

# Event Horizon

Volume 26, Number 6  
April 2019



## From The Editor

It's the first full month of Spring, and more comfortable weather is on its way.

One thing I must mention is that *Alex Tekatch*, who has humoured us with her *Cartoon Corner* for several years, is taking a sabbatical.

In this E.H., a selection of some of her past work  
(Continued on [page 2](#))



## Chair's Report by John Gauvreau

Ok, at this point I have to say it; there have been some beautiful days this past month. One day hit 15 degrees and we have had some great hikes already. But as I write this it is March 31, the last of the month, spring came upon us 10 days ago, we are well into daylight saving time, and yes...it is snowing outside! Maybe if I stop writing these reports the weather will improve (he said half jokingly and half in frustration).

On one cold but very clear night, several of us were out at the Binbrook Conservation Area for a night of observing. I found the seeing to be only mediocre but the transparency was excellent. Looking at the Orion Nebula through my 130mm refractor, I couldn't see either the E or the F star in the Trapezium, although I have seen both through the same scope from my back yard on other nights. The nebula itself though was full and rich! This winter I have tried several times to see M35, a lovely open cluster at the foot of Gemini, from my back yard through my 10x50 binoculars, alas with no luck. Out at Binbrook though, it shone through clearly,

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## Chair's Report (continued)

looking better than I expected through the binoculars. The difference was simply good transparency and a lack of light pollution. Several members were sharing great views through their scopes and I enjoyed some lovely views of the Eskimo nebula, M65 and M66, the galaxy pair in Leo, and Almach, also known as Gamma Andromedae, a beautiful and colourful double star. Next time why not come out and join us. There's always good company and good views.

Our last meeting was well attended, and Kevin Salwach gave an engaging retrospective of his time as an amateur astronomer. He reflected on how one's view of the cosmos changes over time and how well this hobby accommodates us as we engage the sky in so many different ways. Thank you to Kevin for a wonderful bit of perspective on our hobby.

Denise White, the club librarian, gave a review of one of the publications available in the library. After the meeting, it was scooped up, but there are many more books available and I look forward to Denise's further recommendations.

This month we will be hosting Stephen Holmes, the president of the Kitchener Waterloo Centre of the RASC. I am very much looking forward to Stephen's talk on what SETI can teach us about astronomy. Be sure to come out on April 12 for a great meeting!

The end of March is always a banner time as the HAA participates in BASEF, the Bay Area Science and Engineering Fair. Each year we send judges to determine the winner of the HAA James Winger Award for best astronomy project. A thank you goes out to Bernie Venasse, Dee Rowan and Gary Sutton, who gave a full day of their time volunteering at the fair. I was there too, for the 7th year, giving a talk to the students while their projects were being judged. It's always a fun time and I hope you had a chance to go and see the many excellent projects during the public viewing. And of course, congratulations to this year's winner, Tyler O'dell, and to all the winners and other participants!

Our first public observing session was postponed a week due to inclement weather, but a small yet intrepid crew ventured out to Grimsby for a night that turned out to be almost as cloudy (but at least far less dangerous on the road). Instead of stargazing, we enjoyed hot coffees and good conversation. The best part of a club like this is the good company. This month we will try again at Bayfront Park on the night of Saturday April 13th. Come out with your scope, binoculars, books, camera, meteorites or just yourself for another evening of public stargazing.

*(Continued on [page 3](#))*

## From the Editor (continued)

appears on Pages 18 and 19. On behalf of the H.A.A., I would like to give a very heart-felt thank you to Alex for her hilarious cartoons that have entertained E.H. readers for most of this decade!

Clear Skies!

*Bob Christmas, Editor*

*editor 'AT' [amateurastronomy.org](http://amateurastronomy.org)*

**Masthead Photo:** *The Waning Gibbous Moon, Illumination 97%, on March 22, 2019, by Sylvie Gionet.*

Taken with her Canon EOS Rebel T6i through her Canon EF-S 55-250mm Telephoto Zoom Lens with 2x tele converter. Settings: f/22, 1/125 secs, ISO 100

## Chair's Report (continued)

March saw the HAA revive the Messier Award, available to any member who completes the requirements. It's a challenging but achievable project that will take you across the sky and teach you a few new tricks for sure. After being introduced during the meeting, several people picked up the forms at the desk at the back of the room. The Messier Award is the first to be reintroduced, and will be followed by the Rising Star Award, for beginners. These are great projects for beginners and experienced observers alike. Get in touch with Bernie at "eclipse 'AT' [amateurastronomy.org](http://amateurastronomy.org)" to sign up.

Also up and running again this month is the Beginners Group, more popularly known as Astro 101. After running that group for many years I am happy to have handed it off to Dee Rowan. Thanks to Dee for running the 2019 group. If you are interested in joining, there is still time. The first meeting is this Thursday April 4th, with subsequent meetings every two weeks after that. Contact Dee through me, or "info 'AT' [amateurastronomy.org](http://amateurastronomy.org)", or at the next meeting.

As always, feel free to get in touch (council emails are on the last page of the newsletter) and see you out there.



### 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](http://amateurastronomy.org)*

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

### 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](http://Hamilton Food Share), which delivers them to various food banks around the Hamilton area.

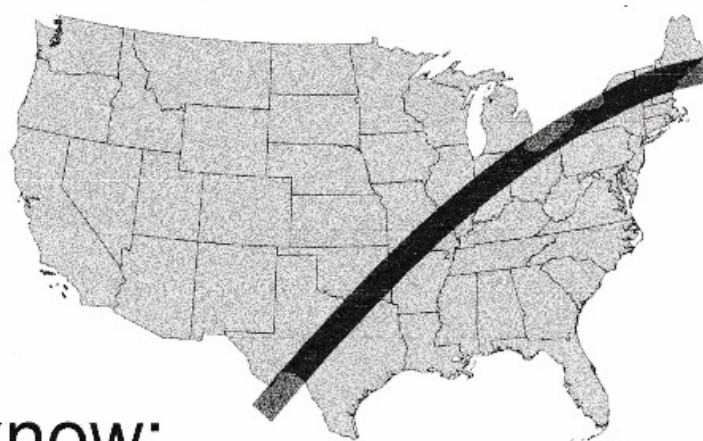


If you would like to help or have any questions about this initiative, please contact the H.A.A.





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



Let me know:

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





## March Astrophysics Group Meeting Summary by Mike Jefferson

The group met at Doug Black's home on Friday evening for the purpose of discussing the spectroscopy of stars. Those present were Ian Rabenda, Gary Sutton, Doug Black, Doug Currie, Steve Germann and Mike Jefferson.

Mike and Jean Jefferson had been to Las Cruces, New Mexico from February 20-26 to attend the Sacramento Mountains Spectroscopy Workshop - 2. They returned home with a great deal of information and software that has been developed for amateur use in the growing field of amateur spectroscopy. The French firm of Shelyak has developed spectral instruments ranging from Echelle style equipment and Littrow instruments to simple, blazed diffraction gratings (both refractive and reflective. Manuals and software have also been created to assist the beginner and even the more advanced person. There were 3 days of presentations by professional astronomers, engineers, university students, the American Association of Variable Star Observers and questions and information from people in more lay positions with regard to this field. It was very informative and a great deal of fun. Activities were planned for any guests not participating in the workshop. Most meals and social events were laid-on and were very well prepared.

The Astrophysics Group benefited from the discussion of this material and got to load a fair amount of it into their computers for personal study and use.

This field will likely become a major player with amateur astronomers in the coming days as our skies deteriorate, like those on the European continent and British Isles, due to the ravages of uncontrolled light pollution and the deleterious effects of global warming.

We, again, thank both the Blacks for the hospitality and snacks and also those members who supplied extra foodstuffs for the enjoyment of the whole group.

The next meeting will likely be on April 19 or 26 @ 7:30 at Doug Black's place. Please check with "Event Horizon" or the HAA website to confirm.

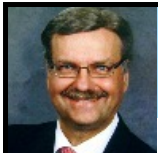


## Treasurer's Report by Ann Tekatch

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

Opening balance:	\$8,910.73
<u>Revenue:</u>	
Membership Fees:	\$160.00
50/50 Draw:	\$70.00
Calendar sales:	\$235.00 *
<u>Expenses:</u>	
PayPal Fees:	\$1.03
New locks for Binbrook gate:	\$58.99
Children's books for Door Prizes:	\$47.76
Closing Balance:	\$9,267.95

\* Previously unreported sales of \$225 plus one sale in March of \$10.



### Warmer Weather

At last, the snow is gone and the nights are warming to the point where un-gloved fingers can touch things again.

Unfortunately there is still a lot of moisture in the ground, which means dew, and ruts from car tires. If you do drive to an observing site, be mindful and considerate of the grass, and don't drive on it. Also be wary of the legs of your tripod gradually sinking into the grass as you observe, necessitating another alignment halfway through your session. Or you can get some boards to put under the feet to help your mount stay aligned.

