SKYNEWS

Mars approaching opposition, from data taken Sep 11th, 2020, by John McDonald

The Martian Chronicles

Mars is an alien world to us in so many different ways, but its proximity and the possibilities, for eventual human exploration and colonization, has left an indelible mark on our collective consciousness. The skies on Mars are normally of reddish hues, from the light scattering off of the dust, but the sunsets there would appear to us as a blue haze. It's currently a view only enjoyed via transmissions, from cameras mounted on rovers and landers. Perhaps one day though, when explorers first set up camp on the red planet, they'll get homesick after witnessing a Martian sunset. For amateur astronomers, it's also a reminder of why you need to use a different colour filter to see the same feature on different planets.

While the last opposition of Mars was marred for observers by a global dust storm, unlike what was portrayed in the Matt Damon movie, the strongest winds lack any real punch due to the planet having less than 1% of the air pressure that exists on the surface of Earth, at sea level. It's one of the reasons that centres for space exploration are looking into the possibility of using inflatable dirigibles as a means of Martian transport. For explorers, the main hazards of dust storms will be having filters and machinery getting clogged up with dust, as well as disorientation while working outside in a *dust blizzard*.

As a naked eye target, hominids have no doubt been observing Mars for as long as they've been looking up at the night sky. Its fiery red colour in the night sky had ancient observers associating it with warlike deities, starting with the Babylonians. Astronomer-priests and thinkers of the ancient world were well aware the fact that, like the other observable planets, it didn't move across the night sky quite like the distant stars did. There were a number of ideas to explain the apparent retrograde motion of these *wanderers*, before Copernicus did the math to prove the hypothesis of Ancient Greek thinker, Aristarchus of Samos.

In more recent times, September 5th gave quite a number of RASCals the chance to observe and image a conjunction between Mars and the Moon *(seen below)*. Sadly, we were denied the occultation that was seen in some other places in the world, where they got to watch Mars emerge from behind the Moon. Now as we look towards the uncertain weather of October 13th and the opposition of Mars, it's starting to look a lot like most of the best views will be in the days following the closest point between Mars and Earth, in their collective orbits.

Bruce Lane

Moon and Mars conjunction, Sep 6th (just after midnight) 2020, by Bruce Lane

Editorial Remarks

As we approach the opposition of Mars, on October 13th, a lot of us are gazing uneasily up at the sky and at the weather forecasts. The forecast doesn't look that great, but it could easily. We could still have some moments of clear skies. Of course, we could also get more rain. Hopefully, there will be better opportunities on the other side of opposition, as Mars slowly begins to dim again in the night sky.

In this issue of *SkyNews*, we'll have more recaps from our Centre's activities, as well as all the astrophotography and articles you've come to expect from the *Victoria Centre SkyNews*.

Bruce Lane: SkyNews Editor

President's Message for October

Have you noticed that the red planet has received the lion's share of planetary press coverage lately? In July 2020 three Martian space missions were launched. The United Arab Emirates mission will place an advanced weather satellite, called Hope, in a Martian orbit. The Chinese mission Tianwen-1 will deliver an orbiter, lander, and rover to the planet. NASA and JPL will land Perseverance and Ingenuity on Mars. Perseverance is similar to the phenomenally successful Curiosity rover, and will drill and deposit caches of samples for a possible retrieval mission. Ingenuity is a small helicopter that will take short three minute missions that will scout for interesting objects for Perseverance to examine. All three missions will reach Mars in February 2021, just in time for the Victoria Centre AGM! What a great time to become the Centre President!

Martian enthusiasts will also be excited to learn that Hilary Swank and her brave team of astronauts, in the Netflix Martian exploration drama AWAY, will likely be renewed for another season. Keen observers of this program may, like me, be puzzled by the intermittent nature of weightlessness in this drama. I wonder if special effects budgets are a factor.

