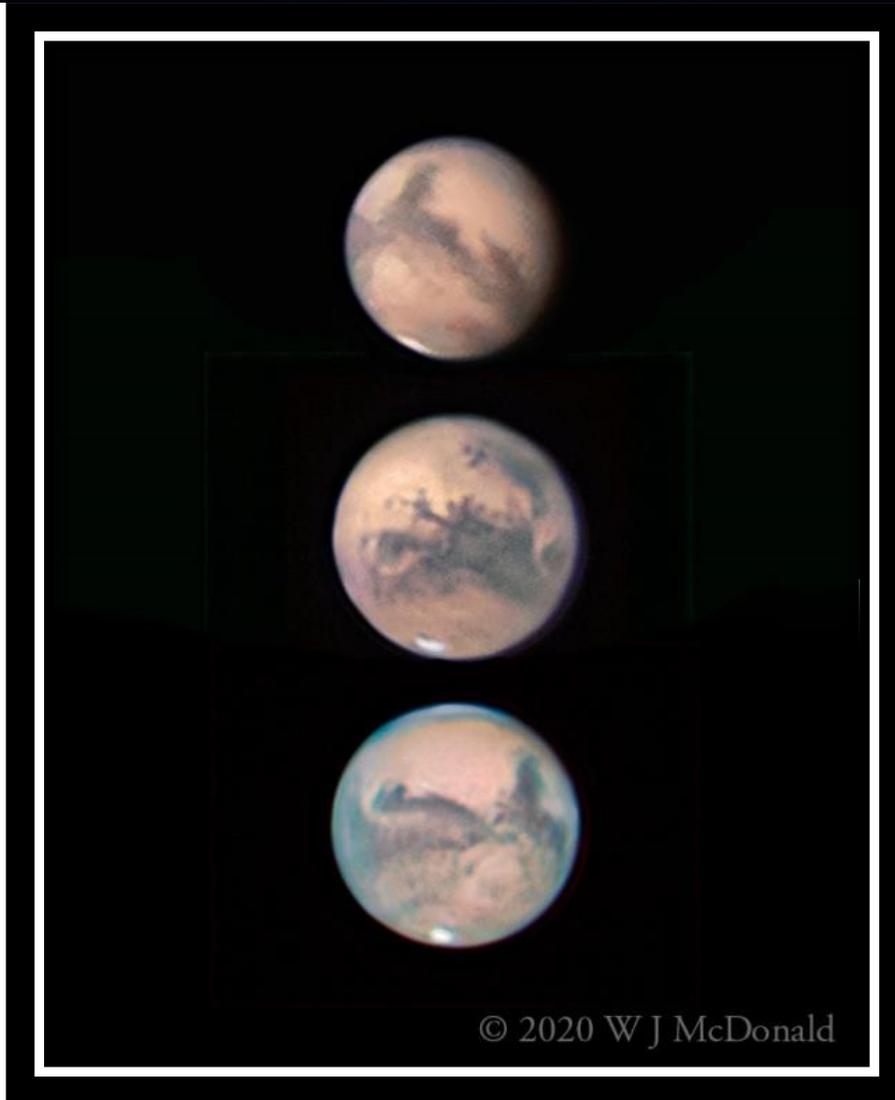


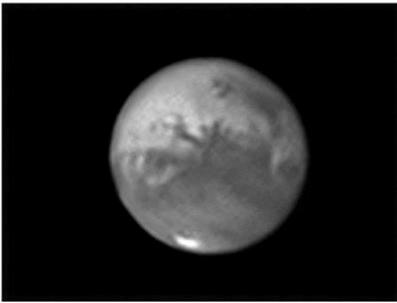
SKYNEWS



Capturing Mars

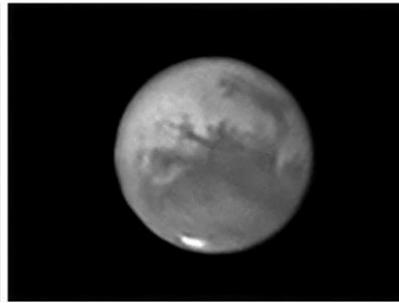
The 2020 Mars opposition has been a particularly good one for visual observers and imagers alike. There has been no dust storm this year, something that often occurs when Mars is close. Mars was (and still is) quite high, which helps with both atmospheric seeing and refraction. The timing of this opposition was also very good for me. I recently moved to downtown Victoria and no longer have a backyard with a dark sky, but one thing I can do is planetary imaging. Venus, Jupiter, Saturn, Uranus, and Neptune are all in good positions to capture this year. There is a patio attached to the 8th floor apartment that offers the opportunity to pop out and quickly capture a planet, using lucky imaging with a high speed video camera. At speeds of 60 to 120 frames per second, getting a couple of thousand frames in each colour filter does

