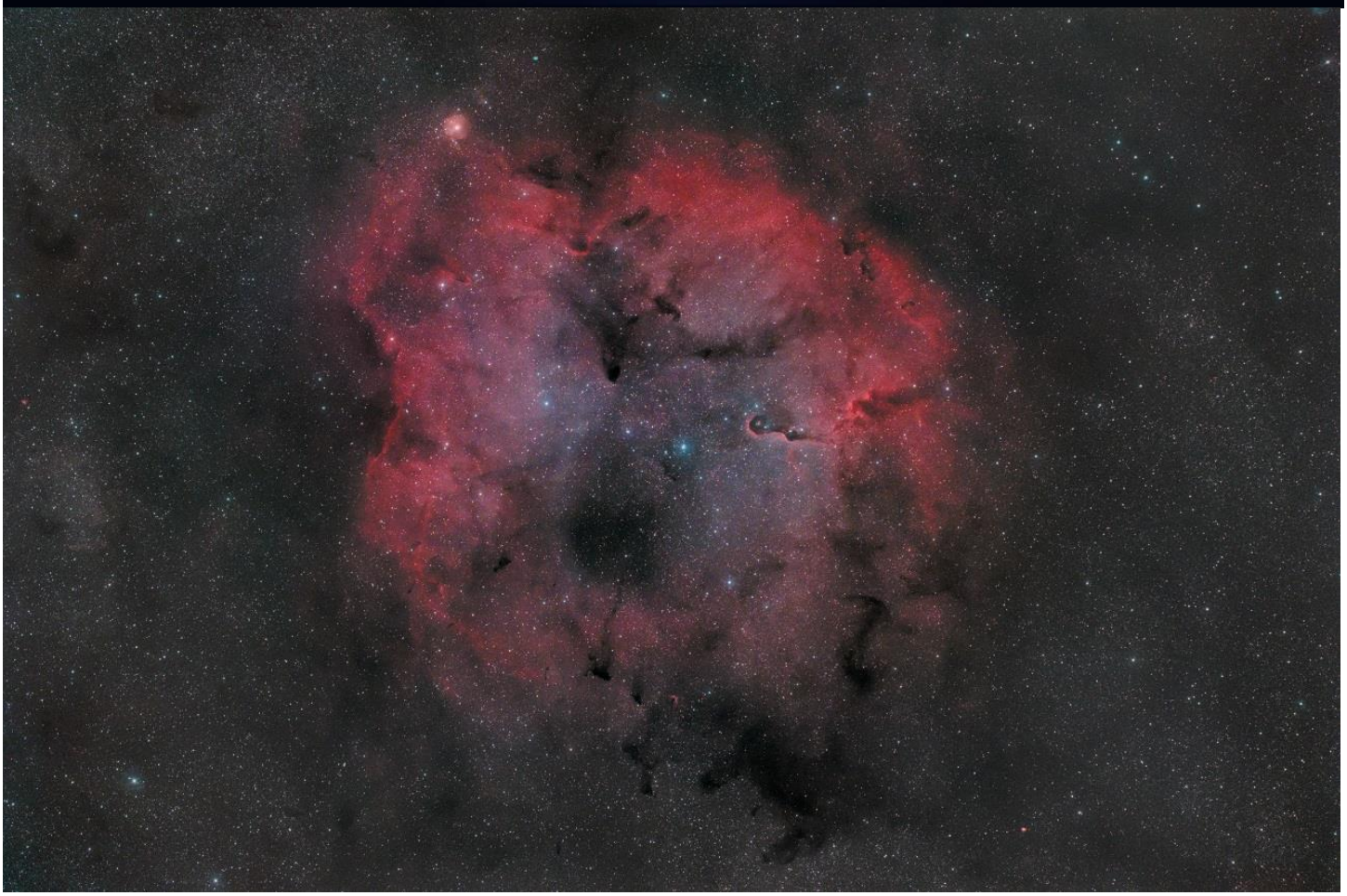
SKYNEWS



Elephant's Trunk Nebula (IC 1396) from Victoria Centre Observatory, Jul 9, 2021, by Daniel Posey

Memories of Star Parties Past

August always makes me thing of star parties. The new moon of August offers the best of camping weather, the Perseid meteor shower, and nights not nearly as short as in the previous few months. Ten years ago, the RASC Victoria Centre held its annual star party in Metchosin, during the last days of July, so not quite August.

Star parties are the ultimate expression of the amateur astronomy experience. You bring your optics to a field; camp out away from the city lights with your fellow amateur astronomers; and spend the nights looking up at the sky. There are guest speakers, door prizes, workshops, presentations, and sometimes even food available on site. Afterwards you're left with friendships, memories, observations, images, and probably a lost eyepiece cap or two.

Camping on the Field, from 2011 RASC Victoria Star Party, by Joe Carr

The biggest challenge that year in Metchosin was the wind. Not a refreshing, gentle summer breeze, but a torrent of wind strong enough to put any tent to the test. Several tents failed that exam. I had to chase one of my errant folding chairs across the field to keep it from hitting someone's telescope on the other side of the cricket grounds. It's the only time I've used tent pegs to secure a chair from blowing away. Just putting a few things on a chair wasn't always enough. Deciding that mere winds weren't enough of a barrier to dissuade observers, the weather brought in thick clouds to remove any doubt about the kind of weekend we would have. Often, even under ideal night skies, people spend a lot of time at star parties chatting together in clumps in the darkness. With the winds and clouds there's not much else to do. Once people turned in for the night, sleep was hard to come by, with the tents being assaulted by strong winds and you being assaulted by your collapsing tent, while in the imagined security of your sleeping bag.

