



Astronomy Day at the Museum, May 7, 2022; by Brian Barber

The Return of Astronomy Day

After a two year absence, Astronomy Day made an in person return to Victoria! A lot of volunteers stepped up to make this event possible and as was the case in the *Before Times*, the Royal BC Museum allowed us to use their main floor and Newcombe Hall. As well as RASC Victoria, there were representatives from the Friends of the Dominion Astrophysics Observatory, Victoria High School Astronomy Club, University of Victoria Astronomy Department, Camosun College, Shawnigan Lake School, Science Ventures, the National Research Council, and the Dominion Astrophysics Observatory.

RASC Victoria had a welcome table; Bill Weir ran a telescope show and tell station (which included a Galileo telescope replica); astrophotography was shown via print and video mediums; there was a presentation on the problem of light pollution; visitors could *Ask an Astronomer*; and the weather even allowed for some solar observing outside. There were also arts and crafts tables set up to engage children (where volunteers gave it their all despite the threat of coming down with an acute case of *glitter lung*).



Astronomy Day featured a number of presentations in the Newcombe Hall throughout the morning and afternoon. Natasha van Bentum gave a presentation on light based science; JJ Kavelaars (NRC) gave a talk on *Exploring a New World on the Edge of the Solar System, New Horizons and 2014 MU69*; Ruobing Dong (UVic planetary researcher) discussed *Observing Planet Formation around Young Stars*; and *Space Suite I and II*, a series of astronomy film shorts, were shown courtesy of Knowledge Network and Two Story Productions. On top of that, Elizabeth Tasker and Ria Voros gave a lecture on *Science & Storytelling*, which was repeated later up at the Centre of the Universe. Elizabeth Tasker is an astrophysicist at the Institute for Space and Astronautical Science at the Japan Aerospace Exploration Agency. Ria Voros is a local *Young Adult* novelist whose latest work is coincidentally titled: *The Centre of the Universe*.

RASC Victoria was also among the RASC centres that participated in the RASC National Astronomy Day webinar. The *Shooting for the Moon* event, celebrated lunar observing and astrophotography, the history of Apollo missions of the past, and the upcoming NASA led Artemis Missions. The Canadian Space Agency is one of the many partners in this long awaited endeavour and we've been reserved a spot for our astronauts on two missions. David Lee hosted RASC Victoria's segment. RASC National went live via video with Randy Enkin (RASC Victoria President), while he was sketching the Moon at his telescope. There was also a video by Bill Weir played about his observing experiences. Laurie Roche (Friends of the DAO Board of Director), David Payne (RASC Victoria Vice President), and Bill Weir joined the webcast live from the Centre of the Universe, on top of Observatory Hill.

After wrapping up the first portion of Astronomy Day at 3pm, volunteers packed everything up. A number of them relocated for the second half of Astronomy Day, for an evening up at the Dominion Astrophysics Observatory and Centre of the Universe public outreach facility, hosted by the Friends of the DAO and the NRC. Up on the Hill, there were guided tours of the Dominion Astrophysics Observatory; information desks and exhibits at the Centre of the Universe; and telescopes set up in the parking lot for observing (although the weather was a bit on the cloudy side). Chris Gainor, the official NASA biographer of the Hubble Telescope, gave a lecture about the Hubble and the James Webb Space Telescopes.

Astronomy Day is the longest public outreach event of the year, especially for those participating in both the day and nighttime portions. This year was another big event, organized by David Lee and Laurie Roche. After two years of having Astronomy Day reduced to being a purely online event, this year's Astronomy Day not only brought the same elements that made previous years a success, but the focus on online communications over the last couple of years has also resulted in a stronger audio visual and web presence for the event.



Bruce Lane

Editorial Remarks



Springtime in Victoria is a lengthy period of easing into our summer, while the rest of Canada is still in varying stages of freezing. This year, we're getting a lot less of the usual weather we've come to take for granted in Victoria and experiencing more like what it's like in the rest of Canada, except that we still get the higher cost of living that was supposed to be the trade-off for our nicer climes.

In addition to the widely publicized Artemis Mission, there is a lot going on in astronomy and space these days. After numerous delays, Boeing finally sent their Starliner crew module to the International Space Station, in an unmanned test mission. Meanwhile, SpaceX has been ferrying astronauts to and from the ISS since 2020, with their latest crew rotation completed at the beginning of this month. On the downside for many amateur astronomers, Space X also launched another 59 satellites in May. The last image taken by the NASA InSight lander on Mars was released only a few days ago, as its systems no longer have the power to continue its scientific mission. We even got an image of the event horizon of the black hole at the centre of our own Milky Way Galaxy, thanks to the Event Horizon Telescope array and deep thinking artificial intelligence.

Back here on terra firma, we've seen a lot of life returning to normal or at least pretending that everything is normal again. Astronomy Day made its return, with public outreach events organized across the country, and we'll likely see more in-person public outreach events in the future. In this issue of *SkyNews*, we'll have more recaps from our Centre's activities, as well as all the astrophotography and articles you've come to expect from the *Victoria Centre SkyNews*.

