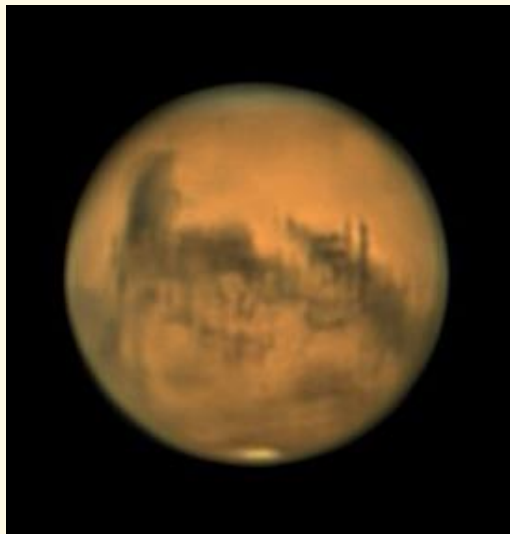


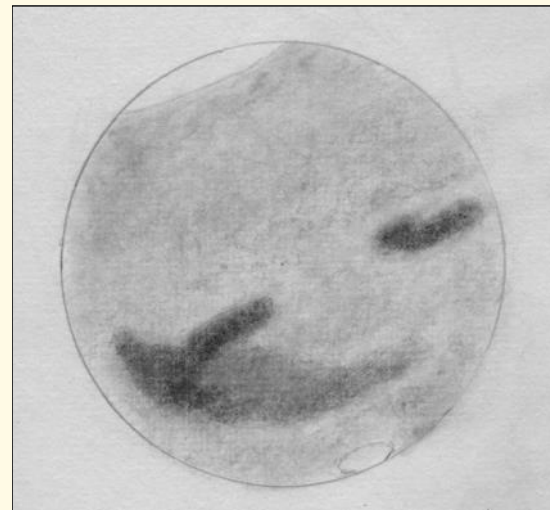
Vol. 21 Issue 5
Autumn 2020

H O R I Z O N

LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
New Brunswick Centre du Nouveau-Brunswick
THE ROYAL ASTRONOMICAL SOCIETY OF CANADA



Mars in Pixel and Pencil Emile Cormier



Mars Image: Captured in the wee hours of October 13 on a night of good seeing. Syrtis Major appears prominently at the top left, Mare Tyrrhenum near the centre, and Mare Cimmerium to the centre right. Elysium Planitia is the pale round patch at the top right, and contains Elysium Mons, a mountain standing 41,000 feet above its base. Gear: 10" Meade SCT, ZWO ASI224 planetary imaging camera, x2 Televue Powermate, and a ZWO atmospheric dispersion corrector.

Mars sketch: Sketched at the eyepiece at around midnight on October 26, using a Meade 10" SCT at x284 magnification. The seeing was average. This was my first time using my new Baader Contrast Booster that I had bought especially for the Mars opposition. It's not a silver bullet, but it does help a bit in boosting the contrast of dark albedo features. It also gives the bright surface areas a more pleasing reddish color instead of bright orange. I've identified the dark albedo feature on the left as Mare Erythraeum and the one of the right as Mare Sirenum. I've been using the online Sky & Telescope Mars Profiler to help identify features:

https://skyandtelescope.org/wp-content/plugins/observing-tools/mars_profiler/mars.html#

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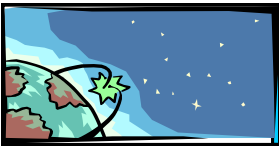
Newsletter Editor: Curt Nason
(David Penney in 2021)

RASC NB Outreach Events and Handouts

Year	# of Events	People At Events	Live Feed	Youth	Star Finders English	Star Finders French	Moon Guides English	Moon Guides French	Volun Hours
2012	75	4658			2188	229	1852	137	
2013	102	4119			1602	8	1513	120	
2014	104	4843			1716	241	1378	199	
2015	114	7262			2106	244	2568	156	
2016	219	9498			1984	115	2290	87	988
2017	248	9951	8441		2276	162	2262	131	1937
2018	187	7289	37992	> 1300	1781	170	1635	79	1355
2019	240	7036	46675	2997	1320	216	1520	213	1950
2020	151	1788	155048	902	817	22	636	125	1206