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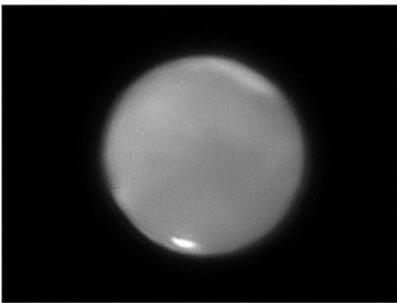
Infra Red

2020-09-30-0806_2_lapl5_ap21-RS-ps.tif



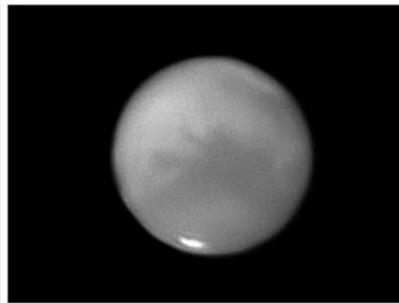
Red

2020-09-30-0808_8_lapl5_ap21-RS.tif



Blue

2020-09-30-0812_0_lapl5_ap21-RS.tif



Green

2020-09-30-0810_4_lapl5_ap21-rs2.tif

not take long. I have been having fun, working my way through the learning curve for this kind of imaging and am a long way from being good at it, but my experiences may be helpful to anyone wanting to try planetary imaging.

Planets need lots of magnification to image the surface detail. I decided to give myself a leg up by purchasing a Celestron EDGE 8" f/10 SCT and have used it at f/25 by adding a 2.5x Powermate. I have never been an SCT fan, in part because of the image shift that occurs when moving the focus, but Celestron seems to have fixed this in the EDGE scopes. While an even larger telescope would be helpful, the 8" is a good compromise between weight and aperture. It is easily carried on my Celestron AVX mount. My video camera is an inexpensive ZWO ASI 120mm monochrome model, with a filter wheel that I use with R,G,B plus IR, UV, and CH4 filters (*examples seen left*).

The main limitation to getting good planetary data is atmospheric "seeing" that causes the image to bounce around quite a bit. While the processing software is good at pulling out images with the best correlation, it cannot make up for poor seeing. One of the challenges facing anyone attempting this kind of imaging is having the patience to keep trying until you get the magical night when the seeing is really good. I ended up taking a total of 62

separate video clips of Mars, between September 11 and October 6, some of which exhibited good enough seeing to get 12 decent monochrome images (3 each for red, green, blue and Infrared filters). That resulted in 3 fairly good color images.

To capture the data, I focus carefully, take a video clip, select the next filter, refocus, and repeat until I have data for all of the filters I need. It took me some time to get proficient at doing this quickly enough to avoid the blurring that results from planetary rotation. That is not too difficult for Mars which has a 24.6 hour period. I found I could get into a routine that captured what I needed in 3 to 6 min, depending on how many filters I used. I take several sets to be sure of getting the best seeing and focus as possible. For processing, I used the excellent Autostakkert program to sort, analyse, and stack the data for each filter, then sharpened the results in Registax. I used Photoshop to combine the channels using RGB for color and IR for luminance. To see if planetary rotation was affecting the result, I also tried using WinJupos to rotate and combine the results for each channel. That had proved helpful for Jupiter which has a period of 9.9 hours, but I could not see any improvement for Mars.

I feel fortunate to have been able to capture Mars on three occasions, as it came to opposition, and particularly fortunate that the good seeing happened to match times when 3 faces that pretty much cover the planet happened to be visible.

John McDonald

Editorial Remarks



In these troubled times, it's often said that we're all in the same boat, despite how different our individual circumstances are. It should be noted though that in this boat some of us are doing a lot more bailing than others, some are unhappily squatting in the bilge water, and an unlucky few are treading water on the wrong side of the gunwale. Most importantly, it's probably not helping anyone struggling below decks to hear from the lucky few, sunning on the deck and complaining about how inconvenient this all is, in between sips of wine.

The longer nights of autumn and winter are ideal for both astrophotography and observing. Now, if only the weather would remember that. To be fair, there have been a number of clear night skies or nights that were at least clear for some of the time or for some portion of the sky. Wintertime on the

Wet Coast is right around the corner, so it pays not to be too picky about these things. If you're waiting for perfect observing conditions and perfectly clear skies, lasting throughout the night, you might be waiting a while.

In this issue of *SkyNews*, we'll have more recaps from our Centre's activities, a short article about post-production software in astrophotography, 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 November

Skyrocketing cases of covid-19 and disturbing developments south of the border have stoked our levels of anxiety. As an antidote to these concerns, it is high time for a good news story. Let's revisit a happy moment in 2017 when a number of Victoria Centre RASCals attended the Great Solar Eclipse Afterparty. We gathered to share images, swap eclipse adventures, and relive the magic of this event. Many of these stories were captured in the October 2017 issue of *SkyNews*. A highlight of this joyous occasion was the unboxing of our new TPO 16 inch Ritchey Chretien reflector telescope. This was performed with great fanfare by Matt Watson and Dan Posey.



