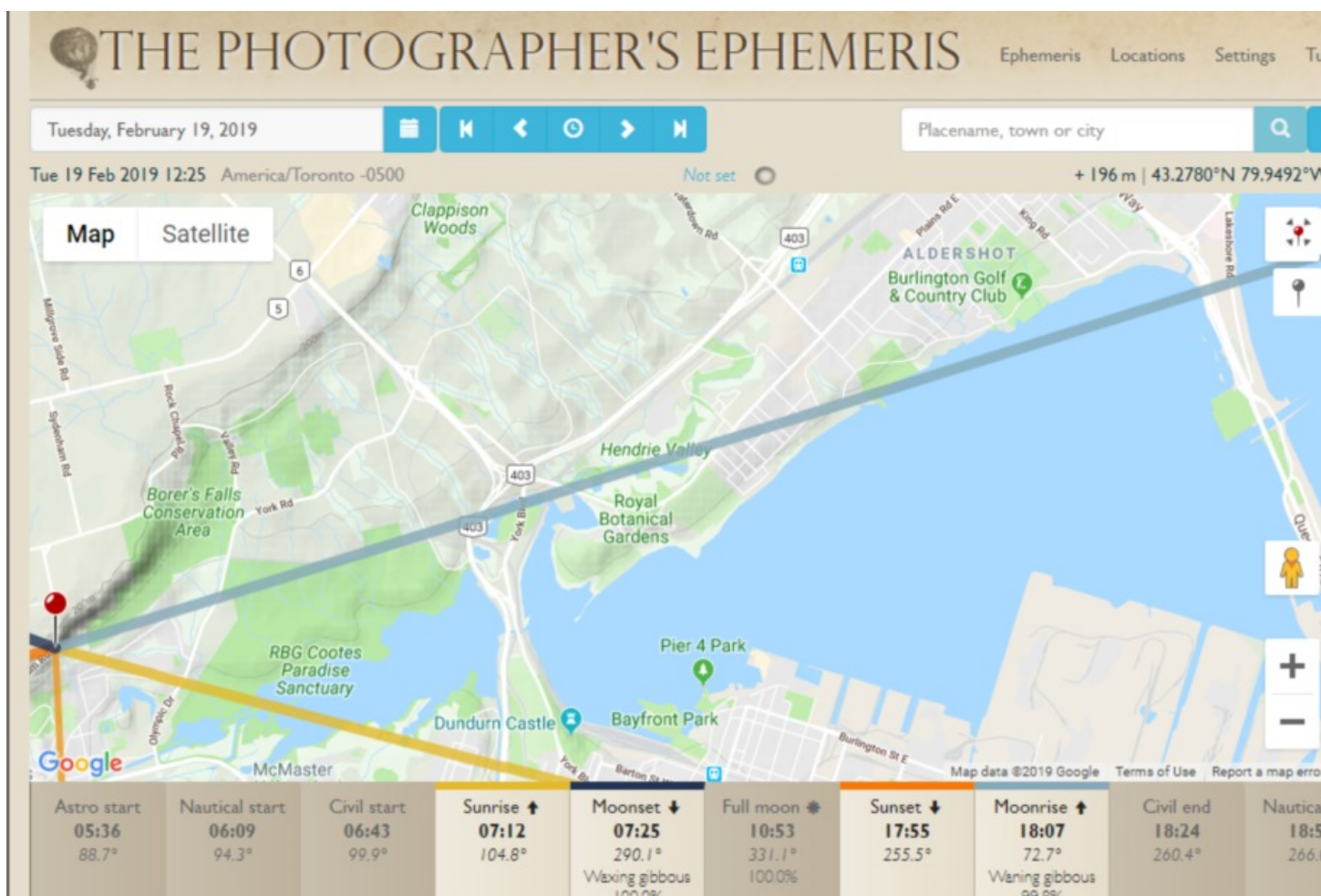
The Moon will rise over Lake Ontario, as viewed from Hamilton, at an azimuth of 72.7 degrees.

This is one month when the Moon rises 10 minutes after sunset, as viewed from our location, still during civil twilight, but it will give a darker horizon in the East in which to spot the rising Moon.

From any of these three vantage points, you will see the Moon rising over water, and the (1) Dundas one is probably the most distant view.

The high bridge on York Blvd (2) will have a view partly obscured by the buildings near the canal, and I don't recommend it, although once the moon as risen, you might catch it framed by the Skyway Bridge.

