

SKYNEWS



Lunar Eclipse, September 27th, 2015; taken from Mount Tolmie

The Lunar Eclipse Experience

It's been a long wait in the Greater Victoria region for a good lunar eclipse. We got a bit jaded about them after several years when there were two lunar eclipses annually, so if the weather was bad for one there was always another one. The last few years have been different, with long waits in between events punctuated by terrible weather conditions. Since March, 2011 at Clover Point, I've observed the lunar eclipse in the years that followed from the top of Mount Tolmie. Because of the potential fog at night, it's good to set up somewhere high, with a good field of view. I've had initial plans to set up at Clover Point, only to arrive with the entire waterfront covered in thick fog and the need to relocate to higher ground. This happened in 2014, where unfortunately even after going up to Mount Tolmie the clouds of October allowed for only a few brief moments of viewing the lunar eclipse, with the blustering winds making observing with telescopes challenging and taking photographs less than successful. By the time the red moon finally peaked through the clouds the winds and cold had driven everyone else away except a woman who drove up to Mount Tolmie at 1am, still in her pajamas, because she didn't want to miss the eclipse on account of pausing to get dressed to go outside.

The 2015 lunar eclipse was an amazing public outreach opportunity, because it started just before sunset, allowing many more people to attend and the media let everyone know about it. RASC Victoria was set up in a number of locations, including the concrete bandstand on top of Mount Tolmie, a setting that quickly descended into lunacy. Lunar eclipses are the most accessible astronomy public outreach event, because of how easily they can be observed, and sometimes that can get a bit overwhelming for volunteers. Sid Sidhu had the misfortune of setting up his Dobsonian reflector telescope in the middle of the bandstand, before the mob showed up, and was quickly cut off any possibility of observing through his telescope. I was right up against the rail, with two telescopes (one imaging and one for public outreach). Deborah Crawford was a few feet away, letting people use a pair of binoculars and to make sure nobody wandered off with them. A lot of crowd control was still required to keep people from trying to squeeze between the telescopes and the rail to ruin any chance of using the telescopes. For the most part, the crowd was well behaved and interactions very positive, but you'd get the odd person wanting to copy your camera's SD card while you were taking pictures or demanding that you send them your pictures out of some strange sense of entitlement. Jim Cliffe and Alex Schmid were also set up, near the rails on the bandstand, existing as tiny tripod islands in a sea of humanity.

The sheer numbers on Mount Tolmie that night and resulting traffic snarl had a lot to do with the Saanich municipal government taking a dim view of RASC doing public outreach there for the solar eclipse in 2017. Ken Mallory had to go the extra kilometer to convince the government to proceed. Even then, the Saanich municipal government came very close to changing its mind at the last minute, to cancel the well-publicized, solar eclipse viewing event on Mount Tolmie, even after RASC Victoria had agreed to hire Commissionaires for traffic control.

Unlike 2015, where the lunar eclipse was too much of a good thing, the following years of trying to view the lunar eclipse have been less than successful. Longer gaps between lunar eclipses and bad weather took their toll. On January 31st, 2018, I was once again up on Mount Tolmie and once again surrounded by boisterous crowds, hoping for a chance to see the eclipse. It was a cold night and my electronic hand warmer helped me through it, as I watched the other people on Mount Tolmie wilting under the deteriorating weather conditions, until they broke and went home. I spent a lot of the evening talking to a University of Victoria student studying to be a classical pianist, who was starting to come down with hypothermia before he finally left. There was a faint hope held out that the cold winter winds would push the clouds away at some point, but instead they brought rain. Alex Schmid (seen above) arrived just in time to help me evacuate my telescope out from under a tarp and into my car.



January 20th of 2019 and we'll be back at it, hoping for better weather and enthusiastic crowds, but maybe just not as enthusiastic as they were in 2015. My advice is to use charts or planetarium software to know where the moon will be during the different phases, so you can choose an unobstructed location to see it from. If you do go to Mount Tolmie, to view the lunar eclipse, be prepared to be there early, because the crowds up there take up a lot of real estate and parking can quickly become an issue. If you're taking pictures, make sure to nail your focus before the darkening of the eclipse or you could be in for some problems. I had a member of the public play with my focuser, during the lunar eclipse of 2011, and it basically ruined all of the pictures during totality I took after that. The public outreach aspect of a lunar eclipse is like nothing else and the enthusiasm very rewarding, but at times that excitement can be a bit challenging, when you're surrounded by the pressing crowds. While you might find yourself contending with the odd rude member of the public, the overwhelmingly well-disposed and enthusiastic number of people at lunar eclipse viewings makes it the kind of public outreach volunteering that you walk away from with a general feeling of wellbeing.

Bruce Lane



October 8th, 2014, waiting on Mount Tolmie for clear skies during the Lunar Eclipse

Editorial Remarks



With the planetary odometer ticking over into the New Year, it's time to look ahead to 2019. As you've no doubt heard, we have a much anticipated lunar eclipse this month (weather permitting for all the hopeful earthbound observers). This month is also the first meeting of the new Victoria Council that was elected in November, complete with a shiny, new President. That means that while the frightful winter weather for the most part keeps our observers shuttered inside, for our Council it's time to get down to business and begin shaping upcoming events for our 277 RASC Victoria members, like Astronomy Day on April 29th. Did I mention that there is an upcoming lunar eclipse?