The days were bright and sunny, so solar observing was at least available, but the nights were less than desirable. The Metchosin Mistral is far too poetic a name for what that wind did to that star party. The Parry Bay Pommeler is closer to the mark. Merciless mistrals aside, the fields behind the Metchosin Fire Department are ideal for hosting a star party. The horizons are good; there's plenty of space to set up; the municipal government was friendly to our cause; the locals visiting the star party were filled with wonder; and perhaps most importantly, it's is a short walk to My Chosen Cafe. It's just not ideal when the Parry Bay Pommeler is blowing across the field during the afternoons and evenings of summer.

Bruce Lane

Stephen Courtin and his “Astrovan” at the 2011 RASC Victoria Star Party, by Joe Carr

Editorial Remarks

Summer is something Canadians tend to rush outside to enjoy before it’s gone; even more so for the rest of Canada that doesn’t enjoy our mild climate. For many of us coping with our current reality, it’s been gone before it even started. Opportunities and experiences we used to take for granted have been removed or curtailed. It’s left us with a large gulf in our lives that many have filled with increased online activity and left others confronting a silence they’re not used to. For those seeking solace online, it’s all getting so much harder than it used to be to fill social media accounts with pictures of a *hashtag blessed* life. Sure, you can post a picture of your breakfast, but don’t think anyone is *liking* that picture out of anything but politeness. That or they’re laying the foundation for a reciprocated *like* for a planned photo shoot of their lunch. For those coping with the loss of their busy social lives, it’s less of Eddie Cochran’s indulgent *Summertime Blues* and more of a deeper *Summertime Sadness* that Lana Del Rey sang about. For a lot of us, it’s been an opportunity to dedicate time to a new hobby or explore a new facet of the amateur astronomy experience. I hear there are some active special interest groups to join.

In this issue of *SkyNews*, we have an essay by Bill Kunze, more recaps from our Centre’s activities, more images from Apollo 15 as we continue to celebrate the 50th Anniversary of the Apollo program, as well as all the astrophotography and articles you’ve come to expect from the *Victoria Centre SkyNews*.

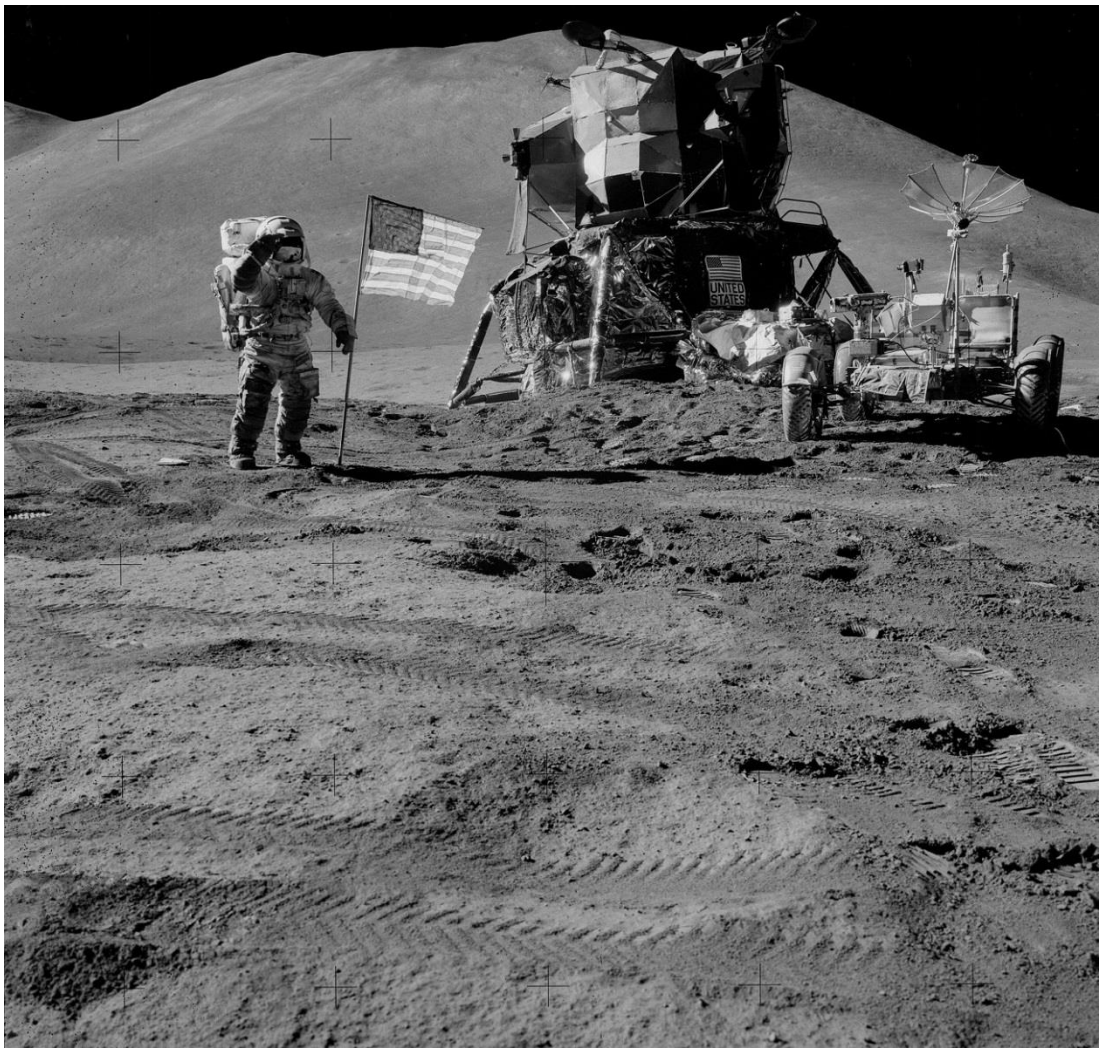
Bruce Lane: SkyNews Editor

President's Message for August: the Allure of Saturn

I've had a couple of requests this summer to help friends who have never seen Saturn through a telescope with their own eyes before. One of them was lent the wonderful 1970s Tasco 60mm refractor that I bought off Reg Dunkley, at our Astro Cafe exchange, way back when we could meet in person. Reg says this telescope kindled his interest in astronomy years ago, so it is fun to give this equipment to another enthusiastic newbie. The other request is from Toronto and I'm getting a RASC Toronto Centre loaner scope ready, for when I'm there next week. We do indeed belong to a great society that gives us these opportunities.

