

Vol. 24 Issue 1
Winter 2023

H O R I Z O N

LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
New Brunswick Centre du Nouveau-Brunswick
THE ROYAL ASTRONOMICAL SOCIETY OF CANADA



C/2022 E3 ZTF and Mars (Stephan Hamel)

Imaged on 11 February with a 102 mm refractor reduced to 465 mm focal length and a 2600MC camera mounted on an HEQ5 mount. Stacked in APP and processed in PS. Total exposure time of 24 minutes.

GUESS THAT ASTERISM?



Located in Cassiopea
RA 1.40 Dec +62
just north of M103

**Can you identify this asterism
sketched by**

Master Puzzler Ted Dunphy?

The answer lies within.

**SRAC/RASC Centre du NB Centre
Inc.**
<https://rascnb.ca>
<https://www.facebook.com/RASC.NB>

Centre News and Outlook

Orbit: Around the Centre
*What has been your most memorable
observation in a telescope or binos?*

President/Président
June MacDonald (Acting)

1st Vice-President/-Président
June MacDonald

2nd Vice-President/-Président
Vacant

Secretary/Secrétaire
Emma MacPhee

Treasurer/Trésorier
Emma MacPhee

Councillors / Conseillers
Mary King Alan Legere
François Thériault Chris Weadick

National Council Representative
François Thériault

LP Abatement: Vacant
Star Parties: Paul Owen, Yvon Hachey
Outreach: Curt Nason
Website: Chris Weadick/Trevor Johnson
Social Media: Emma MacPhee
Equipment: Chris Weadick
Library: Ted Dunphy
Newsletter Editor: Curt Nason

Meetings

In 2023 we will begin having meetings via Zoom on a weeknight, on a trial basis to see if attendance improves. The first one will be on February 21 at 19:00. June MacDonald will send a Zoom link and agenda via the Centre announce email list.

Star Parties 2023

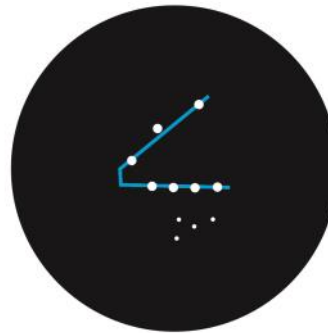
Kouchibouguac: June 17-18
Mount Carleton: Aug 18-19 (Tentative)
Fundy: September 8-9
Kouchibouguac Fall Fest: Sept 22-23

Ted Dunphy: Most memorable observation? A most devilish inquiry. Not favourite, not proudest and not most serendipitous, but perhaps all of these.

October 30, 2003, the eve of All Hallows' Eve was a dark and cloudless night. As I set out to snare a few Messiers, an eerie light loomed behind me. Thinking it an errant shop light left on, I turned and to my dismay, a monstrous heaving aurora borealis was invading the sky. Soon the curtains began to dance and trot about, sending the humble Moon to set. The show was on! By 9 pm the second act was in full swing. To the east and to the west, the sky was ablaze with a fiery orange and blood red, to the north a ghoulish green and overhead, a ghostly white radiated. At midnight it climaxed with a dark grave, opening at the zenith, cumulating in a complete rayed arc! I applauded (a standing ovation) a show worthy of interruption.

Gerry Allain: My first took place back in the summer of 2002. Cam and I were planning to buy our first telescopes, and we had found out that RASC Moncton was having an observing session in Indian Mountain, north of Moncton. While there, this guy named Bill asked if I ever looked into a telescope before. I said no, he says, "OK, look at this." BAM I was hooked and decided to buy my first telescope after seeing Saturn and the rings. Blew me away, like wow! We spent the

G.T.A. ANSWER



**The Clapperboard
Trumpler 1 (Tr-1)**

evening going from telescope to telescope, getting so excited. Well the week after I got my first Dob, and still have it .

