

SKYNEWS



Comet NEOWISE, July 16th, 2020, by Daniel Posey

A Comet Tale

Physically isolated from their fellow RASCals, many members of the local amateur astronomy community were experiencing a state of isolation from their own telescopes, until the Comet NEOWISE called them to action. It hasn't just been the amateur astronomy community paying attention to our celebrity comet either. With the prospects of a bright comet in the northern night sky, members of the public have been regularly gathering in large numbers, in places like Mount Tolmie, Mount Doug, and along the waterfront of Greater Victoria.

The Comet NEOWISE takes its name from the Near Earth Object survey mission it was discovered on, by astronomers using the Wide-field Infrared Survey Explorer space telescope, long before it became the bright comet in the night sky. For those of us without space telescopes at our disposal, early on the comet was best viewed in the early hours of the morning, something prohibitive to many of us who are still working regular hours or who are allergic to getting up in the pre-dawn hours. However, by the second half of July, the comet was clearly visible in the early evening, wandering its way towards and then underneath the constellation Ursa Major. After being teased for weeks with stories of the comet of the century, we all finally had a good view of the spectacle.

The arrival of the comet this year not only resulted in a renaissance of astrophotography and observing (as seen by Sherry Buttnor's image top right and Bill Weir's sketch bottom right), among our Centre's membership, but has inspired many members of the public to take up astronomy as a hobby. It's been a bit like having a lunar eclipse every evening, in terms of accessibility. Even without the usual public outreach work by RASC Victoria members that would support the viewing of a comet this significant, a number of people have come across RASCals out on the hills and in the fields of Greater Victoria, and shared views through their optics. Much in the same way the proximity of another passing star will sometimes nudge loose a ball of ice from the Oort Cloud, to begin its journey to the centre of the solar system, having such a bright comet available for weeks in the night sky has become the catalyst for a rekindling an in interest in astronomy for many people in the Northern Hemisphere. As child we are often consumed by the wonder of staring up at the night sky or the adventures of space exploration. But then, years later, the fast pace and struggles we face as teenagers and young adults often leave little time for these pursuits. At some point though, the wonder of our inner child is reawakened in a moment of clarity when we're older. Sometimes it's the opposition of Mars or a lunar eclipse, but for many people this year, it was a comet.

Bruce Lane





Comet NEOWISE, taken from backyard deck in North Saanich on July 21st, 2020, by Bruce Lane