### April Showers

April is famous for rain showers (and clouds), and also in April we have an annual Meteor Shower. The *Lyrids*, which are debris from a 415 year periodic comet (Thatcher), are peaking on April 22 to 23.

<https://solarsystem.nasa.gov/asteroids-comets-and-meteors/comets/c-1861-g1-thatcher/in-depth/>

<https://www.timeanddate.com/astronomy/meteor-shower/lyrids.html>

Lyra is high in the sky, and easy to find, so it will be easy to attribute a true Lyrid meteor to the shower. The rate is low, and the Moon will be in the sky, so this is a target for members who want a challenge. If you see a Lyrid meteor (or better yet, 3 so you can trace to the radiant) let me know and I will give praise to you at our May meeting.

You won't be the first to see it. This shower was recognized by Chinese scholars as long as 2500 years ago.

### Winter Constellations

As spring arrives, the familiar winter hexagon is now in the west in the evening, and will soon start to leave our purview.

Before it's gone, take a moment to view *Sirius* at high power, and note how it changes colour due to twinkling. I really enjoy this phenomenon and I think you will too.

### Comets

We still have a number of comets in the sky, visible from our location, but I have to warn you that 10th magnitude comets are definitely a challenge object. I used this link to get the below chart, customized for me.

<https://heavens-above.com/Comets.aspx?lat=0&lng=0&loc=Unspecified&alt=0&tz=UCT>

The key difference between what you get with the link and what is pictured at the top of the next page, is that by logging in, Heavens Above will compute the comet's altitude in the sky.

Anything at 10th magnitude needs to be high in the sky to be seen, ...at least 30 degrees altitude. We do have several comets upwards of 30 at midnight on April 1, so in fact, it's still comet season.

Make sure the Moon is below the horizon, and you are past astronomical twilight, and that there is no light pollution at least in the direction you are looking. Fortunately, by showing altitude and azimuth, the chart

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

Comet	Brightness	Date of last reported observation	Angular separation from Sun	Altitude	Azimuth	Constellation
<a href="#">C/2018 Y1 Iwamoto</a>	10.0	2019-Mar-25	60°	13.4°	303° (WNW)	Perseus
<a href="#">46P Wirtanen</a>	11.5	2019-Mar-25	125°	72.6°	250° (WSW)	Leo Minor
<a href="#">C/2018 L2 ATLAS</a>	12.0	2019-Mar-18	40°	-3.0°	354° (N)	Andromeda
<a href="#">38P Stephan-Oterma</a>	13.0	2019-Mar-18	111°	63.1°	279° (W)	Lynx
<a href="#">64P Swift-Gehrels</a>	13.0	2019-Mar-25	82°	25.1°	279° (W)	Gemini
<a href="#">123P West-Hartley</a>	13.0	2019-Mar-25	139°	75.5°	195° (SSW)	Leo Minor

### Warning!

**Never attempt to observe objects close to the sun without taking the proper precautions. In particular, never point optical instruments near the sun and look through them, or you risk permanent eye damage or blindness.**

makes it easy for you to decide which comets will be observable from your desired location, and at what times. The chart is easy to recompute with different times.

That said, you don't need the login if you just want a star map with the comet for a certain time.

## Asteroids and Minor Planets

2 Pallas is starting to be the dominant asteroid target now. High in the sky in Bootes, it is an easy binocular target at 7.9. Pallas is moving about half a degree per day, and you will need to sketch the star field, or use the transit method to detect its motion in a single observing session.

To use the transit method, we find 2 Pallas by various means, using a tracking telescope or platform. Then with a cross-hair eyepiece, we sketch the star field and the rough positions of the brighter objects in the field. Then stop tracking, and note the relative times of each item crossing the cross-hair.

That gives you an accurate time (15 arc seconds per second) that 2 Pallas and some other star have crossed the line.

To move half a degree (1800 arc seconds) in a day (1440 minutes) means that if you come back and measure again 15 minutes later, you would expect about a 1 second difference in the separation of the points of light (the Earth turns at a rate of 15 arc seconds per second).

Using a (mechanical or one-handed) stopwatch to time the interval between the 2 crossings, you should be able to detect the motion in as little as 1 minute. (a quarter second is within your ability to time it)

I suggest you try this and make notes of your observations and ability. 2 Pallas is very close to earth and moving relatively quickly relative to the stars.

For something dim and distant, you really need to use photography and alternate the images to see something moving.

Imagine astronomy with telescopes and without photography, and 'rough it' for a time to really appreciate what our early astronomers had to endure. For them, the transit method was the best way to measure things and detect motion.

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

### Messier Objects and Monthly Star Hopping Tour

This month the list of optimally placed objects is shorter than last month. Just 7 Messier objects will be near the meridian at 11 PM.

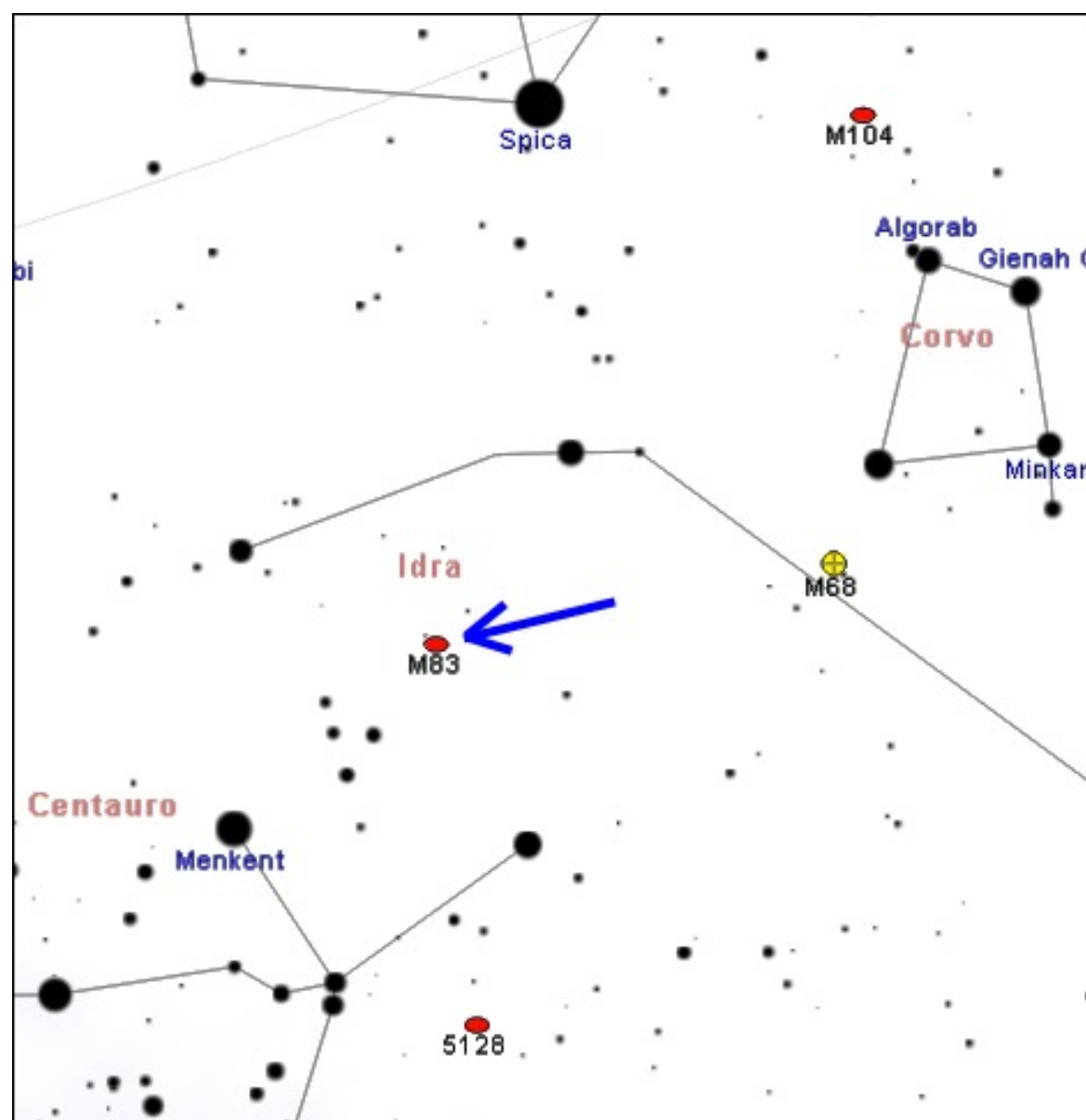
The Messiers from last month are all still visible, and well placed, and I encourage you to also seek them (first) if you have not yet had an opportunity.

Also, on April 20, I, Steve Germann, will present a star hopping tutorial as one of our sessions for the workshop, with some examples and practice methods.