The big event this month, however, is the opposition of Mars, which takes place on October 13th. At this time, only 0.41 astronomical units away, the Martian angular diameter reaches 22.4 arc seconds. In anticipation of this event some keen RASCals like John McDonald have been perfecting their planetary photography techniques. You may remember that during the last opposition, in the summer of 2018, a major dust storm prevented us to savour the surface details. Although weather patterns have been favourable of late, smoke from the major wildfires in Northern California has introduced a new element of uncertainty. We should keep in mind that the crescendo of the Martian angular diameter is a gradual event, and let's hope for usable skies and wonderful images.

Right in the middle of this Martian jamboree, however, I was happy to hear that our much neglected sister planet, Venus, crashed the party. On September 14th, a paper announced that there was "Phosphine gas in the cloud decks of Venus". In 2017 the James Clerk Maxwell Telescope detected the spectral signature of the molecule phosphine in the Venetian atmosphere. This was followed up by higher resolution data from ALMA in 2019. This created great excitement because phosphine is considered a bio-signature in rocky planets and offers the intriguing possibility of life in the Venetian atmosphere. This may inspire future missions to Venus … which maybe a good thing since those wildfires are ringing alarm bells about global warming. Maybe we should spend more effort studying the planet next door which provides an outstanding illustration of a runaway greenhouse effect. We have much more to learn.

Stay well …

And Useable Skies

Reg Dunkley

Astro Café: Online

The weekly social gathering of amateur astronomers on Monday nights, known as Astro Café, continues online. As with many groups, we're trying to find ways to still function as a Centre, without meeting in person. Members are posting their astrophotography, short articles, as well as links to astronomy stories from the Web. Sadly you'll have to make your own coffee and the only cookies are those your browser picks up when you visit our website. You can access the *Virtual Astro Café* at: https://www.victoria.rasc.ca/astronomy-cafe/

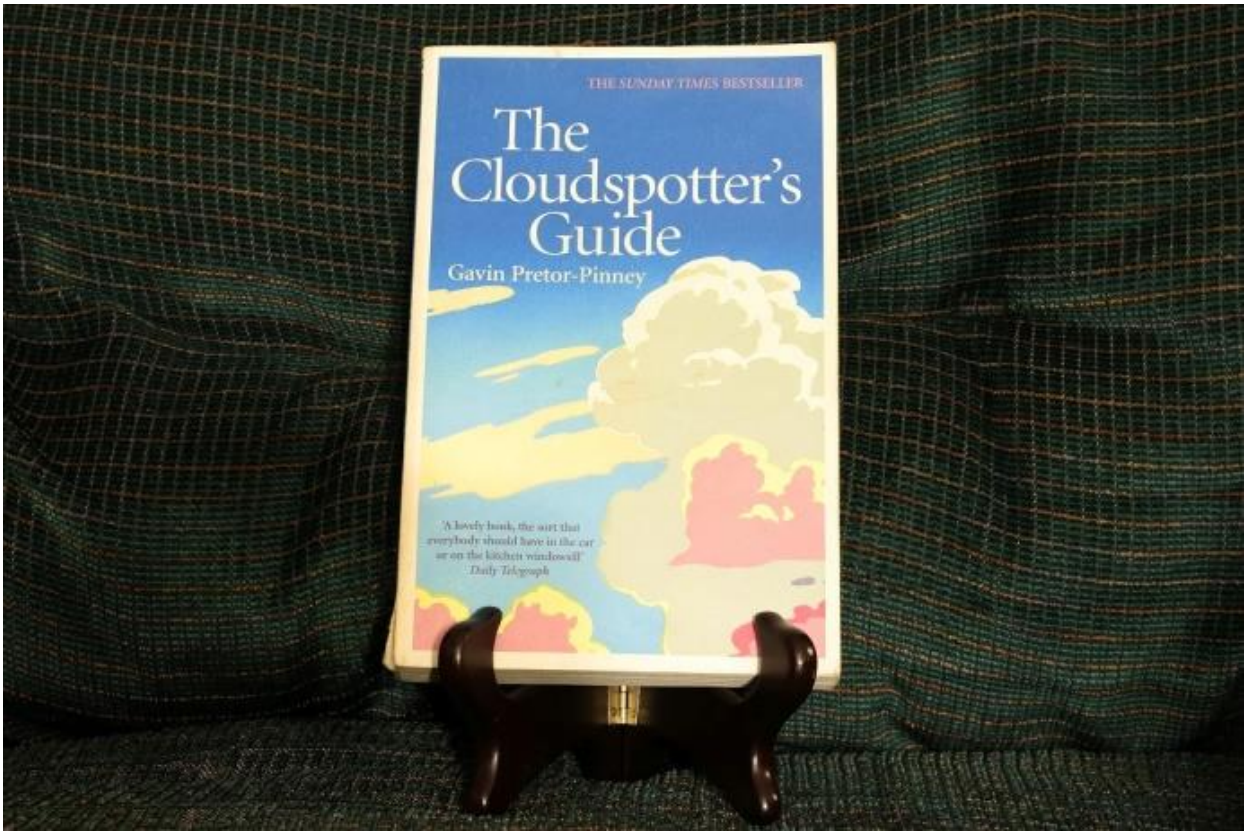
The first Monday was on the Labour Day weekend, so there was no Astro Café. It resumed on September 14th, with Astro Café also standing in for the online Monthly Meeting of sorts, minus the RASC officer giving updates of club business. Instead the focus was on the virtual special guest speaker Phil Groff, the Executive Director of the RASC, giving an administrative and financial presentation on the operational side of RASC National. For September 21st, Barbara showed some highlights from a European astrophotography contest; Reg Dunkley announces that we're another step closer to limited access to the VCO and new operating procedures; Joe Carr gave a time lapse photo presentation of the installation of the substitute Ritchey-Chretien telescope up at the observatory; Randy Enkin showed his data for the preparation of a sun dial; Laurie Roche gave some highlights about the first virtual FDAO session; and Reg wrapped things up with a summary of the goings on in the astronomy community.