My second took place a few years after. Our local club members would meet at a dark area, a dead end road in Memramcook. We were about 12 there that night. At one point Emma said the ISS will be showing up soon. A few seconds later as I was looking at M13, the ISS flew thru my telescope view. It was fast and I was able, but with difficulty, to follow it. Freaked me out. AND, before it went thru Earth's shadow and disappeared, the Sun lit up the solar panels and made it very bright. Then poof it was gone, what a lucky fluke!

Curt Nason: There have been some memorable naked-eye views of great comets but in a telescope it was my first capture of a near-Earth asteroid. On the late evening of 2002 August 19, armed with a C8 and a map from the Sky & Tel website, I joined Shawn McHatten, Adrien Bordage, Len Larkin and his son Jamie at a site off the Upper Golden Grove Road. NEA 2002 NY40 was expected to be magnitude 9 and travelling 8°/h against the stars. After ten minutes of futile searching I set up between a pair of stars 0.7° apart bordering the asteroid's projected path. It appeared just before midnight, looking like a scene from an old Atari video game. I had the urge to steer the asteroid into a star. Based on my Telrad view the others got it in Adrien's Dob. I timed it covering the ~0.6° field of view in another eyepiece at 5 minutes, 50 seconds. We observed it until 01:20 before calling it a good night.

Book Review of Mi'kmaw Moons

Yolanda Kippers

Mi'kmaw Moons
Cathy LeBlanc and David Chapman
Illustrated by Lorretta Gould
ISBN-13:978-1-4595-0703-6

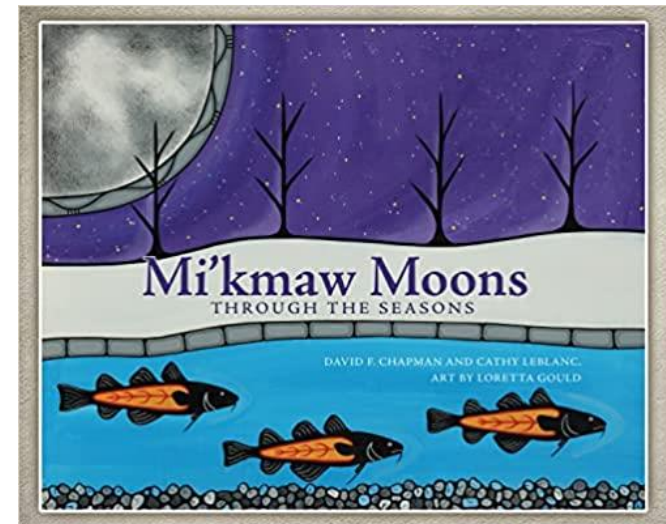
Several moons ago I received an email concerning Halifax RASC member David Chapman's collaboration in a newly published book, *Mi'kmaw Moons*. Yes! I thought, I'd like to check that out; but then promptly forgot. Life gets busy. It came to my attention a second time when I picked up the local copy of *Atlantic Books Today*. Before I forgot again I went out and bought it at the local bookstore.

Dave collaborates with Cathy LeBlanc, an Acadia First Nation member, and Loretta Gould, a Mi'kmaw painter. They have written this 54-page book for children but it will be enjoyed by all generations. It is an ideal book for adults to interact with younger children. Older children would be able to read it themselves.

The story follows a young Mi'kmaw girl as she learns from her auntie the names of the lunar months, and how the names correspond to the seasonal changes throughout the year: four seasons, twelve moons. Each lunar month is beautifully illustrated by Gould. The paintings are simple and evocative, perfect for having a discussion with a

child. It is also suitable as a coffee-table book. Each moon has its Mi'kmaw name, along with pronunciation guide and translation. Recounting Native culture the story uses the concept of Etuapmumk, or Two-eyed Seeing, to blend Native with Western knowledge.

A beautiful little book. I had fun trying out the pronunciations. I loved the illustrations. The book is A-Keeper for when the kids visit - even kids over fifty.



