

SKYNEWS

Total Lunar Eclipse

January 20, 2019
Victoria, BC, Canada



Eclipse start
3 mins into Penumbra



End of Totality at 3rd Contact



Eastern limb enters Penumbra



Mid-Totality



Between 1st & 2nd Contact



Totality starts at 2nd Contact



Approaching mid-Totality

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Composite Image by Joe Carr, showing the different phases of the Lunar Eclipse

A Night to Remember

There was a lot of anticipation and apprehension in the lead up to this year's lunar eclipse. January isn't known for clear skies on Vancouver Island and the forecasts leading up to this one were no exception. Up until Friday, the weather models provided only a faint hope of seeing much of anything during the lunar eclipse. When I saw my first positive forecast on Friday afternoon, calling for clear skies for Sunday night, I looked at the computer screen with some suspicion and immediately began looking for corroborating data from other sites. I'd tentatively agreed to once again go to Mount Tolmie with Sid Sidhu, to do some astronomy public outreach. There was further apprehension about the crowds, given our past experiences on Mount Tolmie, during 2015 and for the solar eclipse; especially since this time there would be fewer telescopes up on the hill to service the masses.



Totality from Mount Tolmie: photo by Bruce Lane, using 203mm (8") Schmidt-Cassegrain telescope as a very big camera lens

Other than the extreme humidity, conditions here in Greater Victoria were as good as they could possibly be for January in Victoria. It wasn't even very cold outside; especially compared to what our fellow RASCals endured across the rest of Canada, where they apparently have this thing called winter. Sid and I arrived hours early, to ensure we had the best spot on the Mount Tolmie bandstand, but because we didn't tell anyone we'd be there it probably wasn't necessary. I had my 10" Dobsonian reflector for the public to look through and was imaging with my 8" Schmidt-Cassegrain telescope. Sid had an 8" Dobsonian and we were joined by William (soon to be RASC Victoria member), who was imaging with his 8" Schmidt-Cassegrain telescope. There were a few photographers with us on the bandstand taking photos early on, but they left long before the lunar eclipse started, so they were probably just there for the nightly sunset shots. A few more photographers joined us later for the eclipse itself. We had a few hundred people looking through our telescopes and there were many more people watching the eclipse on the other side of Mount Tolmie, at the hand rail by the road or on the rocks, with a constant flow of traffic driving up on the road from far below. As much as sometimes I'd like to be by myself doing imaging, being out doing public outreach, out with my fellow RASCals, and seeing the excitement of so many people looking through telescopes for the first time, really makes it a much more worthwhile experience. During the darkening skies of totality, Sid and I also took some time to show the public some brighter deep space objects through our Dobs.

Another group of RASCals set up for the night in the parking lot of the Urban Star Park of Cattle Point, imaging, observing, and doing public outreach for the lunar eclipse. Reg Dunkley was there imaging with his Canon T3i; Jennifer Ikle had her 8" Dobsonian reflector; and Dave Robinson brought a home-made 10" reflector telescope. It has been reported that some of the crowd there celebrated the Super Wolf Blood Moon by howling.

The Astronomy Department of the University of Victoria hosted a public outreach event for the lunar eclipse and I can only imagine the chaos that was going on there, given that it was the only publicized free event and parking there is free on Sundays. The Friends of the Dominion Astrophysics Observatory used the evening to have a special membership drive up on Little Saanich Mountain, free for members, with the host of CBC's Quirks and Quarks, Bob McDonald, as their guest speaker. Bob McDonald's lecture was also rebroadcast live for the event at UVic. As she is regularly found during the Summer Saturdays, Diane Bell was out on the Plaskett parking lot with her 8" Dobsonian reflector, doing some sketches in between doing public outreach (*we'll talk a bit more about Diane in this issue's installment of Better Know a RASCa!*). David Lee was imaging, from the lower parking lot. Laurie Roche, Chuck Filtness, Chris Purse, Clint and Melissa Tupper, Jim and Betty Hesser, and Ben Dorman were also there for the evening, representing RASC Victoria on Little Saanich Mountain.



Bill Weir was out doing some sidewalk astronomy, up above Taylor Beach in Metchosin, when a car stopped and he was joined by someone who won a 6" Dobsonian reflector in a FDAO raffle last year. They set their telescope up next to his, adding the mentoring of a new amateur astronomer to Bill's public outreach session. Later, from his backyard, Bill took a hand held picture with his point and shoot, of the Moon halo (*photo seen above*). Many other RASCals were out imaging the lunar eclipse by themselves, or were among the many who just wandered onto their balcony or into the backyard to have a look.

