AURORA
The Royal Astronomical Society of Canada - Windsor Centre
Volume 44, No. 1
September 2018

Barnard's Star - 2018 Installment by Steve Mastellotto

Barnard's Star is about six light-years away from Earth in the constellation of Ophiuchus which makes it the fourth-closest star to the Sun. The three components of the Alpha Centauri system are closer which makes Barnard's Star the closest star visible from the Northern Hemisphere. Barnard's Star is a low-mass red dwarf star which makes it dim at about 9th magnitude despite its close proximity. It is named for American astronomer E.E. Barnard. He was not the first to observe the star but in 1916 he measured its proper motion or movement against the background sky as 10.3 arc seconds per year. This is the largest-known proper motion of any star relative to the Solar System.

The image above or more correctly the 9 images above were captured by Dave Panton (assisted by Al DesRosiers) and Steve Mastellotto. Since 2010 Dave captured an image of the field that contains Barnard's Star and for 2015 - 2018 Steve captured the images. 2010 was the first year of this personal project when Barnard's Star was in the lowest position in the above composite image created by Steve. In early July Steve captured the 2018 image (top position) which now represents 82.4 arc seconds of movement over the intervening years or a rate of 10.3 arc seconds per year. At this rate it will take about 175 years to span the width of the Moon.

Over the years Dave and Steve captured the images with slightly different set ups but in general the images are through the Celestron 14 inch scope at Hallam using Nikon and Canon digital cameras and about 2 minute exposures at ISO 800 or 1600. Focus is achieved using a Bahtinov mask.

In This Issue

Calendar of Events

Our next meeting…

Tuesday October 16, 2018
7:30 p.m.
at
Ojibway Park Nature Centre
5200 Matchette Road

Main Speaker…

James Edgar
Past President of RASC and
Current Editor of the Observer's Handbook

Topic…

"Synthesis of Elements in the Stars"

Activities...

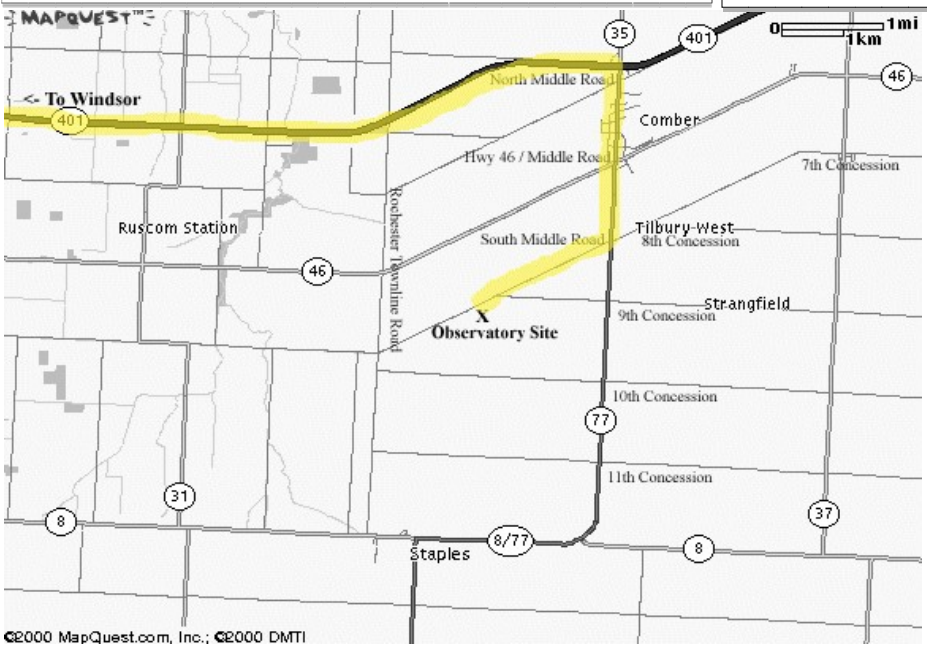
Venus: Will be at greatest brilliancy on Friday September 21st and reach magnitude –4.8.