But what is it about seeing the beautiful objects in the sky ourselves? There are much better images available on the internet. Nothing we can see from Earth compares to the pictures of our sixth planet sent by the Voyager and Cassini spacecraft. Saturn especially has been something that has turned on people from all walks of life to the delights of the night sky. Indeed, the design specifications for the "*Galileo-scope*" included the possibility to see the rings of Saturn, because they knew that that view is the gateway to spending more time with a telescope (I have one, and it works!).

Saturn is certainly other-worldly. It is beautiful in its form and symmetry. The physics which produce the rings are non-intuitive. It is a challenge to see it, but not an unreasonable challenge for most. But there must be more.



Each time I take my telescope out, I fall in love again with the universe we live in. Even when I am alone, I sometimes swoon out loud. I don't know why, but I sure am glad I get to share the feeling with my astro-friends. As our friend Diane Bell told us: "*the sky is a gift!*"

Enjoy the sky. Share it.

Look Up,

Randy Enkin,
President@Victoria.RASC.ca

Astro Café: Continues Online

The weekly social gathering of amateur astronomers on Monday nights, known as Astro Café, has continued 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 Internet. 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 Astro Café of July was hosted by Chris Purse and had an initial discussion about the possibility and challenges of hosting in-person Astro Cafe again in the future, and making a return to the Fairfield Community Centre. Chris showed some images from the 4th of July fireworks across the water viewed through telescopes from Cattle Point; Barbara Lane presented the short list from the Astrophotography of the Year (2021), from the Royal Observatory (UK); Dave Robinson showed some images from RASC Edmonton; John McDonald presented an image of M57 created from Dave Payne's data; David Lee talked about upcoming Special Interest Group meetings; David and Chris Gainor discussed the recent plight of Hubble; and Reg Dunkley finished things off with a recap of the observing and imaging of the July 4th fireworks, and a Victoria Centre Observatory report.

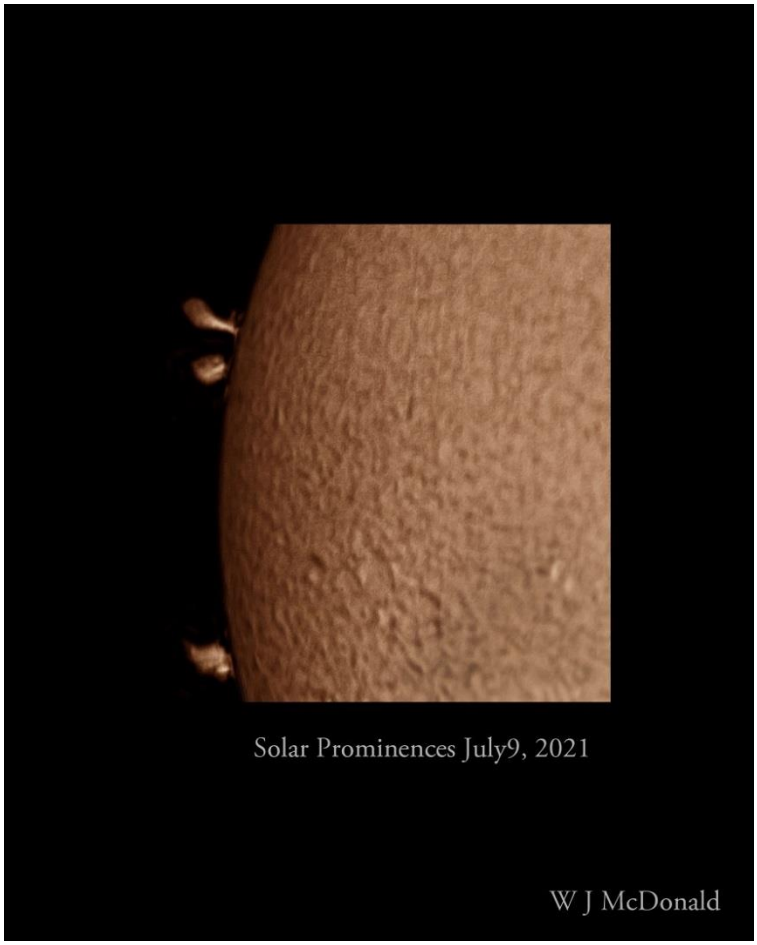
For the July 12th Astro Cafe, Randy Enkin introduced guest speakers Gary Varney (lunar astrophotography) and Brian Day (NASA's Lunar Tools and Missions) who gave some in-depth presentations and answered questions. Mike Nash talked about his own lunar photography; Peter Jedicke read a lunar poem; Dave Robinson showed more images from RASC Edmonton; and more images were shared afterwards by various people in attendance.

For the third Astro Cafe, Randy showed a series of images of the ISS transiting the Moon; Chris Gainor gave an update on the computer failures aboard the Hubble Space Telescope; Laurie Roche gave an update from RASC National, the upcoming virtual FDAO Summer Saturday event, discussed the restructuring of the NOVA program (New Observers of Visual Astronomy), as well as announcing an upcoming memorial to Diane Bell hosted at the Aviation Museum. Dave Robinson also showed more astrophotography from RASC Edmonton and John McDonald showed off some images from RASC Victoria.