In September and October of 2017, Matt and Dan installed the new scope on the Victoria Centre Observatory Paramount ME mount and took great care, neatly wiring the scope to connect the cameras, an off axis guider, and an electronic focuser to the computer. Official first light occurred on October 28th, 2017 (See *November 2017 SkyNews* for early images). Dan Posey's gallery on Zenfolio contains a series of beautiful images taken with the TPO 16 Inch RC, taken between late October 2017 through October 2018, including my favourite: the Fireworks Galaxy (See page 10 *October 2018 SkyNews*). These photos are a testament that the scope was performing well during that interval.

Sadly, no decent images were captured with that scope after October 2018. The TPO 16 Inch seems to have drifted off collimation and the cause remains a mystery. The collimation of a Ritchey-Chretien scope is a tricky business, and Dan and Matt spent countless hours researching and trying to re-collimate this instrument over the next year. They even enlisted the help of former DAO member, Les Disher. In the spring of 2020, Les demonstrated that collimation could be achieved when the scope was pointed towards the zenith, but it went out of collimation as soon as it was slewed to a

lower altitude. This indicated that there may be flexure somewhere in the truss or mirror supports of the telescope. It was Victoria Centre's good fortune that Matt Watson opted to purchase a lifetime warranty on the scope and Council approved to return it to the Los Angeles vendor, OPT, for repair.

By this time Observatory Hill was in lockdown due to Covid. The NRC kindly granted permission for special access to the VCO and on June 4th, 2020 four masked men (Dave Robinson, Mike Nash, Dan Posey, and your President) furtively removed the TPO 16 inch RC, boxed it up, and sent it to OPT via Fedex. In October, OPT informed us that they could not fix the scope and offered to send us a new TPO 16 Inch RC ... but without a lifetime warranty. The Tech Committee was not comfortable with this arrangement and instead John McDonald negotiated an "in store credit" for the value paid for the scope.

While the TPO scope was off for repairs, Garry Sedun learned about a used research grade scope that was for sale at an attractive price in Arizona. John McDonald and I bought this scope with the idea that it might be a replacement for the VCO, if the repair of the TPO scope did not succeed. Garry Sedun kindly delivered this 12.5 inch OGS Ritchey Chretien scope to Victoria, when he returned from Arizona this summer. OGS stands for "Optical Guidance Systems" and they manufacture high quality instruments for NASA, universities, and research facilities. Although the optical tube is not in pristine condition, the primary mirror is figured to a precision of 1/31st of a wavelength and it has a very stout built quality.

On September 21st, when limited access to the VCO was restored under strict Covid protocols, this scope was attached to the VCO mount. Results were encouraging when the first image was obtained on October 3rd, using an improvised focuser. When a helical focuser was attached to the scope on October 30th, results were even better. Star field images were crisp, with round undistorted stars right out to the corners. Although Dan Posey detected that the primary mirror was just a tad out of collimation, he felt that it was performing better than the old Meade 14 inch Schmidt Cassegrain telescope.

The Tech Committee will continue to evaluate this scope with further star field tests. If it is determined that it will meet the needs of the membership, John McDonald and I are prepared to permanently loan the scope to the Victoria Centre. If Victoria Centre members are dissatisfied with this scope, we will deploy it elsewhere. The OPT store credit gives us the flexibility to consider an alternate scope. Remember that there is also a high quality 20 inch Obsession Dobsonian telescope at the VCO. Argo Navis digital setting circles will be soon added to this scope and make it easier for visual observers to find objects in the sky. So when you consider that access to the VCO has been restored with a functioning scope for astrophotography and an excellent instrument for visual observers that qualifies as a good news story!

Now all we need are some useable skies

Stay Well

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 Astro Café of October was a hybrid affair, with Astro Café doing double duty as the RASC Victoria monthly meeting. Our membership coordinator, Chris Purse, talked about people having difficulty using the RASC National website to renew their memberships. RASC National has plans for a new website in January, but until

then if you're having problems renewing your membership please contact the RASC National office directly. Lauri Roche announced that RASC Victoria will be helping the FDAO with their online programs. The guest speaker, Luca Vanzella from RASC Edmonton, gave a presentation about his Sunset Azimuth Sweep image: showing the different position of the Sun across the sky, towards sunset, on different days over a long period of time. Afterwards, Reg Dunkley gave a summary of the web submissions for Astro Café and goings on in the astronomy community, David Lee talked briefly about RASC initiatives using electronically-assisted astronomy (observing digital screen projections in real time, instead of observing through an eyepiece or astrophotography), and Laurie wrapped things up discussing FDAO goings on in greater detail.