Bruce Lane: SkyNews Editor



Eyes galaxies, April 19-22-23, 2022; by Lucky Budd

President's Message for May



Every year, the Victoria Centre of the Royal Astronomical Society of Canada sponsors two awards at the Vancouver Island Regional Science Fair. Well, not every year – we missed the last two years because of covid. This year, the Science Fair was virtual and about one quarter the size of the pre-covid event – 52 projects – with 6 assessed to be on astronomical or astronomy-adjacent themes. Many thanks to our representatives, Dorothy Paul and David Lee, for interviewing the students and arriving at their decisions. Each winner received a recognition certificate, a RASC family membership (for the student and one adult), a copy of *Explore the Universe*, and the offer of a classroom visit from our Schools Programs officers. We also invited the prize winners to present their projects at the Astro Café.

Grade 7 student Beata Ariana-Minniti created a very clever solar heat collector, coupled to a battery charger. Nathan Hellner-Mestelman (Grade 9) worked out the optimal orbit for cube-sats to avoid chain-reaction collisions. These students wowed us with their presentations at the Astro Café. Nathan was included in Team Vancouver Island at the Canada-Wide Science Fair and went on to win a silver medal.

As this year of Astro Cafés come to a close, we should all thank Joe Carr and Chris Purse for getting us through the fully online times and the transition to hybrid meetings. We have grown closer, despite the isolation of the last couple of years, because of their efforts. We'll see you again at Astro Café starting in September. It is essential that we get more people to step up to help continue the Astro Café.

I want to congratulate our strong community who pulled together to put on all the facets that went into International Astronomy Day on May 7. We did not have much time to organize, as we did not even know if there would be in-person events until March. David Lee and Laurie Roche coordinated our volunteers wonderfully. There are others among you who are perfectly capable and I hope willing to take on their roles for future events. Astronomy outreach is very satisfying. Let's share the load in making these opportunities happen.

The amateur astronomy community in Victoria is strong. Our club is extremely fortunate to have sufficient funds to make fund-raising unnecessary and sufficient volunteers to put on several high quality events. We are not lacking a strong Board and Council. Nevertheless, some members are not joining in, I think because they have not imagined that their contribution would be valuable and fun. Let me assure you that indeed you will get more out of such volunteerism than you put in.

Look Up,

Randy Enkin, President@Victoria.RASC.ca





NGC4725, NGC4747 and NGC4712; April 15, 2022; by Scott Garrod

Astro Café: Continues Online

The weekly social gathering of amateur astronomers on Monday nights, known as Astro Café, has been continuing online. As with many groups, we're trying to find ways to still function as an astronomy society, without meeting in person. Members are posting their astrophotography, short articles, as well as links to astronomy stories from the Internet. Sadly, you'll have to make your own coffee and the only cookies are those your browser picks up when you visit our website. You can access the *Virtual Astro Café* at: <https://www.victoria.rasc.ca/astronomy-cafe/>