For the last Astro Cafe of the month, Reg Dunkley gave a presentation on the Crab Nebula; Laurie discussed the FDAO Summer Saturdays and the Diane Bell memorial; Randy talked about the Centaurus A (NGC 5128) Black Hole; David Lee gave an update on SIGs and led a discussion about the willingness to get back to gathering in groups; and Michel Michaud dropped in from *la belle province* to give an update on day one of the construction process of his new home observatory, as well as the challenges of building in a place that has weather a bit more extreme than what we *endure* here in Southern Vancouver Island.

Bruce Lane

Special Interest Groups



Getting Started in Astronomy

The beginner's group continues to meet and in the last session we focused on educational resources, both free and those that need to be paid for. The Kalamazoo course that Margie attended and reported on is no longer offered for free. From our own organization, the RASC Nova Program designed for beginners is getting a redesign. Both Lauri Roche and David Lee are a part of this program's reset.

As a way to familiarize ourselves with parts of the sky, we are now reviewing constellations and identifying interesting features such as double stars, variable stars, star clusters, and other deep sky objects. In the last session, we covered the constellation Lyra. For more information on this group, please contact David Lee at *david@victoria.rasc.ca*

Astrophotography

The astrophotography SIG met and Garry Sedun took us through an excellent primer on PixInsight, which is often thought of as a premiere image processing tool, although one with a steep learning curve. We also shared a number of images of Venus. For more information about this group, please contact John McDonald at *john@victoria.rasc.ca.*

Electronically Assisted Astronomy

The EAA SIG talked about what we can do in the near future, as the nights are starting earlier. There was also a discussion about the current state of light pollution filters in the form of multiband filters that limit the impact of light polluted skies. Although perhaps stretching the ideal capture times for EAA, this may become a necessity as urban glow encroaches. For more information on this group, please contact David Lee at *david@victoria.rasc.ca*

Makers

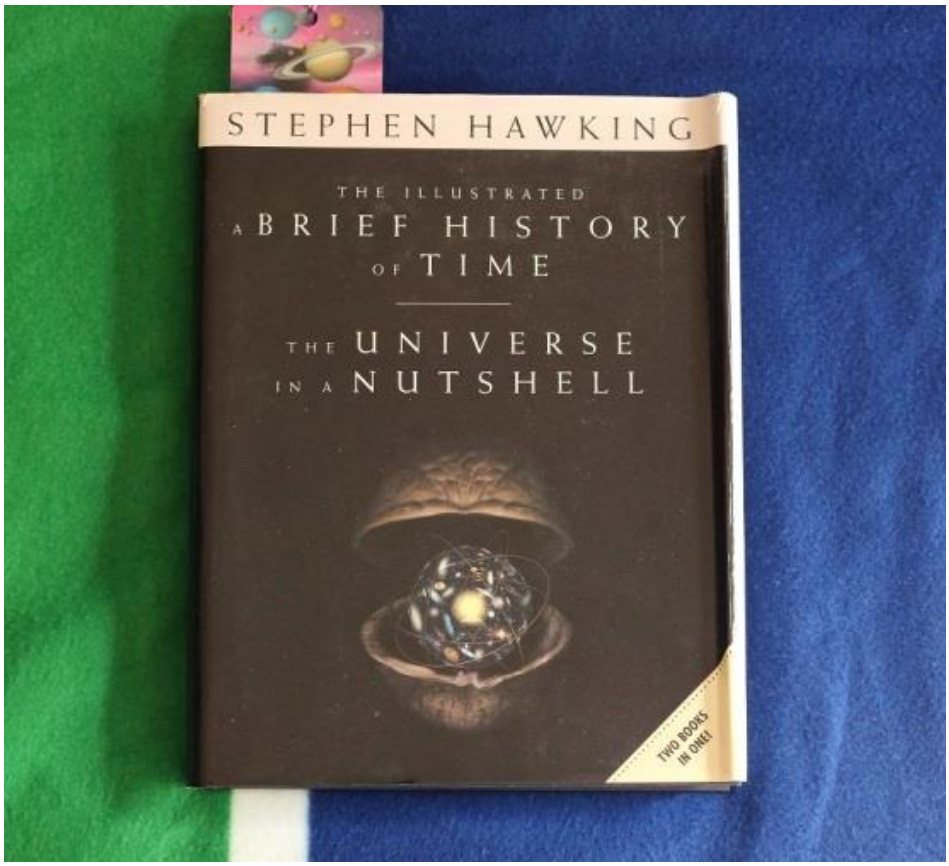
The Makers SIG talked a little about encoders as an alternative to GOTO systems and how these could be used to augment legacy telescopes. With the prevalence of localized computer power on telescope mounts this will likely be a topic to talk about. As a makers group, perhaps we could concentrate on DIY versions of the ASIAir, such as Astroberry and StellarMate. For more information about this group, please contact Jim Cliffe at *jim@victora.rasc.ca.*

David Lee

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 Alex Schmid, our RASC Victoria Centre Librarian. Alex is currently running our library in the same way the Greater Victoria Public Library runs its shut-in branch, driving around to do deliveries and pickups for our membership, to provide access to the books from our collection. For more information and to make a book delivery request, please contact Alex Schmidt at: *librarian@victoria.rasc.ca*

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 that happen after our monthly meetings, with coffee, juice, and cookies provided by our centre. In the past I've been doing book reviews of the contents of our centre's library, but until the resumption of our monthly meetings at the University of Victoria, I've been doing reviews of the astronomy books from my personal library, but this month I'm going to split the difference.



This month we're taking a closer look at *the A Brief History of Time/The Universe in a Nutshell* combined edition, by Stephen Hawking. *A Brief History of Time* became a popular science coffee table book in 1988, at a time when there weren't a lot of astrophysics coffee table books around. Along with Carl Sagan's *Cosmos, f*or many people this book was their first introduction to cosmology. For those of you who have studied astronomy and/or spent the last decade or so consuming everything you can on the subject via TV documentaries, this book will be more of a review, but still worth picking up. *A Brief History of Time/The Universe in a Nutshell* is a good introduction to cosmology and it's available by order from your local bookstore. *The Universe in a Nutshell* is available and waiting to be borrowed from the RASC Victoria Centre Library.