For the last Astro Café of the month, Reg gave live reports from the Victoria Centre Observatory, while Matt, Dan, and John were working in the background. Also that evening, Dave Robinson showed some astrophotography from RASC Edmonton and gave a shout out to an upcoming webinar at the University of Alberta; Chris Purse showed some other astrophotography from RASC Edmonton; Joe expanded on the slide show of the installation of the interim Ritchey-Chretien telescope; Randy talked about the International Observe the Moon Night; and Reg gave a summary of what's going on in the astronomy community. While it might be a lot to ask for even on a monthly basis, live webcasts from the VCO for Astro Café or scheduled observing sessions when they begin again, really added a lot to the Zoom meeting.

Bruce Lane

From the Library

The RASC Victoria Centre Library is housed in the Astronomy Department's faculty lounge, located on the 4th floor of the Elliott Building, at the University of Victoria. It contains over 500 titles, curated by Diane Bell, our RASC Victoria Librarian. Our library covers many aspects of astronomy: observing, astrophotography, telescope construction, space exploration, astrophysics, and much more. Normally, the library is opened up during the social gatherings in the faculty lounge, after our monthly meetings, with coffee, juice, and cookies provided by our Centre. I've been doing book reviews of the contents of our Centre's library, but until the resumption of our monthly meetings, I'll be doing reviews of the astronomy books from my personal library, ones that can be purchased online or better yet at your local bookstore.