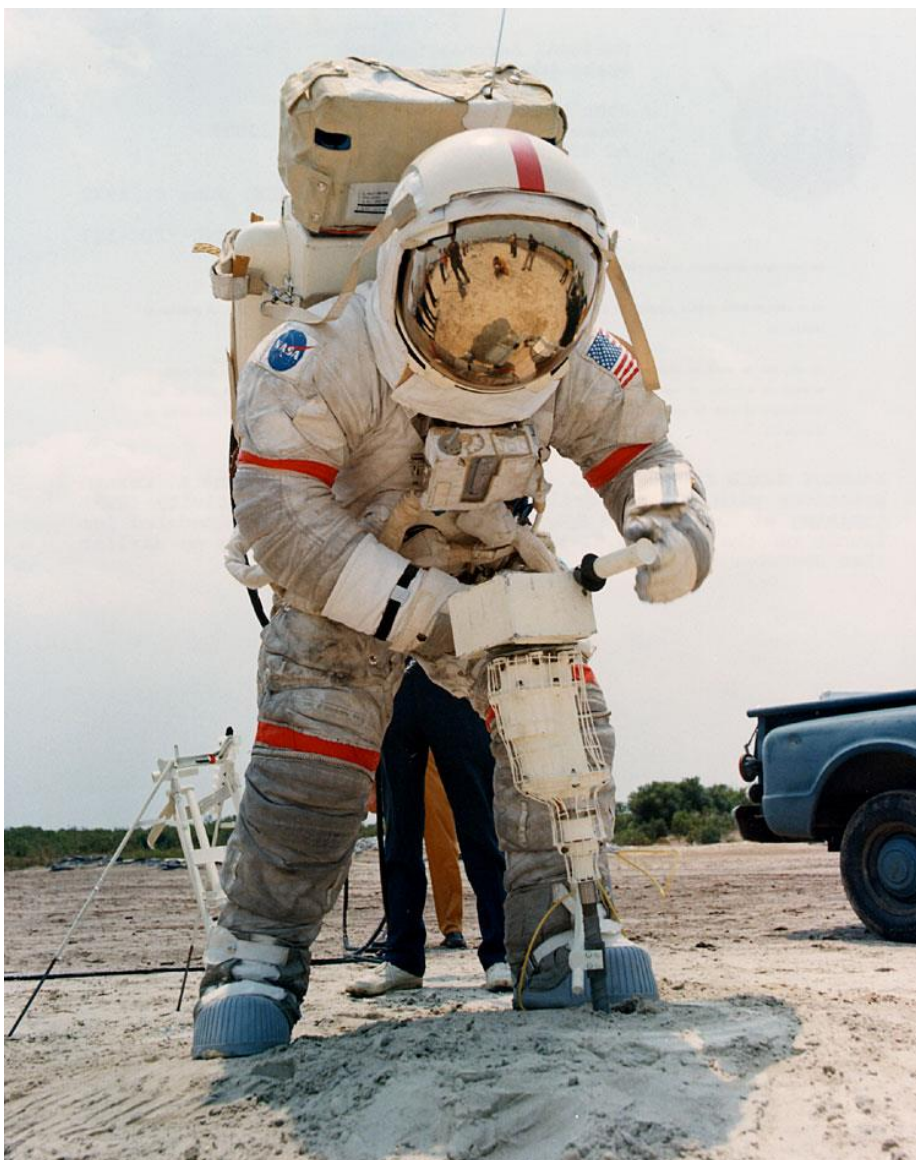


The first Astro Café of April was hosted by Chris Purse. David Lee talked about upcoming *Special Interest Group* meetings and a Netflix series filmed in Victoria that featured the local Dominion Astrophysics Observatory: the *Super PupZ* children's series. David Lee, Laurie Roche, and others discussed preparations for the upcoming Astronomy Day in May; Dave Robinson showed some solar images from RASC Edmonton; Randy Enkin talked about our centre's Sun Spotter telescope and showed some recent images of the aurora taken in Tofino, as well as mentioning his invitation to the photographer to do a presentation for an upcoming meeting. Joe Carr and David Lee discussed changes coming to Astronomy Café; Joe mentioned that Astro Café mugs are still for sale; and Martin Gisborne finished the evening off by discussing some astronomy books and showing some of his recent images.

The next Astro Café of the month started off with guest speaker Chris Boar (President of the Nanaimo Astronomy Society) giving an excellent presentation about the Apollo program from the perspective of a *space nerd*, from his Apollo Mission themed home office. Dave showed more images from RASC Edmonton; David Lee talked more about the plans for the upcoming Astronomy Day; Lauri Roche went into length about the RASC National Artemis Mission cross Canada broadcast; Bill Weir let people know about some available astronomy books from his recent decluttering efforts at home; and Martin Gisborne talked about some more astronomy books.

The last Astro Café of April was hosted from next month's in person venue at the Fairfield Gonzales Community Association. Discussion opened up with and later returned to the subject of all the changes coming for next month's combined in-person/online hybrid Astro Café. Lauri Roche and David Lee led conversation about the upcoming Astronomy Day event; Brock Johnston, Martin Gisborne, and Dave Payne showed their astrophotography; with Dave Payne giving further analysis of rejection frames. Chris Gainor gave an update on the James Webb Space Telescope; Lauri Roche talks about recreating "*The Great Debate*" and kicked off debate about what is currently going on in space these days; and John McDonald discussed a Physics Today article about ballooning satellite populations in low Earth orbit and how they are changing science and society.

Bruce Lane





The Cigar Galaxy (Messier 82), April 5, 2022; by Brock Johnston

Special Interest Groups

Getting Started in Astronomy

In May, the beginners program paused its regular programming to prepare for the upcoming Astronomy Day. Unfortunately weather prevented the creation of video clips showing members observing the Moon. For more information on this group, please contact David Lee at david@victoria.rasc.ca

Astrophotography

In a recent SIG, Brock showed the group his workflow, using Syril and Gimp. This no cost alternative to PixInsight received a lot of interest. The Stretch routine that David Payne has been collaboratively developing for use in PixInsight will be featured on an upcoming episode of the Astro Imaging Channel on May 29th. For more information about this group, please contact David Payne at vp@victoria.rasc.ca.

Electronically Assisted Astronomy

As we return to public outreach on the Hill, we are dusting off the equipment acquired a number of years ago, allowing us to stream and stack images of celestial objects. Members of the group are working on this initiative. For more information on this group, please contact David Lee at david@victoria.rasc.ca

Makers

The Makers SIG had a special visit from Michel Michaud. He gave an update on his recently built observatory in Quebec. He is still waiting for some equipment, but has already resumed his photometric work. For more information about this group, please contact Jim Cliffe at jim@victoria.rasc.ca.

David Lee

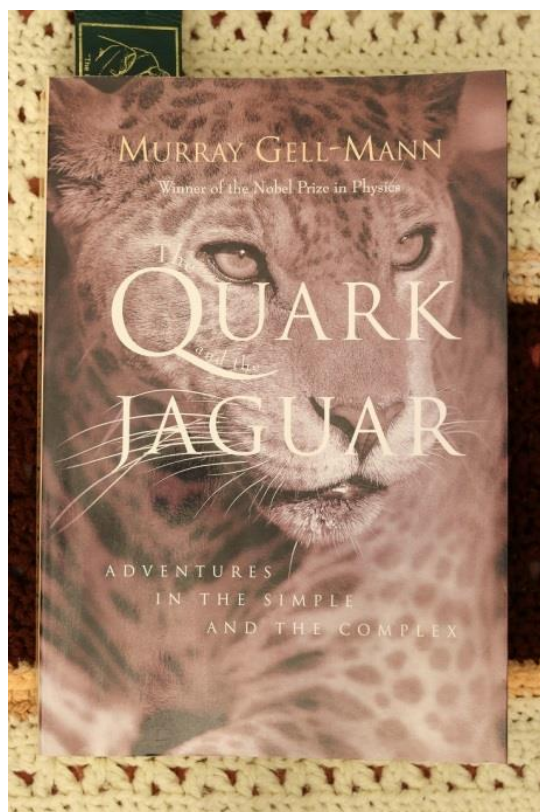


IC4677 Cat's Eye Nebula with NGC6552; April 1, 2022; by Scott Garrod.