Bruce Lane: SkyNews Editor

President's Message for January

In 2018 it seems like members of the Victoria Centre spent nearly as much time looking backward as they did looking up. Their focus was directed to the past as they celebrated the Plaskett Telescope as it completed 100 years of service. The Centre was involved in every aspect of the Plaskett Centennial including the unveiling of a national historic site plaque, the "first light" re-enactment on May 5th, and the participation with the FDAO in the Victoria Day Parade. They were also invited to attend CASCA 2018, the astronomical conference which had several sessions devoted to the history of the DAO.



The attention was not just confined to the telescope. John Stanley Plaskett, the driving force behind the scope, was also celebrated in fine style. His achievements were captured in the new biography: "Northern Star J.S. Plaskett" by Peter Broughton. What I found impressive was that Plaskett did not rest on his laurels with the design and acquisition of the scope. Five years after the 72 inch went into service Edwin Hubble proved that Andromeda was a galaxy, rather than a nearby nebula. After learning of this discovery, Plaskett embarked on an ambitious observation program. During a 10 year period radial velocities of strategic stars were acquired with the 72 inch telescope. These measurements were employed to accurately determine our distance from the centre of the Milky Way as well as to calculate the rotation period about our galaxy. With his vision and long term commitment, Plaskett and the DAO made a major astronomical contribution.

In 2018, we also celebrated the 150th anniversary of the Royal Astronomical Society of Canada. As we enter 2019 do not expect this historical focus to wane. The International Astronomical Union is all set to kick off their centennial. That party, however, may be drowned out by the 50th anniversary of Apollo which will resonate much more strongly with the boomers who lived through that era.

Speaking of boomers I recall a vivid memory from Christmas Eve, 50 years ago. I was just exiting the Odeon Theatre, my mind abuzz after watching Stanley Kubrick's masterpiece, "2001 A Space Odyssey". When I looked up I glimpsed the Moon over Yates Street. I was stunned! Just think ... at that very moment Apollo 8 was in orbit around the Moon. It was mind blowing and made "Space Odyssey" much more credible. When the astronauts recited from "In the Beginning" that Christmas Eve it reverberated around the globe.

Excellent documentaries on Apollo 8 recently appeared on NOVA and the BBC5Live, while "The First Man" a new movie about Neil Armstrong has been playing on the big screen at the IMAX. Expect the Apollo drumbeat to continue to get louder as we approach July 20th, the 50th anniversary of the Apollo landing.

In stark contrast to the massive "Big Science" "Moon Shot" team efforts of NASA, the almost solitary contributions of Plaskett and Hubble seem quaint these days. Is there still a role for the individual in this brave new world? I definitely think so. As proof let me remind you of my favourite story of the past year, involving the Argentine amateur Victor Buso, who managed to capture the shock breakout phase of a star the instant that it went supernovae (See the [March 2018 edition of SkyNews](#)). It does not get better than that!

Tired of looking back? Maybe it is time to peek outside and if weather permits try to look up.

Wishing you all the best and many cloudless nights in 2019.

Reg Dunkley

Astro Café is Back!

Our weekly astronomy get together, available for both RASC members and the public alike, starts up again on Monday, January 7th, after a couple weeks off for the Holidays. Astro Café is primarily a social gathering, with presentations of recent observing sessions, astronomy gear show and tell, discussions about astronomy, and of course coffee and cookies (please remember to bring a reusable mug). It's located at the Fairfield-Gonzales Community Association, in one of the portable classrooms tucked in behind the main administration building, at 1330 Fairfield Road. Astro Café is a nice introduction to the amateur astronomy community of Victoria. The lights will be on and a sandwich board out front to let you know where we are. The portable classroom we use is handicap accessible, has a washroom, and there's a large field next to the Thurlow Road parking lot if we want to break out a telescope or binoculars to do some hands on amateur astronomy. Astro Café runs from September to May, with the last evening before summer on May 27th. This photo, taken by Wyman Lee at the last Astro Café of 2018, seems to have a few RASC members I don't remember.



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Bruce Lane

Monthly Meeting Speaker: Paul Gray

RASC Halifax Centre

Dark Nebulae in New Light

7:30 PM, Wednesday, January 9th, 2019 in Room A104,
Bob Wright Centre, University of Victoria

Dark Nebulae are elusive and one of the most difficult deep sky objects to observe. With the aid of larger telescopes in the 1990s more amateurs started to seek out these objects.

Inspired by a mentor of the RASC Halifax Centre Paul pursued a project to observe as many of E. E. Barnard's Dark Nebulae objects as possible and composed a list for the Observer's Handbook. In the process much was learned about how best to observe these dark nebulae and Paul made a discovery along the way. Recently with the construction of a backyard observatory Paul's obsession with dark nebulae has been rejuvenated with a new project. The second part of this talk will discuss that observatory itself and a current project to reimage Barnard's catalogue.

Paul Gray: It was the visit of Halley's Comet in 1985 that hooked Paul on astronomy. He has been active member of RASC since 1988 and has served as president in both the Moncton and Halifax Centres. He chaired the 2010 General Assembly. Paul has served on numerous positions at the national level including the Chair of the National Observing Committee and the Editor of the RASC Observer's Calendar. In 2016 Paul was awarded the RASC Service Award for his contributions at both the local and national level. He is also a 3 time recipient of the Ken Chilton award. In 1998 Paul found himself moving to Maryland, USA for 5 years. While there he became a member of the Delmarva Stargazers and still remains as their Honorary Northern member.