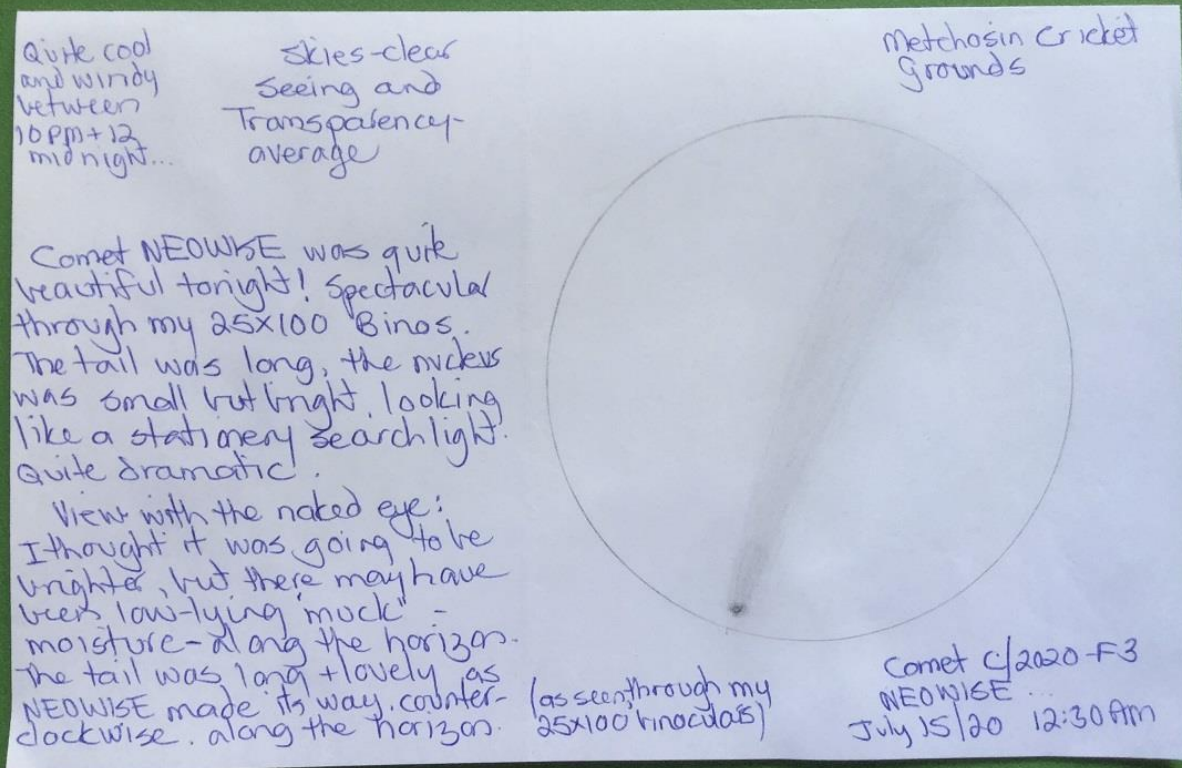
Editorial Remarks



July's fascination with the Comet NEOWISE has spilled into August, although the comet is becoming harder and harder over time to view with our binoculars and telescopes. It's sparked some of our membership to hang out together with their telescopes in small viewing parties of their own. We could very well be seeing the early beginnings of the RASC Metchosin and RASC Mount Tolmie centres. The drive that leads us towards gathering in groups and doing public outreach is easy to understand. Alone, observing the night sky with your telescope is a wondrous thing. Sharing that experience with friends and your local community is a powerful thing. This is why, even with our centre's public outreach and community events cancelled, an effort is still being made to engage our fellow RASCals online.

Putting out a monthly issue of our Centre's newsletter this summer hasn't been easy, given the additional demands on my time. This August issue came perilously close to becoming the September issue. It can be a challenge to find any time for writing, let alone editing and formatting, when there's so much else to get done. It's certainly telling that in the past, whenever someone had the *bright idea* to do a summer issue of *SkyNews*, it was usually the last time that they did so. In this issue of *SkyNews*, we'll have more recaps from our Centre's activities, a historical look at comets, as well as all the astrophotography and articles you've come to expect from the *Victoria Centre SkyNews*.

Bruce Lane: SkyNews Editor



Sketch of Comet C/2020-F3 NEOWISE from the Metchosin Cricket Field, July 15th, 2020, by Diane Bell

Comets in the Ancient World

Like a good many things debated in Ancient Greece, the nature of comets was hotly contested. Pythagoras viewed comets as planets in their own right. Aristotle argued that comets were merely atmospheric aberrations, in part because of their lack of permanence in the night sky to the observer. There many other opinions that where variations on these two ideas, but others took a completely different line of thinking. Anaxagoras hypothesized that comets were an optical illusion caused by planetary conjunctions. During a planetary conjunction, Anaxagoras proposed that the proximity of the planets resulted in a combined image of them stretched out into what is observed as a *comet*. Democritus, a brilliant thinker best known for his idea that everything in the Universe was made out of little atoms, built on the astronomy teachings of Anaxagoras to champion his comet hypothesis. Because his writings survived to be popularized by later peoples around the Mediterranean, Aristotle's opinions on science dominated the scientific worldview for over a thousand years. A few centuries later, the Roman thinker, Seneca the Younger would question Aristotle's idea of comets being atmospheric aberrations, pointing to the orbits of these comets as proof that they were heavier objects, made of "earth-stuff". It should be noted that even the deepest thinkers of the Ancient World lacked access to the kind of optics we now take for granted.