The second Astro Café of the month was cancelled due to Thanksgiving Day, which in turn has itself largely been cancelled by the pandemic. The third Monday night began with Kevin Light & Kia Tully's photo of a kayak being carried in front of the full Moon, taken from Mt. Douglas; followed by some Victoria Camera Club astrophotography from John McDonald's recent workshop, as well as his own images showing the sequence of Mars during opposition. There were more RASC Edmonton images by Luca Vanzella; Randy talked about black holes and the 2020 Nobel Prizes; and our Centre President gave an update on our ailing 16" Ritchey Chretien telescope. For the last Astro Café of the month things started off with Chris Gainor discussing his soon to be published authorized biography of the Hubble Telescope; followed by Chris Purse bringing up an email circulating about a member seeking recordings on a recent meteor on October 25th that was missed by their equipment, due to technical issues. Gary Sedun and Chris Gainor led a discussion about surveillance satellites; David gave a presentation on the recent amateur astronomy trend towards small aperture refractor imaging and grab and go set ups; Dave Robinson showed more images by Luca Vanzella (RASC Edmonton); Chris Purse and Joe Carr discussed the RASC Victoria astronomy buy and sell; Joe highlighted a pair of local images (M45 by Doug MacDonald and the Dumbbell Nebula by Brock Johnston) that were posted on the RASC Victoria Facebook page; and Reg gave a weather and astronomy community summery, as well as announcing that the VCO interim telescope has a new focuser.

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, covering 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 in person 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 *Stories in the Stars: an Atlas of Constellations*, by Susanna Hislop. It's an interesting book, particularly to those of us interested in ancient history and the stories related to the constellations. It features sketches and a brief summary of the stories attached to the eighty-eight constellations. Most have been with us since the Ancient World. Others, like Horologium (the Pendulum Clock), are from more modern times. *Stories in the Stars* is a charming coffee table book and a nice distraction, with additional value for those doing public outreach, and it's available by order from your local bookstore.

Bruce Lane

Hill and Dale (Observing on the Island)



On October 21st, Joe Carr and John McDonald hosted the first session at the Victoria Centre Observatory, since the beginning of the pandemic closed down operations on Little Saanich Mountain. With the new rules allowing only 4 members (including the MiCs) at the VCO and 2 more people up at the Plaskett parking lot, attendance will be minimal by design. Mike Webb joined the members in charge at the VCO and David Lee imaged from the Plaskett parking lot. Naturally, because this is 2020, there was also a warning of a dangerous bear seen in the vicinity of the gate.

Conditions that evening were good. While I was outside on my front deck in North Saanich, waiting for the Orion Nebula to finally clear the tall trees and wondering why the cows down the road were making such a racket, I caught sight of a

stunning, aquamarine meteor to the east at 0146hrs, streaking across the sky. For the most part though, amateur astronomers are continuing on in solitude, observing and imaging the night sky. One of the newer members of RASC Victoria, Lucky Budd, captured this image of Mars (seen above) on October 17th, using a 203mm aperture Schmidt-Cassegrain.

The Technical Committee saga continues, with the vendor unable to repair our ailing 16" Ritchey Chretien. They gave us the choice of a new RCT, without a warranty (*Ed. yikes*) or store credit to buy another telescope from the same vendor. The RASC Victoria Council wisely chose the 2nd of the two bad options. While they decide the future of the VCO's next telescope, the interim 12.5" Ritchey-Chretien telescope now has a new helical focuser, so hopefully folks up on the Hill will get better results going forward. The 20" Obsession Dobsonian reflector telescope remains in stellar condition for observers.

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



Soul Nebula (Sh2-199), Sep 28, 2020, by Doug MacDonald

Post-Production: the Dark Underbelly of Astrophotography

Writing, be it a movie script or novel, is often saved in the editing. You're rarely going to see any writing worthwhile occur without a certain amount of revisions and editing. The same is true in photography and in particular: astrophotography. Ansel Adams, considered one of the greatest landscape photographers that ever lived, shot for the dark room. He used the camera to expose his negatives to maximise his ability to make the most out of his mastery of the dark room, creating the famous photographs ironically considered the work of a master from a world that existed before Photoshop. His unaltered images were terrible photographs.

For this astrophotography article, we're going to focus on DSLR cameras. There are a lot of other imaging options, but for this article the focus will be on photographers who use digital single lens reflex cameras and the hard limits of what you can do, without using a lot of post-production software in your images of the night sky. Just knowing how your camera works is enough to get you a good photograph of the Moon, including solar and lunar eclipses. Decent gear and an understanding of photography will allow you to use a tracking mount to get a nice photo of the brighter deep space objects (globular star clusters, as well as the Orion and Ring Nebulae). The thing is though that you'll get a much better image using post-production software to improve on your work. You can even use an autoguiding scope and corrective software on a computerized mount, to compensate for small errors in the movement of the tracking, allowing for much longer camera exposures than you can achieve by just doing a proper polar alignment with your equatorial mount. But, when you try to take a picture of another planet in our solar system, a fainter nebula, or a galaxy, it quickly becomes evident that just knowing how to use a camera and a tracking mount isn't going to be enough to produce a high quality image of some targets. A boundary has been reached and the way forward is by using post-production software.