Observing first with a 60mm Tasco and then a 100mm F4, made from a Taylor Hobson TV Lens, he completed the Messier list. Later, in his final year of high school he built a 330mm F4.5 reflector. After his move to the USA he observed with a 12.5" F5 reflector to complete his Finest NGC List as well as his Dark Nebulae project. He has a passion for meteor observing and deep sky observing. He has ventured into photography many times over the years in film, DSLR and CCD. He "went off the deep end" so to speak while in college when he teamed up with David Lane to conduct a supernova search and at age 22 found his first. He would later discover 5 supernovae and share one with his daughter Kathryn Aurora Gray. To keep things in the family his son Nathan Gray also would find a supernova as part of the program he and David Lane developed. Recently he made a dream come true by finally building his backyard observatory at his home in Nova Scotia.

Reg Dunkley

Hill and Dale (Observing on the Island)

On Sunday, December 17th, Randy Enkin and I went up to the Victoria Centre Observatory to get a look at Comet 46P Wirtanen, on the night it was passing closest to our planet. We went up with very low expectations and managed to get some periodically clear skies that allowed us to both observe and image the comet. While it took less than three seconds to find the comet through a pair of binoculars, located near the Pleiades, it took substantially longer with the 16" Ritchey-Chretien telescope. This was partly because the comet wasn't next to any stars of note and partly because our Centre's telescope lacks a finderscope. When we're hunting for comets that aren't shown on the telescope mount's computer software it can be an inexact science to locate them with such a narrow field of view. I made sketches of the view through binoculars, and then once it's found made more sketches and screen grid measurements, so I can try to find it again after moving the telescope to get the camera's deep space focus on a bright star. Randy also did some wide field astrophotography work on the concrete pad outside. The periodic cloud interruptions and the speed of the comet moving across the sky, at its closest proximity to Earth, meant that I had to keep moving the telescope to keep it in the field of view. The short gaps in the clouds also made for the necessity of higher ISO photographs, to allow for shorter exposure times. It was a pretty challenging session up on the Hill, but worthwhile, since we did what we went there for.

Upcoming Speakers for RASC Monthly Meetings

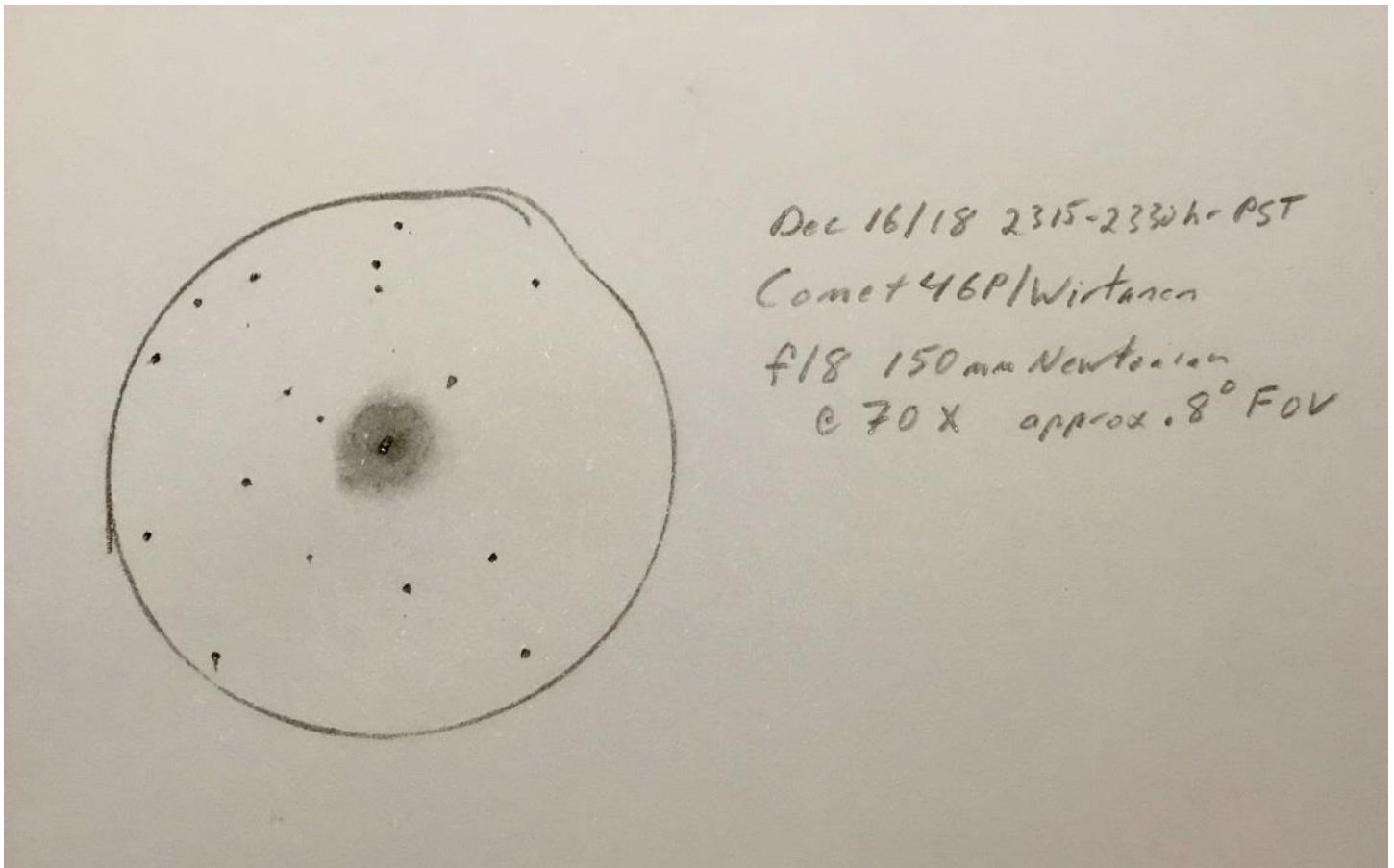
-Wednesday February 13th 2019 To Be Determined