From the Library

The RASC Victoria Centre Library is housed in the Astronomy Department's faculty lounge, located on the 4th floor of the Elliott Building, at the University of Victoria. It contains over 500 titles, curated by Alex Schmid, our RASC Victoria Centre Librarian. Alex is currently running our library in the same way the Greater Victoria Public Library runs its shut-in branch, driving around to do deliveries and pickups for our membership, to provide access to books from the collection. For more information and to make a book delivery request, please contact Alex Schmidt at: librarian@victoria.rasc.ca

Our library covers many aspects of astronomy: observing, astrophotography, telescope construction, space exploration, astrophysics, and much more. Normally, the library is opened up during the social gatherings in the faculty lounge, after our monthly meetings, with coffee, juice, and cookies provided by our Centre. In the past I've been doing book reviews of the contents of our Centre's library, but until the resumption of our monthly meetings at the University of Victoria, I'll mostly 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 *The Quark and the Jaguar*, by Murray Gell-Mann. This is a book I've wanted to read since the first time I went poking around in our RASC Centre Library, about a decade ago. I'm sure it had nothing to do with the jaguar on the cover, but the jaguar on the cover is certainly eye catching. Kudos to the publisher's marketing and art department for bucking the older trend of plain science book covers. My interest in the book was largely due to reading James Gleick's *Chaos: Making a New Science*, a few years earlier. Time went by and I often caught a glimpse of the feline themed book cover, whenever I went upstairs to the University Astronomy Faculty lounge after our RASC Victoria monthly meetings. I've always made a point of having a lot of unread books on hand and I honestly don't know if I'll live long enough to read all the books that I currently own, whose number always seems to mysteriously grow. When we held our last monthly meeting at the University of Victoria, I had the sense that it was going to be the last meeting in a long time, so I made an effort to sign out a bunch of titles that had piqued my interest, including *The Quark and the Jaguar*. As is often the case, when I get into a book I've been putting off reading for a long time, the first reaction I often have is that *I should have read this book years ago*.

Murray Gell-Mann was born in New York, to parents who came to America from the Austria-Hungarian Empire in the early 20th Century. He was a child protégé, earning his first degree at the age of 18 and getting his doctorate at 20, at a time when gifted students were often allowed to skip ahead. While studying the particles created by particle accelerators, he took a post-doctoral position at Princeton, briefly working with Robert Oppenheimer. From there, he took a job at the University of Chicago to work with Enrico Fermi. When he relocated to Caltech in 1955 he was their youngest ever full professor and began his long friendship with Richard Feynman.