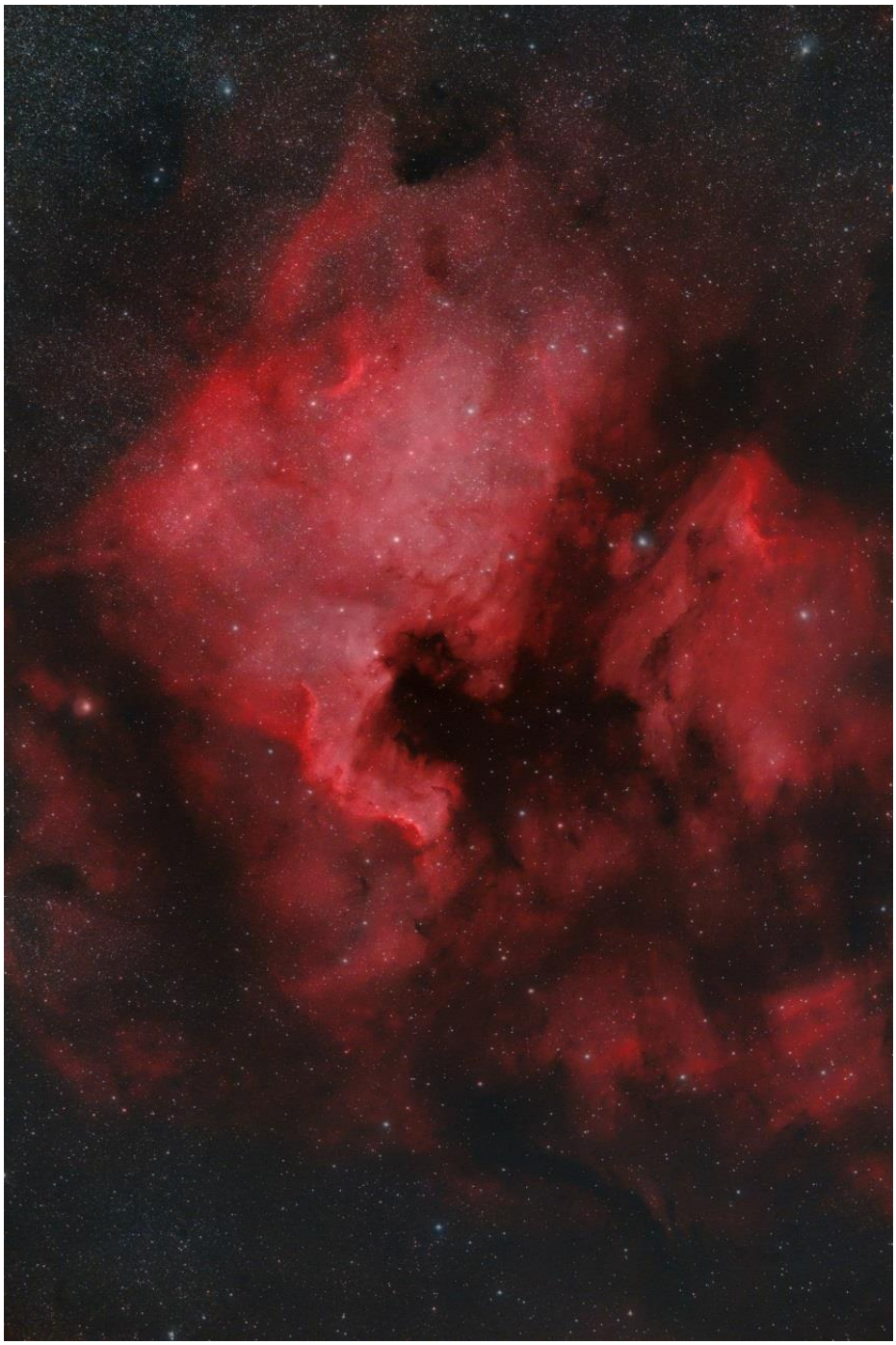
This month we're taking a closer look at ***The Cloudspotter's Guide***, by Gavin Pretor-Pinney. The Cloudspotter's Guide is a one of a kind book that you've probably never heard of, but deserves a place on almost everyone's book shelf. I was compelled to purchase it ironically, during the worst of a very bad winter for astronomy; when there were only two good observing nights over a period of three months. There is a chapter in this book dedicated to every type of cloud, so it's an opportunity to raise your awareness of the world overhead; especially when the clouds are between your telescope and the night sky for an extended period of time. While the astronomer views clouds with suspicion and dread, the author of this book views them with the same sense of wonder amateur astronomers do when observing a nebula.

The author is the founder of the Cloud Appreciation Society (*https://cloudappreciationsociety.org/*), which he started in 2004 and enjoys a worldwide membership. He's written about and given many lectures on clouds, and recently started to branch out with a book about aquatic wave appreciation. The Cloud Appreciation Society even has cloudspotting groups, although for some reason the only Canadian chapter is in Calgary. Our *Wet Coast* seems woefully under represented. The Cloudspotter's Guide is an enjoyable read and it's available by order from your local bookstore.