1

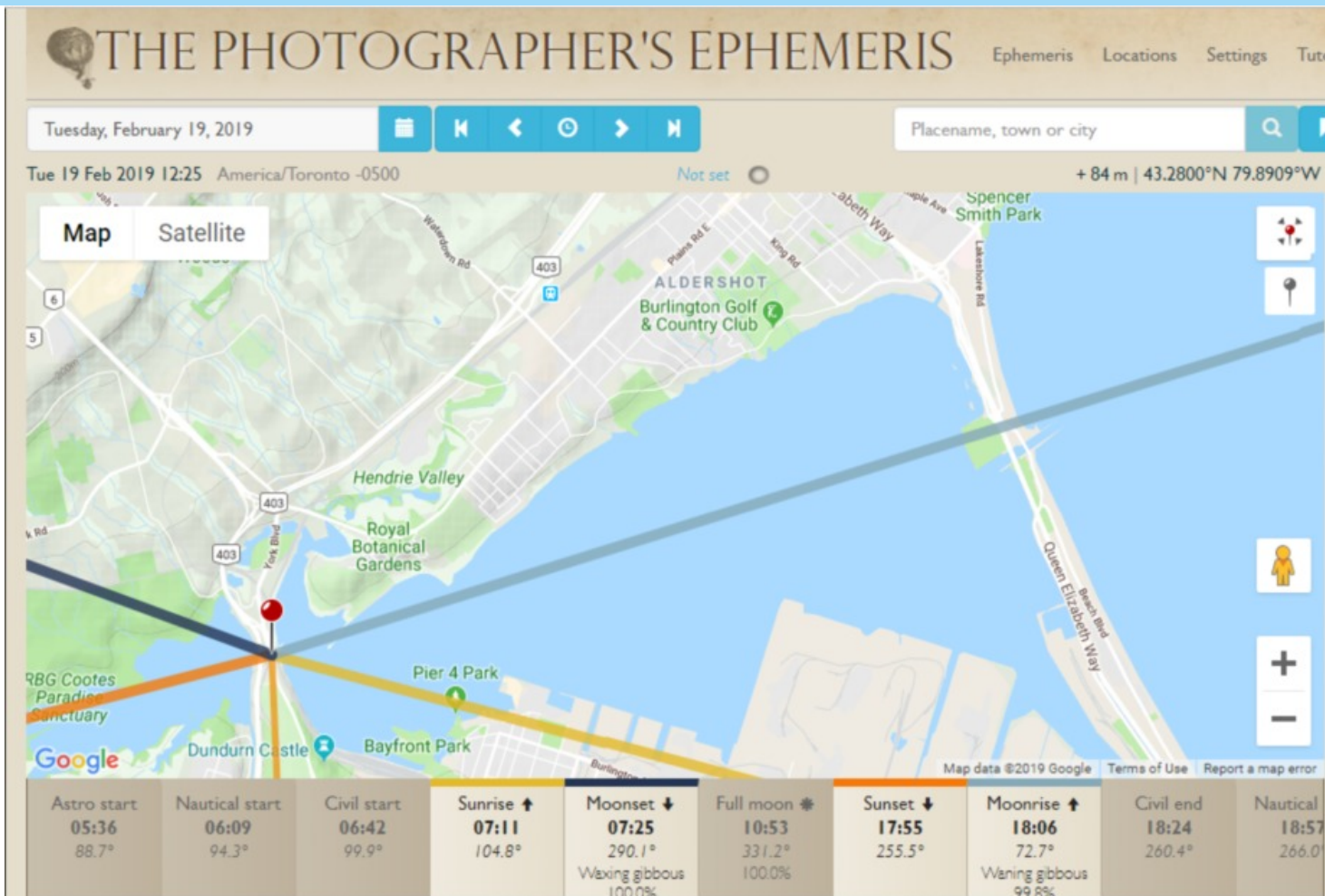


(Continued on [page 8](#))



# The Sky This Month for February 2019 (continued)

2



3



You can use the Photographer's Ephemeris to dial the times and see the angle a few minutes later, and read off the altitude as well, to plan your point of viewing.

Parking is free in (3) Burlington after 6 PM, so the cost will be minimal if you arrive with 10 minutes to spare. *(Continued on [page 9](#))*





*Image Credit: Akira Fujii*

### **The Winter Constellations**

I must mention that *Orion* is now prominent in the evening sky and you should take this chance to observe the 'Winter Triangle' as it makes its way across the sky 4 minutes sooner each day.

Aside from *Sirius*, there's also *Procyon*, which is in the brightness top 10, and *Betelgeuse*.

Try the telescope tapping maneuver on each of these bright stars. It will spread out their colour and give you a chance to observe the colour without the glare being dominant. Tune the tap strength to get the best view of colours.

The *Beehive Cluster, M44*, is high in the sky and is a rich region of interesting stars to observe.

### **Comet 46P Wirtanen**

Like the energizer bunny, this comet can keep busting into Sky This Month presentations over and over.

Now, 46P has headed north. You can find it anytime at night now, and its magnitude is still about 8.