-Wednesday March 13th 2019 Dr. JJ Kavelaars
New Horizon's Rendezvous with MU69

-Wednesday April 13th 2019 Dr. Karun Thanjuvar
Machine Learning and the Big Data Tsunami

-Wednesday May 8th 2019 Michel Michaud
Pleiades Update

Bill Weir was able to dodge the rain to view the comet with both his binoculars and Dobsonian reflector, out in Metchosin, as well as complete a sketch (**seen below**). Diane Bell and Reg Dunkley also managed to get some views of the comet, through binoculars, from their respective homes and on the go in this busy holiday season. Hopefully, the weather conditions will be better when RASCals go out to have a look at the Lunar Eclipse on January 20th.



On the eve of New Year's Eve we had a good session up at the Victoria Centre Observatory, on Little Saanich Mountain, with Michel Michaud, Dan Posey, Matt Watson, Diane Bell, Jennifer Ikle, Lisa Meister, Cameron Burton, Nathan and Katherine Hellner, and myself enjoying the last night of clear skies of 2018. Matt and Dan had their hands full, dealing with a collimation issue on our VCO's 16" Ritchey-Chretien telescope. Despite spending the entirety of the evening doing technical committee work, Dan managed to do some wide field imaging with his new camera lens out of the pad, shooting a series of photos while he worked. I was also doing some wide field astrophotography, experimenting with a macro lens to take some images of the Orion constellation. Jennifer brought her Christmas present, an 8" Dobsonian reflector, with first light used to observe Mars, before moving on to have a look at Comet 46P Wirtanen, the Crab Nebula, and the Orion Nebula. Nathan also brought his 8" Dobsonian reflector, using it to observe a number of targets, including Uranus, the Orion Nebula, and some of the fainter stars in the Orion constellation. Lisa and Cameron brought a small reflector telescope. It was good that so many RASCals brought their own telescopes that night, because the VCO telescopes were either hard to access from the shed (due to the new 20" Obsession Dobsonian reflector stuffed into the shed in pieces, to temporarily reside along with everything that was already tightly packed into the space) or out of operation for the evening due to technical problems,

A reminder that 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). Because it is located on NRC property, all visitors to our observatory must be on our observer list. 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



30 second, single exposure of Comet 46P Wirtanen from VCO, using 16" Ritchey-Chretien as a very large camera lens

From the Library

After our monthly meetings at UVic, feel free to join your fellow RASCals socializing in the astronomy faculty lounge up on the 4th floor of the Elliott Building. That's also where the RASC Victoria Library is located, with over 500 titles, curated by RASC Victoria Librarian: Diane Bell. Our library covers many aspects of astronomy: observing, astrophotography, telescope construction, space exploration, astrophysics, and much more. Every month, SkyNews will be featuring a new selection from our Centre's library, complete with a brief book review.



This month, we're taking a closer look at **Chaos: Making a New Science, by James Gleick**. I personally found this to be a very transformative book. Years ago, for me it marked the change from someone who consumed physics television infotainment, magazines, and coffee table science books of varying quality to someone who read more deeply on the subject. You learn about the Lorenz's Butterfly Effect and about how Chaos Theory began to change not just how we look at Physics but how it was applied to everything from weather prediction, using fractals to map shorelines, and even for modeling biological populations. For anyone interested in learning more about the fuzzier, less certain aspects of science this is a must have for your personal science library and as it just happens a book you can also borrow from ours.

Bruce Lane

Better Know a RASCaI

This is a series of short interviews done with members of the RASC Victoria Centre, to give you a better idea of the different experiences that other amateur astronomers have. Our second interview is with Lauri Roche, who epitomizes what the word volunteering stands for. Whenever there's a public outreach event, you'll generally find her there, volunteering, organizing, or more likely both. As a retired teacher, she can also be found volunteering for a number of other education orientated societies and events in the community. When I was working a booth at a regional conference for mathematics teachers, she was there volunteering. When I go to the regional science fair for grade school students, she's there volunteering. When there was a need for someone on the RASC Victoria Council to commit to working alongside the fledgling FDAO to ensure things went smoothly, she was the first one to step up. I just hope that the FDAO realize that at some point we'll want our Laurie back.



SkyNews: How long have you been a member of RASC?

Laurie: I have been a member of RASC since 1993 (I think). I would have to look it up. It was soon after I came to Victoria. I was very quiet and sat at the back of lecture room for about 2 years. I was only able to come out to about 3 or 4 meetings a year. I made a note of not putting my hand up for anything for a long time. I was a true rookie.

