

NOVA

NEWSLETTER OF THE VANCOUVER CENTRE RASC
VOLUME 2015 ISSUE 1 JANUARY FEBRUARY 2015



Bob McDonald: Canadian Spacewalkers

2015 Paul Sykes Memorial Lecture

**Saturday, January 31 at 8pm with meet-and-greet for RASC members at 7pm
Room SWH 10081 at SFU's Burnaby Campus (see Meetup for a detailed map)**

Only three Canadian astronauts, Chris Hadfield, Steve MacLean, and Dave Williams, had the privilege of donning space suits and stepping into the void outside the International Space Station. This illustrated presentation tells their remarkable tales of training for years in the world's largest swimming pool, the challenges of working against a suit that doesn't want to bend, the disorientation of weightlessness, performing construction work in a realm where up and down do not exist, all while floating 400 km above the most spectacular view of the Earth they had ever seen. Meanwhile, this Earthbound journalist has had the opportunity to get a taste of astronaut training and discovered just how remarkable our three Canadian spacewalkers truly are.

This is the subject of McDonald's

new book, copies of which will be available after the presentation.

Bob McDonald has been communicating science internationally through television, radio, print and live presentations for more than 30 years. He is the host of CBC Radio's *Quirks & Quarks*, the award-winning science program with a national audience of nearly 500,000 people. He is also a regular reporter for CBC Television's *The National* as well as Gemini-winning host and writer of the children's series *Head's Up*.

The meet-and-greet for members will be held in the atrium adjacent to the

lecture hall from 7:00-7:45pm ★



JANUARY 15

SFU

Vancouver Centre's own Howard Trotter: The SFU Observatory: Update and What's Next. Blusson Hall 9660 (see map on p. 4)

SFU

FEBRUARY 12

SFU

Dr. Ben Williams of the University of Washington on using the HST to create a high-resolution mosaic of the Andromeda Galaxy. BH 9660

SFU

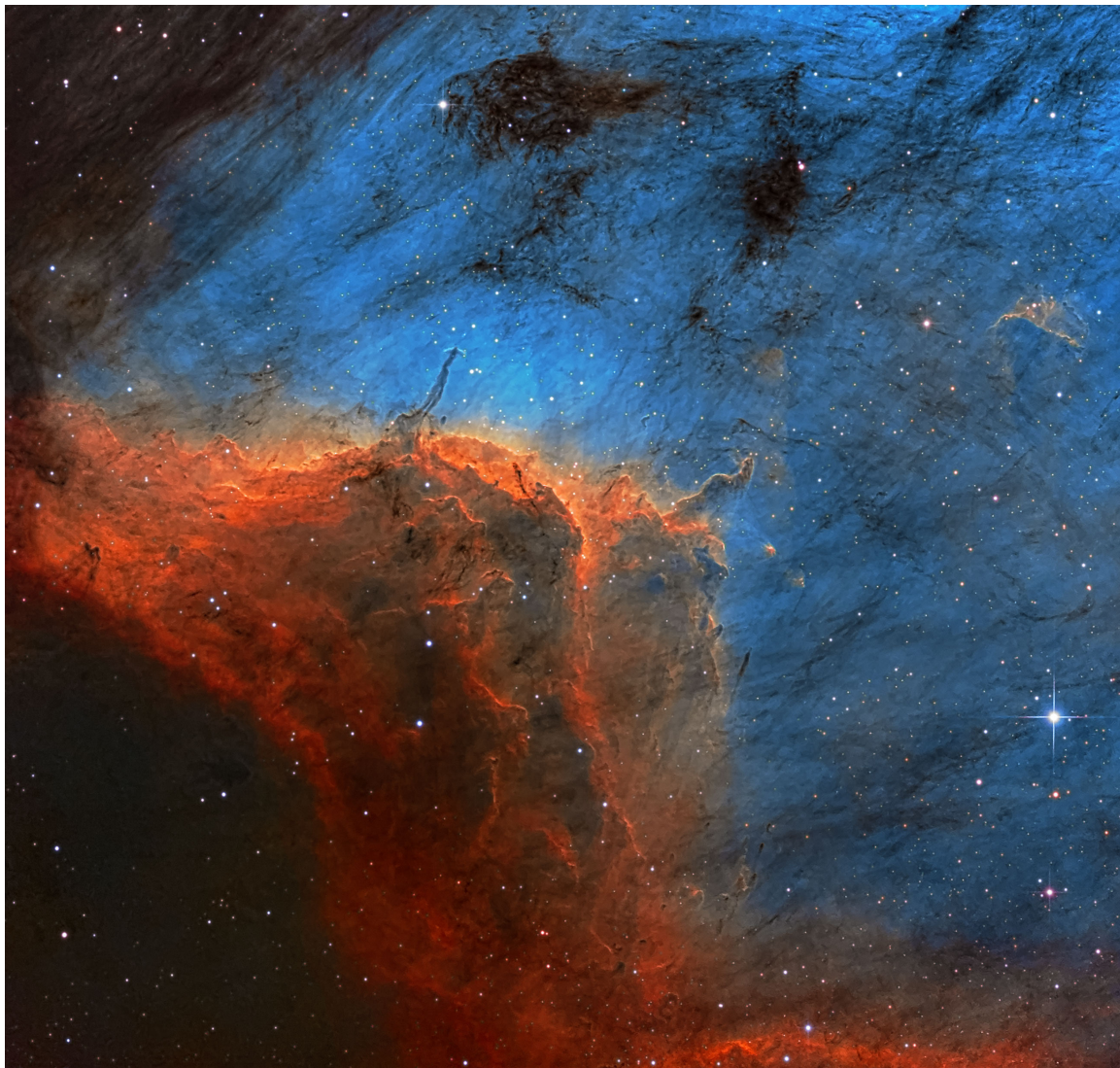
MARCH 11

SFU

Dr. Rita Mann of the HIA in Victoria on looking for planet formation around protostars in the Orion Nebula. Room BH 9660 (see map on p. 4)