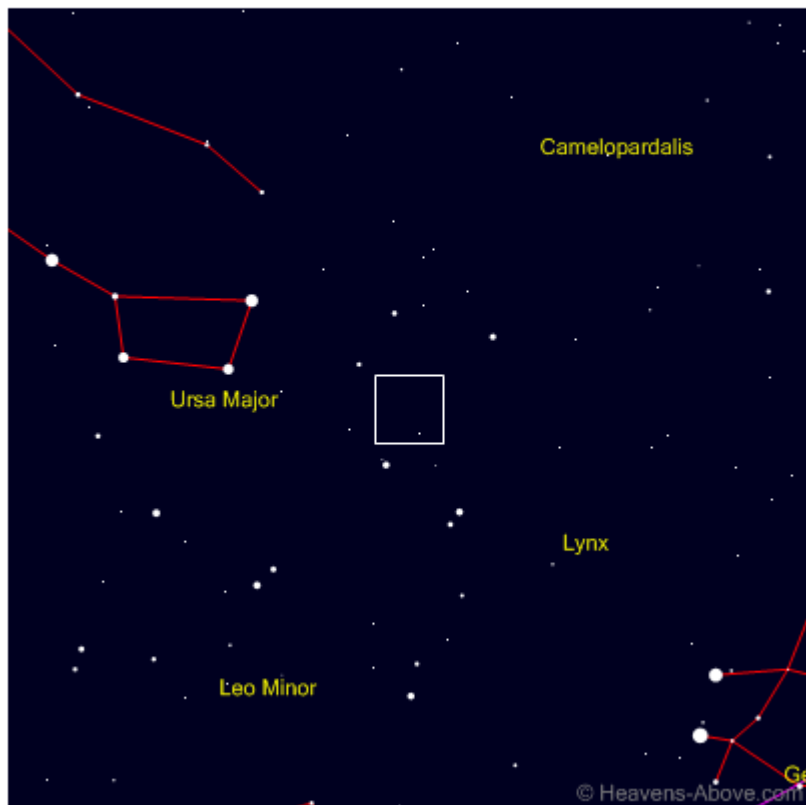
It's a fairly small comet, so 8th Magnitude is in range of your binoculars if you are away from city lights.

*(Continued on [page 10](#))*

# The Sky This Month for February 2019 (continued)

## Comet 46P Wirtanen

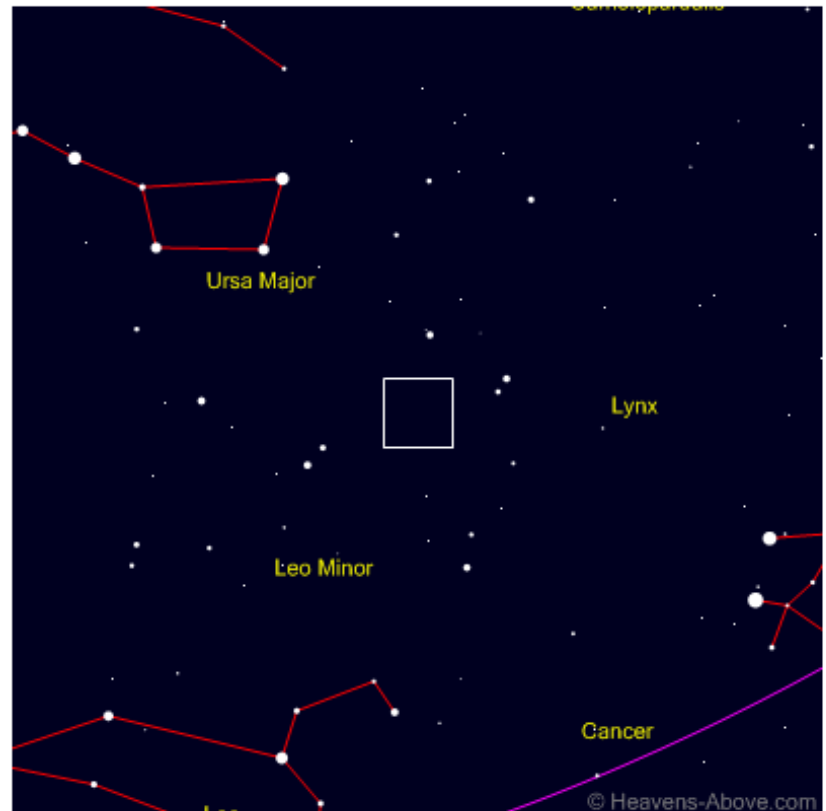
Year  Month  Day  Time



Coarse finder chart  
(Field of view: 60°, Max. star mag.: 5)

## Comet 46P Wirtanen

Year  Month  Day  Time



Coarse finder chart  
(Field of view: 60°, Max. star mag.: 5)

It is now heading south towards Leo, but still nicely placed between Leo, Gemini and Ursa Major.

Here are charts for the end of January and the end of February. It's not moving fast now, but do take the time to get heavens-above.com to print a chart for you. You don't need a login or to give your location to get this chart.

## The Planets

*Jupiter* and *Saturn* now rise after 2 and 4 am respectively, so they are effectively morning sky objects for the next few months. We can expect Jupiter at opposition in June, Saturn in July.

The only planets with a hope of being seen in the evening after Astronomical Twilight ends are *Mars*, *Uranus* and *Neptune*.

## Grazing Occultations

One of my favourite things to look forward to when I get the new RASC Observer's Handbook is the multi page section on grazing occultations.

As a club we have done several expeditions to get on the 'graze line' and see the star blink out between contours of the lunar perimeter.