Autumnal Equinox: The Sun will cross the Celestial Equator heading South on Saturday September 22nd at 9:54 p.m. EDT.

Open Streets Windsor: On Sunday September 23rd we will have an information booth along with solar observing setup on University Avenue West across from Skippy's Restaurant (954 University Ave). Setup is at 9:00 a.m. and the event runs until 4:00 p.m..

Crescent Moon and M44: Look for this photogenic pairing in the predawn sky of Thursday October 4th.

Council Meeting: The next meeting of Council will take place on Tuesday October 9, 2018 starting at 7:30 p.m. at the home of Mike Mastronardi.



Hallam Observatory Site

Directions: The map at left shows the Comber area and it includes the major highways (401, 77, 8 and 46) that are in the area of the observatory.

The most direct route from Windsor is "highlighted" on the map which is to take Highway 401 East to Highway 77 South to South Middle Road. Turn right onto South Middle Road and go about 1 kilometer and just after the point where Concession 9 joins it (it is hard to see this intersection) you will find the observatory site on the South side (left) of the road. 3989 South Middle Road.

If you hit the Rochester Townline Road (you come to a stop sign) you have gone too far.

Submissions

Aurora is published monthly except for July, August and December. The September, October, January, March and May issues are full newsletters (usually 6 pages) with a number of member submitted articles. The November, February, April and June issues are short flyers (2 pages).

Submitted articles can be of any length from a paragraph to multiple pages. I can scan pictures and/or diagrams (both prints and film) to support your article and the originals will be returned to you.

Submission deadline is the 1st of the month.

Editor: Steve Mastellotto Email: mmastellotto@cogeco.ca

Membership

The Windsor Centre of The Royal Astronomical Society of Canada meets on the 3rd Tuesday of every month (except July and August) at the Ojibway Park Nature Centre. In addition to regular meetings the centre hosts a number of observing nights, a picnic and a December social. Members receive a copy of the Observer's Handbook, a subscription to SkyNews magazine and access to the Centre's library and telescopes. Optionally the RASC Journal is available in print form—online version free.

Annual Membership Fees: Please see the RASC website at **www.rasc.ca** for current rates.

Contact Nancy Ng (mysticdog2012@gmail.com) or visit our website at: http://www.rascwindsor.com for more information.

June 2018 Meeting Minutes by Dan Perissinotti

The monthly meeting of the **Royal Astronomical Society of Canada - Windsor Center** was held at the Ojibway Park Nature Centre on **Tuesday June 19, 2018.**

Windsor Centre **President, Mike Mastronardi** chaired the meeting and **called the meeting to order at 7:30 p.m.** and welcomed members and guests to the Ojibway Nature Centre.

Mike invited members to review **the minutes of the May 15th, 2018** meeting which were printed in the June Aurora Flyer. A **motion to accept the minutes** was made by **Steve Mastellotto**, seconded by **M-Starr Livingstone - MOTION CARRIED**.

Mike provided an overview of the meeting and introduced our main presentation.

Main Presentation

Mike welcomed **Kate Helsen** from the **Faculty of Music - Western University** (London, Ontario) to the floor for her talk on **Astronomy in the History of Music.**

Kate touch on such subjects as the rings of Saturn, and their ratios with the orbits of the moons. With the ratios, a composer would commission music to create a piece. "**Where there is resonance there is music."** When we compose music about space, our relationship with space is revealed, rather than a sound.

Some notable historic references: **Aristotle** – "…the whole heaven is a scale and a number." **Pythagoras, Plato, Ptolemy and Boethius**, were also represented with their thoughts on relationships in astronomy.

Musical pieces were presented to further show the association between music and astronomy.

Mike thanked Kate for her presentation.