Bruce Lane

Hill and Dale (Observing on the Island)

To kick off the month, some members of the Victoria Centre went out to Cattle Point, to observe the July 4th fireworks through their telescopes that were taking place across the salt chuck on San Juan Island. RASCals found the opportunity to make it out to the Victoria Centre Observatories a couple of times in July: once with a proper gathering of observers and astrophotographers, and the other time to do some additional imaging testing on the new telescopes. John McDonald has been making good use of a solar telescope from his downtown home (*see image on page 6)*. Bill Weir has been active in Metchosin, including the running an RASC Victoria observer session out at the Pearson College Observatory. Mike Nash was working on more of his lunar imaging at the end of the month (*seen below)*.

The current restrictions up on Observatory Hill, with four observers allowed at the VCO and another two set up at the Plaskett telescope parking lot, are likely going to be the norm for the foreseeable future. Pandemic health restrictions are subject to change though, so if you're on the VCO observer's email list, watch for continuing updates.

A reminder that although the VCO belongs to and is for the use of the members of the RASC Victoria Centre. In the *Before Times*, MiCs (Members in Charge) ran both weekly scheduled and unscheduled sessions, but for the foreseeable future observing sessions will be a bit less scheduled and regular. 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

Time Travels Lightly

The emergence of the physical science of Geology in the latter part of the 19th century opened more than just a new area of scientific pursuit. It was part of an expanding array of knowledge, collectively referred to as the natural sciences that with each advancement or discovery, seemed to alter humanity's view of its place in the universe. To our amazement and delight, that continues to this day.

Galileo Galilei, using his power of observation and aided by the then revolutionary optical telescope, unequivocally demonstrated that the Sun is at the centre of our solar system. Some refused to believe their own eyes, when they were shown the four largest moons of Jupiter revolve through different positions nightly, as they orbited the planet or Venus as it proceeded through its phases just as our moon would. It was a trick played on their minds by some satanic force, they argued. Who could blame them? Their world view had been profoundly and irrevocably altered by experiences and phenomena they could not begin to comprehend let alone explain. Those celestial bodies are, appropriately, now known as the Galilean Moons. We were on our way.

Charles Darwin undertook an extended voyage around the South Pacific, with the sound idea of collecting as much data and specimens as possible. Upon his return to England, he set to work identifying and classifying his treasure trove, and pondering what it all might mean. The idea of evolution in plant and animal life, often attributed to Darwin, had in fact been around well before the 1830s, when the H.M.S. Beagle sailed on its historic voyage. That honour falls to Thomas Malthus in his essay "*Principle of Population*". With Darwin, there was more than keen observation at work. His inquiring mind posed questions about biological similarities, dissimilarities, and affinities. He then took his inquiries to a deeper level. Scientific discovery is at its best when a new insight leads to more questions. In what ways were they morphologically related? How did they get that way? What were the mechanisms by which this occurred? This line of inquiry resulted in what author Daniel Dennett has termed "*The single best idea anyone ever had*". Darwin's patient approach to these questions led to years of studious work, before publication of his landmark work "*On the Origin of Species*". It has never been out of print.

The emergence of the natural sciences of Geology, Chemistry, Paleontology, and most prominently, Astronomy and Cosmology, added significant contributions to the rapid expansion of the sum of human knowledge. Astronomy and Physics, along with Mathematics, evolved to become the keystone of our scientific inquiries. Apparently, we humans and our rather small, blue-green planet have been here a tad longer than was first supposed. Regrettably, the expansive ideas of the Enlightenment, with advances in science and verifiable fact-based knowledge anchored in observation and experimentation, still meet a dismaying degree of resistance.

There are events that have occurred which involve truly immense expanses of time. We are encouraged to stay curious, to never lose your sense of wonder. Curiosity, in my view, is the *Swiss Army Knife* of the intellect. There are events and circumstances that have the capacity to elicit awe and wonder; to dazzle the senses; and things that we might not even know existed. Let's work backward in time with a few examples. What is of interest to us here is the diverse nature of the journey taken in each phenomenon.

The City of Edmonton, Alberta has a lovely river valley that courses right through its geographical center. Various bridges span the North Saskatchewan River Valley. One of them carries pedestrians, cyclists, and a light rail transit system from the urban center to the University of Alberta, on the city's south side. One can observe a small 10" (*25.4cm*) band of pinkish material, visible in the south embankment, about 15' (*4.5 meters*) above the river. It is composed of material that is the northern extent of ash from the Mount Mazama explosion in southwest Oregon that settled on the region. This event

occurred about 6600-7100 years ago, approximately 4600 B.C.E. It was the largest volcanic eruption in the turbulent history of the Cascade Range. Beautiful Crater Lake was created in its wake. The distance in miles, from Central Alberta to the California-Oregon border, is considerable. In geological time this event happened but a fraction of a second ago.