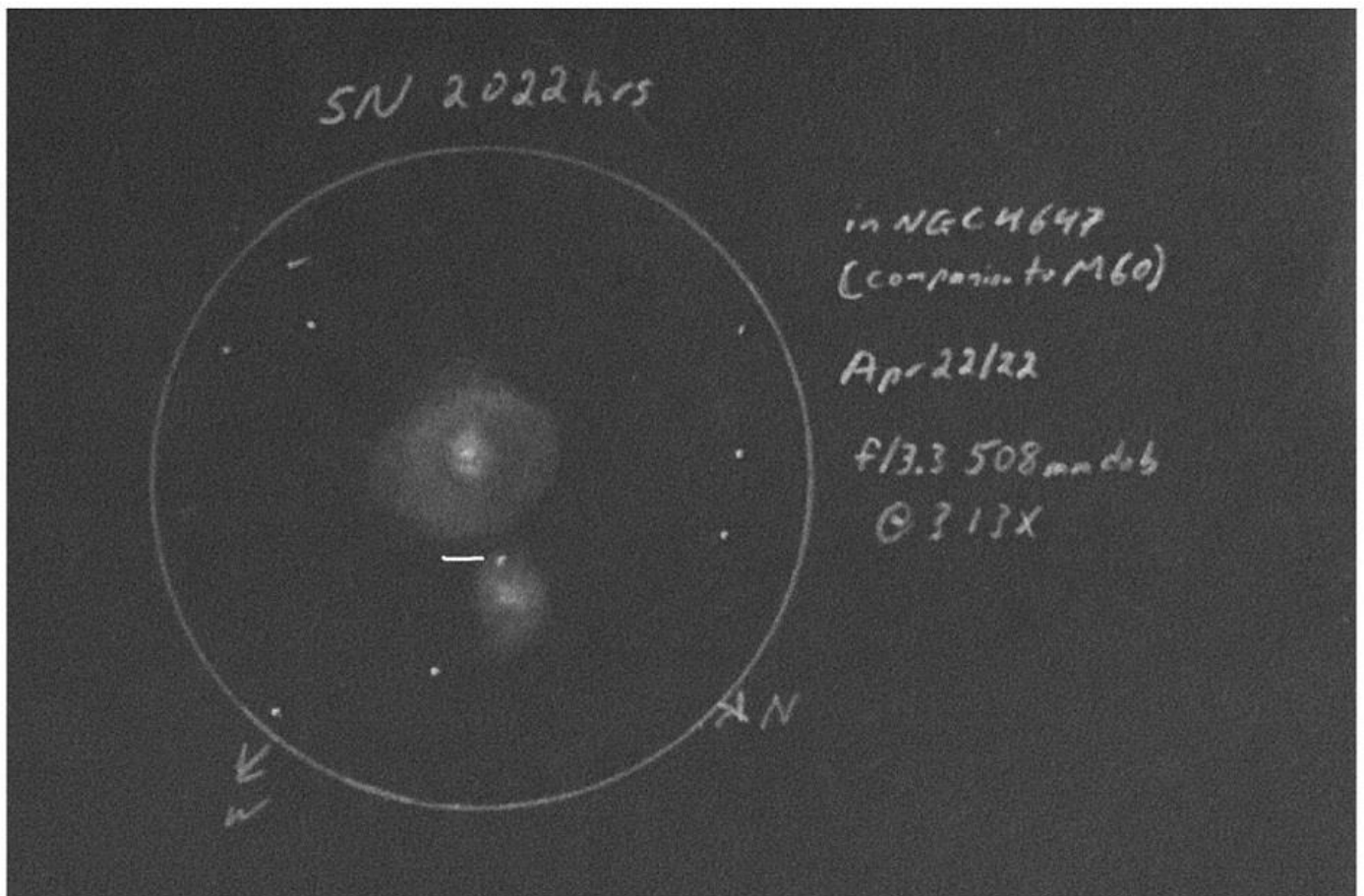
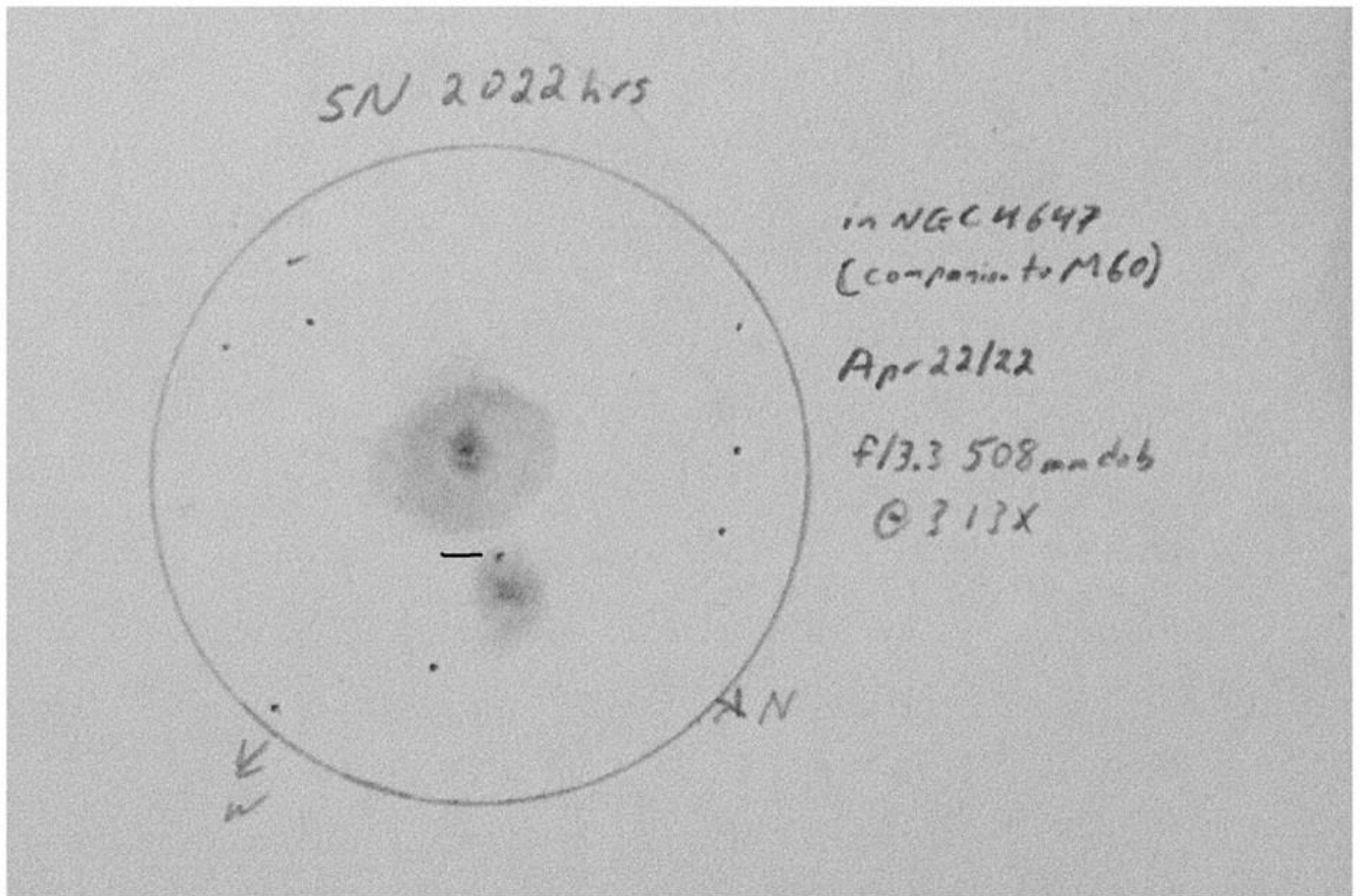
While Gell-Mann was wrestling with the idea of a new subatomic particle with a fractional charge, with three subatomic particles held together by gluons, he got the idea for the name of this new subatomic particle from a line in *Finnegan's Wake*: "Three quarks for Muster Mark!" Gell-Mann was not only drawn to solving puzzles that the Universe presented to him, but he also created the tools others are using to do so, such as *current algebra* (infinite-dimensional Lie algebra). He was a strong proponent of String Theory. He was a self-professed polymath in a time when scientists were becoming much more specialized with their knowledge and this was best expressed by being one of the scientists who founded the Santa Fe Institute. The Santa Fe Institute exists as a scientific think tank, similar to the Perimeter Institute in Canada, where a multi-discipline approach is taken to solving complex problems. Murray Gell-Mann has won numerous awards and accolades for his scientific labours, including the Nobel Prize in Physics for his ground breaking work on the theory of elementary particles. Despite retiring as a professor in 1993, he remained active in academia right up until he passed away in 2019 at the age of 89.