Bruce Lane



Editorial Remarks



RASCals had a great time during the lunar eclipse on January 20th and we have the photographs in this issue of SkyNews to prove it! After catching our breath a bit from that beautiful Sunday night, it's time to press on with the rest of the year. Astronomy Day is coming up in April, also marking the first night of volunteering up at the Plaskett Telescope alongside the FDAO. Then, it's on to the star party season, including our very own RASCals Star Party, and the huge volunteering effort we put in every year at the Saanich Fair on the Labour Day weekend. Between now and November's Transit of Mercury, you can also expect a bunch of other public outreach events, some small and some large, as we continue to fulfill our mandate of bringing science education to the public.

As part of our mandate to take a closer look at what RASC Victoria is up to, we're also going to have a regular column for Astro Café. We'll be using an image of an Astro Café coffee mug for our column photo, as a bit of branded content or "native advertising". Hopefully, this move towards crass commercialism will lead to an increase in sales of Astro Café T-shirts and mugs. It's for a good cause.

Bruce Lane: SkyNews Editor

President's Message for February

For much of the astronomical community, 2019 came barreling in at 50 000 kmph. It was like they were riding in the back seat of New Horizons, urging it to capture great shots of Ultima Thule as it whizzed by on New Year's Day. The data slowly trickled in as the feeble signal completed its 6 hour journey home. To the amazement of all a strange snowman like figure emerged. During January, this image became crisper as more data was accumulated. This technological triumph was a great way to begin the year.



One of the team members that selected this Kuiper belt object, officially named 2014 MU69, was Victoria astronomer Dr. JJ Kavelaars. He is the scheduled speaker at our March monthly meeting and JJ will have the latest information to share. At our February monthly meeting Dr. Samantha Lawler will deliver a presentation on even more remote Kuiper belt objects, and she will examine the evidence for a mysterious Planet Nine or maybe that should it be Planet Nein?

January is not renowned for great observing conditions. During the late afternoon of Sunday January 20th, however, skies magically cleared in the Victoria area and set the stage for a beautiful lunar eclipse. A fireball and a fleeting impact on the lunar surface were also witnessed by a lucky few. Due to its brightness, I generally avoid observing the full moon but at this phase the ejecta rays of craters like Tycho and Copernicus were prominent. I adjusted my camera to highlight these striking features during the event. My optimum settings with a 127mm refractor varied from 1/1250 second at ISO 100 at the beginning to 4 seconds at ISO 800 during totality. This remarkable reduction in intensity enabled one to enjoy a rich star field during totality. I observed the eclipse at Cattle Point Urban Dark Sky Park. The parking lot was full. The atmosphere was joyous with occasional outbreaks of wolf howls to honour the Super Wolf Blood Moon. It was wonderful to share this event in the community.

This eclipse has inspired a number of RASCals to attempt the RASC lunar observing programs. These include an introductory program entitled Explore the Moon and a more comprehensive program called the Isabel Williamson Lunar Observing Program. So far only 18 RASCals nationwide have completed the Isabel Williamson challenge. Perhaps you will want to join Victoria's own Nelson Walker in this elite group. Check it out!

Some changes have been made at the Victoria Centre Observatory. The Victoria Centre recently received a generous donation of a 20 Inch, Obsession Dobsonian telescope. In order to accommodate this scope at the VCO, the existing 20 inch, Dobsonian has been relocated to the Center of the Universe. This scope was beautifully crafted by Guy Walton in 2003, using a mirror from Jack Newton. In addition to serving as a museum piece this scope will be rolled out on the patio and used for public outreach events.

RASCals are reminded that during our February 13th Monthly Meeting there will be a very short administrative “Mini AGM”. This meeting is required as a result of the recent change of our fiscal year end from September 30th to December 31st. This could take less than 5 minutes, so bring your stop watches!

Cloudless Nights!

Reg Dunkley

Astro Café: Monday Nights, 7:30-9:00pm

Astro Café is a weekly astronomy gathering, for both RASC members and the public alike. It runs on Monday nights, from September to May, with the last evening before summer break on May 27th. 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...perhaps even an Astro Café 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.

Better than usual January skies and a lunar eclipse have meant more astrophotography pictures available to be seen, which are shown in dazzling detail on our 4K TV screen. There is often a short lecture, such as Reg Dunkley's “Skeet Shooting in the Kuiper Belt” or Randy Enkin's presentation on the Chinese mission to the far side of the Moon. Chris Purse is continuing to run Handbook 101, a short discussion around featured subjects from the RASC Handbook. 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.