Types of Outreach Events

Year	Presenta-tion	Night Observing	Day Ob-serving	Youth Group	School Talks	Exhibi-tion	Observ./ Planet'm
2012	12	24	2	12	17	8	0
2013	24	24	3	12	32	7	0
2014	23	21	20	17	12	8	3
2015	22	33	23	7	15	13	1
2016	31	55	39	19	54	11	10
2017	61	89	22	19	50	6	1
2018	50	80	13	18	20	5	1
2019	73	94	10	22	36	5	0
2020	75	38	1	8	29	0	0



ORBIT around the Centre

Have you been observing Mars this autumn?

Emma MacPhee: How exciting it was to see Mars shining so bright in the evening skies! I have to say I looked at it quite a few times, and pointed it out if folks were around, and most were impressed to see it. Except one evening, I was walking down the street, looked at Mars then went a little further to see Jupiter and Saturn, and noticed two mature men sitting on a veranda (really, I think they were older than that) and in a happy voice, asked them if they noticed Mars, and pointed it out. One said, "Oh," and they kept talking about sports. I guess not everyone is interested.

Curt Nason: Not as much Mars observing as I had planned or hoped to do. House renovations clogged the garage (telescope storage, not cars) with contractor's equipment so my C8 remained safely in its trunk, and my Dob was moved to the basement or dining room for quick access to the deck. I have had about 25 views through the 8" Dob since early September, either in the morning or evening, and a few views with just binoculars to enjoy the coloured disc. A highlight was seeing Mars on the morning of October 4 about five minutes after sunrise, first with binoculars and then I was able to hold a naked-eye view for several seconds.

Prism Solution - by Trevor Johnson

The time has come to admit that I am not getting any younger. One of the things that has helped me realise this is trying to polar align my telescope. Getting down on the ground and trying to peer up through the scope can be a challenge, especially if the weather is particularly cold or you are swatting at mosquitos.

Some time ago I thought it would be great if I could use a mirror to reflect my view up through the polar scope, but I could never figure out an easy way to mount it. The good news is that I have come up with a solution and it doesn't involve a mirror at all.



Go from this...



to this.



The solution to the problem turned out to be very simple: A prism, an old 35 mm film canister and some hot glue. I got a prism out of old pair of binoculars that was broken, and the top of a 35 mm film canister was the perfect fit to go over the end of the polar scope. I cut a hole in the cap of the canister that was just a little smaller than the prism so that it would not

go through the hole.

I then used hot glue around the prism to hold it in place. The beauty of the hot glue is that you take it apart and tweak it a bit if it's not quite right.



Here is the gadget mounted on the telescope. The view is clear but is a little restricted. That's probably because my donor binoculars were fairly small. You can probably buy something a little bigger or find a different binocular as a donor.

If you are ready to admit that you are not as young as you were yesterday, give this try.

President's Update

- by June MacDonald

This very strange year is approaching its end and we've made it through by guess and by golly. It's time for plans to be made for the coming year and hopefully things will be a little easier and more productive.

Although COVID-19 put a damper or an outright stop to our Centre astronomy activities, many members managed to keep busy with astronomy-related activities, projects, catching up on reading Sky News and other astronomy magazines, and watching the night sky from their back yards or decks. Doing these things may have kept some of us sane!

The Centre Board will be meeting in the new year to discuss our plans and approach for meetings, outreach and the future. Much of this will be dependent on how the situation progresses with COVID-19. The Board is looking at holding in-person meetings while offering the option of virtual attendance for members who cannot participate in person or who aren't comfortable in group settings. We are looking at Zoom meetings and other options. I know we all have missed getting together, talking with each other and enjoying the face-to-face contact. Other Centres have managed to successfully hold Zoom meetings (RASC National has two Zoom accounts, so Centres are able to access them for their own meetings), and even though there is a learning curve member attendance increased in some cases. Hopefully this will be the same in our Centre.