The Quark and the Jaguar is an engaging read about the nuts and bolts of science. Gell-Mann is as or more interested in how and why people think about thinking as what they're thinking about. This book goes into detail about complex and simple systems, before finally getting into quantum mechanics. *The Quark and the Jaguar* is excellent read and it's either available by order from your local bookstore or you can borrow it from our RASC Victoria Library.

Bruce Lane



M81 - Bode's Nebula (Galaxy) in LRGB + NB, March/April 2022, by Dave Payne.



Hill and Dale (Observing on the Island)

By mid-April, Victoria is normally well on the way to warmer days, but if there's one thing that's become abundantly clear: 2022 doesn't do normal. It was cloudy and cold, but there were a few nights or moments during the night of clear skies, or at least partly clear skies. On April 22nd, Bill Weir and Jim Cox were up at the Pearson College Observatory, observing the supernova in galaxy NGC 4647 (*Bill Weir's sketch seen on previous page*).



M94 - The Croc's or Cat's Eye Galaxy, April 2022, by Dave Payne.

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

A reminder that although the VCO belongs to and is for the use of the members of the RASC Victoria Centre. In the *Before Times*, MiCs (Members in Charge) ran both weekly scheduled and unscheduled sessions to take advantage of the weather, but for the foreseeable future observing sessions will be a lot less scheduled and less frequent. 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) at membership@rasc.victoria.ca and we'll see you up there on the Hill one of these nights.

Bruce Lane

Astronomical Term of the Month: Lunar Regolith



The lunar regolith refers to a layer of material on the surface of the Moon that consists of loose dust, broken rock, and soil. Regolith can occur on the surface of a planet, moon, or asteroid. The term was first used in the late 1800s to refer to material on the surface of the Earth, but like many geology terms it was taken to the Moon and beyond. On the Moon, the exposed bedrock is being constantly pommelled by meteorites, resulting in debris building up over time. On Earth, the regolith has different causes, such as volcanic ash, and is acted on by erosion to break it down and wear down the sharp edges. The Moon doesn't have the same geological and chemical processes, like oxidation, so the dust there keeps its jagged edges.

This is especially a concern for future mining and colonist missions that are planned for the lunar surface. The jagged dust would be particularly hard on machinery gears and filters. They're likely going to need to bring 3D printers with them, to save from bringing every possible spare part imaginable. On Earth and aboard the International Space Station, the barrier for making effective use of 3D printers by government institutions is that making anything beyond shelving brackets and gift drinking cups violates corporate patents, resulting in them sitting idle, without the patent holder's agreement to proceed and paying a licensing fee. It will be interesting to see how those corporate patents are tested by using 3D printers on the Moon. I'm quite certain that this issue has been discussed at some length in the Space Law community.

During the Apollo missions, astronauts were constantly dragging in large quantities of this lunar dust back into their capsules, because it was sticking to their EVA (extravehicular activity) suits. They tried their best to remove it, but the dust got everywhere. There were valid concerns about it getting into the systems and circuits aboard the space ship on the return home. Inhaling jagged moon dust probably wasn't ideal for the health of the astronauts either. The dust of Mars is actually much finer and less abrasive than the dust on the Moon, which will make that factor of colonization easier, but that much longer commute is going to challenge our scientists and engineers to overcome the problems it presents.

Before the first uncrewed probes successfully landed on the surface of the Moon, many astronomers were concerned that landing spacecraft would sink into the lunar soil. Beyond merely supporting the capsules of landing craft on the surface of the Moon, landing struts performed valuable experiments to see how far they penetrated into the regolith. Six Apollo missions and three Soviet Luna missions returned lunar soil to Earth for analysis. A much higher concentration of Chromium was consistently one of the indicators of lunar soil, compared to the soil of our own planet. In preparation for missions returning to the Moon, scientists have been studying how plants react to being grown in lunar regolith from the Apollo missions. The results are that the plants are stressed by the higher concentrations of salts and metals, which vary depending on what site they were originally from. Like the rocky ground of my yard in North Saanich, a lot of plants struggled to thrive in the lunar regolith.