How comets are viewed as portents of doom or good fortune around the Ancient Mediterranean sometimes depended on which side of the Aegean Sea you were on. In any case it was a symbol of extreme change, owing to it being one of the few astronomical events that weren't predictable in the Ancient World and always caught court astrologers by surprise.



Comet C/2020-F3 NEOWISE & noctilucent clouds in the NE sky, from Peacock Hill on July 10th, 2020, by Joe Carr

While Christianity comes from the Middle Eastern monotheistic traditions, the Christians of Europe took their marching orders from Papal Rome, so when it came to interpreting comets they were definitely on the bad omen side of the Aegean Sea. While the Babylonians were adamant about comets being symbols of doom, the empires that followed them were much more flexible on the subject. Mithradates had all the showmanship and diplomacy of Alexander the Great, but lacked the military ability to back it up. Instead becoming a great conqueror, Mithradates had to settle with becoming great at managing to survive to an old age as an enemy of Rome, no matter how many times he was defeated in battle, which in and of itself was quite an accomplishment considering how much Rome wanted him dead. Mithradates claimed to have been born under a bright comet; something attributed to many legendary figures to the east of the Aegean Sea. He included the symbol of the comet in his coinage, alongside his own image, just in case anyone hadn't heard any of his propaganda. The most significant comet, in the year I was born, was the *Mercury Comet*. They really knew how to build muscle cars back then.

Politics also had a lot to do with whether you viewed a comet to be good or bad, given that the harbinger of extreme change wasn't something most absolute rulers eagerly looked forward to being confronted with. Shortly after the assassination of Julius Caesar, a bright comet appeared in the sky, which Romans believed to be the manifestation of Caesar's soul in the heavens. As his patron's named successor, Octavian had the Temple of the Comet built to honour him and then used the popularity of Caesar's cult, to help get the support needed to pass his laws, because that's what the God Caesar would have wanted. The comet was used as a symbol of divinity throughout the reign of Octavian, better known as Augustus Caesar, to remind everyone of his close relationship to Julius Caesar. Had Octavian not taken the initiative to determine the narrative of the omen, it's likely a rival would have used it as an opportunity to undermine his path to being the next emperor. Obviously, when Halley's Comet happened in the year William the Conqueror won his English kingdom, talking about the comet as a portent of doom might have been a poor choice for anyone in the court of the new king. The discussion would have been completely different among the conquered Anglo-Saxons. The comet was actually included in a scene of the Bayeux Tapestry, shown overhead of King Harold and his nervous retinue, where it was politically acceptable to be shown as a symbol of doom.

A few years after the fall of Constantinople, the fortunes of Christian Eastern Europe were at a low point, with the Ottomans marching towards the border of Hungary. During the Siege of Belgrade in 1456, Pope Callixtus III is widely reported to have excommunicated Halley's Comet - something he never actually did. What he did order to be done, to counter the comet's inherent wickedness, was to have church bells rang three times each afternoon and that on the first Sunday of the month, there would be religious processions and sermons about how terrible the Turkish invaders were. The Ottoman army were defeated, after the comet vanished from the sight of observers, but the victory had a lot more to do with an experienced Hungarian general leading a successful counter-attack, wounding the Ottoman Sultan, and forcing him to abandon his plans to invade Eastern Europe.

In Ancient China, royal court astrologers recorded astronomical phenomenon over thousands of years, to keep their patrons up to date on the latest omens, very similar to the way Babylonian astrologer priests did. The comet was regarded as a symbol of chaos, which was a less than positive sign for any ruler, except for one. Emperor Ruizhong was made the ruler of China on two occasions, both times as a puppet of a more powerful family member. Ruizhong spent a great deal of effort avoiding potentially fatal confrontations in the royal court, usually with members of his own family, to the point of having multiple abdications. In one instance, he cited a bright comet in the sky as an omen that it would be a great idea for him to step down, made even greater that it allowed him to avoid being killed by a member of his own family.