For this Month's article, the Messier targets of interest are:

M83	083	5236	Hya	5	13	37.0	-29	52	7.6	11x10	15000
M53	053	5024	Com	2	13	12.9	+18	10	7.6	12.6	59.7
M3	003	5272	CVn	2	13	42.2	+28	23	6.2	16.2	33.9
M63	063	5055	CVn	5	13	15.8	+42	02	8.6	10x6	37000
M51	051	5194	CVn	5	13	29.9	+47	12	8.4	11x7	37000
M51B	051b	5195	CVn	5	13	30.0	+47	16	9.6	6.4x4.6	37000
M101	101	5457	UMa	5	14	03.2	+54	21	7.9	22.0	27000

Once again, I will discuss how to star hop to them in order from from south to north, so that we take care of the ones that spend the least amount of time in the sky first.



M83 will be our first target. It is the closest Barred Spiral galaxy, and in that regard is similar to the Milky Way. *Wikipedia* has something to say about M83: "Messier 83 is a barred spiral galaxy approximately 15 million light-years away in the constellation Hydra. It is one of the closest and brightest barred spiral galaxies in the sky, making it visible with binoculars. Six supernovae have been observed in M83. Its nickname of the Southern Pinwheel derives from its resemblance to the Pinwheel Galaxy."

So to star hop to M83, we will first determine what nearby pointer stars to use. Using Heavens Above to get the constellation Hydra, we get almost no useful information. We see that the brightest star in Hydra is magnitude 2.3. Hard to use that as a visual target for star hopping, so we will have to get to

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

M83 from a nearby constellation instead.

Fortunately, M83 is not far from M68, which we star hopped to first in the March edition of the Sky this Month. We will again “arc to *Arcturus* then spike to *Spica*” to get started, and then use the chart for guidance on which pointer stars to consider.

From near Hamilton Ontario, we could technically see as far south as about -45 degrees. M83 is at -29 degrees, so we should still find it more than 10 degrees from the southern Horizon this month.

Due south of *Spica*, we will see the 2 comparatively bright stars in *Hydra*, and then we can form a triangle below them to get to M83. Note that it's going to be the brightest galaxy in the field of view, even bright enough for binoculars, but to appreciate it, you should reach for a 3 inch telescope or larger.

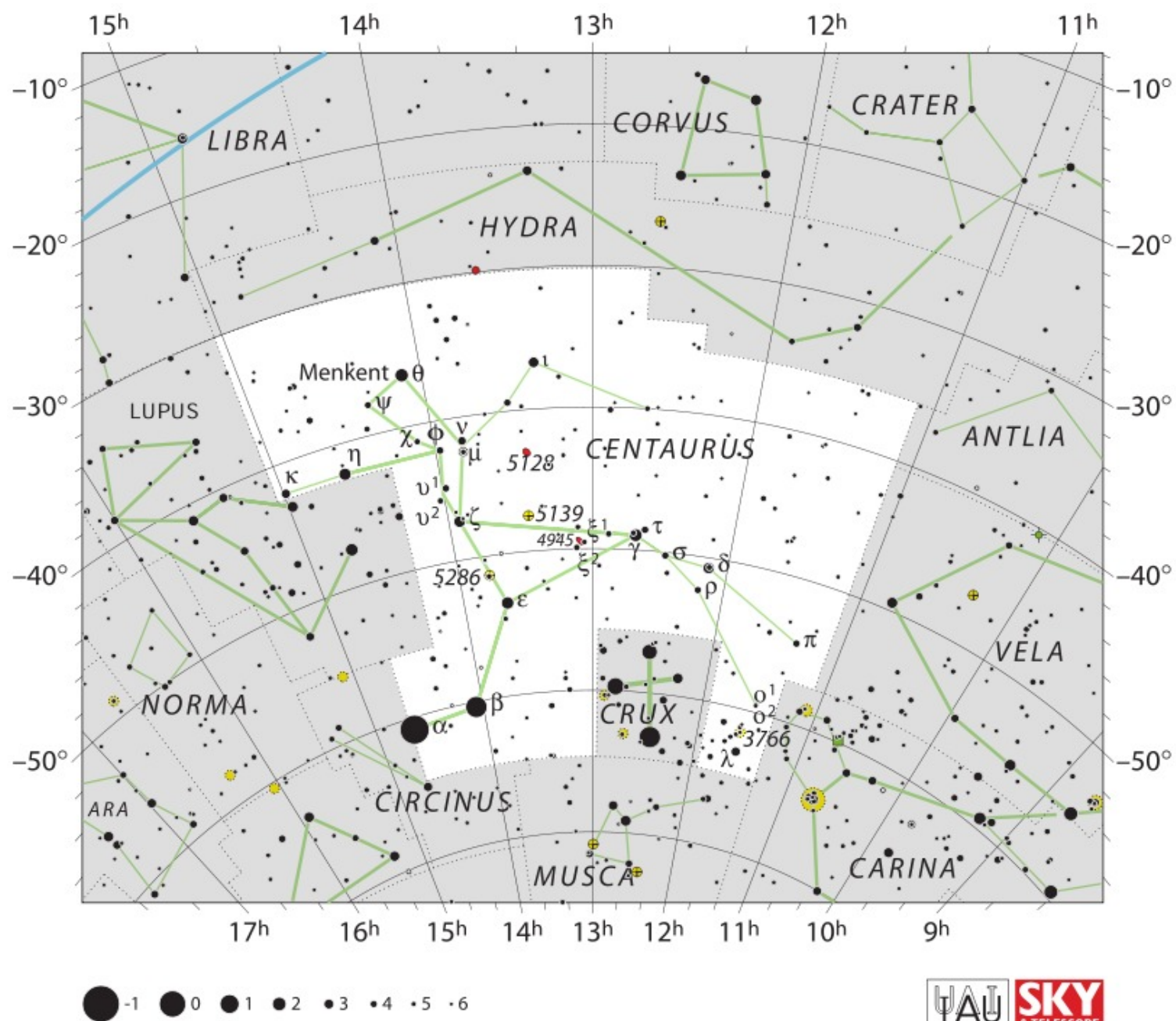
The diagram below shows the star positions and boundaries of the constellation *Centaurus* and its surroundings. For the cost of including this link to Sky and Telescope, I can use the image of Centaurus, which shows M83 as a little red spot below the H in *HYDRA*.

Here is the attribution.

By IAU and Sky & Telescope magazine (Roger Sinnott & Rick Fienberg) - [1], CC BY 3.0,

<https://commons.wikimedia.org/w/index.php?curid=15406248>

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

I like these charts because they are uncluttered, and identify the Messier Objects by default.

The key detail is, in order to use a flat chart for estimating angles and distances while star hopping, your target needs to be relatively near the middle of the chart. Imagine a quarter of the chart centered in the middle of the chart.

In this case, M83 is within the middle half-sized part of the chart, and therefore close enough for angles and straight lines to be estimated.

So get to Spica, then go due south to see the star above the D in HYDRA on the chart. Verify you are in the right place by scanning to the west to see the 2 lower stars of Corvus, and then locate *Menkent* further yet south, and you will have M83 along a line joining those stars.

While you are at it, you can note in your log book the first time you have intentionally seen a star in Centaurus, which is actually pretty hard to see otherwise.

We can see a large fraction of the 88 constellations in the sky, if we count partial views. If we lived at the equator, we would be able to see all of the constellations at some point in the year. Here, not so much, we can see down to -45 degrees reasonably well, but not more southerly.

Having found and appreciated and logged M83, the other targets for this month are much easier, and will remain in the sky much longer.

Next up is M53 with a declination of +18, almost 40 degrees higher in the sky. You can read about M53, which has some unique characteristics.

[https://en.wikipedia.org/wiki/Messier\\_53](https://en.wikipedia.org/wiki/Messier_53)

Specifically, it was thought to be the oldest known globular cluster in the Milky Way for a time.

With about 50,000 stars in a radius of about 15 light years, the average spacing between stars is under half a light year. The sky would be very bright if viewed from a planet in that cluster, although I need to warn you that all those stars are comparatively old and dim, and we are seeing mostly the ones that have finally reached red giant stage. Our Sun would be long gone after 12.7 billion years, so not including the red giants, the rest of the stars are probably half as bright as the Sun, at most. Not like our nearby star field, with stars more than a hundred thousand times brighter than the Sun easily visible in Orion.

For our purposes today, we need to find it first.

Using Arcturus (which can be conveniently found by following the Big Dipper handle away from the bowl in an arc), and *Denebola* (the tail star of the constellation *Leo*) which are both familiar to us from last month's article, we can find M53 almost exactly along an imaginary line in the sky joining those 2 stars.