At the distance of the moon, a star is only a few feet in diameter, and the Moon is moving a km/s so the stars go out very suddenly. If a star has an unseen companion, then the occultation can be in steps, since the Moon has no atmosphere and is a great occulting disk, being so far away. I have heard reports that there is a momentary brightening of the star before it disappears. I would like to see that in a video.

(Continued on [page 11](#))



## The Sky This Month for February 2019 (continued)

This is one case where putting the camera into video mode and observing can be rewarding, as I showed a few years ago, some of the videos of grazing occultations at our meeting.

So, for this year, I see a few that look promising. These are within driving distance (looking at the 2019 Observers Handbook about page 176):

35S, 97S, 143S, 151S, 184A, 204A, 193A

Looking at those, the most important letter to avoid is 'B' which means the bright limb of the moon is at the occultation edge. Those with 'S' indicate sunlight can interfere. We can look up the exact time of each, and determine altitude of the Moon and Sun in each case, for our location.

For a satisfying event, we want the Moon to be high enough in the sky, and at the same time not too bright. It will be nice if the weather is warm, and the event is 'scientifically interesting'.

Over and above grazes, there is also scientific benefit to abrupt occultations which also gather potentially novel data about double stars. I could (and did) craft a long report about opportunities for observing double stars with grazes and outright occultations, but I am not including it here. The fact is, seeing a grazing occultation is actually a lot of fun, too.

### Upcoming Comets

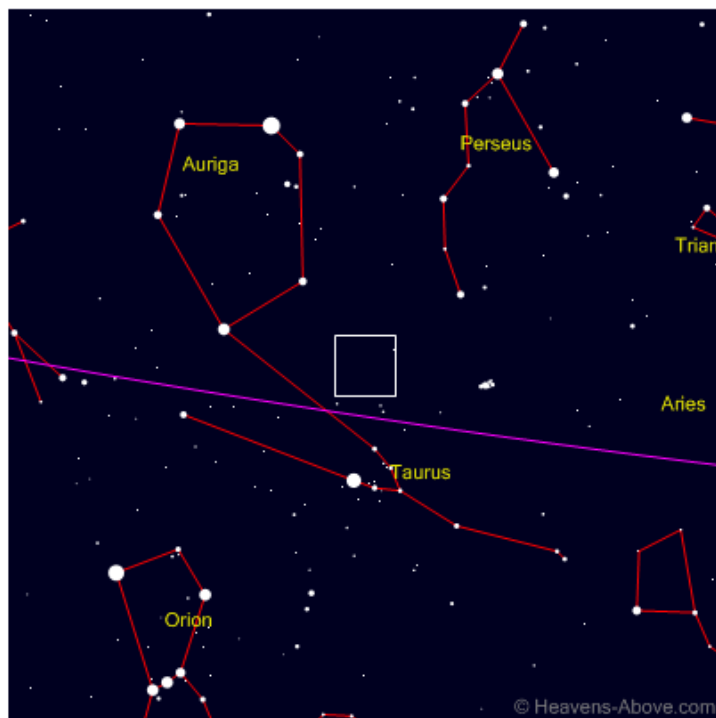
Swap the digits and look again, as they say... The next comet worth seeking is *64P Swift-Gehrels*. It is in Taurus moving towards Gemini, and at 9th magnitude right now. That's a challenge object for our telescopes until we can get to the New Moon under dark skies. By the time of our monthly meeting, the Moon will be new and the skies dark.

I look forward to more reports of your observations, to share at our meeting.

Until then, I wish you "Clear Skies".

#### Comet 64P Swift-Gehrels

Year  Month  Day  Time



Coarse finder chart  
(Field of view: 60°, Max. star mag.: 5)



Fine finder chart  
(Field of view: 5°, Max. star mag.: 10)