School and Daycare Visits

Gerry Allain

Abbey Landry School presentation in Memramcook, 2023 February 2 48 kids and two teachers

While playing Santa at this school in December at a Christmas market, I was talking to a teacher there about astronomy and she expressed an interest in me doing a presentation. So I called the school and spoke to the principal on my history with RASC and doing school presentations. He was very excited and said he would get a grade 6 teacher to call me. That afternoon the teacher called me and we booked February 2 first thing in the morning to do two classes.

I obtained some French star charts from Emma MacPhee and when I got to the school I and was escorted to the grade 6 class. The teacher sat me at her laptop, I got my presentation ready and waited for the class to start. As the kids came in they already had some questions about astronomy.

The first class started and I began talking about all that we can see in our skies with our eyes, binoculars and telescopes. I always ask how many kids have telescopes; about six hands went up. The kids were excited and asked many questions. I went as fast as I could as I only had 50 minutes, so questions were answered fast.

Once done, the kids thanked me and many said how they enjoyed it and were hoping to see some auroras. Then the second class of kids came in and, same as the first class, they had many questions. After I finished, one boy told me he lived close to where we used to go with our telescopes at the dead end old TC highway in Memramcook. He was often outside looking at the stars; it's dark there.

The teachers thanked me and said they learned a lot, as well. The kids were happy to get the star charts. The teacher I had spoken to said she would love for me to go next year. I had fun talking with the kids, just wish I was not so rushed because of the class being 50 minutes. I am always impressed in what the kids already know about astronomy.

Le Centre Éducatif des Aventuriers Daycare, 2023 February 9 9 kids of 3-4 year olds, 2 workers 17 kids of 5-12 year olds, 2 workers

Back in 2018 I had done a very simple astronomy presentation at this daycare. I also have done Santa here often, this year included after three years of not going because of covid, and the owner of the daycare has become my friend. She contacted me and said the theme they were doing the following week was astronomy, and asked if I could do a presentation for two groups.

I have three presentations; one with only pics for the really young kids, a more complete one for slightly older kids, and one very detailed one for older kids and adults; so I was



Gerry at the Daycare

already prepared for the younger group.

On February 9 I was taken downstairs to the younger group. Being young did not matter, they were very excited to see the planets. I got them to repeat the names of the planets as I went along and they laughed at the names. That presentation lasted a half hour and they did have some questions after.

Then I was taken to the older kids' room in a big garage. Once they arrived I started and got a lot of questions. It was nice not to have a schedule like a school, and I was able to answer questions and discuss what we were looking at. One boy thought that Jupiter was

being greedy with 92 moons, that it should share with Mercury and Venus who had none, and Earth as well. The kids all said that's a good idea and they laughed.

They had a lot of questions regarding the solar eclipse next year. I told them several times NOT to look at the Sun. They were also very surprised on how Jupiter and other planets take so long to move around the Sun. One kid said he would not be born. I explained yes he would be, but just no birthday yet. When I talked about Pluto, one kid sadly said, "Wow, no birthday cake ever. We would die before I got a birthday."

The presentation sure gets their brains working. They laugh every time I say that what we see in the sky is in the past. Light from things in the sky always takes time to reach us, so we see the stars in the past. Once done, the teachers and kids thanked me. Several came to me after and we talked a bit on what auroras look like and they hoped they could see some.

As I was leaving, I looked at one teacher, winked, and then asked the kids if they had a good Christmas. They all yelled yes and that Santa even came to visit them here at the daycare. I acted surprised and said "No way, how cool is that." The teacher looked at me and gave me a smile with the "You sneaky guy Santa" look.

I was glad I was able to play Santa this year and do presentations. I enjoy the interaction with the kids, and glad this covid stuff is not what it was and I am able to do what I like.