After the **coffee break**, a **50/50 draw** was held. Paul was the lucky winner and he donated back to the club.

Mike called on a couple of other members for **a few announcements** for the summer break; upcoming events, and nights out at Hallam.

Director of Observing Report

Juliana Grigorescu was welcomed to the floor and opened the DofO report with a question period on some local member observing and members' astrophotos, outings, and stories.

On June 16, Juliana highlighted viewing **Venus, M44, and the moon**, which will all be viewable in one binocular view. This can be best seen at approximately 11:45 p.m.
The **summer solstice** will take place on June 21st. Daylight will be approximately 16 hours long. Actual solstice will take place at 6:07 a.m. EDT.

Some deep sly objects to observe: **Swan Nebula**, near the Sagittarius, **Lagoon Nebula** (M8), and the **M4 Globular Cluster** in Scorpius.

Mercury: Not observable until after superior conjunction on June 6th

Venus: Passing from Gemini into Cancer on June 12th. At the end of the month, Venus will start to set at 11:30 p.m. reacting mag. -4.1

Mars: It will continue to increase in brightness from mag -1.2 to -2.3 throughout the month of June, and will increase its apparent disk diameter from 15 to 21 arc-seconds

Jupiter: A month past opposition, mag -2.5, will be observable in southern sky until our next meeting

Saturn: It will reach opposition on June 27th, just 6 days after summer solstice

Uranus: Observable for about 2 hours in the predawn sky, with a mag of 5.8

Neptune: Also in the predawn sky, it will have a mag of 7.9

Following the Director of Observing report Mike welcomed **Tom Sobocan** to the floor to give presentation on a recently deceased astronaut, **Alan Bean (March 15, 1932 – May 26, 2018, 86 years old).** Alan Bean was also known for his artistic passion.

Reminders: Astro Luncheon at **Skippy's Restaurant** every second Wednesday of the month, at noon. Located at 954 University Ave West, Windsor.

Mike thanked everyone for coming out to the meeting and reminded everyone that the **next regular membership meeting** would take place on **Tuesday September 18, 2018 at 7:30 p.m..**

Meeting **adjourned at 10:08 p.m**. June 19th, 2018.

Hallam Observatory Fee

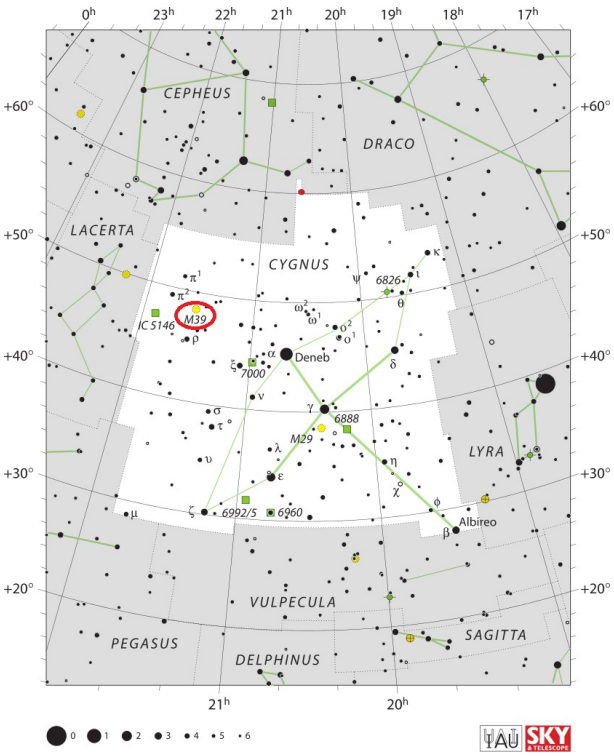
A reminder that the Hallam Observatory annual access/key fee of $60 is due October 1st. Please see our Treasurer Nancy Ng at the September meeting to pay for your key. If you no longer wish to have your own access to the observatory please turn in your key to Steve Mastellotto.