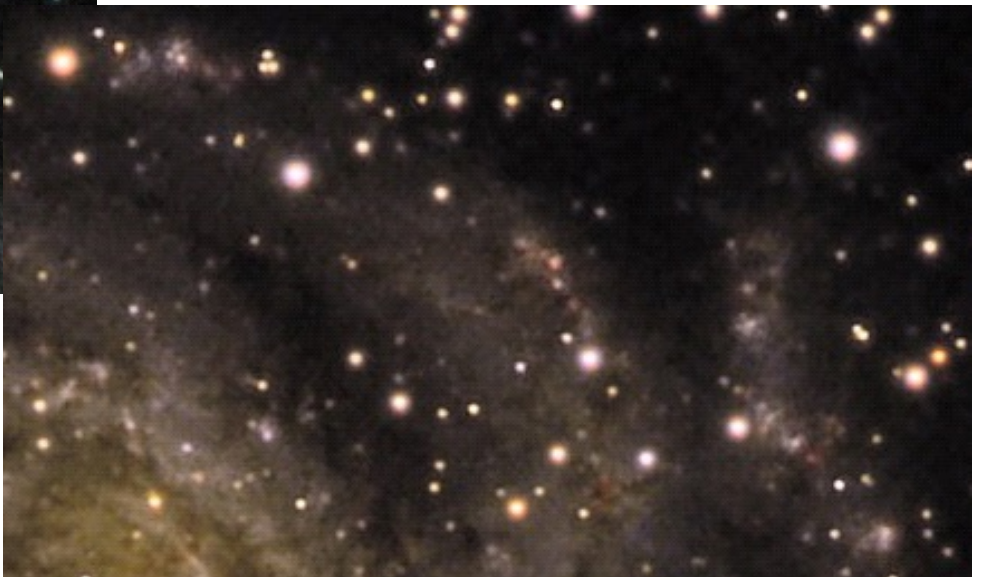
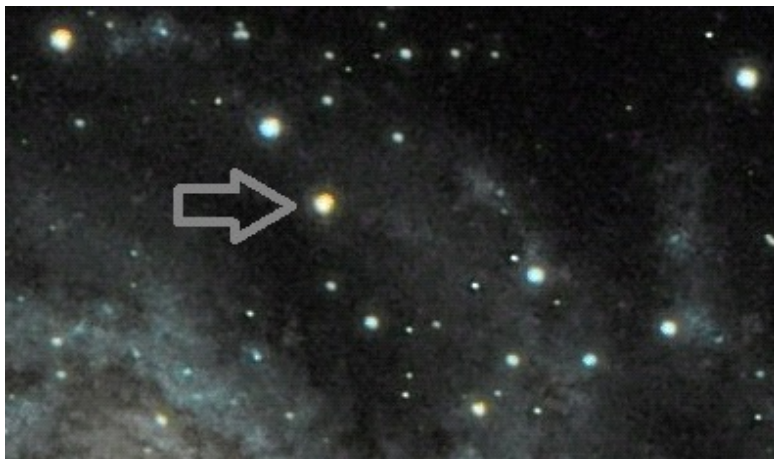
# Fireworks Galaxy Supernova Update and modifying my Nikon D5300 camera by Peter Wolsley



2017 Supernova SN 2017eaw was big and bright when I imaged the Fireworks Galaxy (NGC 6946) (top right) on July 28th. I took 36 photos at ISO1600. Each photo was a 300 second exposure which meant that this photo represents 180 minutes total integration time. When this image was taken, my Nikon D5300 was a stock camera. Over the 2017/2018 winter I had my camera Hydrogen Alpha modified by a company called Kolari Vision. This modification requires the company to dismantle the camera and replace the UV/IR filter glass on the imaging chip with a specially modified glass that has a 4 fold increase in H-alpha sensitivity and a 6 fold increase in sulphur II sensitivity.

During July, 2018 I imaged the Fireworks Galaxy again (top left). This time I took 35 photos at ISO800. Each photo was a 240 second exposure for a total integration time of 140 minutes. Now, one year later, Supernova SN 2017eaw has faded into obscurity. My 2018 Fireworks Galaxy image has more details in the galaxy's arms. Some details are totally missing in my 2017 version.

Here are two close-ups. The grey arrow points to Supernova SN 2017eaw as seen in July 2017. In the July 2018 image, the Supernova has faded away. You can also see some of the details in the galaxy's arms that are now visible in spite of the fact that the 2018 image has significantly less total integration time. Not a bad result for a Galaxy that is located 22.5 million light years away from us.



*Image Credits:  
Peter Wolsley (all)*





## Through the Looking Glass by Greg Emery

It has been forever and a day since I last submitted a column to the Event Horizon (I had planned to say it was many moons ago but seeing how this is the first EH since the eclipse, I anticipate the moon will be predominant in this issue). I have done some astronomy, but nothing huge.

So I finally bought a “travel scope” last year. A 102mm f6.5 refractor on an alt-az tripod. The tripod is suspect but - and this was the big requirement when I bought it - it all fits in one of my hard-sided suitcases that I travel with (along with a weeks’ worth of clothes), and comes in about one kilogram below the standard allowable weight for most airlines.

When I went to the UK last summer, it arrived with me in seemingly good shape. However, upon opening the suitcase at my country rental, there was a friendly form from Canada Customs indicating that they had inspected my checked luggage. I had used a lot of my clothing to wrap the optical tube, made foam braces, so the scope would not shift much and was not in contact with any of the sides of the suitcase. The kind gents at customs, obviously took the scope out, threw the clothes back in and put the scope on top and zipped up the suitcase. In spite of this, the scope survived the roundtrip. I had the scope ready to watch the lunar eclipse in August last year from the Wiltshire countryside but heavy cloud moved in with rain. I did see a few glimpses of the eclipse through the clouds driving back to our rental in Warminster.

Anyways, part of the reason I am once again sitting at the keyboard is to talk about my summer plans and to ask a favour from my HAA friends. First the plans, then when I have lulled you into a false sense of security, the favour.

I have been going up to Gordon’s Park, on Manitoulin Island, since 2002 ([www.gordonspark.com](http://www.gordonspark.com)). I don’t always make it up there every year, however if I travel for astronomy locally (for me locally means there is no airplane involved) it is always Gordon’s Park and Eco-resort. Through a set of events and circumstances, which as fate would have it, have turned out to be greatly to my benefit, I will be the Astronomy and Public Outreach person for the spring and summer of 2019. I am excited to have this opportunity and can’t wait to see the beautiful, dark skies once again.