**Now, about that comet
(Night Sky column, Telegraph-
Journal, 4 Feb 2023)
Curt Nason**

Have you seen that rare green comet yet, the one that was last seen by Neanderthals? Are you expecting to see a giant emerald with two or three tails blazing across the night sky?

Sensational astronomy headlines have been splattered on websites for a decade or more, making terms such as super moon and blood moon common parlance. Although they do get people looking up in the sky who don't normally, the hype might leave some disappointed. The headlines are click bait, designed to get us to open an article where we are inundated with ads and possibly collect tracking cookies.

Comet C/2022 E3 ZTF is a very nice comet to observe with binoculars, as anticipated when we heard about it last spring. I first saw it three months ago as a tiny smudge in a telescope; but with clouds, moonlight and its low altitude I didn't try again until two weeks ago. It appeared Moon-sized in binoculars with a slight elongation for the dust tail, which was traced a little farther with a telescope.

Articles about comets are often highlighted with a photo showing a green head. These images are exposed over several seconds or minutes, whereas our eyes collect light for only a tenth of a second or less. I have seen green in comets, but rarely. The green is

from diatomic carbon (C=C), an inorganic substance found in carbon vapour. You might see a hint of green from E3 ZTF in binoculars or a telescope as our eyes are most sensitive to that colour, and the equipment could intensify the light enough to activate the colour-sensitive cone cells in our eyes.



*C/2022 E3 ZTF image by Stephan Hamel
45 minute exposure*

Astronomers have determined that the comet has an incoming orbital period of approximately 50,000 years, but that doesn't necessarily mean it was seen or even approaching the sun that long ago. Its calculated farthest distance from the sun is 420 billion kilometres, but with its speed it could possibly escape the solar system entirely, or more likely end up much farther out in the Oort cloud where it could reside for several million years before it returns. The Oort cloud is the outer part of the solar system, populated by an untold number of icy bodies that were tossed

outward by the giant planets four billion years ago. The inner part of the Oort cloud is a major source of comets.

A few days ago E3 ZTF passed 42 million kilometres from the earth on its long journey homeward. Its proximity makes it appear to move through the constellations quickly this month. Several Internet sites such as heavens-above.com will have a sky map with its current or daily location. It will be near the bright star Capella on Sunday and passes Mars on February 10-11. You will need binoculars and no clouds in that part of the sky to locate the hazy patch of the comet, but moonlight will degrade the early evening view for the next several days.

Although your best view will be from a dark site, don't let that stop you from trying near your home. Find a spot that has no direct lighting and give it a try. If you are fortunate enough to have a dark sky and if the comet looks bright in binoculars, try to see it with just your eyes. The trick is to use averted vision; looking just to the side, above or below it to use your eyes' light-sensitive rod cells.

Don't expect to see a picturesque green comet or one with a long tail. Comets, however, are notoriously unpredictable and occasionally that works out in our favour. Now that would be sensational.

RASC NB Outreach Events and Handouts									
Year	# of Events	People At Events	Live Feed	Youth	Star Finders English	Star Finders French	Moon Guides English	Moon Guides French	Volunteer Hours
2014	104	4843			1716	241	1378	199	
2015	114	7262			2106	244	2568	156	
2016	219	9498			1984	115	2290	87	988
2017	248	9951	8441		2276	162	2262	131	1937
2018	187	7289	37,922	>1300	1788	170	1635	79	1355
2019	240	7036	46,675	2997	1320	216	1520	213	1950
2020	171	1859	161,688	954	817	22	636	125	1079
2021	131	731	60,240	565	108	0	46	0	1160
2022	172	12,942	63,122	10,192	586	60	472	106	1807
2023	28	780	1228	695	40	50	100		164

Types of Outreach Event							
Year	Presentation	Night Observing	Day Observing	Youth Group	School Talks	Exhibition	Observ./Planet'm
2014	23	21	20	17	12	8	3
2015	22	33	23	7	15	13	1
2016	31	55	39	19	54	11	10
2017	61	89	22	19	50	6	1
2018	50	80	13	18	20	5	1
2019	73	94	10	22	36	5	0
2020	86	43	5	8	29	0	0
2021	65	48	6	1	11	0	0
2022	72	52	6	4	34	4	0
2023	8	1		3	16		