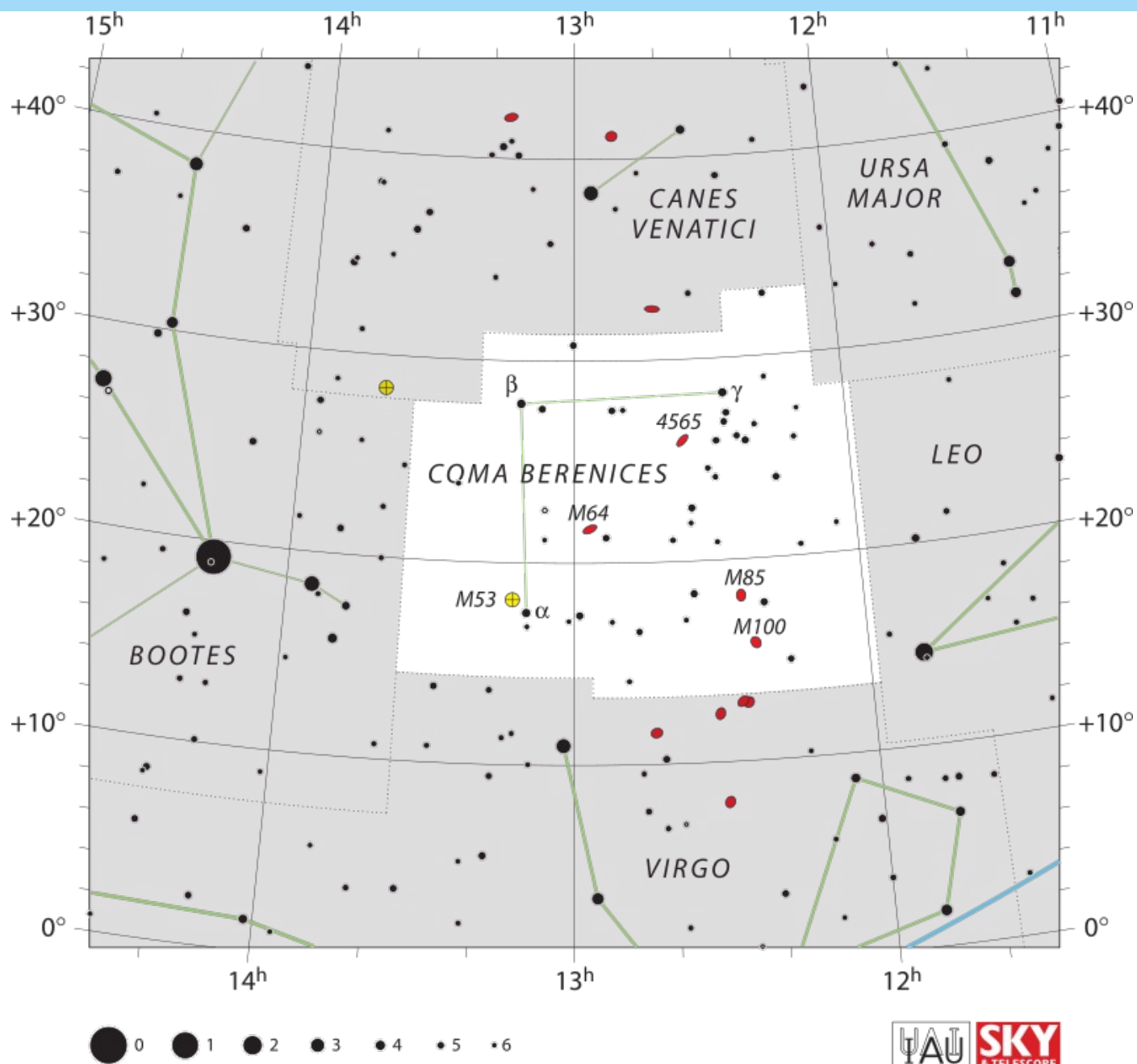
Referring to the graphic at the top of the next page, again thanks to Sky and Telescope, we see that M53 is about 40 percent along from east to west, as you move from Arcturus to Denebola.

Take a moment to appreciate the remoteness of this island of stars, and its tidal radius which is many times larger than the clump of stars we see in the sky, meaning it might have a halo of white dwarf stars we cannot see from here.

From M53 it is a short hop to M64, which is called the '*Black Eye Galaxy*'.

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



*M64, the Black Eye Galaxy*  
 Image Credit: NASA and The Hubble  
 Heritage Team (AURA/STScI)

Although M64 is not on our list for this month, it's worth a peek. The only disadvantage of going there is you will need to come back to M53 afterwards, to get to M3. So read on.

The question for you is, do you see the effect of a brighter half of the Black Eye Galaxy with your telescope? It looks like a lot of dust is obscuring the outer rim of the galaxy when viewed from our location. Presumably the dust goes all around, but we don't see the dust behind the stars on its far side.

To find M64, I would split the distance in the sky from Arcturus and Denebola, then move upwards roughly one sixth of the distance between those 2 stars. Once my Telrad or red dot finder has been positioned, I would be confident of being within a degree of M64.

Of course when star hopping, especially for dim objects like galaxies, it helps to use a long eyepiece (25mm or more) to maximize your field of view.

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

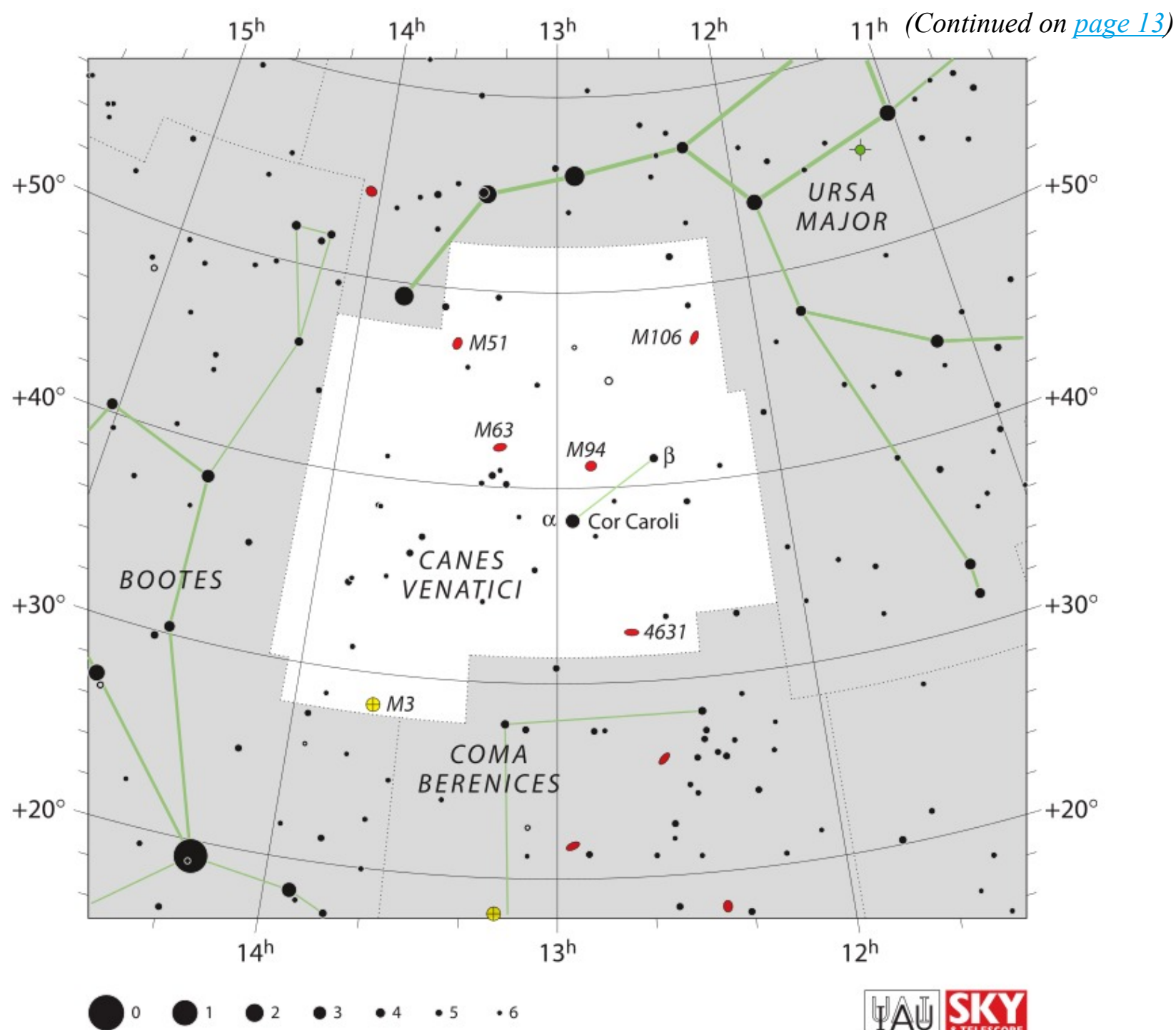
Going back to M53, we now use our location on the sky (our red dot) as a virtual star, and the real star Arcturus, to be one side of an equilateral triangle in the sky. The peak of that triangle will be just a touch north of M3.