Bruce Lane

Hill and Dale (Observing on the Island)

Scheduled weekly observation sessions at the Victoria Centre Observatory are still on hiatus, due to the lockdown, resulting in a situation where it's every amateur astronomer for themselves. September isn't going to be remembered as the best month for observing. While there were a few nice evenings at the beginning and near the very end of the month, smoke from American wildfires drifted north and blanketed the skies for over a week, until smoky skies were replaced by clouds and rain. Those clear skies at the beginning of the month, gave Dan Posey the opportunity to take a breathtaking image *(seen below)* of the North America Nebula (NGC 7000) and Pelican Nebula (IC 5070 and IC5067).



We might have had our first live video report from the Victoria Centre Observatory, during the last Astro Café of the month. The RASC Victoria Centre President and three members of the Technical Committee were up there, working on the installation of the interim Ritchey-Chretien telescope. Before the webcast, the Technical Committee had already been up there a couple of times to go over the state of the observatory and equipment, before mounting and balancing the new telescope. There were more computer issues; possibly due to power outages on the Hill (*that or it's been having feelings of abandonment during the lockdown*). Joe Carr took it home, fixed it, and reinstalled it, so the VCO once more has a functional computer to control its observatory telescope.

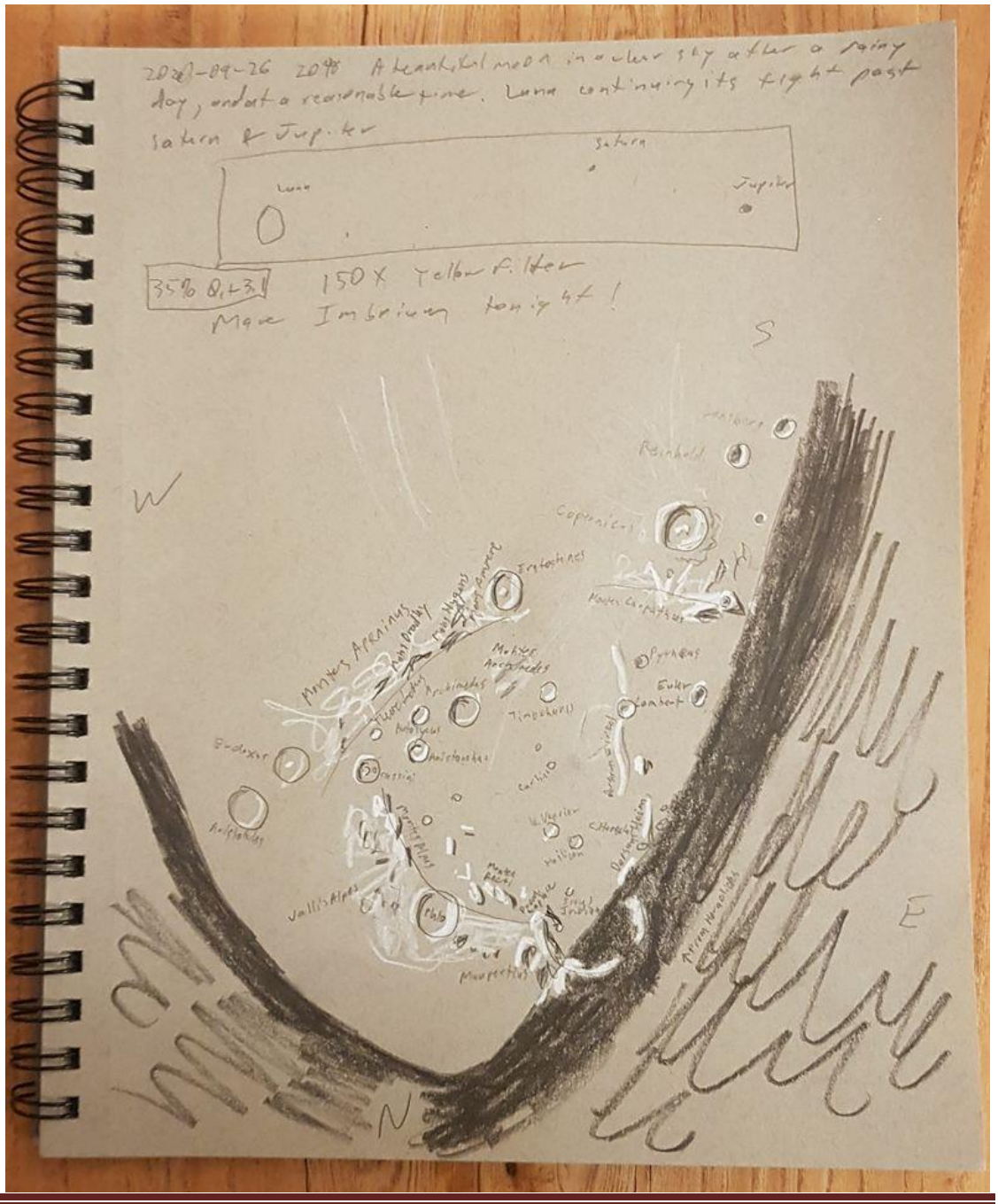
A reminder that although the VCO belongs to and is for the use of the members of the RASC Victoria Centre, with both weekly scheduled and unscheduled sessions run by our MiCs (Members in Charge). The VCO is located on National Research Council property. This means that all visitors to our observatory must be on our observer list and registered with the NRC. To get on the list, just contact Chris Purse (Membership Coordinator) *membership@rasc.victoria.ca* and we'll see you up there on the Hill some night soon.