Bruce Lane



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

Full Moon, waiting for the eclipse,
by Wyman Lee

Monthly Meeting Speaker: Dr. Samatha Lawler

Planet 9 or Planet Nein? Discoveries in the Outer Solar System

7:30 PM, Wednesday, February 13th, 2019 in Room A104, Bob Wright Centre, University of Victoria

Over the last couple of years, there have been many headlines about the possibility of an undiscovered giant planet in the outer reaches of our Solar System. But is it real? Dr. Sam Lawler will lead you through the wilds of the distant Kuiper Belt with a surprisingly digestible (we promise!) discussion of orbital dynamics, observation biases, and dwarf planet discoveries. She will show you the latest discoveries from a large international collaboration, including astronomers right here in Canada, and you can decide for yourself whether or not you believe in Planet 9.

Sam Lawler received her B.S. in astrophysics from Caltech, followed by 2 years of research work at Caltech's IPAC facility on early Spitzer data of debris disks. She then received her M.A. from Wesleyan University before coming to Canada for her PhD work at UBC. She has been in Victoria ever since her PhD, initially as a UVic postdoc/lecturer, and since 2015 as a Plaskett Fellow at NRC-Herzberg. Her work utilizes dynamical simulations of the effects of planets on debris disks and on the structure of the Kuiper Belt. Several of her recent projects involve dynamically testing the existence of reported planets. She has shown tau Ceti's reported planet system is allowed by its wide debris disk, Fomalhaut b is likely a catastrophically disrupted icy body, and the structure of the Kuiper Belt does not require an additional distant planet in the Solar System. While her dynamical simulations are running on the computer cluster, she likes to play with her kids and grow food.

Reg Dunkley



Totality: Lunar Eclipse by Wyman Lee



Hill and Dale (Observing on the Island)

Even without the clear skies for this year's lunar eclipse, it was one of the better Januaries for amateur astronomers since at least 2014. Not that the weather was good enough to have our monthly scheduled session at the University of Victoria 32" telescope. RASC Victoria has scheduled sessions, during the school year, on the second Friday night of each month. While there is a lot of light pollution, from the main track and field venue to the west, there are plenty of targets in the eastern night sky. The UVic telescope is also open to the public on Wednesday nights, from 8-10pm. It's very handy if there's a clear night after our RASC Victoria monthly meetings, since we're right across the lobby from the stairs and elevator that go up to the telescope.

There were quite a few clear nights in January, but just not necessarily on the nights when weekly observing sessions at the VCO were scheduled. The January 12th observing session was rescheduled to from Saturday to Sunday, so RASCals could enjoy a clear night up at the VCO. Joe Carr and Sid Sidhu were the members in charge. Randy, David, Diane, Mike, and Jenn were doing their imaging and observing from the VCO; while Kurt and Clayton set up at the Plaskett parking lot. Joe and David also took the opportunity to test out some new photography kit. The 16" Ritchey-Chretien telescope was mostly unavailable this month, but after some long hours spent by the Technical Committee, the collimation issue has been corrected enough to allow for visual use. Hopefully, the collimation can be corrected for RASCals to get back to using it for deep space astrophotography.

On January 18th, a work party of RASCals moved the 20" Dobsonian reflector telescope that Guy Walton built, from the Victoria Observatory Centre to the Centre of the Universe public outreach building. This will provide a large, public outreach telescope for the upcoming Summer Saturdays, while making a bit more room at the VCO for the other 20" Dobsonian reflector we recently came into possession of. We took a lot of pictures to commemorate the event; mostly because at that time the latest weather reports for the lunar eclipse made me concerned that this might be our only astrophotography pictures for this month's SkyNews.