Crab Nebula (M1), Jan 4, 2014; by Bruce Lane

At this point, some people who know me are going to say: “*wait a minute this guy barely ever uses post production software on his photos*”. It’s true. I’m a post-production minimalist, who tries to get it done in-camera as much as possible. I’m much more likely to use a physical filter than a digital one. I’ve taken classes on Photoshop, but never really it outside of class. I have Classic Lightroom, but never got around to installing it on my computer. I still shoot RAW files though. I read articles and watch videos about post-production work on images, because of my interest in photography. Despite that, I still use the digital software editing software that came with my DSLR camera, which does everything I need for the moment, which isn’t that much. For me it’s a combination of wanting to do post-production right and never seeming to have either the time or processing power to really jump off in that direction. It’s something I plan to do one of these days, but that day has not yet arrived. Also, my computer is mostly being used for work, research, streaming entertainment, surfing the web, and writing articles (*like this one*) when I’m home. It can’t do that and process deep space images at the same time, without my laptop becoming a fire hazard. For the moment, the software I use for astronomy is limited to Stellarium (planetarium to help plan observing/imaging sessions), PolarFinder (for doing precise polar alignments), and Digital Professional Editor 4 (software that came with my camera, for downloading and minor enhancements).

This picture of the Crab Nebula (*seen above*) is the limit of what I can do with a single frame, without resorting to light curves, stacking, and/or the heavy use of post-production software. To take this image, I exposed to the right (over exposing the shot, but still being mindful not to blow out any highlights) for a single, 10 minute exposure. Then using the simple post production software that came with my camera, I adjusted the exposure the same amount to the left, to correctly expose the image. This technique is a simple way to get just a bit more data on your sensor, but you have to be careful not to overexpose the highlights, as you generally can’t fix blown out highlights in post-production. It was shot at 800 ISO, because it was a single frame and that was the limit of my camera before noise became a problem.

When you choose to seriously apply post-production software to your images it doesn't mean that you no longer have to try to get things right in-camera. You'll save a lot of time taking good photos to work on instead of assuming you can fix everything in the edit. Also, sometimes you can't fix what you didn't get right in the camera, like completely blown out highlights. Just like Ansel Adams, you'll be shooting your images to get the most out of them in post-production. There are a lot of general use, photography programs that will do a lot of what you want: Lightroom, Photoshop, Capture One Pro, Luminar 5, Affinity Photo, GIMP (free and G'Mic works well as a plugin) and well over a hundred other image editing and altering programs, tools, and aps.

There are also quite a few software programs that are specifically designed for astrophotographers: RegiStax, PixInsight, Astro Pixel Processor, Nebulosity, Star Tools, DeepSkyStacker, and a large collection of other programs, tools, and aps to cover a wide spectrum of needs. As you might have gathered from the names of some of these programs, a lot of astrophotography is made possible by stacking photos and compressing them into a single image. It's usually a much more involved process than the HDR stacking done in regular photography. For a lot of astrophotographers, they'll use different programs the way a carpenter uses different tools. It doesn't take very long before things can become very complicated. Given that post-production software can be a bit of a rabbit hole to dive down, from which you might never return, it's probably a good idea to talk to the astrophotographers in our Centre about what they use and how user friendly various programs are; especially when you're first starting out. Spending time watching and reading online tutorials is essential for a lot of these programs. It's important to find something you can work with that isn't so complex that it doesn't send you running and screaming from your computer, swearing off astrophotography forever.

So now, you've got a good understanding of how to use your camera and tracking mount. You've chosen some post-production software to use and start reading some amateur astronomy forums to learn more about how to do astrophotography. This is where things can get a bit bewildering. There are nearly as many opinions about the details of astrophotography as there are stars in the sky. It can all be a bit overwhelming. Start simple, ask questions, practice a lot, and experiment. Fortunately, RASC Victoria Centre has some very experienced astrophotographers. While the current pandemic makes it more difficult to have in person conversations, Astro Café Zoom sessions are still being held and the *SkyNews* editor might even ask an astrophotographer to write their imaging process for a lead article. It could happen.

Bruce Lane

Astronomical Term of the Month: Back Focus

Back focus is the distance, measured in millimetres, between the end of the focuser's draw tube or telescope's visual back to the point where the focal plane is, behind the eyepiece that you look through, to properly focus on what the telescope is observing. When you're using a DSLR or other imaging device with your telescope, to do astrophotography, the difference between where the end of the eyepiece is and where your camera sensor is going to end up results in a need to deal with back focus. Your telescope is generally designed for you to easily focus when looking through an eyepiece, with a range of movement in the focuser to account for variations in the vision of observers or targets (terrestrial, lunar, solar, planetary, or deep space).