Bruce Lane

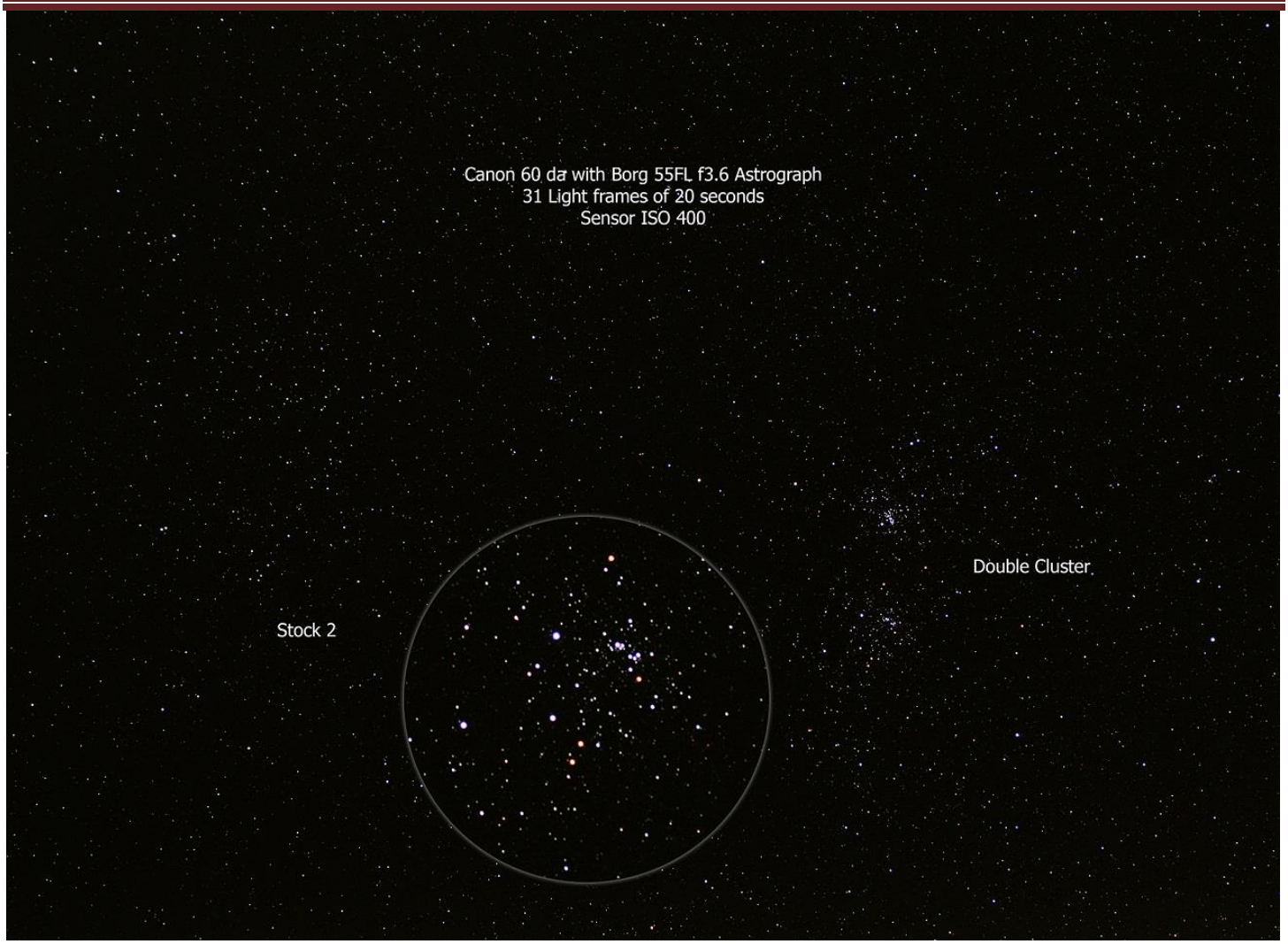
Astronomical Terms of the Month: Seeing and Transparency