Bruce Lane

In Closing



June is right around the corner and the prospect of another *January* looks likely, after a colder than average springtime up until this point. We got blindsided by another big storm this month, knocking down trees and knocking out electric power to many people on the Island. Our trees are accustomed to bracing against strong north-easterly winds, but less so versus high winds from the south; although we seem to be getting more of this sort of storm in recent years. It doesn't help things when property owners and municipal workers thin out stands of trees that grew up together, creating larger gaps for the wind to exploit and isolating trees that aren't used to standing alone. The destruction from the

storm would have been a lot worse if the trees hadn't been periodically getting rain, during our bleak weather, to strengthen their root systems. Our bad weather is one more case of our inconvenience being a catastrophe everywhere else, with effects on agriculture and major weather events elsewhere taking their toll. It's still a good time to get out there and complain about the cold weather though, before it suddenly changes, and we're all stuck complaining about the temperature being too hot.

The Pandemic hasn't ended, but a lot of people are acting as though it has. In British Columbia, despite the fact that testing and tracing has been drastically reduced, confirmed lab cases remain high. Even if you use a personal test kit and test positive, it's extremely unlikely that you're going to be included in the official statistics, unless you're a health care worker or you get hospitalized. There were 473 people hospitalized and 42 people died in BC during the week of May 15-21st. This was during the last week that the BC Health Authority gave any statistics for and these preliminary numbers are expected to increase as more data becomes available in the coming weeks. I personally know more people who have contracted covid-19 over this last month than at any other time during the Pandemic and I know several people still suffering from *long covid* they contracted last year. Vacationers are flooding the airports to get back to traveling again, only to find that many of their flights are canceled, due to aircrews getting decimated by the virus. The same problems of crowded conditions in a small space, with recycled air, haven't gone away. Bored with merely bringing back new variants of covid-19, tourists are now jazzing things up by bringing us more exciting souvenirs, like monkeypox. People should continue to take personal precautions and protect themselves, despite the absence of government mandates to do so. We have better treatments available for covid-19, better trained and experienced staff than ever before, vaccines are preventing worse outcomes for people who contract covid-19, and vaccine booster shots are available for those that are bothering to get them. While many countries around the world are struggling to acquire vaccines for their citizens, British Columbia alone has thrown out over 650 000 doses of covid-19 vaccine, because of low interest for boosters, wastage, and vaccines expiring without being used.

Astronomy Day is the event that kicks off the public outreach season in earnest for spring and summer. Following this year's festivities, there will be upcoming FDAO *Summer Saturday* public outreach events, scheduled bi-weekly up on Observatory Hill (June 4th and 18th). These Saturday nights, at the DAO and Centre of the Universe public outreach facility, are free of charge but do require event tickets (available online) to ensure crowd capacities are not exceeded. The Comox Valley Astronomy Club returned with online monthly meetings via Zoom in March and are looking forward to having in-person meetings at some point in the future. The Nanaimo Astronomy Society returned to in-person monthly

meetings this month. The Cowichan Valley Starfinders are planning the resumption of their annual star party this year, on August 26-27th, at Bright Angel Park. On the BC Mainland, the Mount Kobau Star Party is scheduled for August 20-28th. After a couple of years of being cancelled by the Pandemic, the 2022 Merritt Star Quest is still in the planning stage and expected to occur late this summer, but at a smaller venue than in the past. Registration is now open for the annual RASC General Assembly, which is once more a virtual event, and will be held on June 24-27th. RASC Victoria is planning to have a tent and tables, as well as solar observing, at this year's Saanich Fair in September. Astro Café will be taking a summer break, after two years of running non-stop to provide a point of connection for the local amateur astronomy community. Astro Café returns on September 12th.

Bruce Lane: SkyNews Editor



Photography Credits

Cover: Astronomy Day, May 7, 2022; by Brian Barber. Bill Weir talks to Mallory Thorpe in the foreground, as astronomy displays and information desks dominate the ground floor of the Royal BC Museum.

Page 2: Astronomy Day Kids Craft Tables, May 7, 2022; by Joe Carr.

Page 2: Astronomy Day RASC Information Desk at the Centre of the Universe, May 7, 2022; by Chris Gainor.

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

Page 3: Eyes galaxies, April 19-22-23, 2022; by Lucky Budd. Evolution 8 with .7 focal reducer. No filters or guiding.

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

Page 4: Science Fair winner: Nathan Hellner-Mestelman

Page 4: Science Fair winner: Beata Ariana-Minniti

Page 5: NGC4725, NGC4747 and NGC4712; April 15, 2022; by Scott Garrod. 52 X 300 seconds ZWO asi533MC Pro / Astro Tech 130ED / iOptron CEM60.

Page 6: Photograph and Design of Astro Cafe Mug, by Joe Carr

Page 6: Apollo 17 Training: *Gene Cernan has attached the wrench to the drill stem and is blocking the wrench handle with his left boot while he unscrews the drill from the stem. ALSJFB reader Michael Christopher has located a number of training images showing members of both the prime and backup crews for missions on which the drill was to be flown wearing versions of the cover glove. This Apollo 17 training photo on May 17, 1972 shows Gene wearing cover gloves. Note the Velcro strap at his right wrist securing the cover glove over the suit glove.* Research by J.L. Pickering. Courtesy of NASA.