Key access to Hallam Observatory is available to all RASC Windsor Centre members in good standing who have been members for at least 1 year and complete a training session on the observatory equipment. Note that an additional $10 key cutting fee applies.

At The Eyepiece: Planning Observing Sessions: A Few Ideas* by Mike Ethier

For the next few articles, I would like to discuss observing plans. The dark sky is a very large neighbourhood, filled with all manner of stars, clusters, nebula, and galaxies. It can be a bit overwhelming. Where to start? Most of us began with the moon, the planets, and the brightest Messier objects. I still don't think there is a better place to start. However, this series of articles is not aimed at beginners. I am aiming at the seasoned amateur, perhaps someone who has already logged the Messier catalogue and bagged a number of objects from other lists. This kind of activity is certainly to be encouraged, as there are many different types of objects to see, and any number of variations among them. And lists are prevalent. Even though checking off astronomy object life lists can be a good thing, there can be downsides.

One downside to using popular lists is that often only the biggest and brightest objects make it there. What's wrong with that? Nothing is wrong with it. However, by including a number of interesting fainter and more difficult objects, those brighter ones, if saved for just the right moment, become even more impressive. Training the eye to see fainter objects will certainly make a brighter one pop out of the eyepiece even more. Many of my greatest observing accomplishments have been spotting galaxies at the very limit of my telescope's, and my eye's, ability. Afterwards, it is always amazing to check out M 31 or M 33 again!



'Ah,' you say, 'I am not one of those observers that like to look for faint fuzzies--no thanks; not for me.' 'Don't be hasty,' I say. Viewing fainter objects helps one appreciate the brighter things even more, not to mention the degree of challenge and the navigation skills you will acquire. But they really do improve your observing skills.

A second problem with lists is that we want to finish them. If you are ticking off the 400 brightest Herschel objects, you are going to want to get to #400 someday. Again, this is all well and good. Unless you are hoping to tick off 30 or 40 of the objects during the next clear night. Sorry, but that is not observing. That is merely using a checklist. If you are going to only observe the best and the brightest, then the urge to race through the list should be at the very back of your mind. Often it isn't. Locate. See object. Check it off. Multiply by 400.

A third problem is that areas of unfamiliar sky around the listed objects are often avoided, in a haste to get on to the next thing on the list. What else might be nearby? A lovely double star, perhaps? A nebula? Maybe a rich star field? Or it could be a stunning red carbon star. All missed because the observer has moved on to the next object without bothering to check the surrounding field.

So, are there other fun ways of approaching the night sky besides using lists of popular objects? In my next article I would like to briefly discuss three methods I like to use. Let me know what you think. mdethier@mnsi.net

* The previous article is an update of one I wrote for my blog, Deep Sky NGC.

Messier Of The Month: #39

I first made the acquaintance of this wide open star cluster in late July of 1971. I was observing with my Tasco Lunagrosso 4.5" Reflector. It was also the summer of a very favourable opposition of Mars. Life was good! I said at the time: "A very large open cluster of stars, mostly white. The object filled about half of my field of view at 22x, and all of my 45x eyepiece. At the lower power I counted about 25 stars, several of them 6th and 7th magnitude, although some were much fainter. M 39 is a very pleasant cluster to view, and easy to locate."

Cut to late August, 1978. I am now using my Edmund 8" Reflector, the big red beast! My notes from then: "M 39 is a cluster so bright and widely scattered that it is seen very well in the 9 x 30 finderscope [virtually a 1" scope]. This also makes it a very worthwhile object for binoculars. 36x and 56x suited this very loose group. I stopped the scope down to 4", and the group was splendid to view! Indeed, full aperture added nothing but more brightness, and a few much fainter stars. At full aperture, an interesting way to view this cluster is to put it well out of focus. My favourite view was at 56x and 4" of aperture, however. A lovely wide pair of stars lies near the very center (ARN 78: 7.6 and 8.8 magnitude and separated by 52")." Two other doubles with bright primary stars are just south.