I will be conducting public observing sessions each weekend, July 1 through to Labour Day. As well, I will be present at each of the four star parties that are scheduled for the spring and summer ([www.gordonspark.com/astronomy](http://www.gordonspark.com/astronomy)). I have helped with public observing with the HAA, so the mechanics of doing that is not new to me. However, I have been replaying in my mind my beginnings with astronomy, my first experiences with the night sky and the role members and friends in the HAA have played.

My first real astronomy experience was in August 2001 when I went out to the public observing at Binbrook Conservation Area with the HAA. It was Saturday, August 11, 2001. I still remember seeing some of the Messier objects for the first time. I remember being amazed by the views of Sagittarius and the Milky Way overhead. I have a recollection of seeing M51 and being astounded. The people from the HAA that helped me and allowed me to use their equipment made all the difference.

My one fear is that I will try to relive my experience along with all of my prejudices about what objects are nice to see, what objects have ‘wow’ factors. It is all too easy to show people what you think are the best things to see, not what are the potentially best things for them to see. I will have two or three scopes available - the crowd/group size will vary in number and composition. The viewing is roughly 90 minutes to 2 hours, beginning with an introduction to the night sky (using a green laser). I have the personal goal to try to have something for everyone so for nights without the moon, to moderate sized groups I have: (see top of next page)

*(Continued on [page 14](#))*

## Through The Looking Glass (continued)

Jupiter  
Saturn  
M13  
M29/M39  
M20  
M57  
M51/M33

So I am asking for input from the HAA members as to what their favourite summertime objects are, keeping in mind that many of the eyes at the eyepiece will be inexperienced.

Averted vision and other experiential viewing tricks should not be needed to see the objects. The viewing is July and August, every weekend, so the moon will be prominent two of the weeks. Let me know what your highlights are, please take a moment and email your list to me at:

gregoryemery456 'AT' gmail.com

Thank you for your help, I look forward to your input!







**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.org](https://nightsky.jpl.nasa.org) to find local clubs, events, and more!

### Hexagon at Night, Quartet in the Morning

By David Prosper

The stars that make up the **Winter Hexagon** asterism are some of the brightest in the night sky and February evenings are a great time to enjoy their sparkly splendor. The Winter Hexagon is so large in size that the six stars that make up its points are also the brightest members of six different constellations, making the Hexagon a great starting point for learning the winter sky. Find the Hexagon by looking southeast after sunset and finding the bright red star that forms the “left shoulder” of the constellation Orion: **Betelgeuse**. You can think of Betelgeuse as the center of a large irregular clock, with the Winter Hexagon stars as the clock’s hour numbers. Move diagonally across Orion to spot its “right foot,” the bright star **Rigel**. Now move clockwise from Rigel to the brightest star in the night sky: **Sirius** in Canis Major. Continue ticking along clockwise to **Procyon** in Canis Minor and then towards **Pollux**, the brighter of the Gemini twins. Keep moving around the circuit to find **Capella** in Auriga, and finish at orange **Aldebaran**, the “eye” of the V-shaped face of Taurus the Bull.

Two naked-eye planets are visible in the evening sky this month. As red **Mars** moves across Pisces, NASA’s InSight Mission is readying its suite of geological instruments designed to study the Martian interior. InSight and the rest of humanity’s robotic Martian emissaries will soon be joined by the Mars 2020 rover. The SUV-sized robot is slated to launch next year on a mission to study the possibility of past life on the red planet. A conjunction between Mars and **Uranus** on February 13 will be a treat for telescopic observers. Mars will pass a little over a degree away from Uranus and larger magnifications will allow comparisons between the small red disc of dusty Mars with the smaller and much more distant blue-green disc of ice giant Uranus.