Observing Report: Sigma Orionis (σ Ori)

Alan Hindle

February 14, 2023 in Perth-Andover, NB

Sigma Orionis is like a silver dollar surrounded by gold doubloons. It is often seen but not always fully appreciated. I 'discovered' this intriguing visual gem in a random way years ago and it's a sight I'm drawn to again and again. It's one of my favourite winter targets. It seems to be on the edge of what's visible, teasing and tempting you to look closer, which makes it a prime example of what can be revealed with progressive increases in optical advantage. It gives and gives again.

Sigma Orionis is located in the vicinity of Orion's Belt, south of the left belt star, Alnitak. It is typically designated as a double star of combined visual magnitude of around 3.7. At that brightness, if you were in a city and looked up at Orion you may not be able to see it with the naked eye, or just faintly. Step into the shadows, or if viewed from a rural location it is an easy naked-eye star.

When viewed through Celestron SkyMaster 8x56 binoculars it's obviously bright and hints that it's not alone. Hand held these binoculars seem to show more, but with all the jiggling going on it doesn't provide much detail.

So I step up to my tripod-mounted Nikon Monarch 5 10x42 binoculars. With a stable mount and a touch more magnification the view improves dramatically. As such it is re-

vealed that the double star has some other close companions. Now it's easy to see a group of five stars delicately arranged like a pointer or compass needle pointing east. Sigma Ori AB is in the centre of the arrangement and shining much brighter than its close companions. Sigma Orionis is actually a quintuple star system, not a mere double star. North of AB is the magnitude 6.6 E component. The point of the pointer to the east of Sigma Orionis is HD 37525 shining at magnitude 8.0. To the west of Sigma Orionis are two stars (Struve 761A & B), one above the other. Check out these ones, how good are your eyes? And your optics? Again, with this set-up, the view hints that there is still more to see if you could get a bit closer.

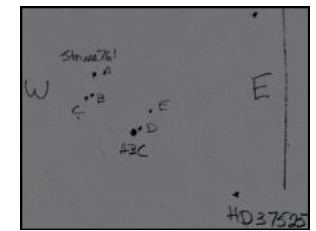
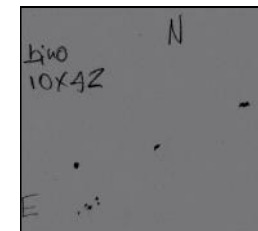


Screenshot from SkySafari

You can see an example of this 10x magnification view in print in the January/February 2023 issue of RASC's SkyNews magazine. The beautiful colour image by Alan Dyer on page 27 (*A binocular tour along the winter Milky Way*) frames it perfectly. Sigma Orionis is there, just below the 'rs' in Horsehead, in the centre of the image. This shows the pointer shape I mentioned.

One more step up in optical advantage brings me to my modestly sized refractor, TeleVue's TV85, (85 mm, F7). With a Delos 17.3 mm eyepiece providing about 35x magnification, what was five stars through binoculars is now seven stars making up the pointer arrangement. The magnitude 6.6 D component of Sigma Orionis is now visible between σ Ori AB and σ Ori E, very close to AB. Also, the B component of Struve 761 resolves into Struve 761B and Struve 761C. This pair can be resolved through binoculars if your eyes and skies are in good condition.

Splitting the Sigma Orionis AB pair is the edge of impossible visually for an amateur. And although I didn't pursue it at the time, with increased magnification with the TV85 on a tracking mount, or if I view the system through my 300 mm reflector, the faint magnitude 9 C component of Sigma Orionis can be resolved under favourable conditions.