In late September of 2013 I observed it with my Orion 12" Dob. "The cluster looks best at low power. It is suitable for a 2" refractor and anything larger. I used 43x and 60x, where the cluster appears like a slightly more condensed version of the Pleiades. The stars are nearly blinding in a 12" mirror. Not a rich cluster, but very bright and well scattered." And I did indeed view it in Space Eye more recently, my wonderful 2" refractor, declaring it a minor showpiece for that instrument.

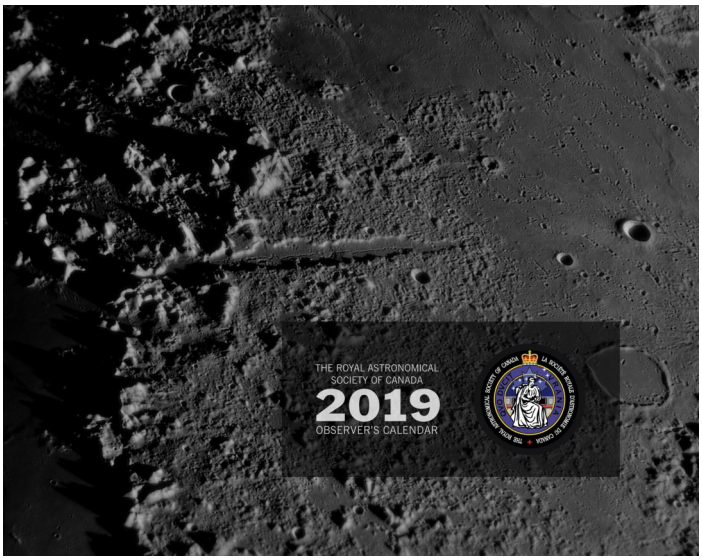
I consider M 39 a great summer object to show people who are new to telescopes. It makes an immediate impact, and rewards longer views with the bright double stars, as well as the many fainter members. For experienced observers an interesting side trip can be made to oc Platis 1, marked as Anon Platis on Unronometria Chart 32. Lying ½ degree north and 2' preceding (west) the Messier object, this tiny cluster will reward viewers with scopes of 8" or higher. The region around Messier 39 is littered with small clusters and interesting star fields, and makes a good starting point for some low power meandering.

M 39 (oc 7092): Size 31'; Mag. 4.6; Br. star mag. 7.
Oc Platis 1: Size 10'; Br. star mag. 8.9.

M8 - The Lagoon Nebula: LRGB Image based on 13 hours of data by Steve Mastellotto

Calendars

RASC Windsor Centre - We will once again be producing a calendar featuring the astrophotography of Windsor Centre members. We are trying to estimate the interest level so please see our Treasurer, Nancy Ng at the September meeting if you are interested in purchasing the 2019 calendar. Steve Mastellotto will have a copy of the 2018 calendar available for you to review. The bulk order will be made in time for delivery at the October meeting. **Price will be $20.00** (same as last year) which includes all postage, handling and taxes.



RASC National - Our Treasurer, Nancy Ng is taking orders for the 2019 RASC Calendar. **Price will be $20.00** which includes all shipping, handling and taxes if she gets over 10 orders - this is the same price as last year and is substantially less than the $26.22 (includes shipping, handling and taxes) by ordering directly from the National Office. Please see Nancy at the September meeting.

Member Astrophotos

Top: Jupiter, Saturn and Mars by Pete Barbaro. Above: Lightening at Hallam with Cassiopeia by Juliana Grigorescu. Bottom Right: Quintessential Summer scene of Adirondack chair, lake and the Big Dipper by Jeff Peacock. Bottom Left: More Lightening and the Big Dipper by Brian Simpson. Left: The Summer Milky Way by Brian Simpson.