For a lot of amateur astronomers, after getting a handle on learning the constellations and the location of numerous deep space objects, as well as learning about telescopes and mounts, once they're expected to talk about atmospheric conditions they'd probably just prefer to stick to cloudy and not cloudy. When people start talking about how seeing and transparency is affecting your evening out as an amateur astronomer, it's generally in terms of being bad or good, without a lot of explanation. It's rarely talked about, until someone remarks that there is bad seeing or transparency, which can leave a lot of amateur astronomers puzzled about what they're talking about. It doesn't help things when these same amateur astronomers are tired and sometimes slurring their speech, because they're up past their bedtimes.

Essentially, good seeing is for planets and good transparency is for deep space objects. *Transparency* can be remembered as having to do with *faint fuzzies,* which often appear transparent, and *seeing* connected with planets that you can actually see without optics. Seeing can be especially important for events like the opposition of Mars, where good seeing means being able to push your magnification a bit harder than normal and bad seeing means that your planet, when viewed through a telescope, looks like it's under a waterfall or being viewed through a heat wave on the pavement. Bad seeing is caused by temperature differences and turbulence in the atmosphere, and can occur even during perfectly clear skies. Transparency refers to the transparency of the sky, between your optics and the edge of space. This is mostly about the amount of moisture in the air and can even be a problem even under clear skies. It affects your ability to observe deep space objects, especially galaxies and nebula.



Bruce Lane



Double Cluster, taken Sep 7th, 2020, by David Lee

In Closing

Thanksgiving weekend in Canada, during a pandemic, was be seen as an ironic holiday by some, but we still have a lot to be thankful for here on the Island. We've been luckier than most during the current healthcare crisis, but all it takes to reverse that trend is for enough of us to throw caution to the wind, and celebrate Thanksgiving with friends and family like we normally do. Still, if you're going to pick a place to isolate yourself in, you could hardly pick a better spot than here on Vancouver Island.

Now, during the pandemic, it's time to think more in terms of the roots of Canadian Thanksgiving than its namesake celebrated south of the border. In the US, Thanksgiving is almost as big a holiday as Christmas. Americans combine it, like the rest of their holidays, with major business sales as corporate hybridization of their traditional celebrations. On Black Friday, Americans are noted for brawling with their fellow shoppers for possession of the most prized sale items,

like gladiators from ancient times. The importance of Thanksgiving in Canada varies wildly from region to region, from family to family. We're much less likely to take time off work for long journeys to have Thanksgiving dinner with our families than Americans. We tend to save that for Christmas. Canadians are also much more likely to invite friends to our dinners than our southern neighbours, who have a tendency to make it a family only dining experience. It's also much less of a big deal on which day the dinner takes place up here. Most of the rest of the way we celebrate modern Thanksgiving in Canada is a result of being inundated with American pop culture. Originating from the harvest festivals of the old country, thanks to the locals keeping them from starving to death, the pilgrims at Plymouth were able to celebrate their first Thanksgiving in a tradition difficult for any Canadian not to be well aware of by consuming American media.