Sketches through binos (L) and telescope (R)

What's Up for Spring

Curt Nason

The highlights for the months of March to May will be a close conjunction of Venus and Jupiter on March 1, and a challenge of seeing the lunar occultation of Jupiter in morning daylight on May 17.

Sun Solar Cycle 25 continues to delight observers with its activity. At 18:24 on March 20 the Sun crosses the equator to begin our astronomical spring season.

Moon New Moon dates are March 21, April 20 and May 19. A penumbral eclipse on May 5 will not be visible in New Brunswick.

Mercury is at superior conjunction on March 17, reaches greatest elongation high in the early evening sky on April 11, is at inferior conjunction May 1 and reaches greatest elongation low in the morning sky on May 29.

Venus appears just to the right of Jupiter on March 1, and they set around 20:50. It continues with a splendid apparition along the high ecliptic of spring. Close passes of the Moon at midday on March 24, April 23 and May 23 allow possible naked-eye sightings.

Mars crosses the border into Gemini in late March, passing near M35 on March 29. It masquerades as a double star with Mebsuta (ϵ Gem) on April 14, Encroaching Venus chases it into Cancer in mid-May, and by the end of the month Mars is about to enter the Beehive Cluster, M44, at which time it will have dimmed to magnitude 1.6.

Jupiter, after its tryst with Venus on March 1, could act as a beacon for a 30-hour-old Moon, setting 75 minutes after sunset on March 22. It is in conjunction on April 11. Jupiter moves into Pisces in mid-May. It is occulted by the slim crescent Moon (two days from New) for an hour on May 17, starting before 09:00, halfway up the southeastern sky. The Sun will be about 30° to the east.

Saturn emerges into the morning sky in mid-March and spends the spring gaining distance from the Sun at magnitude 1. The Moon passes below it on April 16 and May 13.

Uranus is in conjunction on May 9.

Neptune is in conjunction on March 16.

Comets Both C/2020 V2 ZTF in Andromeda and C/2022 A2 PanSTARRS in Lacerta are around magnitude 10 at the beginning of March; within reach of a 6-inch or 8-inch telescope, depending on sky darkness.

Meteor Showers: Although not a showstopper, the Lyrid shower peaks on April 22, two days after the New Moon. The Eta Aquariids peak on May 5, a day after the Full Moon.

Zodiacal light appears in the west for two weeks beginning March 9 when there is no Moon in the early evening sky. You will need a clear, dark sky with little or no light pollution. Look for a subtle wedge of light angling from the horizon up toward the Pleiades.

Secret CSA Program

UNEARTHED

A "Tot Secret" program of the Canuck Space Agency has been uncovered by our undercover investigative reporter (DELETED), who has not been seen since filing her report.

"Project Goofy" is the brainchild of former astrophysicist and current hospital in-patient (DELETED). Knowing that human exploration of the outer Solar System will take several decades, he championed a training program for intelligent pre-schoolers. The first graduate of the program is known only by the code name "Sonny" (secret photo A). Our investigative reporter also managed to obtain the secret map of the proposed exploration route (secret photo B).



A



B

The mission will begin when "Sonny" gets a permission slip from "Nana Emma," obviously another code name.

Reporting Outreach Events

Coordinator

Public outreach and Centre-only events should be reported to the Society to have Centre activities recognized. Also, reporting the use of Star Finders, Cherche-Etoiles, Moon Gazers' Guides, and Guides d'Observation Lunaire, provides information that allows us to obtain more of these handouts for the cost of shipping only. If you have difficulty filing a report you can send the information to the Centre outreach coordinator.

As of December 2022, outreach events are recorded via a Google Docs spreadsheet which is accessed and maintained by the RASC Outreach Coordinator. The link to the spreadsheet is at the bottom right of this article.

The first page of the spreadsheet, labelled **Info**, provides some direction for recording the outreach event. Please be mindful of which row you are using as straying into a previous row can overwrite the information. Early in a month RASC Outreach will copy our results of the previous month for their data collection and, if necessary, create a new page for the current month.