M3 is a globular cluster too, and you can compare the appearance to M53. M3 was the first Messier object to actually be discovered by Charles Messier himself. Messier originally mistook the object for a nebula without stars. Charles Messier found this in 1764 and added it to his list after verifying it was not a comet.

The key thing is, it's one of the brightest, largest Globular Clusters we can see from here, and well worth a good look.

With an apparent magnitude of 6.2 it is an easy binocular target, and in very dark skies it is naked eye visible, but with a telescope you will see some stars. Be sure to note in your log book, the equipment used, and the appearance you saw that night.

From M3 we continue north to M63, which again was a side stop last month. This time it's for real. At magnitude 9.3, you will definitely want to use a telescope for this one. Also known as the *Sunflower Galaxy*, M63 can be found by using this zoomed out chart.



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

We have come north enough to see the *Big Dipper*, an easily recognizable asterism, and use it to make some moves in the sky.

First we verify that M63 is in the center part of the chart so that the angles we estimate will be accurate on the sky, and then I would recommend to first find Alpha Cor Caroli. To get to alpha Cor Caroli, I would use *Phecda* and *Alioth*, noting that Alpha Cor Caroli is symmetrically placed on the perpendicular bisector between those 2 stars. Additionally, I would note that it is a little more than twice that separation, along the bisector.

Having Alkaid and Alpha Cor Caroli, you can now connect them with a line in the sky, and then go roughly 7/10 of the way towards Alpha Cor Caroli, and make a slight (half eyepiece) jog to the east. Even without the jog, you will be within 1 degree of your target.

M63 and M51 are part of a group of galaxies that have similar motion and probably formed near each other, long ago.

Our next target is M51.

M51 is even easier to find, since you can use the 2 end stars of the Big Dipper handle, Alkaid and Mizar) and make a 90 degree left turn and head down about exactly half the distance separating those stars. M51 is actually one of the easiest galaxies to hop to. In dark skies, you should be able to see M51B, the small galaxy that recently interacted and seems to be joined by a trail of stars. With suitable equipment, M51 will show you some detail.

M101 is our last target for this month. Using the same 2 handle stars, we can make a notional equilateral triangle above them, and just move a touch back towards the handle, and there it is, M101 is called the *Pinwheel Galaxy* and will reward you in very dark skies (or photography) with an amazing set of spiral arms. Note that the arms themselves don't rotate as a rigid thing. They are a density wave of younger stars formed as the supernovae from previous generations push into the galactic medium.

So this month we have star hopped from the southern pinwheel to the northern pinwheel galaxy.

As you practice star hopping, it is good to go back to these familiar circumpolar targets and find them each observing session. The first time you look it might take you 10 minutes. Eventually you will be able to position your Telrad in 10 seconds. Faster, I must say, than a "goto telescope" can get there, and with a Dob, no alignment needed.

So you will see that star hopping, in addition to saving you a bundle on the motors and gears, will also get you there sooner for some of the most spectacular things in the night sky.

### Moonrise

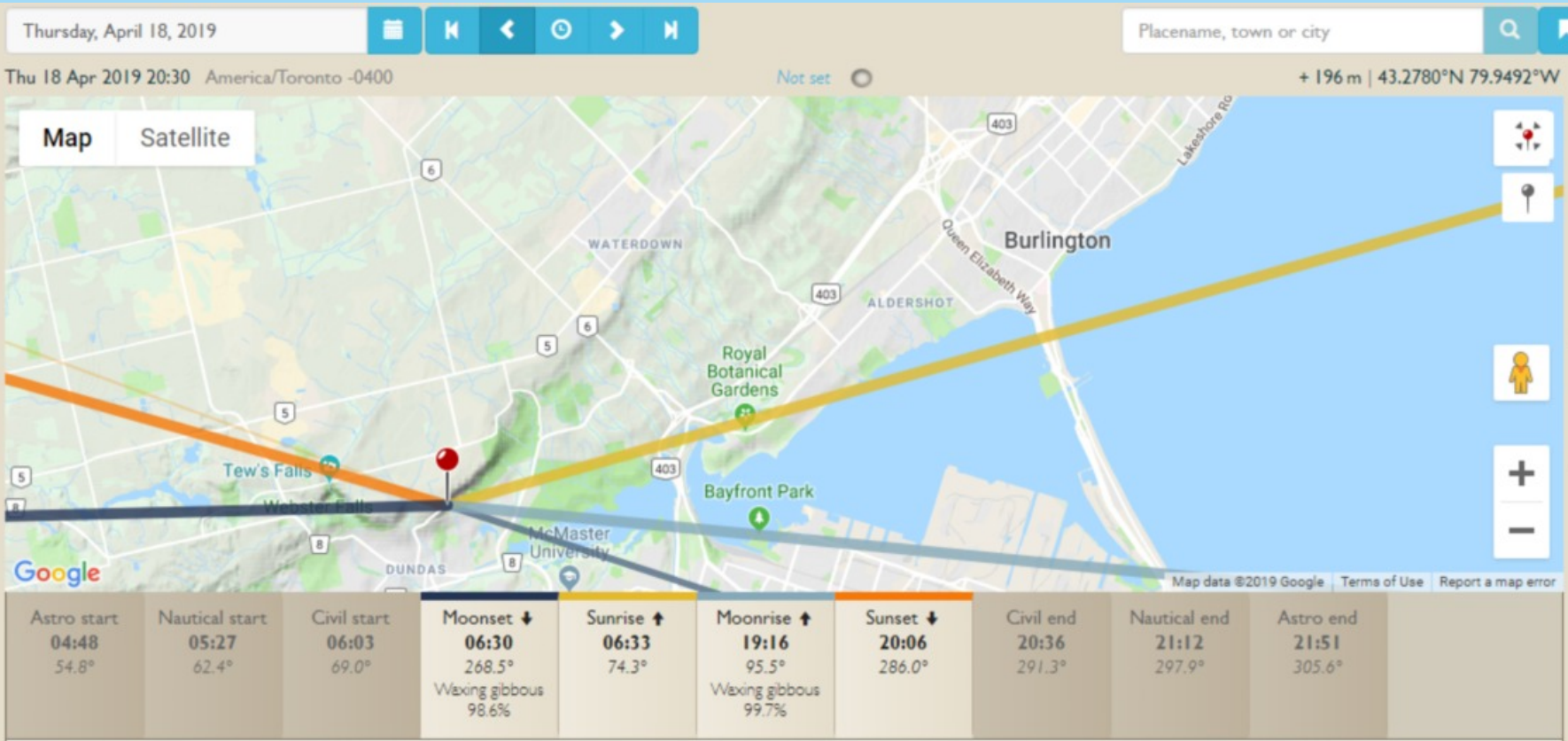
This month, the full moon is at about 7 AM on Good Friday, and Moonrise gives us 2 options. Thursday April 18th 7:12 PM or Friday April 19 at 8:20 PM (see the Photographer's Ephemeris charts on the next page).

Both times have the Moon at 99.6%+ illuminated.