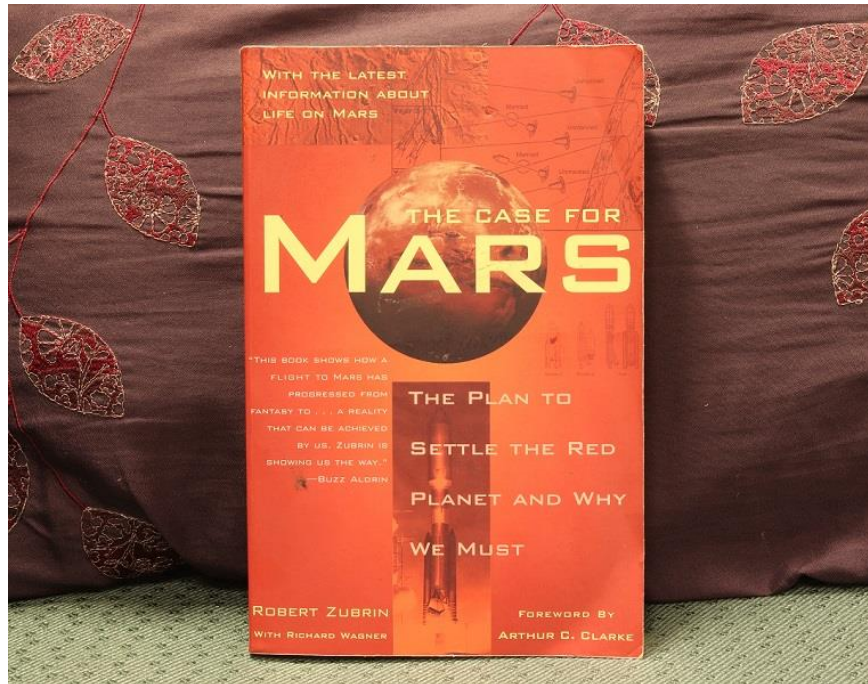
A reminder that the VCO belongs to and is for the use of the members of the RASC Victoria Centre, with both weekly scheduled and unscheduled sessions run by our MiCs (Members in Charge). Because it is located on NRC property, all visitors to our observatory must be on our observer list. To get on the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

Bruce Lane



From the Library

After our monthly meeting, feel free to join your fellow RASCals up socializing in the astronomy faculty lounge on the 4th floor of the Elliott Building, where we have coffee, juice, and cookies. It's also where the RASC Victoria Library is housed, 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 **The Case for Mars: the Plan to Settle the Red Planet and Why We Must, by Robert Zubrin**. Like Arthur C. Clarke's *Snows of Olympus* and something that will happen to many books written in the future, a lot of has happened since this was published, but at the same time nowhere near enough has been done since it was published in 1996. Zubrin is an accomplished engineer, whose inventions include the nuclear salt water rocket, and he's one of the most passionate voices in America about future missions to Mars. The Case for Mars started out as the Mars Direct scientific paper for NASA's Space Exploration Initiative, written along with Martin Marietta and David Baker, and expanded on to become this book. He founded the international Mars Society in 1998, after Congress ended the Space Exploration Initiative and the future of American space exploration was put in jeopardy by the illogical "faster, better, cheaper" philosophy (logic dictates that you can do 1 and possibly 2, but not all 3 at the same time). His writings have inspired Elon Musk's own plans to colonize the red planet and I recently listened to an interview, for Red Planet Radio, where Zubrin critically reviewed Elon Musk's plans. So if you're interested in space exploration or just want to read the successor to Arthur C. Clarke's *Snows of Olympus*, we've got a book waiting for you at the RASC Victoria library.

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 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 or 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 "in-reach" 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 Springtime. 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 are such great resources 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.

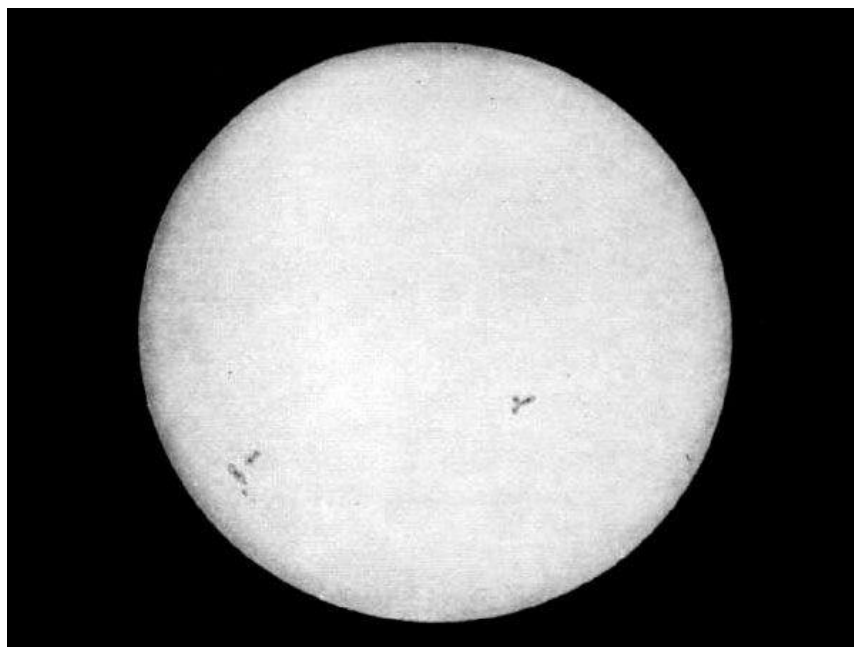
SkyNews: I first met Diane at that 2010 Star Party in Metchosin, where she spent most of one night looking through my telescope, before either of us had joined RASC Victoria, but that star party was probably the thing that made both of us join up. Whenever I'm organizing a public outreach event, she's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