SkyNews: What is your first memory of doing astronomy? (with intent)

Laurie: I was really interested in the historical aspects at first. I read about Copernicus and Galileo, and had always been fascinated with the way scientists figured out what was happening gradually, building up knowledge with observations and theories. I distinctly remember my first time looking through the telescopes with RASC members up on the hill. Sandy Barta had her Dobsonian out and showed me the Ring Nebula. I had never seen it before. I thought, well maybe I could do something like that too.

SkyNews: What was your first telescope and what do you think of your current telescope?

Laurie: I was given the telescope I still own now, an 8" (SCT). Celestron, in the year 2000, but it does take a fair bit of time to set up and to align properly. It has great optics that I like. I do envy the Dobsonian-ers, though. Still may get one, one of these days. But before I owned this one I did loan out two telescopes from Sid Sidhu that I remember putting up out on my front lawn when I lived in Dean Park. This would have been about 1997. I lost a screw to move one of the knobs in the grass that I never found again. I had to give it back to Sid with a chagrined look on my face. Of course he fixed it and told me not to worry.

SkyNews: What's your primary interest these days in astronomy? (public outreach, observing, astrophotography, reading SkyNews, ect)

Laurie: Public Outreach is my main interest. I spend most of my RASC time giving presentations to schools with Sid and 98% of the time it is a real treat to work with the students. (the other 2% involve some interesting stories!). I also do lots of work with the Friends of the DAO to try and keep the public programming alive and well up there as well. I am on two National Committees at the moment. I would like to do more observing but I am a wimp in cold weather so summer is best for me. A wish would be to learn how to do some astrophotography and processing of the images.

SkyNews: What's your favourite part of RASC public outreach and why?

Laurie: What I like best is being in front a group of children and/or families giving interactive presentations. I love when a young person figures a concept out, such as earth's rotations or why there are seasons as they are physically moving around or seeing the concepts demonstrated.

SkyNews: What is your favourite book on astronomy?

Laurie: It depends: I use Terence Dickinson's *Nightwatch* for observing but, for reading, enjoyed Dava Sobel's *The Planets and Longitude*. A more recent one was *The Glass Universe*. I also like books on the Constellations and their stories.

SkyNews: How does technology figure into your experience as an amateur astronomer, beyond the telescope itself?

Laurie: I do have a couple of apps such as Stellarium on my laptop and on my phone that I appreciate for a quick read of the sky or to check on something. My telescope could be connected to a computer program if I worked at it but I like poking about in the night sky and seeing where it takes me. I don't do enough high end work to get more technical. I'd have to do a LOT of homework to be where a lot of other people are. I really appreciate when I can go up to the VCO and have such a great team do all the work for me and I just get to see the results! Thanks for your expertise.

SkyNews: What is the next thing you want to do as an amateur astronomer (complete an observing list, familiarize yourself with something, observe an object, astrophotography project, etc.)

Laurie: My goal is to complete the RASC Observe the Universe Certificate by next spring and summer. I am going down to Arizona in March and should be able to complete a good number of the objects with help from my trusty observing buddies (such as Diane Bell- guru of the Messiers) in a short time. I should be able to complete at least that list, after so many years, shouldn't I?

SkyNews: How has being an amateur astronomer made your life better?

Laurie: Since I have been retired it has been my primary hobby and has taken over my volunteer life. It has connected me with some pretty interesting people, I have been able to travel to see two eclipses (well, really only one; the first one in Australia was clouded out until the end), and it keeps my days, and sometimes my nights filled with fascinating things. And you realize that you've only just scratched the surface of what is out there.

SkyNews: What are all the Council positions you've held over the years and what's your favourite accomplishment while on Council?

Laurie: I was Treasurer for 6 years (*Ed. I just finished my 6 year stint*). We didn't have all that much money at the time but it was when we put in for the first lottery money and we had to get new accounts and keep track of it all. All of a sudden there was another \$20 000 to look after. We also had to take in memberships and give the money to National each month. By the time I left that had been automated to National and was easier. The worst part of that job was filing the taxes. I didn't have a financial background but thought I could help. When I handed over the books I was out exactly \$100. I had two other people go over everything and we never found it. It still haunts me to think about where that went.

I took a couple of years off after that and then came back on Council as Second Vice President. That lasted until the first meeting and I switched places with the current Vice President due to their work constraints to become the First Vice. Skipped ahead two whole years that way. I took on the Presidency for the following two years and then the ultimate best job of the Centre - Past President. I found that the Vice President's job was an active one as it entailed getting the speakers for the meetings, ensuring we had the rooms available and that the meetings ran smoothly. But it was really interesting to talk to all the possible speakers and have a hand in shaping the meetings. The Presidency was busy but rewarding. We didn't have too many problems to handle and the Council was amazing to work with. These positions are easier if you are good at delegating. I was better doing that at the end of the time than at the beginning and it is something I would strongly advise. Don't try to do it all yourself. Ask for help. There are good people around you all the time.

SkyNews: Thanks for the interview, Laurie. It's nice to know that someone else out there put in 6 years as treasurer. I think my first real interaction with you, was when you were RASC Victoria Centre President, during a Symphony Splash public outreach event. You helped me carry a considerable amount of astronomy gear back to my car, through the packed crowds and unsympathetic security in the summer heat, from the Captain Cook statue to the Menzies Street Parking Lot on Kingston Street.