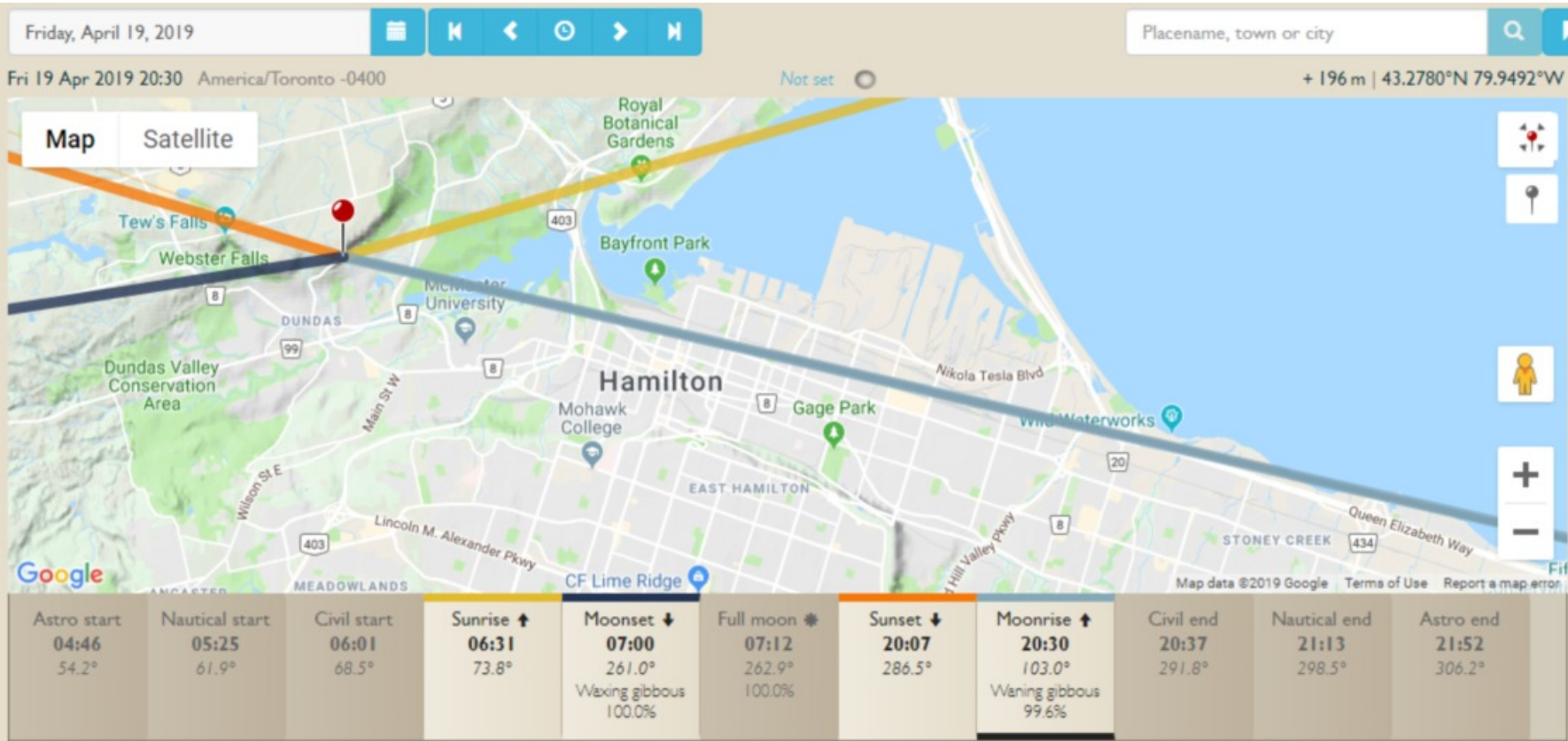
Although April is famous for rain and clouds, historically, it is 40 percent clear, so check often for conditions and observing opportunities.

Clear-ish skies.

# The Sky This Month for April 2019 (continued)



*Moonset, Sunrise, Moonrise and Sunset on April 18, 2019 from Hamilton, ON.*



*Sunrise, Moonset, Sunset and Moonrise on April 19, 2019 from Hamilton, ON.*

Maps generated from the Photographer's Ephemeris website.  
<http://photoephemeris.com/>



## For Dog Lovers! by Jo Ann Salci

Siriusly? Yes!

*Canis Major*, a constellation also known as the Larger Dog, is home to the brightest star in the night sky after the moon and planets. This star is named *Sirius*, often nicknamed the “Dog Star”. Well, actually it’s a double star: Sirius A and Sirius B. Sirius B is a white dwarf star about the mass of our sun, nicknamed, “The Pup”. It’s just below Sirius A and can be difficult to see, but, in 2022, it will be far enough away from Sirius A to see it more clearly. Sirius has also been nicknamed the “Nile Star”, because it appeared in the sky at the same time the Nile River flooded Egyptian farmlands with much needed water.

According to legends, *Canis Major* is said to be one of Orion’s hunting dogs. The other is *Canis Minor*, the Smaller Dog. *Canis Minor* is home to another bright star (the 8th brightest star), *Procyon*. *Procyon*, *Sirius* and *Betelgeuse* (in neighbouring *Orion*), form an asterism known as the Winter Triangle.

Another legend has these “dogs” waiting for table scraps under the Gemini twins. And another has them chasing *Lepus*, the Hare, a constellation located under *Orion*. These stories can make it much easier to locate these stars!

While *Canis Major* is home to M41, an open cluster Messier object about 4° south of *Sirius*, *Canis Minor* is a small constellation and does not contain any deep sky objects of interest. However, there is a *Canis Minorids* meteor shower to watch for in early to mid-December.

A few scraps of trivia:

“Dog Days of Summer”: During the summer months, *Sirius* rises close to the Sun. In the past, people used to think that two stars next to each other gave off more heat, hence hot summer days. We now know that *Sirius* is too far away to affect our summertime temperatures, however, this saying has stayed with us!

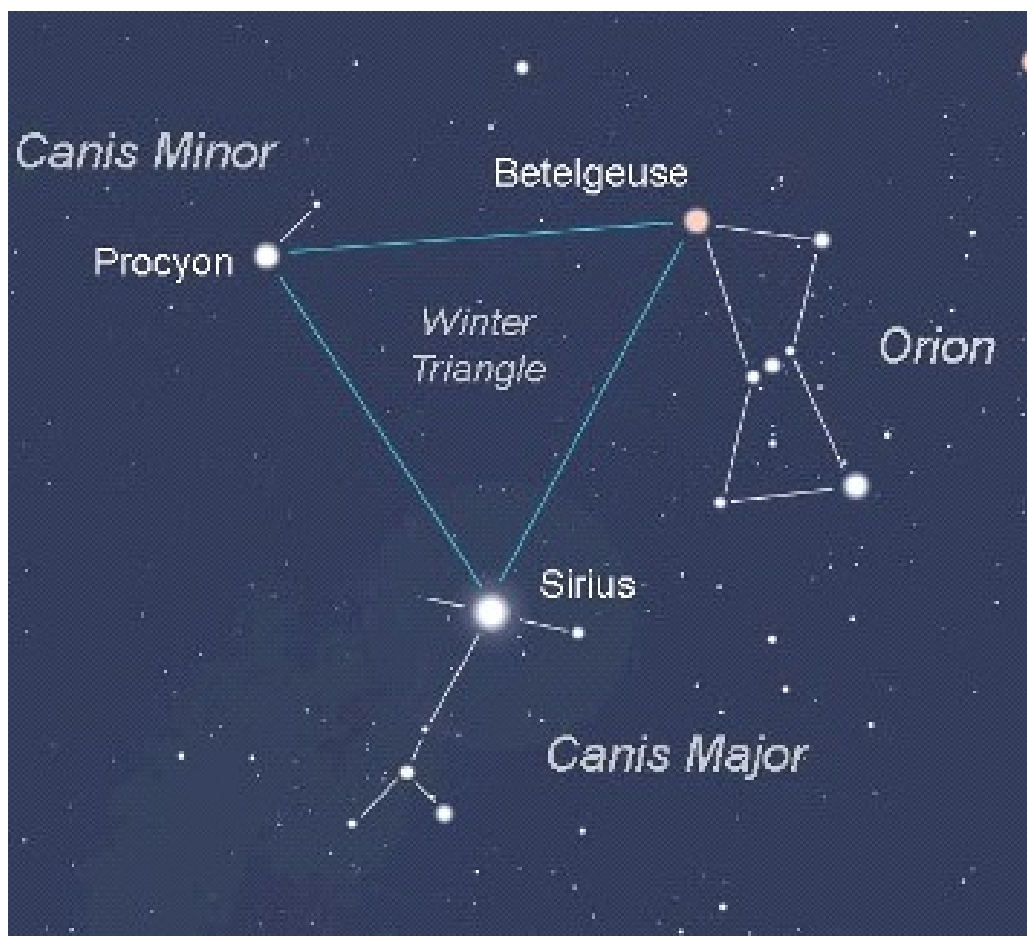
“*Sirius Black*”: A character in the Harry Potter series is actually named after *Sirius*. He was a wizard that turned into a black dog. By the way, he had a brother named *Regulus Arcturus Black*! That’s more constellations and more stories....

In the meantime, it’s not too late to catch the “dogs”. Now that winter is on its way out, these constellations (and dogs) are heading west, but can still be seen before they set.

### Credits:

Schneider, Howard. *Night Sky*. National Geographic: Washington, D.C., 2016.

*The Winter Triangle*  
Chart Credit: *Astronomy Trek*





**This article is distributed by NASA Night Sky Network.**

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

### Mars the Wanderer

By David Prosper

April's skies find Mars traveling between star clusters after sunset, and a great gathering of planets just before sunrise.

**Mars** shows stargazers exactly what the term “planet” originally meant with its rapid movement across the evening sky this month. The ancient Greeks used the term *planete*, meaning *wanderer*, to label the bright star-like objects that travelled between the constellations of the zodiac year after year.

You can watch Mars as it wanders through the sky throughout April, visible in the west for several hours after sunset. Mars travels past two of the most famous star clusters in our night sky: the **Pleiades** and **Hyades**. Look for the red planet next to the tiny but bright Pleiades on April 1st. By the second week in April, it has moved eastward in Taurus towards the larger V-shaped Hyades. Red Mars appears to the right of the slightly brighter red-orange star **Aldebaran** on April 11th. We see only the brightest stars in these clusters with our unaided eyes; how many additional stars can you observe through binoculars?