In astrophotography, if the back focus is too short, it won't achieve focus with a camera, without finding a way to get your camera inside the focuser. That means you either need to move the primary mirror further up the tube or install a "low-profile" focuser that gets your camera and accessories closer to the telescope's back focus distance. Having too short a back focus will also limit the use of accessories, in addition to your camera, in the *imaging train* (assembly that includes the camera, all accessories, and adapters). A very short back focus might even make it difficult to use Barlows or other accessories while observing. If the back focus is too long, to the point where you can't use the normal range of movement of the focuser to achieve focus, you can bridge that distance, away from the end of the telescope, by using one or more extension tubes and/or expansion rings. While catadioptric telescopes, like Schmidt and Maksutov-Cassegrains, often have an overly generous amount of play in the focuser, most do not. Reflector telescopes have shorter back focus and refractor telescopes typically have longer back focus. Telescope manuals often include information about their back focus.



Clouds over Mount Tolmie, for the Lunar Eclipse, Oct 8, 2014, by Bruce Lane

If you're using filter wheel or a filter drawer, focal reducer/flatteners, and/or off-axis guider (instead of a guiding scope) in your imaging train, it will change how you calculate your back focus. Some people use charts and calculations to figure out the distances, but from what I've seen many just plug and play until it works right, before being able to call on previous experiences with the same telescope. This process is made a lot easier by having a collection of extension tubes and spacer rings on hand, instead of having to continually order new things when the latest setup didn't work. It's one of the reasons people like going up to the Victoria Centre Observatory. DSLR cameras are usually designed to give you 55mm of back spacing: 45mm internally (from edge of lens connector to sensor) and 10mm from the thickness of the camera T-Ring. The T-Rings designed for mirrorless cameras are much thicker, to account for the lack of a reflex mirror.

If you properly calculate your back focus and your imaging train is built to work for that back focus, it means the stars in your images will look great everywhere and not just at the centre of the picture. Ignoring back focus, when imaging through a telescope, and just trying to perfectly focus on a star in the middle of the field of view can result in stars at the edge and corners of your image not turning out perfectly. Once you have the perfect setup for your imaging train, it might be worth taking a picture of it, if you don't leave it together for the next time you're out doing astrophotography.

For those doing calculations, the back focus is measured after the focal reducer/flattener accessory. For most focal reducer/flatteners the measurement is done from where the connector meets the end of the body, but if you're using an Edge HD focal reducer it's measured at the edge of the connector that isn't visible when attached, just to make things a bit more interesting. If you want to properly calculate the back focus, for the purpose of setting up your imaging device for astrophotography, you should probably think about buying a caliper so you can get precise measurements.

Bruce Lane

Diane Bell: Gone but Never Forgotten



It was a great shock to the local amateur astronomy community, when Diane Bell passed away on November 11th. It's one thing to hear about the passing of someone from before you were a member of RASC or someone who hadn't been seen in many years. It's quite another to lose someone you were regularly in contact with, who if not for the pandemic, you'd have seen at the next meeting, public outreach event, or gathering of observers.

Many of us called Diane a friend, owing to her gentle demeanor, positive outlook, and infectious passion for astronomy. Her enthusiasm, dedication to volunteerism, and knowledge of the night sky made her the first person I called for any public outreach event. Even when she wasn't sharing her knowledge of astronomy with people or making sketches of what she saw through her optics under the night sky, she could be found baking astronomy themed cookies or weaving the constellations into her textile projects. During the recent lockdown, she was busy

distributing astronomy inspired masks to her fellow members of the amateur astronomy community. We'll all miss seeing her at public outreach events and observing with her Dob and binoculars of unusual size. We'll all miss our friend.

Bruce Lane

Better Know a RASCaI (Reposted from the February, 2019 Issue of SkyNews)



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 third interview is with Diane Bell, both an active observer and tireless volunteer. She can usually be found at any public outreach event, with an 8" Dobsonian reflector or binoculars of unusual size in tow.

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

Diane: I joined up (again) in 2010, shortly after my first Star Party campout on the Metchosin Cricket Club field. I was a member off and on, as time allowed, through the '70s and '80s as well, after taking Astronomy 120 with Dr. John Climenhaga at U-Vic. I was observing through binoculars and a spindly 60mm Tasco 'scope back then, but I also

went to some of the monthly meetings and the AGM dinners.

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

Diane: I was out with my Dad and a good pair of binoculars, in Cold Lake Alberta, in the early '60s. The skies were so dark! I was 10 years old. I learned the names of the stars and the constellations, their mythology, and their places in the sky. I got acquainted with some of the easier deep-sky treasures, like the Pleiades and the Andromeda Galaxy. Oh, and Jupiter and its tiny moons - as much as I could see through Dad's 7x50 bins.

SkyNews: What was your first telescope?