Shooting the Moon

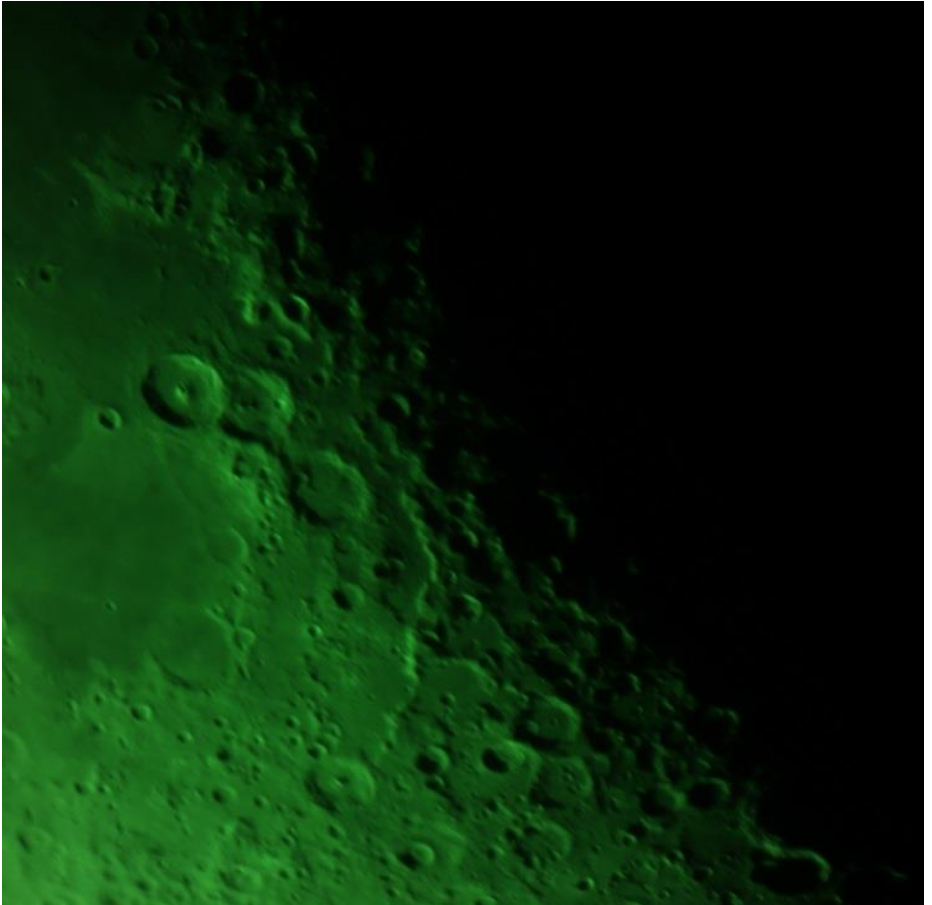
Unlike other night sky subjects, the Moon doesn't require tracking to take pictures of it, although it will help you keep track of its movements. This is because the sunlight is reflected so brightly off of the surface that you'll be using a fast shutter speed to diminish the glare to get any detail of the surface. Unlike the planets, when you're photographing the Moon you won't need the magnifying power of a telescope to see surface detail. You can see a lot of detail with just a pair of binoculars or a telephoto lens, but you'll always see more with a telescope. Also, unlike the planets, you can take a decent picture of the Moon during the daytime. Your best choice of camera is a DSLR or planetary CCD camera, although you can also get a decent picture with a point and shoot or smartphone camera.

The most important thing is not to use automatic camera settings when taking a picture of the moon! If you shoot on automatic camera settings, your camera will look at the dark night sky and assume it has to brighten things up a bit. The result is a picture of a bright, white blob against a grey night sky. Another important thing is to ensure you charged your battery before you head out and carry an extra one if you have it, because your batteries will be run down faster in the cold night air. It's never fun to show up somewhere to do photography with dead batteries.

If you know how to change your camera's metering, change it from evaluative metering (default on most DSLR's) to spot metering. That way when you do your metering, it will be based on the moon and not the entire sky. If you don't know anything about metering you can still take a decent shot, but you might need to use the "live view" screen to make some adjustments.

I prefer to use ISO 100 with my DSLR, when I can. You can make a single frame shot as high as 400 to 800 ISO without much problem, but if your ISO is too high

your pictures will have a grainy feel that won't look as good as a shot done at a lower ISO. Depending on cloud cover, depth of field setting, and what phase the moon is in, you'll want to use a shutter speed somewhere between 1/6 and 1/350 of a second. If it's your first or fifth time out taking pictures of the moon, I recommend you take multiple pictures at different shutter speeds to find out what works best in the conditions you're shooting in, and what balance between detail and lighting you like best as a photographer. Since you've taken the time to go out and take pictures of the moon, why not take a few more shots and use it as an opportunity to learn more about how your camera works? For your depth of field, it depends on your composition. If you're just shooting the moon against the night sky, F8 or F11 will work fine. If you're shooting the moon as it rises over a hill, you might want to shoot at F16 to get more detail of the hill (which means you need lower your shutter speed to compensate for closing down the aperture of the lens). A very low depth of field can result in one part of the moon in good focus and the rest blurry. If you put it up too high, it will require you to drastically lower your shutter speed, to the point where you definitely need a tracking mount to keep the moon's motion from





affecting your picture. If you know how to set your camera's white balance, set it to "daylight", which is the closest default setting to the night sky. In time you'll likely start using more customized white balanced settings.