The Annual Meeting last month lasted about 3.5 hours, went well and was mostly business with a time for socializing. We discovered that using COVID precautions did not put a damper on getting together in person. As long as circumstances do not result in increased government restrictions and the province stays in the Yellow level, using precautions like masks, physical distancing and sanitizer does allow us the option of in-person meetings. Part of the discussion was about where to hold in-person meetings, as all schools, universities and most public meeting venues are not allowing outside groups into their buildings. The proviso for in-person meetings, of course, will be mandatory wearing of masks, physical distancing and use of sanitizer or hand washing. As well, of course, is that if you have been in contact with anyone who has symptoms or is positive, or if you are feeling unwell yourself, we ask that you not attend.

The new RASC N.B. Inc. Council / Board members and position coordinators are shown on Page 2 of this newsletter. The past designation of Committee Chair has been replaced by that of a Coordinator.

An *ad hoc* committee will be formed to make plans and organize our Centre for the 2024 solar eclipse. Anyone interested in being on this committee and preparing for the big day, please email me. So far we have three members volunteer already.

There will not be a meeting in December (as usual), as most people are busy throughout the month. The next meeting will be January

16, with a business meeting in the morning - the location is to be decided.

I hope many of you have been able to take the opportunity to check out the virtual meetings of some of the Centres like Halifax, Toronto and Kingston. The Centres send out a meeting invitation through the RASCals e-mail list. This list is quite a discussion board for all things astronomical. It offers a connection with other RASC members across the country.

Just for those who may not know or those who haven't had time to investigate the RASC website (which is still being "renovated") follow this link for a summary of what you can access through your membership and the website:

<https://www.rasc.ca/new-members>

The application for charitable status for our Centre will be submitted very soon now and we will hopefully know the outcome before June of next year.

In the past it has been increasingly more difficult to find speakers for meetings. We all learn something from members who give talks and share their experience in astronomy. Our members are not a tough audience and we appreciate anything anyone has to say. Any astronomy-related topic is welcome and needed. Talks are a big part of our meetings and they are the main draw for those who are interested in the hobby.

In the coming year, we are asking members to contribute and help support their Centre by

offering to give a talk or presentation of any kind at a meeting, whether in-person or virtually. Without involvement and volunteering by members, the Centre will die and that would be a shame. We also need to consider this as an important factor for the future. Members' actions will keep the Centre alive and allow it to grow. This is especially important should we attain charitable status. If you can volunteer to give a talk or if you know of someone with knowledge or experience of astronomy-related subjects, please let me know.

Astronomy is interesting and fun; let's share it!

The Quest to Find the Perfect Telescope...for Me

- by Rob Darrah

First, I understand there is no such thing as a perfect telescope. It depends on your intended use. At first, I didn't understand what other uses a telescope could be for. I assumed I would be looking at the sky. By attending my local RASC club meetings, these issues started to clear up for me. So many ways to use your telescope: viewing at the eyepiece, photography, outreach programs, plus a combination of all of these interests and more. So when I went about buying a telescope, I had to narrow my criteria.

I've been a professional pilot for 45 years, so the first thing on my list was Technology. I wanted a scope that was going to last; one that embraced the sky charts that I had on my iPad.

The second criterion was a scope that would track the sky. My previous experience with a homemade 5-inch Dobsonian scope frustrated me. My objects did not stay in the view finder.

As a photographer who dabbled in large format photography (4x5) and did my own dark-room work, sharp optics were also important.

The next issue was battery life. I've seen telescopes with large batteries but with limited life and miles of cables wrapping around the tripod. Less than ideal.

And finally, portability. Lugging my Dobsonian around with its homemade mount was a pain in the...well, you know.

So I started my quest by looking at what was available on the market in Canada. Obviously, most stores don't stock equipment that doesn't sell. That was when I stumbled on the Celestron Evolution SCT. It seem too good to be true. It was driven by my iPad, it was a GoTo scope and it would track. According to the literature, it would track good enough for entry level photography. Optically, Celestron had a good reputation and seemed to have a good portion of the market. The battery was internal, lithium ion and would last ten hours of reasonable use. It was portable...kinda.

So I took the plunge and bought the 8 inch. It was more money than I wanted to spend but I knew I wouldn't be happy with a compromise.