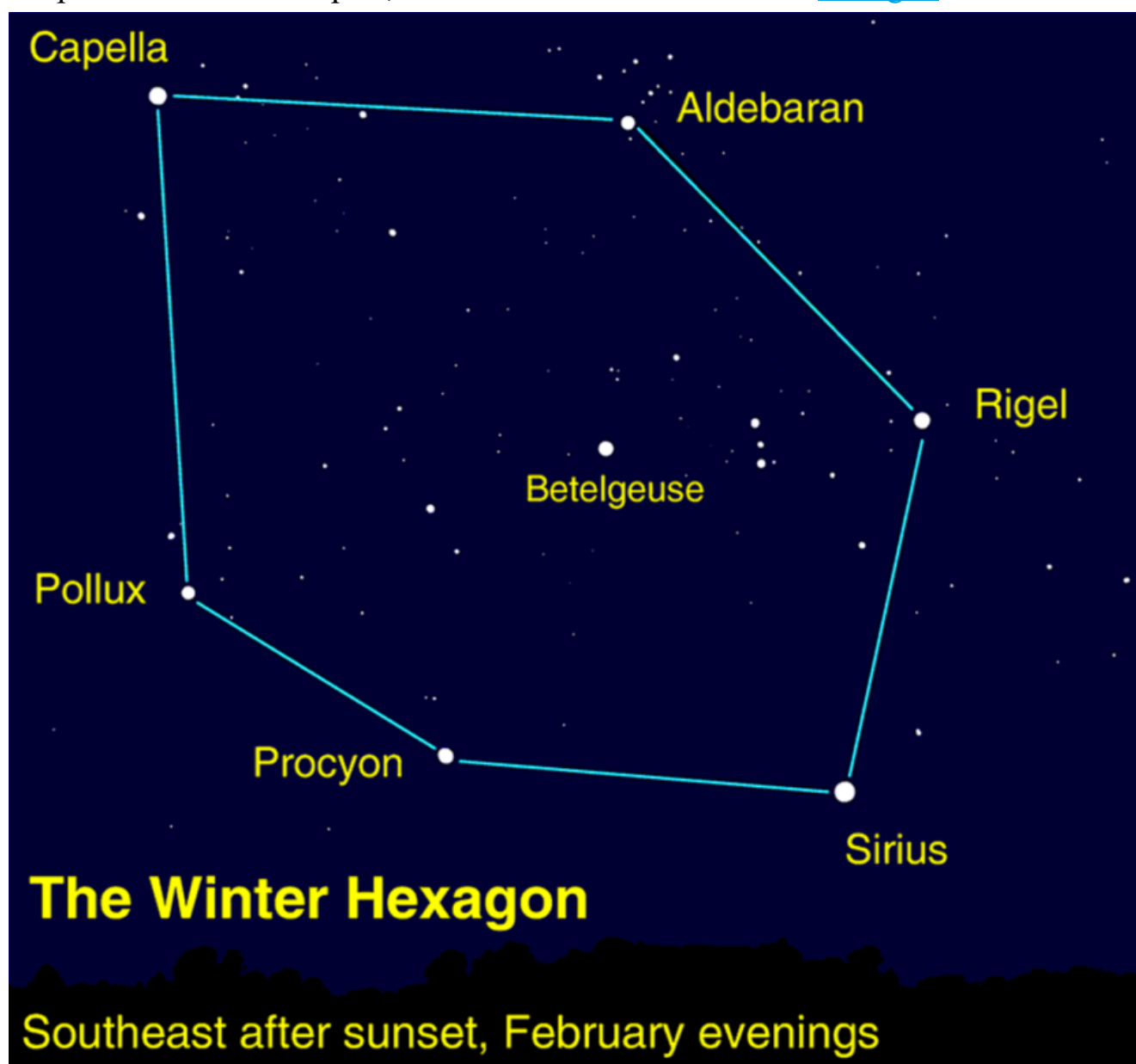
*(Continued on [page 16](#))*

## NASA Night Sky Notes (continued)

Speedy **Mercury** has a good showing this month and makes its highest appearance in the evening on February 27; spot it above the western horizon at sunset. An unobstructed western view and binoculars will greatly help in catching Mercury against the glow of evening twilight.

The morning planets put on quite a show in February. Look for the bright planets **Venus**, **Jupiter**, and **Saturn** above the eastern horizon all month, at times forming a neat lineup. A crescent **Moon** makes a stunning addition on the mornings of February 1-2, and again on the 28th. Watch over the course of the month as Venus travels from its position above Jupiter to below dimmer Saturn. Venus and Saturn will be in close conjunction on the 18<sup>th</sup>; see if you can fit both planets into the same telescopic field of view. A telescope reveals the brilliant thin crescent phase of Venus waxing into a wide gibbous phase as the planet passes around the other side of our Sun. The Night Sky Network has a simple activity that helps explain the nature of both Venus and Mercury's phases at [bit.ly/venusphases](http://bit.ly/venusphases).

You can catch up on all of NASA's past, current and future missions at [nasa.gov](http://nasa.gov)