Open clusters are made up of young stars born from the same “star nursery” of gas and dust. These two open clusters are roughly similar in size. The Pleiades appears much smaller as they are 444 light years away, roughly 3 times the distance of the Hyades, at 151 light years distant. Aldebaran is in the same line of sight as the Hyades, but is actually not a member of the cluster; it actually shines just 65 light years away! By comparison, Mars is practically next door to us, this month just a mere 18 light minutes from Earth - that's about almost 200 million miles. Think of the difference between how long it takes the light to travel from these bodies: 18 minutes vs. 65 years!

The rest of the bright planets rise before dawn, in a loose lineup starting from just above the eastern horizon to high above the south: **Mercury**, **Venus**, **Saturn**, and **Jupiter**. Watch this month as the apparent gap widens considerably between the gas giants and terrestrial planets. Mercury hugs the horizon all month, with Venus racing down morning after morning to join its dimmer inner solar system companion right before sunrise. In contrast, the giants Jupiter and Saturn move away from the horizon and rise earlier all month long, with Jupiter rising before midnight by the end of April.

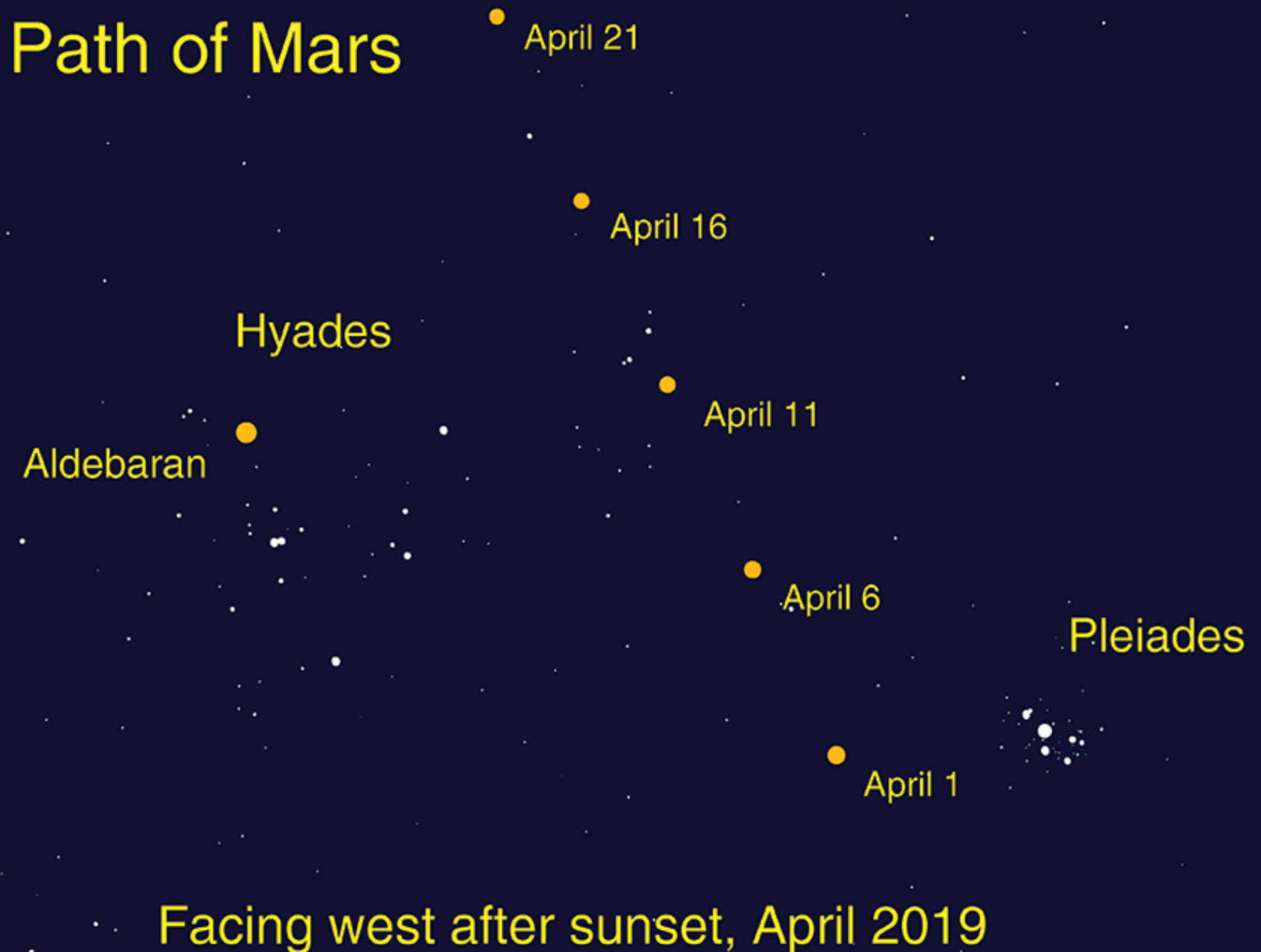
(Continued on [page 17](#))

## NASA Night Sky Notes (continued)

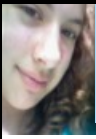
The **Lyrids** meteor shower peaks on April 22nd, but sadly all but the brightest meteors will be washed out by the light of a bright gibbous Moon.

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

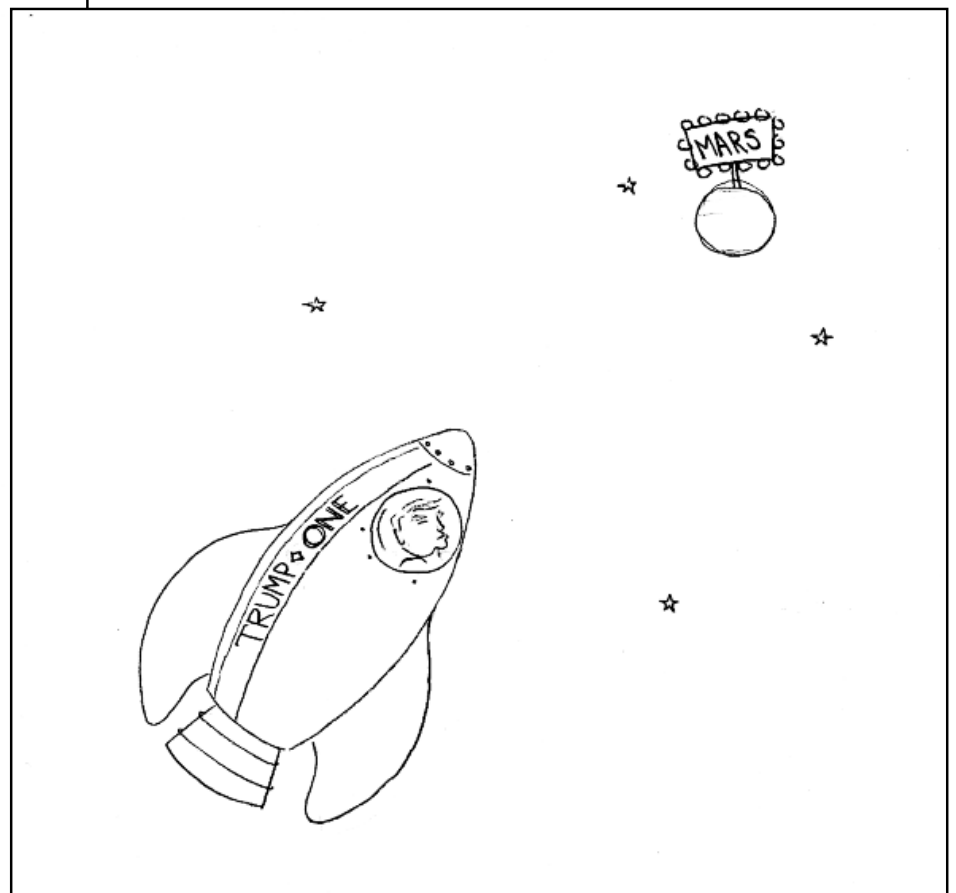
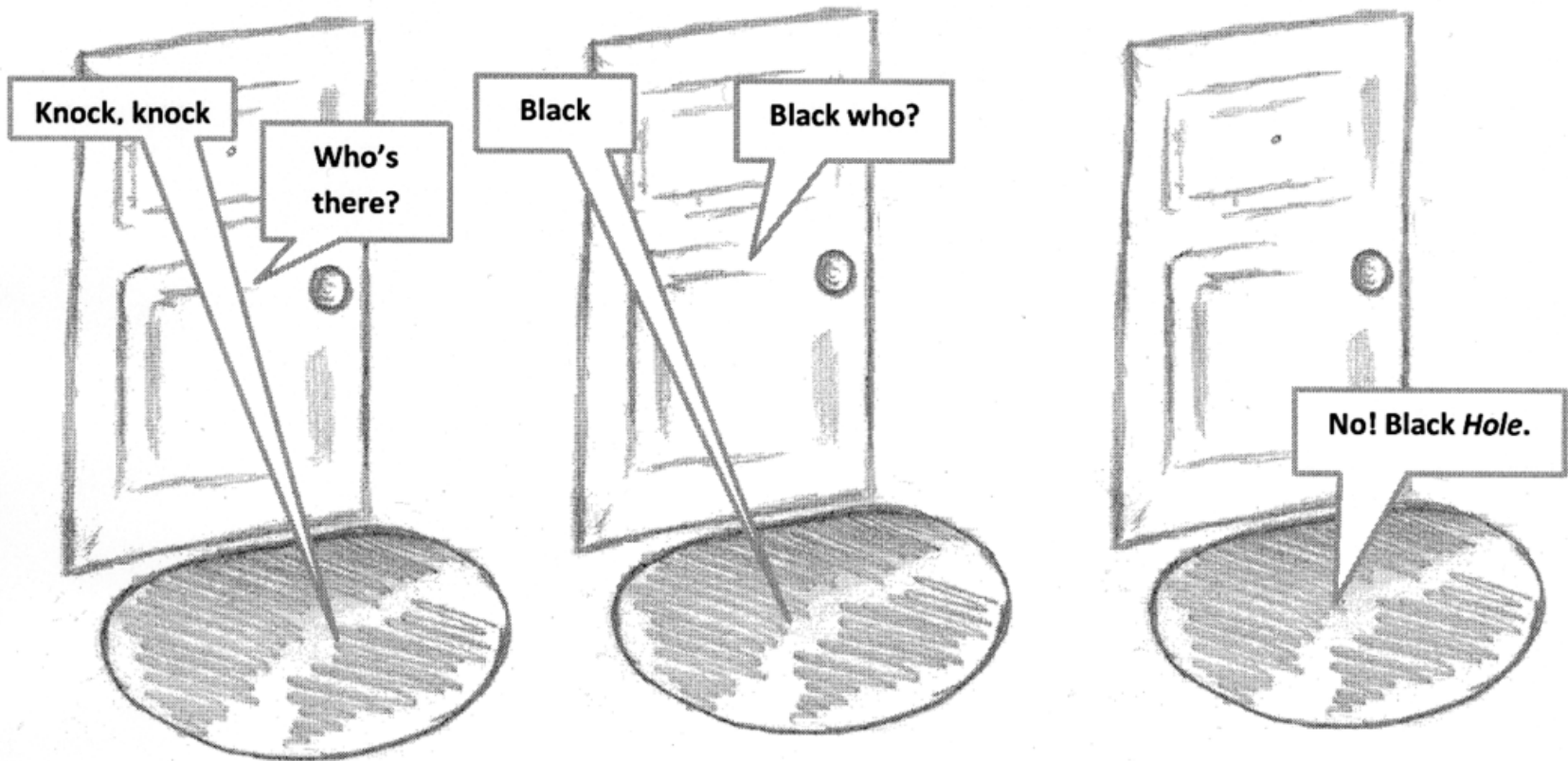
### Path of Mars