What we dismiss as ancient superstition hasn't always been that ancient. Samuel Clemens, better known as Mark Twain, remarked that just as he had been born in the year of Halley's Comet, he would die when it returned; a thing that actually happened. The prediction becomes a bit less astounding, when it was done only a year earlier, at a time when he was acutely aware of his failing health. More recently, when the comet Hale-Bopp shined its brightest in the skies of 1997, the Heaven's Gate cult committed mass suicide in the belief that once freed of their material forms they would all be going to a spaceship that was traveling behind the comet. Given the way 2020 is shaping up, if one were to interpret the appearance of our current celebrity comet as an omen, it's likely not to be getting many favourable reviews at anyone's court, royal or otherwise.

Bruce Lane



Astro Café: Now Online



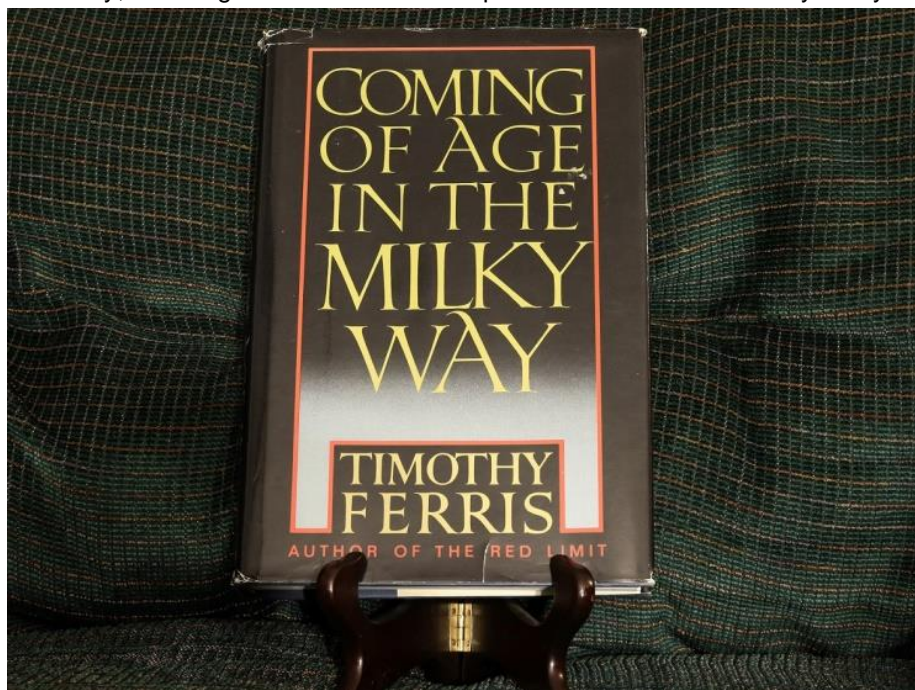
The weekly social gathering of amateur astronomers on Monday nights, known as Astro Café, is continuing online for the foreseeable future. As with many groups, we're trying to find ways to still function as a Centre, without meeting in person. Members are posting their astrophotography, short articles, 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. Astro Café normally takes a break for the summer months, but this year some of our members have generously stepped up to host the Zoom sessions, allowing our pandemic shut-in members a chance to socialize online with other amateur astronomers in RASC Victoria. You can access the *Virtual Astro Café* at: <https://www.victoria.rasc.ca/astronomy-cafe/>

For the first online session in July, Alistair Ling (RASC Edmonton) did a show and tell of his noctilucent cloud images and there were some lunar photos by local centre members. The next Astro Café saw the first flurry of images of Comet NEOWISE. The third Monday saw a continued barrage of comet images, as well as an image of the North America Nebula by Dan Posey. For the last Monday of the month, there was a presentation about comets that had been observed and imaged in the past by RASC Victoria members and Nelson Walker discussed the Herschel 400 observing list.