*The stars of the Winter Hexagon  
Image created with help from Stellarium*



Lunar Eclipse Gallery Members' Images of the January 20/21 2019 Lunar Eclipse





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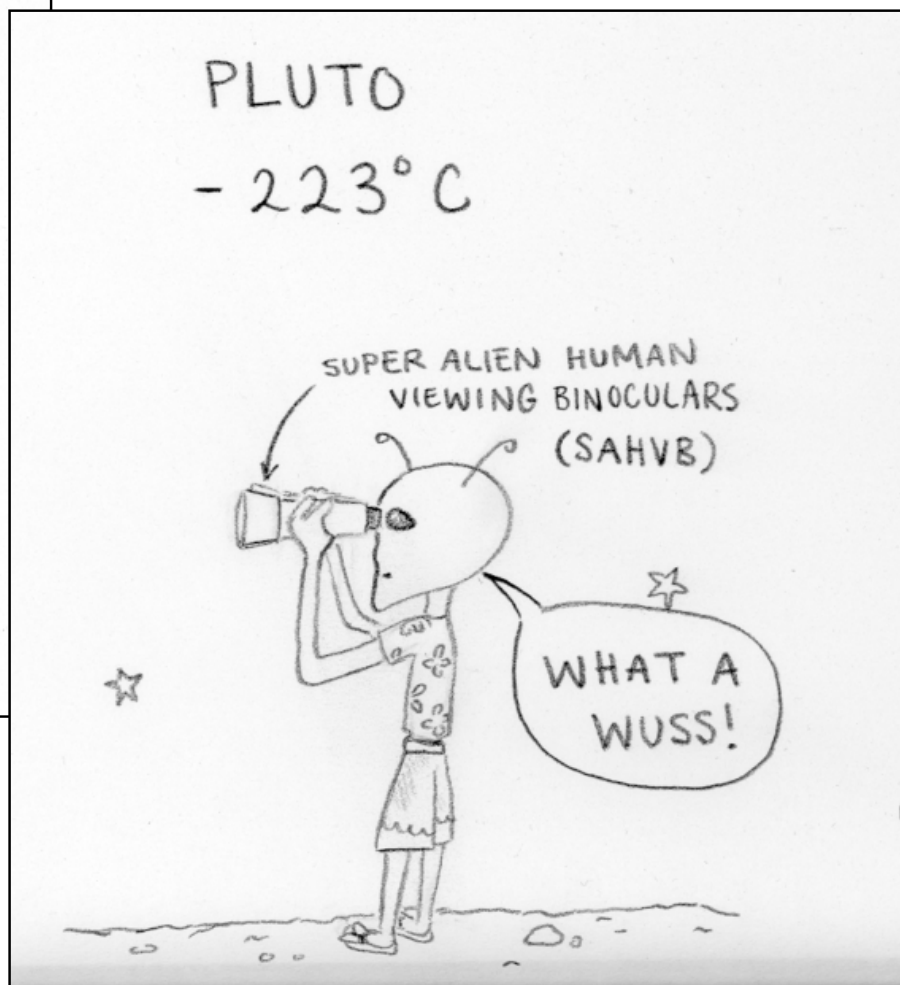
Image Credits:

- 1 Collage by Sylvie Gionet
- 2 Collage by Dan Copeland
- 3 Single Image by Sylvie Gionet
- 4 The Eclipsed Moon Beside M44, the Beehive Cluster, by Janice Mannering
- 5 Telescope ready for eclipse viewing, by Brian Whitman
- 6 Partial phase, just before totality, by Brian Whitman
- 7 Single Image by Ann Tekatch
- 8 Collage by Chris White
- 9 Single Image by Chris Strejch
- 10 Single Image by Bob Christmas





## Cartoon Corner by Alexandra Tekatch



## Treasurer's Report by Ann Tekatch

### Treasurer's Report for January 2019 (Unaudited)

Opening balance:	\$9,631.81
<u>Revenue:</u>	
Membership Fees:	\$180.00
50/50 Draw:	\$65.00
Calendar sales:	\$190.00
<u>Expenses:</u>	
PayPal Fees:	\$3.09
Books for Door Prizes:	\$185.04
Speaker Fee:	\$200.00
Christmas Social Coffee:	\$112.98
Web hosting:	\$130.97
Closing Balance:	\$9,434.73



# William J. McCallion Planetarium

McMASTER UNIVERSITY, HAMILTON, ONTARIO

- Public shows every Wednesday (7:00pm)
- Public transit available directly to McMaster campus
- Tickets \$7 per person; private group bookings \$150
- Different shows every week
- Upcoming shows include:
  - **Feb 6: Introductory Astronomy for Kids — Galaxies**
  - **Feb 13: 50 Years in Space**
  - **Feb 20: Stories of the Sky**
  - **Feb 27: The Search for Life: Are We Alone?**
- For more details, visit  
[www.physics.mcmaster.ca/planetarium](http://www.physics.mcmaster.ca/planetarium)



## UPCOMING EVENTS

**February 8, 2019 - 7:30 pm** – *HAA Meeting* at the Hamilton Spectator Auditorium. Our featured speaker will be **Bernie Venasse**. His talk is entitled “*Planning a Successful Observing Session*”.

**March 8, 2019 - 7:30 pm** – *HAA Meeting* at the Hamilton Spectator Auditorium.

## 2018-2019 Council

Check out the H.A.A. Website  
[www.amateurastronomy.org](http://www.amateurastronomy.org)

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Second Chair	Mike Jefferson
Treasurer	Ann Tekatch
Digital Platforms Director	Christopher Strejch
Membership Director	Leslie Webb
Observing Director	Steve Germann
Education Director	Jo Ann Salci
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Publicity Director	Mario Carr
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Observing site for the HAA provided with the generous support of the

### Binbrook Conservation Area

Come observing with the HAA and see what a great location this is for stargazing, a family day or an outdoor function.

Please consider purchasing a season's pass for \$79 to help support the park.

<http://www.npca.ca/conservation-areas/binbrook/>  
905-692-3228

### HAA Portable Library Contact Information



E-mail: [library@amateurastronomy.org](mailto:library@amateurastronomy.org)