Diane: My Dad gifted me with a small, tabletop, 2" refractor that he picked up at a camera shop in our city of Kaiserslautern, Germany. I was 12 years old then - waiting with my family for permanent housing on the military base nearby. We had just moved there from Canada, and I was feeling homesick! This little 'scope had a power of about 50x. Lo and behold, I had my first view of Saturn and its rings through our sunroom window. Mind you, it looked like a tilted and tiny grain of rice, but I was pretty thrilled back then.

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

Diane: I have a wide interest in all things astronomy! My favourite is observing and outreach – with groups of students and individuals. There was a time or two where I dabbled in astrophotography and it certainly won't be the last.

SkyNews: What's your favourite RASC public outreach or "inreach" event and why?

Diane: That's a tough question - I have more than one favourite. I enjoy the outreach work at the Saanich Fair, every year at the end of August, and Astronomy Day in the spring. But there are the special outreaches, like the Transit of Venus in June, 2012 - and the very recent Lunar Eclipse. Those rare events are exciting. But did I mention the Saturday Evening Star Parties up on the Hill between May and August? Showing off Saturn's rings to the public is a huge treat for me, as well as for them!

SkyNews: What is your favourite book on astronomy?

Diane: It's a book called "Universe - The Definitive Visual Guide" (Martin Rees and DK Publishing). It's packed with photos and information on everything in our Solar System, as well as all the deep sky objects and their properties. The constellation data and star maps are superb. It really helped me to get re-acquainted with the night sky - in both the Northern and Southern hemispheres.

SkyNews: What's your current telescope(s) and what do you think about it?

Diane: I have a Skywatcher 8" Dob, which I love! It's easy to set up and it's just the right height for the little observers (or for those with some mobility issues) to look at those night-sky treats - from our Solar System to the deep sky. I've been sharpening my star-hopping skills, so it's easier to find the popular objects in our northern sky.

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

Diane: I'm a learner! Right now, I keep things as simple as possible. I use the computers to operate the VCO's 16" telescope, and Garry Sedun's 'scopes when I'm visiting Arizona. But, I'm grateful that there is such a great resource in our RASC Victoria club that I can draw on.

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.)

Diane: I received the Messier certificate and pin in 2014, after completing the list, but wanted to challenge myself further by completing my first sketched/described Messier log. That took two years and a lot of observing, but it was so enjoyable! Now I'm working on two new lists. The first is the challenging collection of "Finest NGC Objects". Most objects from this latest list of "fuzzies" are fainter than those on the Messier log, but I'm determined to sketch and describe each one. The second new project is the "Explore the Moon" list. I get to draw some craters!

The year before my 60th birthday, I took a camping/hiking trip through Australia for a number of weeks in March and April, 2012. Western Australia has some of the darkest skies in the world. Although I didn't have room for a small telescope in my pack, my star charts and the 12x50 binoculars proved to be an asset. The "Southern Hemisphere Splendours" list in the Observers Guide got a good workout 'down under'. Now, my goal is to travel and to see these objects through telescopes in a few years!

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

Diane: Being retired is a wonderful thing - more time! I have time to invest in my hobby - reading, outreach and staying up 'til the wee hours in the morning. There's also observing and assisting with "Member-in-Charge" work at the VCO from time to time. It gets me out into the fresh air - and to meet many people. I enjoy every moment of my volunteer work with both the RASC Victoria club and the Friends of the D.A.O. Society. I also have the time to assist Lauri and Sid at various schools during the day or evening, and occasionally helping with assorted tours and programs up at the Observatory.

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

Diane: I was the Skynews editor from 2013-2014, would you believe? Although it was a learning curve for me, I enjoyed the writing as an observer, and I try to keep that up from time to time. I am now back on Council, as Victoria Centre's new Librarian. And I'm looking forward to working with the other good folks on Council, as we plan our outreach events and the annual Star Party.

SkyNews: I first met Diane at that 2010 Star Party in Metchosin, where she spent most of one night looking through my telescope, before either of us had joined RASC Victoria, but that star party was the thing that made both of us join up. Whenever I'm organizing a public outreach event, she's one of the first people I call, because of her enthusiasm and experience as an observer.



In Closing



With the temperature getting colder, we're finding ourselves filled with apprehension and wariness, as we stumble unsteadily from one holiday to the next. The solemn and festive days that brought us closer, during the autumn and winter, have become enemies to the public health authorities. Each time people participate in gatherings, large or small, a price is exacted. Record case numbers are happening all over the country, but in comparison things are still mostly good here on the Island, and they'll stay that way as long as we all act sensibly. The pandemic has most of us living in a siege mentality, limiting our contact with the outside world, as we wait to be rescued by a vaccine that could start to become available as early as sometime next year.