Bruce Lane

From the Library

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



This month we're taking a closer look at ***Coming of Age in the Milky Way*, by Timothy Ferris**. This is an excellent cosmology history book. I own a few books, written by Timothy Ferris, and this was the first book I read that properly bridged the gap between history and astronomy. One of the things I liked about it was that it didn't gloss over or skip astronomy in the Ancient World, as most books on the subject do. Timothy Ferris takes you on a journey from the earliest voices about the night sky, right up to the Renaissance, into the Enlightenment, and then forward all the way to the cosmological struggles of astrophysicists in the 20th Century. *Coming of Age in the Milky Way* is great read on the history of cosmology and it's available by order from your local bookstore.

Bruce Lane

Hill and Dale (Observing on the Island)

The flurry of amateur astronomy activity this month was focused on the Comet NEOWISE, but once outside looking at this amazing sight, amateur astronomers are getting back behind their telescopes again in larger numbers. The comet has elicited a lot of interest in astronomy, both among the local amateur astronomy community and the public at large, resulting in some observing spots getting a bit crowded. While the comet has been the main attraction in July, once out under the night sky, amateur astronomers have been quick to take the opportunity to image and observe the Moon, planets, and a myriad of available deep space objects.



NGC 6946 Fireworks Galaxy, imaged July 13-15th, 2020, by Doug MacDonald

Members of the RASC Victoria Centre have been going out on their own in small groups, taking advantage of some of the usual haunts used by amateur astronomers: the Metchosin Cricket Field, Mount Tolmie, Cattle Point, and Island View Beach. Just remember to be careful out there and don't share your eyepieces, without disinfecting them with alcohol first.

The long lost Victoria Centre Observatory, located on Little Saanich Mountain, remains closed to our members. The only exception is a rare visit by the Technical Committee, to either remove or install a telescope, when they get permission from the National Research Council to do so. When we do return to the VCO, no doubt there will be more wildlife encounters than usual, given that the place has largely been abandoned to the wilds since the lockdown.

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 when things return to something approaching normal.



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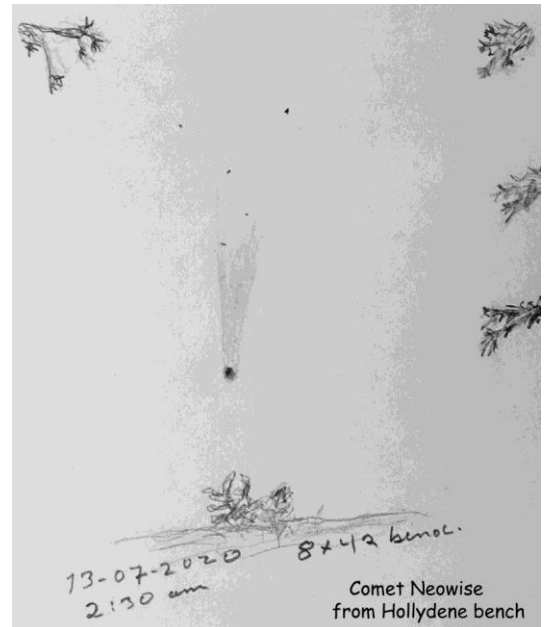
Bruce Lane



Astronomical Term of the Month: Outgassing

Outgassing is what gives comets their tails, creating the effect that the Ancient Greeks compared to hair (*as seen on this sketch by Dorothy Paul*). When a comet moves towards the centre of the solar system and closer to the Sun, the heat of our star melts the icy surface, releasing gases and dust. If the comet is particularly porous a lot of material can be released. In many instances, the comet doesn't *survive* its orbit around the Sun, with the nucleus breaking apart and all that is left is the outgassing and the debris field from the shattered nucleus of the comet.