Celestron Evolution Stock Photo

CAN YOU SOLVE THIS PUZZLE

CREATED BY TED DUNPHY?

Answer to the previous puzzle
(Spring 2020)

Tectonic Woes:
MANTLE LAMENT



The answer is one astronomical word formed by rearranging the letters of the other word.

Clue: "Moth Eaten, Steady Stater"



The scope is beautiful, a sturdy tripod with an accessory tray to spread the legs out and keep it stable. The Alt-Az drive had a centering pin on the tripod; you just set it on the tripod and rotate it until the locking pin is engaged. There are three pins and they screw in from the bottom of the tripod head. The scope mounts via a standard dovetail. To be honest I was expecting a little more robust dovetail, but I guess to keep the weight down (as well as the price) it was not as sturdy as I would have liked. But, it holds the scope secure and steady so I really shouldn't complain. It came with a 1.25" diagonal and a 40 mm eyepiece, and I've since upgraded to a 2-inch diagonal, but the eye piece is excellent. The red dot finder on the scope was very basic; it works but I wanted something a little more flashy and easy to see, so it too was upgraded. The handset is plugged in the mount and has a lot of multifunction buttons. Once you start using it a bit you get the hang of it. You also have to connect the scope to your iPad with Wi-Fi—this works good—then launch the Sky Portal software.

First Set-up

First set-up went well, then it came time to align my scope. The directions are simple but it might take a couple of tries. The first thing to do is tell the scope where it is. The easiest way is to launch Sky Portal and pick your location from the map and it will set your latitude and longitude for you. You should be on your home Wi-Fi for this function. Confirm your date and time are correct and then on with the alignment.



Rob Darrah in the Flying Saddle

This technically can be done from the iPad but I find there is a little lag when slewing the scope around. It is best to move the scope with the hand controller and push the align button on the iPad app. If you push the alignment on the handset it won't recognize the charts on your iPad. You just have to pick three bright stars. You don't need to know the names of them but its important that they are the brightest. I found the first stars that pop out at night are the best. You basically just slew the scope until the star is centred in the view finder. I use the 40 mm and push align, then move on to the second and finally the third. You then will get one of two messages: Alignment Successful or Alignment Failed. Mine failed the first couple of times but you just keep repeating until it succeeds, and then you are good to go. Select an object on the list and push Go To. Depending on how accurate your alignment is, you might have to slew the scope with the handset to centre the object.

This scope can also be slewed manually. If the battery died or if you want to use the old fashion method of finding objects, you just loosen the clutches, which are on the drive, and you have a manual scope. Just don't loosen to much as you need a little friction. Also, if you have aligned your scope and you loosen your clutches you will lose your alignment.

As for the battery, I'm not 100 percent sure how long it will last but I've done three or four viewing sessions without charging. It depends on how much you slew around. It is also reasonably portable but it will be two or three trips to the car to set up.

In conclusion, I made the right choice, this is the perfect scope for me. I highly recommend this scope. It will last me many years to come.

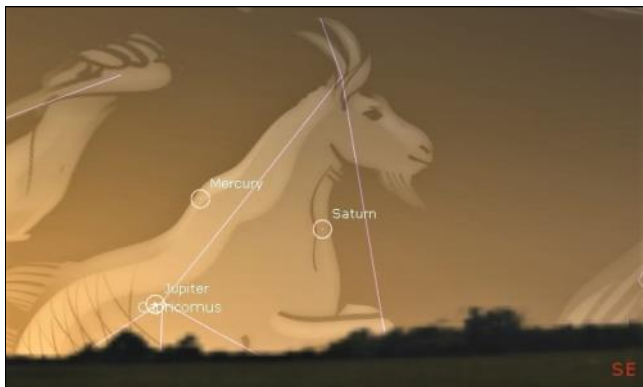


RASC GA 2016 Highlight: David Levy and his Back-up Group "The Butter Tarts" (Mandy, Emma and June)

What's Up.doc December to February - by Curt Nason

The celestial highlight for winter occurs, appropriately enough, on the date of the Winter Solstice: the closest visible conjunction of Jupiter and Saturn in four centuries.