Leon Foucault and the Pendulum

We're living in a time, where GPS satellites allow anyone the ability to inform everyone else on social media exactly where they had breakfast and snap a picture of their plate while they're at it. It makes it hard to believe that before 1851 there was no scientific proof that the Earth rotated on its own axis. It was a problem that some of the greatest minds of the previous centuries had failed to solve. The Universe according to Aristotle and Ecclesiastes had not yet been fully toppled. There were certainly a number of ancient thinkers who believed that the Earth rotated, but their views were less popular than the words of Plato and Aristotle.

At 2am, in the cellar of his house in Paris, Leon Foucault did something nobody had ever done before. He watched the world turn. He'd spent weeks preparing his experiment and the 5kg pendulum he had built swung ever so slightly away from its initial path (something today we refer today as the Coriolis force). In many ways, the easy part of his work was done. Now he had to convince the world. Had he come forward, with his results, a few centuries earlier he might have been burnt at the stake, as was the fate of Giordano Bruno in 1600.

He was 32 year old, lay scientist, who had not studied science at university and was considered a poor student in high school. He was good with his hands though and approached science from the perspective on an engineer (his mother had wanted him to become a surgeon). Foucault and Physicist Hippolyte Fizeau apprenticed with an experimental photographer, Louis-Jacques Daguerre (the founder of daguerreotypy), and began to formally study optics in school. Daguerre petitioned an accomplished scientist, Francois Arago, now an elder statesman in the French National Assembly, to get support for his experiments. Arago's interactions with Daguerre quickly made him aware of his very talented apprentices: Foucault and Fizeau. When Francois Arago saw Foucault's daguerreotypy examples, in an Atlas of Microscopy, he was immediately interested in applying the new process of daguerreotypy to imaging through telescopes. Arago contracted Foucault and Fizeau to photograph the first ever picture of the Sun (*seen below*), in 1845. Leon Foucault went on to become a reporter for the Journal of Debates, where he frequently reported on the goings on of the Academy of Sciences and regularly met with Francois Arago. This would play a pivotal role in bringing his pendulum experiment to a larger audience. Leon Foucault and Hippolyte Fizeau built a machine in 1850, to measure the speed of light, yielding the most accurate measurement up to that point. The results of this experiment turned a few more heads, yet Foucault was still not invited to become a member of the Academy of Science. To the world, no matter his accomplishments, he was an amateur scientist. Years later, Foucault would construct an even better experiment to get an even more precise measurement of the speed of light.





His earlier work and relationship with Francois Arago were instrumental in him being able to perform his experiment in a very prestigious place: the Meridian Hall of the Observatory, in Paris. Leon Foucault had his pendulum constructed by an expert craftsman and installed his experiment himself. Invitations were sent out to academia across Paris and on February 3rd, 1851 the scientific community of France were able to witness what Foucault had observed a month earlier. The world turned. For the scientists in attendance it was if they had just witnessed the first man land on the Moon.

But Foucault wasn't done there. On the same day as the "beautiful experiment" he also released a mathematical equation to explain what was being observed: Foucault's Sine Law. $T = 24/\sin q$. The rotation of Earth was reduced to T=hours to complete a circle, sin from trigonometry, and q representing the latitude on Earth. Mathematicians reacted the same way many professionals do, when an unschooled newcomer completely shows them up in their own field: poorly. Later the same year, Prince Louis-Napoléon Bonaparte (soon to become Emperor Napoleon III) would award him the Legion of Honour and the Royal Society of England gave him the Copley Medal in 1855, but the Academy of Sciences wouldn't recognize him as one of them until 1865, three years before his death. A year after his "beautiful experiment", ever the engineer, Leon Foucault invented the gyroscope and used it to create another experiment, to prove once again that the Earth turned.