For lunar photography, if you want any surface details without having to over-crop in post-production, you're going to need at least a 300mm lens. Bigger is really better in this case. When you crop an image in post-production, you're also losing the pixel resolution you paid for. However, if you're using a telescope as a camera lens, this is one time that bigger might not be better. This is because once you get to around 2000mm (8") of aperture you can't see the entire moon in the picture anymore without 'reducing' your perceived aperture with a focal reducer-flattener. In short, you don't need a big telescope to look at the moon. You could also use a digital camera adapter or regular adapter to connect your camera to a spotting scope. Again, with the moon, you won't need anything with tracking to keep it in focus while you shoot, unless you start using a lower shutter speed.

Getting perfect focus can be difficult when you're squinting through the viewer at distant objects at night, be it city lights or objects in the night sky. If your camera has a "Live View" or equivalent function, where you can view your subject on a screen in real time, you can use the "+" buttons to magnify details and get a much cleaner focus. Always focus manually, or the camera will focus on whatever it wants and not what you want.

If you want a good picture you should always shoot with a tripod and remote trigger (or timer). If you feel that hauling a huge tripod is too much of a chore, there are some very small, portable tripods out there that work well for this type of photography. Anytime your shutter speed is slower than a ratio of 1/mm of your lens you shouldn't be doing handheld photography. When you use a tripod, always remember to turn off the image stabilizer on your lens (if it has one). If it's on when the camera is perfectly still, the lens will introduce artificial shaking because it just assumes you're using it handheld. Timers are acceptable, although the button mashing will mean that for a few seconds the tripod will still be

shaking, how long depending on how sturdy your tripod is. You should be fine if you wait at least 7-10 seconds.. The same goes if there's a gust of wind. If there are clouds moving around the moon and you have everything timed perfectly, a remote shutter trigger is always the best option for photography. Use a remote trigger and tripod to get the least vibrations. If there are people walking around the tripod or you're next to a busy road, you might also want to put vibration pads under the legs of your tripod. This is more important for longer duration exposure photography. If you get caught without a tripod and remote trigger, in a pinch you can crumple up a jacket to form a supportive nest around your camera and use the timer. It's probably best not to ask for someone else's coat though, if you want to be well thought of. It's probably cold out and you're the one who forgot the tripod.

A lot of people forget about composition when they photograph the moon. If you're shooting it between the branches of a prominent tree or as it rises over a classical piece of architecture majestic hill, it can really add to the shot. Sometimes it's just being in the right place at the right time. If you want the perfect shot though, you may want to carefully observe the movements of the moon across the night sky a few nights in advance and then wait for it to get into position on picture day. Another option is to use planetarium software and a compass to plan your shot location well in advance. One idea is to have a model (friends are cheaper) posing in front of the Moon, pretending to hold onto it or otherwise interacting with it as if it was a ball.

If you're photographing the lunar eclipse, the biggest difference from regular lunar photography is that you need to get your focus before the Moon's features are darkened by the eclipse or it will be tough to get perfect focus. You need to understand that you will need to regularly adjust the shutter speed as the moon darkens, from the Earth's shadow, and then again when it begins to brighten after totality. As the shutter speed gets slower, unless you have a camera on a tracking mount, you'll probably also need to increase the ISO at some point, so that the movement of the moon doesn't blur the shot for the longer exposures. Above all take a lot of shots and experiment.

Another technique to consider is "painting" the foreground with a flashlight or a detachable flash. The Moon is so bright compared to the dark ground that this extra light will help to provide some detail to the ground so that it appears to be more than just a dark shape. Practice this technique beforehand, especially if you don't have a lot of time when you're doing your photographs of the Moon. Just don't do this if you're in a place where other people are doing astrophotography, as you might be ruining both their experience and their photographs.

While the Moon is the easiest night sky target for you to get good shots straight out of the camera, some people still want to do some post production. If you really want to get fancy, take two photographs, one of the moon and one of the foreground, and then combine them in post-production. Or you can do what some astrophotographers do: take a series of pictures and use software to stack them into a single image. HDR (high dynamic range), blending 2-3 or more different camera exposures into one image, is one way to accomplish that. For the Moon, using HDR usually means shooting bracketed shots. That means one properly exposed, one slightly over exposed, and one slightly under exposed. This gives you the best details of the highlights and shadows when the three shots are stacked together in post-production.

Most importantly, while you're out there taking pictures of the moon, don't forget to take a moment to have a long look at it. It's an amazing feature in our night sky that is often taken for granted.

Bruce Lane

New Observers Group

Hosted by Sid Sidhu - 1642 Davies Road, Highlands. Call 250.391-0540 for information and directions.