Bruce Lane



In Closing



We're approaching that time of the year where conditions are perfect for even the most fair weather astronomers. It's warm outside and starting to get darker earlier every night, as the Summer Solstice gets further behind us in the rear view mirror. This would normally mean amateur astronomers eagerly anticipating the new moon in August, when many of us would be planning to attend a star party, either here on the Island or in the BC Interior. Just like our public outreach events, star parties across North America have been cancelled, including *Stellafane*, a convention held in Vermont since the earliest days of popular amateur astronomy, to celebrate telescope making. Some star parties are being salvaged as online events, in the same way the RASC National General Assembly was. A few star parties

scheduled for September and October are even preceding in the hopes of a business somewhat as usual event. I'd been planning for quite some time, to be setting up camp on a hillside near Merritt for their week long, star party, but that was cancelled long ago.

Back here in Victoria, it's more important than ever to continue to be vigilant, with regard to the current pandemic. With more shops, venues, and travel options opening up and more people relaxing their guard, we're getting more cases on the Island now than when the Province shut everything down. For those of you not so overwhelmed with work or childcare, it's a good time to catch up on your reading, look at some of those documentaries and articles you've got bookmarked on your computer browser, and work on some projects around the home you've been putting off. Most importantly, grab some optics and get outside, under the night sky. It's a perfect time of year to lose yourself in the cosmos, if only for a little while.

Bruce Lane: SkyNews Editor

Photography Credits

Cover: Comet NEOWISE - semi-wide field, July 16th, 2020, by Daniel Posey; 1 minute 40 seconds (25x4s) with Sigma 105 at f1.4 and my Canon Ra at ISO 640. This was shot though some low cloud under heavy light pollution.

Page 2: Comet NEOWISE, July 20th, 2020, by Sherry Buttnor

Page 2: Sketch of Comet NEOWISE, as seen through 150mm Dobsonian reflector, July 13th, 2020, by Bill Weir

Page 3: Comet NEOWISE, taken from backyard deck in North Saanich, 30 second exposure, with Canon T7i and 105mm telephoto macro lens, using a Star Adventurer tracking mount, on July 21st, 2020, by Bruce Lane

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

Page 4: Sketch of Comet C/2020-F3 NEOWISE from the Metchosin Cricket Field, July 15th, 2020, by Diane Bell

Page 5: Comet C/2020-F3 NEOWISE & noctilucent clouds in the NE sky, from Peacock Hill on July 10th, 2020, by Joe Carr

Page 6: Comet C/2020 F3 Neowise from Mt. Tolmie, July 21st, 2020, by David Lee; shot with Nikon Z6 with FTZ adapter and Nikkor 300/4 AFS lens with 1.4 TC (equivalent of 420mm lens and cropped). Stack of 20 light images of 6 seconds at f/5.6; image of head single shot

Page 7: Photograph and Design of Astro Cafe Mug, by Joe Carr

Page 7: Posed Book, "Coming of Age in the Milky Way", taken in Editor's home on July 15th, 2020, by Bruce Lane

Page 8: NGC 6946 Fireworks Galaxy, imaged July 13-15th, 2020, by Doug MacDonald; 6 hours of straight RGB shot at f/5.5 with a 5" refractor

Page 9: Comet Neowise, imaged July 13th from downtown Victoria, by John McDonald; Stack of 10 subs cropped from a full frame Canon RA. Processed with ACR and Photoshop.

Page 9: Gate Closed at Observatory Hill, March 20th, 2020, by Bruce Lane

Page 10: Sketch of Comet NEOWISE, from Hollydene Park, July 13th, 2020, by Dorothy Paul; comet viewed through 8X42 binoculars

Page 10: Chicken Matriarch "Blacky", August 16th, 2020, by Bruce Lane

Page 12: Apollo 14 Backup Commander Gene Cernan (right) works at the Central Station, watched by Backup LMP Joe Engle. The Mortar pack is just in front of Engle, the Passive Seismic Experiment (PSE) just beyond him, and the Charged-Particle Lunar Environment Experiment (CPLEE) is beyond the PSE. The cable reel on the right edge of the image is part of the Thumper-Geophone. August 27th, 1970. Scan by J.L. Pickering. Photo courtesy of NASA

Call for Article and Photo Submissions for September Issue

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

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