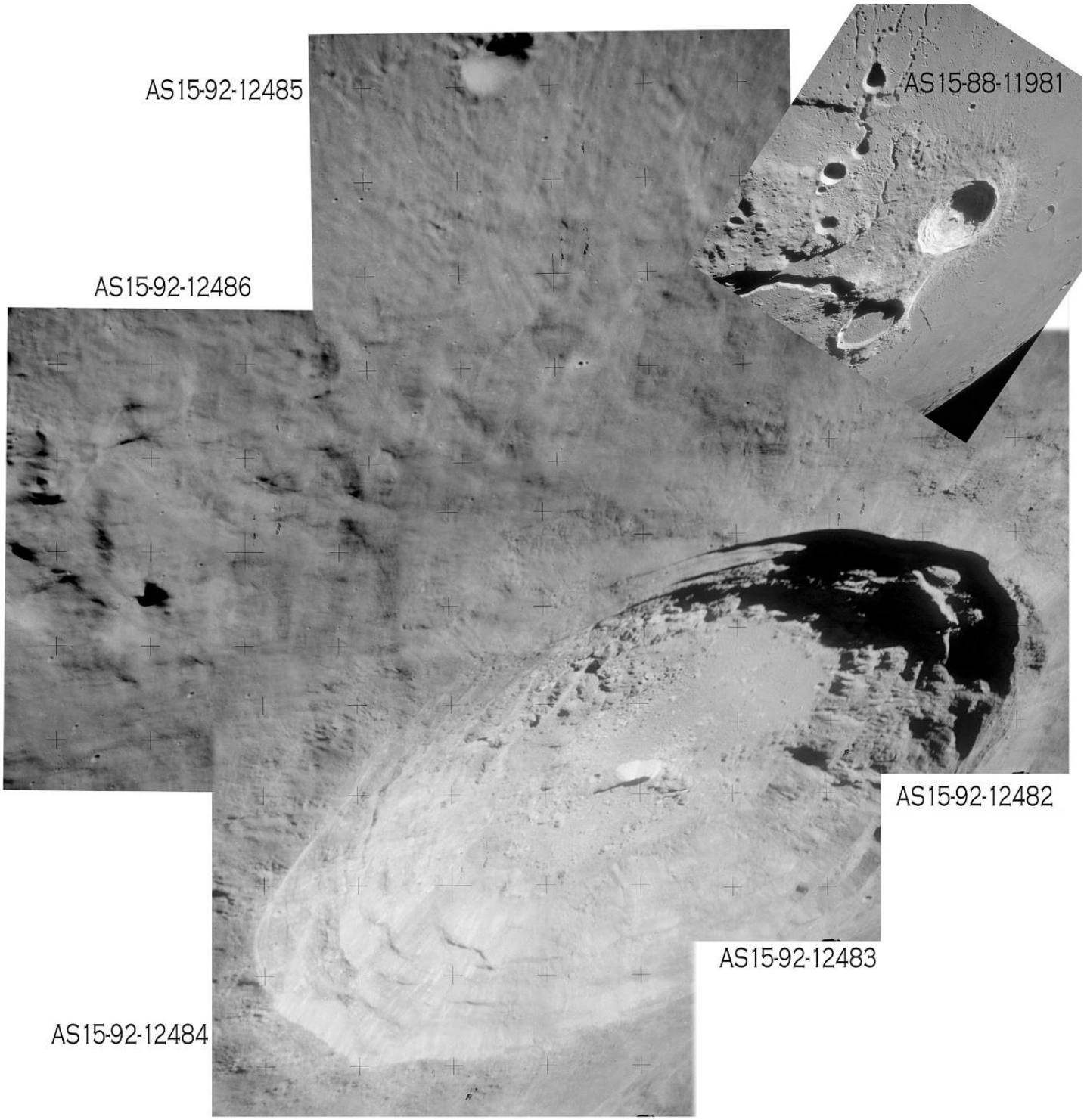
Eighteen kilometers southwest of Calgary, Alberta, and five km west of the town of Okotoks, is the Big Rock. It is among the largest glacial erratics in the world. This massive quartzite and quartzite conglomerate rock was once part of Mount Edith Cavell, in the upper portion of the Athabasca River Valley. Sometime during the late Pleistocene Period, about 12 000 to 17 000 years ago when glaciation dominated the landscape, a landslide dislodged numerous pieces from the mountainside. The debris descended to the local glacier's surface. From there its long journey began. The glacier eventually became part of a larger one and slowly proceeded southward. The ice sheet was massive and deep, and it readily passed over the apex of a barrier ridge at the Columbia Icefield. Reaching the area of Lake Louise, it journeyed eastward along the Bow River Valley. Upon reaching a location that is presently the west side of the City of Calgary, the mountain glacial mass met the Laurentide Ice Sheet and was once again turned south, eventually coming to rest in its present location. The distance between the upper reaches of the Athabasca River Valley and Okotoks is 454 km. Try and comprehend the incremental pace required to complete this amazing journey. This happened over a period of thousands of earth years, an imperceptibly meager measure in cosmic terms.

Now let's really give our little, grey cells a workout. When I swing my telescope to the constellation of Hercules, high in the summer night sky, I search for an object called M13. It is a globular cluster, a swarm of gravitationally bound ancient stars located just outside the galactic plane and centre of the Milky Way. The distance between these stars is immense, but to the viewer at the telescope's eyepiece, most of the stars cannot completely be resolved as individual entities even at higher powers of magnification. No matter how many times I have seen M13 it remains breathtakingly beautiful. It has the appearance of diamond dust on black paper. Traveling at the speed of light, the photons of light from this nearby cluster have taken 22 200 light years to reach us. The light that reaches our eyes started its journey 17 700 years before the Great Pyramids at Giza were constructed.

Stretching this particular type of journey a wee bit further finds us in the "*Realm of the Galaxies*". Isn't that a beautiful term? These are the members of the Virgo Supercluster of Galaxies seen in the spring night sky. This is the conglomerate to which our own 'Local Cluster', comprised of some 54 galaxies, belongs. It is populated by immense elliptical and irregular galaxies that have swept up lesser galaxies over the course of eons. They include many fine examples of a diverse array of spiral galaxies that present themselves in differing orientations to our observational line of sight. Some occupy interstellar space as a solitary object, while others are in a slow dance that will result in a collision. Our home galaxy, the Milky Way, is an elegantly large spiral. Our observations indicate that it is one of the largest spiral galaxies in this part of the Universe, surpassed only by the nearby spiral, the Andromeda Galaxy (M31 or NGC 224). With the exception of the Triangulum Galaxy (M33 or NGC 598), the remainder of the Local Group are diffuse dwarf galaxies. We are located near the periphery of the Virgo Supercluster. The light from its core members takes about 50-55 million light years to complete the journey to telescopes located here on Earth. Once again, we find that we are not at the centre of all things. There are even larger structures called "*Great Walls*", composed of numerous gravitationally bound super clusters. These filamentary, gossamer-like associations are the largest known structures in the Universe. To reflect on this is not only informative. It is indeed humbling.