*The path of Mars between the Pleiades and Hyades in April.  
Image created with assistance from Stellarium.*

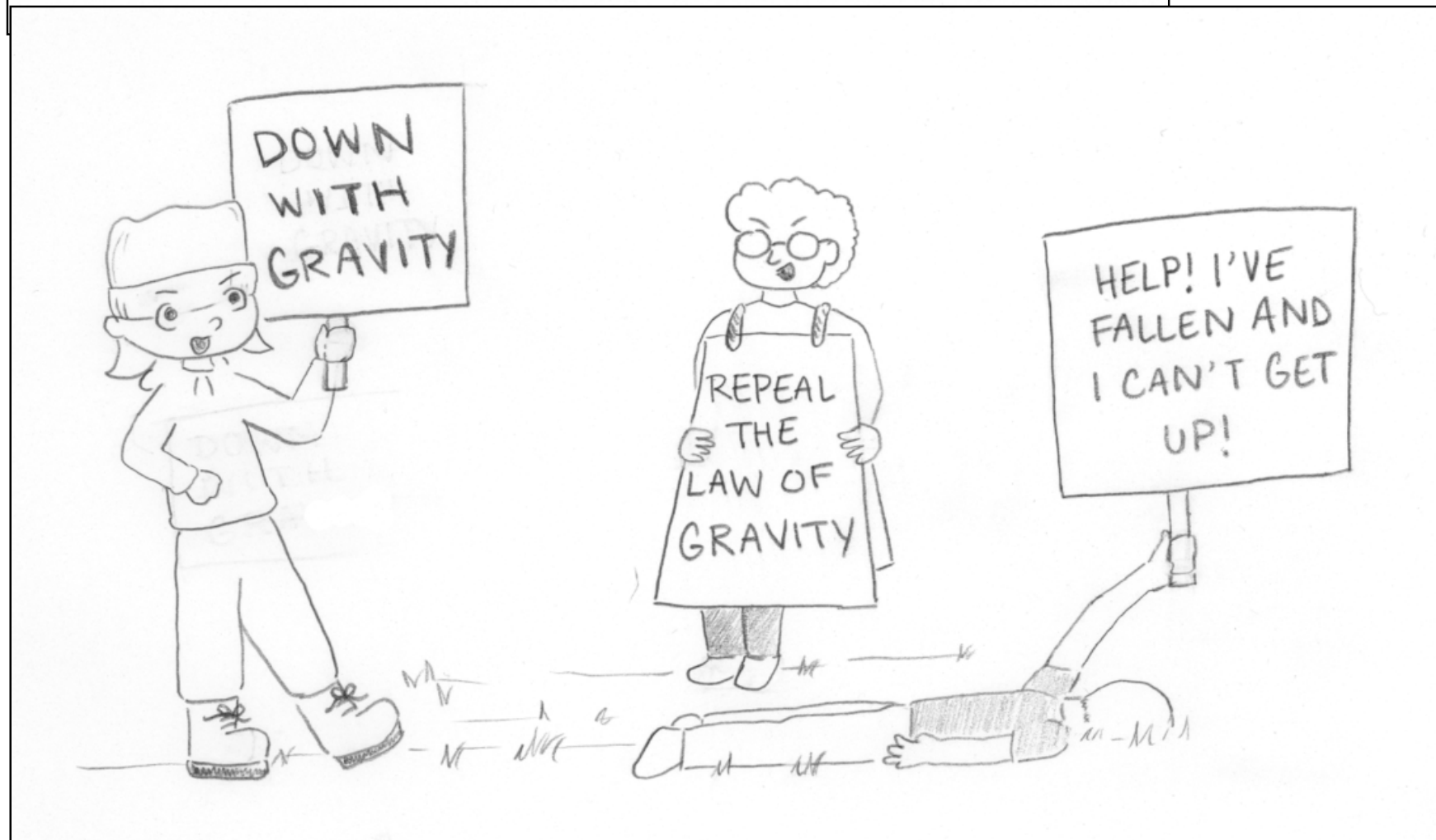


**Bad Astronomy Joke #42**



**One way.**

**Mercury, the ultimate photo-bomber**



Gravity Demonstration



**The Winter Constellations, from near Guelph, Ontario, by Dan Copeland**

## **Hubble's Cosmic Journey – National Geographic**

(<https://www.tvos.org/programs/national-geographic>)

The Hubble space telescope was launched in April 1990 aboard the space shuttle Discovery. Its release into orbit over 600 kilometres above the Earth marked the birth of one of humanity's biggest dreams - to gain a clear view of the cosmos. This program recounts the story of one of the most remarkable advances in modern technology, as told by the people who designed, built, launched, operated and repaired the observatory.

Approx. 44 minutes

Aired: Apr 1, 2019

Watch Online until Apr 30, 2019 at: <https://www.tvos.org/video/documentaries/hubbles-cosmic-journey>

— *David Simpson*



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  - **Apr 3: Introductory Astronomy for Kids — Galaxies**
  - **Apr 10: Astronomy for Muggles**
  - **Apr 17: Next Generation Telescopes for Cutting-Edge Science**
  - **Apr 24: The Celestial Bear: The Six Nations' Night Sky**
- For more details, visit  
[www.physics.mcmaster.ca/planetarium](http://www.physics.mcmaster.ca/planetarium)

## UPCOMING EVENTS

**April 12, 2019** - 7:30 pm – *HAA Meeting* at the Hamilton Spectator Auditorium. Our featured speaker will be **Stephen Holmes**, president of the RASC Kitchener-Waterloo Centre. His talk is entitled “*SETI: An Exploration of Space and Astronomy*”.

**April 13, 2019** - 9:00 pm - 11:00 pm – *Public Stargazing Night* at Bayfront Park, Hamilton, ON.

**April 20, 2019** - 1:00 pm - 4:00 pm – *HAA Spring Workshop* at the Hamilton Spectator Auditorium. Featuring workshops by various HAA members. Everyone welcome.

**May 10, 2019** - 7:30 pm – *HAA Meeting* at the Hamilton Spectator Auditorium.

## 2018-2019 Council

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