Borrowing Telescopes

The RASC Victoria Centre has telescopes for new and seasoned observers that members can use. For more information contact Sid Sidhu at telescopes@victoria.rasc.ca

Astronomical Term of the Month: Occultation

When an observer sees one object in space passes in front of another, this is referred to as an occultation. When the Earth is directly between the Sun and the Moon it is said to have occulted, in what we more commonly refer to as a lunar eclipse. Similarly when a planet is seen to cross in front of the Sun, from our viewpoint, we refer to this kind of occultation as a transit. The Transit of Mercury, for an example, will be happening on November 11th of this year. The Moon can pass in front of planets, the Moon or planets can pass in front of stars, so that the object behind is seen to vanish only to later reappear to the observer. Recorded data of occultations help scientists refine their ability to determine the positions and relative movements of objects in space. There is even a group of citizen-scientists, IOTA (International Occultation Timing Association), who are dedicated to this facet of astronomy. For more information about IOTA go to:

<https://occultations.org/>

Bruce Lane

RASC Victoria Centre Council 2018 / 2019

Position	Name	Email
Past President	Chris Purse	pastpres@victoria.rasc.ca
President	Reg Dunkley	president@victoria.rasc.ca
First Vice President	This could be you	vp@victoria.rasc.ca
Second Vice President	This could be you	vp2@victoria.rasc.ca
Treasurer	Deborah Crawford	treasurer@victoria.rasc.ca
Secretary	Barbara Lane	secretary@victoria.rasc.ca
Librarian	Diane Bell	librarian@victoria.rasc.ca
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Public Outreach	By Committee	outreach@victoria.rasc.ca
School Outreach	Laurie Roche / Sid Sidhu	
Telescopes	Sid Sidhu	telescopes@victoria.rasc.ca
National Representative	Nelson Walker	nationalrep@victoria.rasc.ca
Light Pollution Abatement	Dave Robinson	lighting@victoria.rasc.ca
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Observing Chairperson	Jim Stillburn	obschair@victoria.rasc.ca
Website Content	Joe Carr	web@victoria.rasc.ca
Members at Large		
NRC Liaison	James di Francesco	
Nat RASC Anniversary Wrkg Group	Dr. James Hesser	james.Hesser@nrc-cnrc.gc.ca
FDAO Liaison	Laurie Roche	
UVic Liaison	Alex Schmid	
Observing	David Lee	Li-Anne Skibo
	Dan Posey	John McDonald

In Closing

In the first few days of 2019, a lot of us will be peering online for our first look at photos from New Horizon's flyby of the Keiper Belt object known as Ultima Thule. After getting the first uncontroversial, blurry evidence, we'll all be waiting for that definitive, high resolution image from NASA that will be shared across the Internet. With the data from the New Horizon space probe continuing to slowly trickle to Earth, RASCals in Victoria will move forward into the New Year with a lunar eclipse and the first meeting of a new Council.

With the current vacancy in the Public Outreach position on Council, we're going to continue to examine how we manage public outreach events and just how much we can do in the community, without succumbing to exhaustion; especially with the ever increasing demands from the FDAO Summer Saturdays. Later in the year, it's also going to be our second RASC Victoria Star Party at our new location, St Stephen's Churchyard, with hopefully better weather this time around. Last year, smoke and rain ruined a number of star parties in British Columbia, ours included.

Most of all, remember to take some time to enjoy the lunar eclipse on January 20th, since the next one won't be until 2021. For observers in Victoria, the eclipsing of the Moon begins at 6:36pm, with maximum totality at 9:12pm, and the Moon will be out the other side of the Earth's shadow by 11:48pm. Whether you have an old pair of binoculars or a telescope, the lunar eclipse is the most accessible astronomical event. Light pollution isn't the same factor it is for seeing other objects in space. It doesn't require special filters for your optics, like a solar eclipse, and you can even enjoy it with no optics at all. Just remember to dress warm, because apparently it's January. Sure, it's Victoria January, but you still need to dress warm.

Bruce Lane: SkyNews Editor

Photography Credits

Page 1: Lunar Eclipse, Totality on September 27th, 2015; taken with 8" SCT, from Mount Tolmie, by Bruce Lane

Page 2: End of Bad Lunar Eclipse session on January 31st, 2018; Alex Schmid holding a tarp over my telescope in the rain, "French Impressionist" style shot taken without tripod by Bruce Lane

Page 3: Waiting for Clear Skies on Mount Tolmie, for Lunar Eclipse on October 8th, 2014, by Bruce Lane

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 4: Image of the festive gang at Astro Café in December, 2018, by Wyman Lee

Page 6: Sketch of Comet 46P Wirtanen, on December 16th, from Metchosin, by Bill Weir

Page 7: Comet 46P Wirtanen from VCO, on December 17th. 30 second, single exposure, using 16" Ritchey-Chretien, by Bruce Lane

Page 7: Posed Book, "Chaos: Making a New Science, by James Gleick", taken on January 2nd, by Bruce Lane

Page 8: Crop of Laurie Roche at 2010 AGM, uncredited Zenfolio photo, most likely taken by Joe Carr

Page 10: #56 Kodak Wratten Filter, Lunar Close-up from VCO (16" Ritchey-Chretien) on May 20th, 2018 by Bruce Lane

Page 11: Crescent Moon shot from VCO (14" SCT) on April 9th, 2016 by Bruce Lane

Call for Article and Photo Submissions for the February Issue

SkyNews will be looking for submissions of astronomy photos and articles for the February issue of our Victoria Centre's magazine. We're especially hoping for some of your nice images of the upcoming Lunar Eclipse. Send your submissions to editor@victoria.rasc.ca