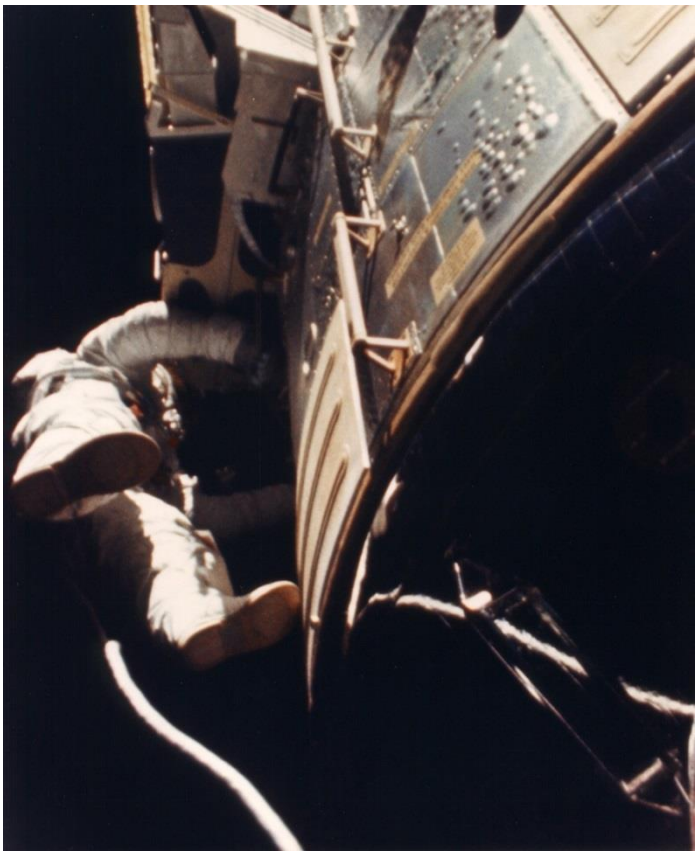
For some, such large expanses of deep time are an uncomfortable thing to consider. Our intoxicating journey, here on our endearingly abundant planet, is but the twinkling of an eye. Who then needs such reminders? I am firmly of another opinion. That we have the great good fortune to be here, in this amazing era, with these discoveries and insightful tools that enhance our understanding and appreciation of these wonders, is a treasure to be savored.

Bill Kunze



Apollo 15: Crater Aristarchus. Montage made from images taken from the Command Module during Rev 70

Astronomical Term of the Month: Personal Equation



Personal equation refers to the errors that are a direct result of an individual human interface, when recording observations. Because precise timings are required to chart the positions of astronomical objects, so that predictions of their future positions can be calculated, this can be a problem. Observers will mark down how time passes differently, based on reaction time, when they record data. One person might go at the "three" on the command of moving on "one-two-three"; while another patiently waits on the "go" command; and yet another person is acting in anticipation just before "three" is spoken. How we observe and react to our surroundings and use our tools is best discovered by comparing data against a large group of observers to find aberrations.

The concept of the *personal equation* was first documented in 1799, when Neville Maskelyne (the Astronomer Royal at Greenwich), noted a difference of 0.08 seconds in the observations made by himself and those of his assistant. The reaction of the head astronomer was to fire his assistant. The incident finally led to an investigation, over twenty years later, by a German scientist who found that these slight temporal variations between individual observers was common in the astronomical community. These findings probably came a bit too late for a wrongful dismissal suit to be filed by the former Greenwich Observatory assistant, but did a lot to raise awareness about accounting for the human factor when examining observing data.

Bruce Lane

In Closing

August tends to be our month to buckle down for some serious observing and astrophotography, after doing months of public outreach, waiting for the longer hours of darkness in the second half of summer. We'd normally be looking forward to volunteering at the Saanich Fair over the Labour Day weekend. While the Saanich Fair is returning with a reduced capacity event for 2021, we won't be manning our usual RASC Victoria tent there. We'd also normally be getting back to in-person monthly meetings, in-person Astro Cafe, and work would commence to prepare the October issue of *SkyNews*, after taking the summer off. At this point of time, it's difficult to see a lot of in-person meetings happening in September. We've paid the rent for Astro Cafe, to prepare for the possibility, but it's just that: a possibility. For the time being, the monthly meeting will continue to be folded into one of the weekly Astro Cafe sessions that do double duty for the evening. For the last two years, just as Astro Cafe has ignored the traditional summer break to fill the void of in-person activities, so too has the publishing of our centre newsletter continued unabated.

Despite so many people being tired of the Pandemic, the Pandemic hasn't showed any signs of growing weary of us. It's still here, waiting for us to drop our guard. Vaccine passports are coming, as an awkward compromise between having another lock down, and supporting the hospitality and entertainment industries. Besides creating better conditions for virus transmission, more events just means more people travelling during a global pandemic. There are already a lot of people travelling during this pandemic for reasons I'm having trouble grasping, unless I accept that even often rational humans will default to their irrational settings on a regular basis.