Most of us are washing our hands more than we have at any time before in our lives (hopefully). For those of us whose employment brings us in contact with the general public, you probably have a hard time remembering just how many times a day you wash your hands. You're probably washing your hands so often that after wandering away from the sink, you sometimes go back to wash your hands again because you forgot you just washed them in the last few minutes. Handwashing has become so common that even the data banks of your mind are tired of recording it, even for the benefit of your short term memory.

The big upside to all this handwashing is that it will also protect us from a number of other viruses making the rounds. The big downside is the prevalence of antibacterial soap that is weakening the ability of our healthcare system to protect us from actual bacterial infection. Never mind the ridiculousness of using antibacterial soap to protect yourself from a virus or the idea of washing your hands with chemicals that don't need to be there. Society's unnecessary overuse of antibacterial products, for routine handwashing or to fatten up livestock, will have dire consequences in the coming decades. Randomly exposing bacteria to antibacterial soap is like enrolling them in a crossfit program of rapid evolution that makes them resistant to antibacterial medicine, sometimes even resulting in super bugs. We only have a limited number of options to use in antibacterial medicine. One by one they are becoming ineffective. In a few decades, we'll have great advances in medicine, but no longer be able to safely do surgery, due our inability to fight infections. In a more sensible world, antibacterial soap would be properly regulated and you'd have to buy it over the counter, to keep us safe from soap manufacturers using it for marketing purposes. Until then, you'll have to police yourselves.

Provided the weather cooperates, with the shortening of days as we move towards the Winter Solstice, we'll have more opportunities to get outside and enjoy the night sky. There's never been a better time for a hobby like astronomy than during a pandemic. You'll want to dress like it's much colder than it already is, to be able to stand around outside this time of year, but the amazing views of the night sky will be worth it. And if the skies are not cooperating, you can always go do some reading or online research. It's a lot better for you than whiling away the hours, doomscrolling on social media.

Bruce Lane: SkyNews Editor

Photography Credits

Cover: Three views of Mars Opposition, data imaged between Sep 11 and Oct 7, 2020; by John McDonald. Mars opposition, showing the planet, nearing and at the nearest distance from earth. 8" Edge SCT on AVX mount. ZWO ASI120MM-S camera, with filter wheel and TV Powermate, to give focal ration f/25.

Page 2: Mars Opposition 2020: taken at Ross Place in downtown Victoria on September 30th, 2020, by John McDonald. Mars is almost at opposition, showing results for 4 filters with monochrome camera. 8" Edge SCT on AVX mount. ZWO ASI120MM-S camera, with filter wheel and TV Powermate, to give focal ratio of f/25. Captured 2000 frames in each of R,G,B and IR filters and stacked best 59% in Astrostakkert, sharpened in Registax, and enhanced in Photoshop.

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

Page 5: Posed Book, "Stories in the Stars", taken in Editor's home on July 15th, 2020, by Bruce Lane

Page 6: Mars, taken with an 8" SCT, using a X3 Barlow, on Oct 17, 2020; by Lucky Budd. Registax used in image post-production.

Page 7: Soul Nebula (Sh2-199), Sep 28th, 2020, by Doug MacDonald. Taken using a WO Zenithstar 73mm apo refractor, with a 430mm focal length. 4 hours of narrow band emissions, processed as a modified SHO palette.

Page 8: Crab Nebula (M1), taken at VCO, using the 14" SCT, on Jan 4th, 2014; by Bruce Lane. This picture was taken with a Canon T3i, with a single, 10 minute exposure at 800 ISO. The minimalist post production process was "exposing to the right" by a camera stop (short of blowing out the highlights) and then shifting back to the left in post-production, to get just a bit more image data.

Page 10: Clouds over Mount Tolmie, for the Lunar Eclipse, using fish-eye lens, Oct 8, 2014, by Bruce Lane

Page 11: Crop of Diane Bell, from DAO celebration, August, 2018, by Don Moffat

Page 11: Starlene and Binoculars, posted Feb 19, 2019; by Diane Bell

Page 13: Diane's "Star Party Camping weekend - my 8" telescope, wee tent - and 2 awesome clear nights on the Metchosin Cricket Grounds, nr. Victoria"; August, 2015; photo by Diane Bell

Page 14: Speckled Sussex "Scrappy", Nov 7, 2020; by Bruce Lane

Page 16: Apollo 14 training: "Al Shepard (front) training with the Modular Equipment Transporter (MET) in NASA's KC-135 aircraft at one-sixth gravity. Ed Mitchell follows at the back of the MET. The aircraft pilot flew the KC-135 in a series of parabolas and, on the descending branch, gave the crew about a half minute of one-sixth gravity. Then, as the pilot pulled up into the ascending branch, the crew experienced high g-forces, but before that happened, the support personnel helped them get down on the floor so they would not have to support themselves and the suddenly heavy suits." November 4th, 1970. Research by J.L. Pickering, courtesy of NASA.

Call for Article and Photo Submissions for the December Issue

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

RASC Victoria Centre Council 2020

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