Please record your event as soon as practicable after the event and certainly before the end of the month. The Centre outreach coordinator will monitor the spreadsheet regularly to update our separate Centre spreadsheet, which contains reported events back to 2012.

Event Name: Make reference to the group, activity or location.

Event Date: yyyy-mm-dd format is preferred. If more than one day enter a start-finish range. Regularly occurring events should be recorded separately rather than as a batch.

Event Category: Access the menu by clicking on the arrow at the right of the cell. The events are: **speaker/presentation; centre meeting; star party/observing; school visit; booth event; youth group visit.**

- Use **star party/observing** for any observing event unless it is for a school class or school club during regular school hours (**school visit**).
- Presentations or workshops at a star party should be reported separately under **speaker/presentation**.
- For any event at a school outside of regular school hours, use whatever is applicable rather than school visit.
- For an event at a daycare, use **youth group visit**.

RASC Member Only Event: If the event is for members only (a rarity for our Centre) then click the box; otherwise, skip this cell.

Location: Examples: school, park, city or combination. May be used in combination with the information in the Event Name,

Total Participants: Participants are anyone who was not an event organizer or a volunteer at the event. If it is not possible to get an exact count, make a reasonable estimate. If multiple activities of the same type are being reported, enter the total number of partici-

pants from all the activities, even if some participated in more than one activity.

Did you advertise with RASC National?: Click the box if Yes; otherwise, skip this cell.

Portion of Participants that are Youth: The number of recorded total participants who were under 21 years old (estimate if ages are unknown).

Event Co-Hosts (Optional): If you are partnering with a group or company that is also using their resources then you can record that here.

Volunteers: Anyone who organized or worked at the event, regardless of whether they are RASC members.

Total Volunteer Hours: Record the total volunteer hours for all volunteers, including time for preparation, travel and performing the event.

RASC Resources Used: Use one cell for each event to record resources and the amount you used, separating each resource with a comma. Example: 5 Star Finders Eng, 5 Moon Gazers Eng, RASC Zoom account

Additional Comments/Notes: If more than one event of the same type was performed then enter the number performed. Example: for two presentations at a weekend star party, enter 2 What's Up talks. Enter a brief description of the event such as school grades or topic of a presentation if not recorded elsewhere. Please enter your name so the Centre outreach coordinator can contact you if more information is required, and also for the separate Centre outreach spreadsheet.

<https://docs.google.com/spreadsheets/d/1t0bx-pV5Bc2syfjp9ZPQepMvmtBF0NOR1vAak-1P-Js/edit?usp=sharing>

RASC NB AstroVerse

Don Kelly

Star parties, you ask? We've held quite a few -
Presentations, camaraderie and barbecues too!

Fundy and Mactaquac,
Mount Carleton and Kouchibouguac,
Please join us for amazing celestial views.



The night sky's a marvellous place
Each season adopts a new face.
Like Orion in winter
Or Pegasus in fall,
But the bears hang around the whole year.

Camelopardalis is
A constellation that's easy to miss.
It's a much better sight
In a place with no light,
But don't look for it in a metropolis.

There's a green comet high in the sky.
C/2023 E3 ZTF might be seen naked eye.
Don't leave it too late -
It's a 50 000 year wait
So get out there and give it a try.



*C/2022 E3 ZTF image by Stephan Hamel
45 minute exposure*

Yolanda Kippers

He got close; he was fast; he was tricky.
He acquired the name of "Zwicky".
He may be a greenie;
But, he's not a meanie -
Even now, you can try for a quickie.

In marking the Year of the Rabbit,
There's no weapons needed to grab it.
In hunting for Lepus,
Aim far left of Cetus;
Like Hunter, you'll easily nab it.



The Hunter would a-woooing go -
To chase the Sisters to-and-fro.
From East to West,
He does his best.
They stay ahead...he's far too slow.