Mercury is at the end of its best morning apparition in 2020, rising less than an hour before the Sun on December 1 and reaching superior conjunction on December 20. On January 10 it forms a tight binocular triangle with Saturn and Jupiter low in the WNW, setting an hour after sunset. Mercury reaches greatest eastern elongation on January 23, inferior conjunction on February 8, and on February 19 it forms the apex of an isosceles triangle 5° from each of Jupiter and Saturn.



Mercury Triangle 2021-02-19-07:00 (Stellarium)

Venus continues to reign over the morning sky while slowly moving sunward. Try to spot it at noon on December 12, a few degrees

left of the waning crescent Moon. It has close conjunctions with Saturn and Jupiter on February 6 and 11; difficult observations as they rise 20 minutes before sunrise.

Earth reaches its northern winter solstice at 10:02 on December 21, giving us a long night to observe the first quarter Moon,

Mars will continue to yield views of its albedo features throughout December, but by mid-January its disc width will have shrunk below $10''$ and dimmed to magnitude 0.1. By late February it will have traversed through Pisces and Aries into Taurus, coming within binocular range of the Pleiades. From mid-January on, Mars will be the only naked-eye planet in the evening sky.

Jupiter is about 2.5° west of **Saturn** on December 1, and from December 12 to 29 they are within 1° , together in a low power eyepiece field of view. On December 21 they have their closest visible conjunction in four centuries at just 0.1° apart, although slightly greater when the sun sets here. They become increasingly difficult to see in the New Year, with Saturn in conjunction January 23 and Jupiter on January 28. By mid-February they will be naked-eye objects in the morning sky.

Uranus is in approximately the same location at the end of February as it was on December 1, after having moved a half degree westward by mid-January. Try star-hopping from Xi Ceti in the head of the Whale by 5° to Xi Arietis in an arc of stars, and extend the hop by a slightly longer distance.



*Finder Chart for Uranus
December 1 at 19:00 (Stellarium)*

Neptune begins prograde motion around December 1 and, despite being dimmer, it is easier to find in binoculars than Uranus. Look for the wide triple star Psi Aquarii, hop up to Chi and then Phi Aquarii, and look for a pair of sixth magnitude stars about a degree east of there. In December at least, Neptune will be the brightest object between Phi and that pair. It will have moved to between the pair by January 20.

Meteors are a highlight for a few weeks starting mid-December. The best meteor shower of the year, despite the cold, peaks on the moonless night of December 13/14. Unlike other significant showers, the radiant for the Geminids, near Castor, is above the



*Finder Chart for Neptune
December 1 at 19:00 (Stellarium)*

horizon as evening twilight ends. And, like other showers, activity increases after midnight as the planet's rotation turns toward the incoming pebbles; which tend to be larger than for other showers because the source is an asteroid, (3200) Phaethon. For those folks of a vintage who think NHL hockey is now too fast to follow on television, the Geminid meteors are slower than usual and suit our leisurely pace. Watching a night or two before or after the peak is often worth the effort.

The other two meteor showers have their radiant near the Big Dipper, high in the northeast in early morning. The Ursids peak on December 22/23 and might show several per hour or occasionally more. The Quadrantids peak on January 2/3 and have a short, six-hour peak of activity that has been known to outburst on occasion. The first quarter Moon sets before 01:30 for the Ursids but the waning gibbous Moon will interfere with the Quadrantids meteor watch.

Several **comets** have potentially been within reach of backyard telescopes in a dark sky in November. Check Heavens-Above for maps in December for those that are still within reach or for new discoveries.

New Moon dates for winter are December 14, January 12 and February 11.

Sky & Telescope GIVEAWAY

I have around 500 issues of Sky & Telescope magazine to give away to provide several months of COVID reading and a great history of astronomy over the past half-century. The lot includes monthly issues in 1967, 1969, Jan-Sept 1970, 1976-April 1980, 1982-1983, 1986-2020, and several annual issues of Sky & Tel's Skywatch magazine.

Contact Curt Nason



Wide-Field Finder Chart for December 1 at 19:00 (Stellarium)