Bruce Lane



New Observers Group

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

Astronomical Term(s) of the Month: Right Ascension and Declination

When you use an equatorial mount, like the one our new Ritchey-Chretien telescope is mounted on at the VCO, the movement in the gears will be measured by right ascension and declination. These measurements resemble longitude and latitude, for mapping the observable hemisphere of the night sky. Declination (latitude) is the angular distance, measured north or south, of the celestial equator. Right Ascension (longitude) is the angular distance of a target's hour circle moving east from the vernal equinox. Right Ascension is usually measured in time instead of degrees, in this measurement of east-west for the observer. The Declination setting circle is generally found on your equatorial mount, where the counterweight bar meets the mount. Across from the declination setting circle, near where the polar scope is often mounted, is the right ascension setting circle. When you use the setting circles on your equatorial mount, you can set the right ascension and declination to exactly where your target is, to locate objects in the night sky without using computerized mount, if you know the target's coordinates and how to use your equatorial mount.

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 should be you	vp@victoria.rasc.ca
Second Vice President	This should 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
Technical Comm Chair/Sys Admin	Matt Watson	admin@victoria.rasc.ca
Skynews Editor	Bruce Lane	editor@victoria.rasc.ca
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
Membership Coordinator	Chris Purse	membership@victoria.rasc.ca
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-Ann Skibo
	Dan Posey	John McDonald

In Closing

February's issue of SkyNews was a happier affair for having good weather for the lunar eclipse. Otherwise, the pictures would have been a bit pedestrian and featured mostly pedestrians, so a big thanks to all the astrophotographers who generously gave permissions to have their work splashed across the pages of SkyNews. Just like SkyNews, the administration and background activities of RASC Victoria goes on long before and after the big events are done. After changing our year end to December 31st, we're having our annual general meeting on February 13th. It will be more like a regular monthly meeting, as there will be no supper or plaques, but we'll have a guest lecturer and the chance to run for Council. The jobs of 1st and 2nd Vice President need to be filled and if you're looking at being more active in RASC this is a great opportunity to help shape the goings on of our Society.

Bruce Lane: SkyNews Editor

Photography Credits

Page 1: Composite Image of Lunar Eclipse phases, shot from home on Jan 20, 2019, by Joe Carr

Page 2: Lunar Eclipse Totality, from Mount Tolmie, Canon T7i using 203mm (8") SCT, with f6.3 focal reducer-flattener, as a very large camera lens, Jan 20, 2019, by Bruce Lane

Page 3: Moon Halo, through Crab Apple Tree, from Metchosin backyard, Jan 20, 2019 by Bill Weir, using point and shoot camera (no tripod)

Page 3: Composite Image of Lunar Eclipse photos, from Little Saanich Mountain, Jan 20, 2019, by David Lee; shot with Nikon D7200, Nikkor 300/4 lens with TC1.4 Converter, ISO: 800, Exposure: 1/2000 to 4 seconds at f/8, Processing: DXO Photolab and Adobe Photoshop CC

Page 4: Crop of Bruce Lane (SkyNews Editor) at 2013 RASCal Star Party in Metchosin, by Chris Gainor

Page 4: Crop of Reg Dunkley (RASC Victoria President) at 2018 AGM, by Joe Carr

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

Page 5: Full Moon: waiting for the eclipse, by Wyman Lee. Shot with Nikon D300, Iso 400, 600 F18 = 300mm f2.8+2xconverter 1/800s

Page 6: Totality: Lunar Eclipse, Jan 20, 2019, by Wyman Lee

Page 7: Lunar Eclipse Sequence from Backyard, Jan 20, 2019, by John McDonald; using 24mm Sigma lens on a Canon 6D, with tripod. Exposures were roughly 6 minutes apart.

Page 8: VCO Work Crew, Jan 18, 2019, by Bruce Lane

Page 8: Posed Book, "The Case for Mars: the Plan to Settle the Red Planet and Why We Must, by Robert Zubrin", taken in UVic Astronomy Teacher's Lounge on Oct 10, 2018, by Bruce Lane

Page 9: Crop of Diane Bell, from DAO celebration, by Don Moffat

Page 10: Lunar Eclipse, entering the shadow of the Earth, Jan 29, 2019 by Bruce Lane

Page 11: First Photograph of the Sun, 1845, by Léon Foucault and Hippolyte Fizeau

Page 12: Pendulum, image from Pexabay, by Cloe Gerard, from Nantes, France

Page 12: Last Light of the Moon, cropped, Jan 20, 2019, by Bruce Lane

Call for Article and Photo Submissions for March Issue

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