Canada's Thanksgiving has its origins from the third voyage of exploration by Robert Frobisher, forty-three years before the Plymouth pilgrims had their first feast. During an unsuccessful mission to find a route through the Northwest Passage, Frobisher's crew gave thanks for their survival, making a feast of what they had on hand. It's probably for the best that Canadians adopted something closer to the traditional American meal instead of the explorer's feast of salted beef, weevil infested biscuits, and some mushy peas. In Newfoundland, the traditional Jigg's dinner from the outports was preferred over turkey and wasn't that far removed from what the explorer's ate. On this Canadian Thanksgiving weekend, give thanks to the fact that we have it better than most and hopefully find a way to enjoy a much more remote celebration. Also, maybe it wouldn't hurt a lot of us to give the Jigg's dinner a try sometime this year. It looks pretty good.

Bruce Lane
SkyNews Editor

Photography Credits

Cover: Mars approaching opposition, from data taken Sep 11th, 2020, by John McDonald. Shot with ZWO ASI120MM-S camera, with filter wheel and TV Powermate (focal ration f/25) through.8" Edge SCT on AVX mount. Image created with1000 frames in each of R,G,B and IR filters, with best 59% stacked in Astrostakkert, sharpened in Registax, and enhanced in Photoshop.

Page 2: Moon and Mars conjunction, Sep 6th (just after midnight) 2020, by Bruce Lane; taken with 300mm telephoto and using graduated neutral density filter to cut some of the light from the Moon.

Page 3: Crop of Bruce Lane (SkyNews Editor) at 2013 RASCal Star Party in Metchosin, by Chris Gainor

Page 3: Crop of Reg Dunkley (RASC Victoria President) at 2018 AGM, by Joe Carr

Page 3: Moon, Mars, and River of Silver, taken Sep 5th, 2020, by Reg Dunkley

Page 4: Photograph and Design of Astro Cafe Mug, by Joe Carr

Page 5: Posed Book, "The Cloudspotter's Guide", taken in Editor's home on July 15th, 2020, by Bruce Lane

Page 6: North America Nebula (NGC 7000) and Pelican Nebula (IC 5070 and IC5067), image taken Sep 4th, 2020, by Daniel Posey. 275x30 second exposures taken with Canon Ra f5.6, ISO12800; using a 100-400mkii lens, at 400mm, Calibrated with bias and flat frames, and stacked/processed in Pixinsight.

Page 7: Lunar Sketch, Sep 26th, 2020; by Randy Enkin.

Page 8: Double Cluster, taken Sep 7th, 2020, by David Lee. Shot with Canon 60da, through Borg Astrograph refractor (55FL f/3.6), on a Star Adventurer tracking mount. 30X20 second frames. Image includes inset red supergiant stars in the Double Cluster.

Page 8: "Red", Rhode Island Red chicken, Aug 8th, 2020; by Bruce Lane

Page 9: Apollo 14 training: Al Shepard may be getting on his feet as the KC135 aircraft enters a 30-second period of one-sixth g. 28 October 1970. Scan by J.L. Pickering. Courtesy of NASA.

Page 11 Apollo 14 training: Stu Roosa and Al Shepard relax aboard Retriever during water egress training. 24 October 1970. Scan by J.L. Pickering. Courtesy of NASA.

Call for Article and Photo Submissions for the November Issue

SkyNews is looking for submissions of astronomy photos and articles for the November issue of our Victoria Centre's magazine. Send your submissions to editor@victoria.rasc.ca

RASC Victoria Centre Council 2020

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