I'm not a huge fan of vaccine passports and the stress it will put on front line workers, who are already dealing with the worst of us, and often for the lowest wages they are legally allowed to be paid. I'm even less of a fan of the *war on science* being waged online by some very bad individuals, groups, and even governments. Conspiracy theory consumers aren't investigative journalists and researchers. They need foreign bot nets and bad actors from the Fifth and Sixth Estates (*depending on your estate reckoning*) to engage them with a continual barrage of falsehoods to trigger negative emotions. We're long passed the point when we can accept business as usual from the large social media corporations that have insinuated themselves into our daily lives to lead us around by the algorithm. While the Internet has given us access to an amazing amount of information, it's starting to look as if we're living in the Disinformation Age. Unfortunately, many of our lawmakers tend to have poor technological literacy and some of our leaders need assistants to help them complete what many of us consider the most basic of computer interactions. Some lawmakers are paying attention, but unfortunately it's often to employ contractors to game the *wisdom of the crowd* for personal power and gain. It's now more important than ever for individual citizens to stand up against bad actors in the *war on science* and demand our government institutions do the same, if we want to get to the other end of this pandemic faster and deal with any future crisis we might find ourselves in. In the meantime, get prepared for more crazy and more booster shots.

For the foreseeable future our best path forward continues to be within our individual solitudes: one amateur astronomer alone with their optics under the night sky. The online communities we observe and become active members of are a stopgap to actual human interactions we'll be returning to sometime down the road. Online resources and public outreach are also proving a training ground for shaping the future of how public outreach events operate; as a hybrid of virtual and in-person experiences to reach a wider audience. We're seeing some promising signs of that shift with the recent surge in activity in our online special interest groups and in participation with the virtual *Summer Saturdays* hosted by the Friends of the Dominion Astrophysics Observatory.

Bruce Lane: SkyNews Editor

Photography Credits

Cover: Elephant's Trunk Nebula (IC 1396), image data taken Jul 9, 2021, by Daniel Posey. This is 17x4m of exposures for a total of 1h8m. The frames were captured with a Canon Ra, at ISO3200 through my Askar FRA600 at f3.85 from the pad at the VCO mounted on the club's HEQ5Pro. This image was calibrated with bias and flat frames, and stacked/processed in PixInsight.

Page 2: Camping on the Field, from the 2011 RASC Victoria Star Party, by Joe Carr

Page 2: Nelson explains the children's essay prize at 2011 RASC Victoria Star Party, by Joe Carr

Page 2: My Camp at the 2011 RASC Victoria Star Party, by Bruce Lane. The tent mostly survived, minus one broken pole.

Page 3: Stephen Courtin (2nd in from the right) and his "Astrovan" at the 2011 RASC Victoria Star Party, by Joe Carr

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

Page 4: Randy Enkin (RASC Victoria President) with Sextant, Feb 20, 2021, by Eva Bild.

Page 4: From the Apollo 15 mission. This is the best of the four B&W pictures Dave Scott took of Jim Scott and the flag. Mt. Hadley Delta is in the background; courtesy of NASA.

Page 5: Photograph and Design of Astro Cafe Mug, by Joe Carr

Page 5: From the Apollo 15 mission. Jim Irwin has stepped to his left to take this stereo companion to image 12223 (see NASA archives). Dave Scott has finished his pictures and has the tongs open in his right hand. Note the sample bags hanging from the bottom of his camera. A group of ALSJ Contributors see the watch reading either 9:08 to 9:10 or 10:08 to 10:12. Readers can make their own assessments. On the assumption that Jim took 12224 just before replying to Dave at 145:34:52, the time in Houston is 10:09 CDT on the morning of Aug 1, 1971; courtesy of NASA.

Page 6: Solar Prominences by John McDonald; July 9th, 2021. The sun was active on 2021-07-09 when I captured these prominences. Lunt 60mm with 50mm double stacked filter and ZWO ASI120MM-S camera. Captured 3 sets of 5000 light frames with exposure varied to show promences and surface. Stacked best 2500 frames in each case and blended them. Processed in Astrostakkert, Registax, and Photoshop.

Page 7: Posed Book, "*A Brief History of Time/The Universe in a Nutshell*", taken in Editor's home on Aug 29, 2021, by Bruce Lane

Page 8: Waning Moon 60% by Mike Nash; July 30, 2021. APM 140mm F7 at F8.9, ZWO ASI 183mm, plus a Baader Green 520nm. 3 panel mosaic, best 300 of 3000 frames for each panel. Software used: Firecapture, PIPP, AS!3, IMPPG, Astra Image, and Light Room 6.

Page 9: Crop of Bill Kunze & Dob, Aug 2019, by Patricia Horlor

Page 10: From the Apollo 15 mission. Crater Prinz and the Cobra Head of Schroter's Valley. Image taken from lunar orbit during Rev 70. Scan by Kipp Teague; courtesy of NASA.

Page 11: From the Apollo 15 mission. Montage of Crater Aristarchus by Rene Cantin, using frames 12482-6 taken from orbiting Command Module during Rev 70; courtesy of NASA.

Page 12: From the Apollo 15 mission. Astronaut Alfred M. Worden, command module pilot, outside the spacecraft during trans-Earth extravehicular activity (EVA). This photograph was taken from a frame of film shot with the 16mm Maurer camera, mounted in the hatch of the Command Module. During his EVA, Worden inspected the Service Module's Scientific Instrument Module bay, and retrieved the film cassettes from the Panoramic Camera and the Mapping Camera. The SIM bay holds eight orbital science experiments. This EVA took place when the spacecraft was returning to Earth, still approximately 171 000 nautical miles from home. Scan courtesy Susan Erskine, NASA Johnson; courtesy of NASA.

Page 12: "Brownie" the Miller Brown chicken in the rose garden, not at all being *judgy*; Aug 27, 2021, by Bruce Lane

Page 15: From the Apollo 15 mission. Dave Scott greets a US Navy diver who has just opened the Command Module hatch. Aug 7 1971. Scan by Kipp Teague; courtesy of NASA.

Call for Article and Photo Submissions for the September Issue

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

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