Page 7: Messier 82, the Cigar Galaxy, Apr 5, 2022; by Brock Johnston. Image of Messier 82, aka the Cigar Galaxy, in Ursa Major. Celestron Edge HD 925 with a 0.7 reducer, an ASI 2600MC Pro using a IDAS NBZ filter and 6:30 total exposure time, with 78 x 300s subs. Processed it in Siril, Starnet, and GIMP.

Page 8: IC4677 Cat's Eye Nebula with NGC6552; Apr 1, 2022; by Scott Garrod. 51X300 seconds ZWO asi533MC Pro / Astro Tech 130ED / iOptron CEM60 / Optolong L-eXtreme.

Page 9: Posed Book, "The Quark and the Jaguar", taken in Editor's home on May 31, 2022, by Bruce Lane

Page 10: M81 - Bode's Nebula (Galaxy) in LRGB + NB, Mar/Apr 2022, by Dave Payne. Planewave CDK 12.5 - AIS6200MM, A-P 1100 GTO AE, Antlia Pro LRGB filters & Antlia 3nm Ha/[OIII] Pro; L (38 x 180s exposures, Gain 0, Bin1x1); L (26 x 60s exposures, Gain 100, Bin 2x2); RGB (3 x 8 x 210s exposures, Gain 0, Bin 1x1); RGB (3 x 45 * 80s exposures, Gain 100, Bin 2x2); Ha (12 x 900s exposures, Gain 100, Bin 1x1); OIII (6 x 900s exposures, Gain 100, Bin 1x1); Ha (12 x 900x exposures, Gain 100, Bin 2x2); Total integration time = 11.2 hours over 6 nights of varying conditions and moons.

M81 didn't get any respect from me this spring, as I kept using it to "finish off the night" after shooting other galaxies. Since it is in Ursa Major, it is always up, and generally pretty close to the apogee in the early hours of the morning so it has been ideal. The frames were a mixture of seeing conditions and moon brightness. In addition, early in the spring I would settle for 3 or 4 frames per filter using low gain. Later, I wanted to be finished with it, so I increased the gain and binning, with lower exposure to have more frames. In the end, the result is a hodgepodge of all sort of frames, and I ended up with quite a lot of data.

In this example, I spent some more time to be extra careful with the stars (by using starnet to get rid of them while I did other things like deconvolution, etc.). The galaxy itself has a lot of hydrogen nebula regions (captured with Ha filter), and apparently has far less dark matter than typical. At the scale I imaged it, I couldn't include M82.

Page 11: SN 2022hrs in NGC 4647, Apr 22, 2022, sketch by Bill Weir. *Very obvious SN in this galaxy that's tight in with Messier 60. This is how I saw things as viewed through my f/3.3 508mm dob at 313X magnification. iPad photo of my original black on white sketch plus inverted.*

Page 12: M94 - The Croc's or Cat's Eye Galaxy, Apr 2022, by Dave Payne. Planewave CDK 12.5 - AIS6200MM, A-P 1100 GTO AE, Antlia Pro LRGB filters & Antlia 3nm Ha Pro. 5.2hrs total integration time over 1 night: L (14 x 180s exposures, Gain 0, Bin1x1); L (12 x 60s exposures, Gain 100, Bin 2x2); RGB (3 x 10 x 210s exposures, Gain 0, Bin 1x1); RGB (3 x 12 x 80s exposures, Gain 100, Bin 2x2); Ha (7 x 900s exposures, Gain 100, Bin 1x1).

I thought I'd go for one of the smaller Messier objects and this one turned out to be very interesting to boot. Apparently the gases in this galaxy is in Canes Venatici and despite its size, it's the closest galaxy to us, outside of our Local Group.

I see the structure as consisting of 3 rings. The innermost ring, is rather conventional looking, but with many star forming (pink hydrogen alpha regions), where star formation is occurring and blue areas of young stars. I think this is rare to have these so close to the core. The middle ring is a more rusty coloured, with dust lanes and even more intense Ha areas. The outermost "atmosphere" goes through a minimum in the radial direction, intensifying further out and finally fading into the background. At first I wondered if this was an acquisition or processing artifact, but no, it is there in most images and it's what help gives the galaxy the appearance of being a crocodile's eye or, even a more sinister "Eye of Mordor". The minimum is apparently set up by the resonance frequency of the turning spiral arms.

The galaxy is also classified as a LINER (low ionizing nuclear emission rutabaga?), having a low or weakly ionized atmosphere, but I have not yet found an explanation for this. The inner ring is apparently a "pseudo-bulge", but again I don't really see a bulge at all, and perhaps this is why it is a pseudo-bulge. Finally, a big controversy with this galaxy is that it contains very little dark matter which lies in apparent contradiction with the notion that it is actually required to form the galaxy itself.

I am very glad I used my NB Ha filter on this object to reveal the star forming areas. Also, some tiny, but interesting background galaxies and in the image.

Page 13: The Moon, Apr 5, 2022; by Lucky Budd. 8 inch edge HD, Evolution mount, .7 focal reducer, asi294mc pro in Sharp-Cap.

Page 14: New Chicken Model, (Edgar Allan) "Poe", Apr 25, 2022; by Bruce Lane.

Page 15: Astronomy Day: solar astronomy public outreach outside the Royal BC Museum, May 7, 2022; by Chris Gainor.

Page 18: Astronomy Day: Centre of the Universe lecture hall, May 7, 2022; by Chris Gainor.

Call for Article and Photo Submissions for the June Issue

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

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