SFU

Members' Gallery



The Pelican Nebula (IC5067) by Howard Trottier

I finished processing the above narrowband image of the Pelican nebula (IC5067) over the holidays—although image capture was way back in summer of 2012! I shot 20+ hours in H α , SII, and OIII filters, and kept the best 17 hours for processing. The field of view is about 3/4 of a degree, at roughly 1" per pixel. The colour-mapping scheme I used corresponds approximately to SII as red, H α as orange, and OIII as cyan. A blog with more information on the image is here: <http://www.sfu.ca/~trottier/Observatory/Blogs/citsoblogbirding.html>

President's Message

Welcome to 2015.

I would like to welcome all the new members who have joined us for 2015 and welcome back the returning membership. I look forward to interacting with all you at the various events this year and we have lots going on this year. Of course one of the big events is to be able to spend some time at the new

observatory at SFU. Howard has been keeping us in the loop on the construction and it looks very close to seeing first light. RASC has a very close relationship with SFU and we will have dedicated time at the observatory. Get your thinking caps on for projects and activities you and centre can lead.

We also have good news on the

other observatory our centre has, the AOMO. Alan is making great progress in the renovation project and he is getting a lot of hands-on support from the membership. One day in the not too distant future we will be developing projects for this observatory as well.

Council has just completed the
continued on page 4

About RASC

The RASC Vancouver Centre meets at 7:30 PM on the second Thursday of every month at SFU's Burnaby campus (see map on page 4). Guests are always welcome. In addition, the Centre has an observing site where star parties are regularly scheduled.

Membership is currently \$75.00 per year (\$43.00 for persons under 21 years of age; family memberships also available) and can be obtained online, at a meeting, or by writing to the Treasurer at

the address below. Annual membership includes the invaluable Observer's Handbook, six issues of the RASC Journal, and, of course, access to all of the club events and projects.

For more information regarding the Centre and its activities, please contact our P.R. Director.

NOVA, the newsletter of the Vancouver Centre, RASC, is published on odd-numbered months. Opinions expressed herein

are not necessarily those of the Vancouver Centre.

Material on any aspect of astronomy should be e-mailed to the editor or mailed to the address below.

Remember, you are always welcome to attend meetings of Council, held on the first Thursday of every month at 7:30pm in room P8445.2 of the Physics wing of the Shrum Science Centre at SFU. Please contact a council member for directions.

2015 Vancouver Centre Officers

President/LPA	Mark Eburne president@rasc-vancouver.com
Vice-President/Events	Suzanne Nagy vp@rasc-vancouver.com
Secretary/P. R./Observing	Scott McGillivray secretary@rasc-vancouver.com
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Past President/Events	Howard Trottier telescopes@rasc-vancouver.com
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At Large	Michael Levy Adrian Mitescu Kyle Dally
Honourary President	Dr. John Macdonald
Trustees	Pomponia Martines J. Karl Miller

Library

The centre has a large library of books, magazines and old NOVAs for your enjoyment. Please take advantage of this club service and visit often to check out the new purchases. Suggestions for future library acquisitions are appreciated.

On the Internet

<http://rasc-vancouver.com> or
<http://www.rasc.ca/vancouver>
<http://astronomy.meetup.com/131/>
<http://www.facebook.com/RASC.Van>



@RASC Vancouver

Mailing Address

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Vancouver, B.C.
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Map to Meeting Site



Our SFU meeting site is in room 9660 (the Mowfaghian Theatre) of Blusson Hall. After entering through the east doors, turn right then take the stairs on the left down one floor. The theatre is just to your left.

Pay parking is available at several locations located around campus (indicated as "P" on the map).

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2015 planning meeting, an all-day session held last Sunday here at SFU. We have new faces on council which always provides new energy and creativity. As a volunteer organization, we are very fortunate to have a strong group of leaders, passionate about what they do and are committed to providing membership services and public outreach activities all year long. Our financial picture is very solid and membership numbers are growing. Our Meetup network is well over 1000 and grows every day, which promotes events like the Paul Sykes Lecture, Astronomy Day and Metro Parks partnered events, including the Perseid Meteor Shower night. The astronomy community is alive and well in Vancouver and area.

I would like to recognise all the volunteers that we are lucky to have at the RASC Vancouver Centre. Without the efforts from each of these volunteers, our events would not be as successful. If you are thinking of getting involved, to help

out at our events or work behind the scenes, please let us know. We have several opportunities to make 2015 an even bigger success for everyone.

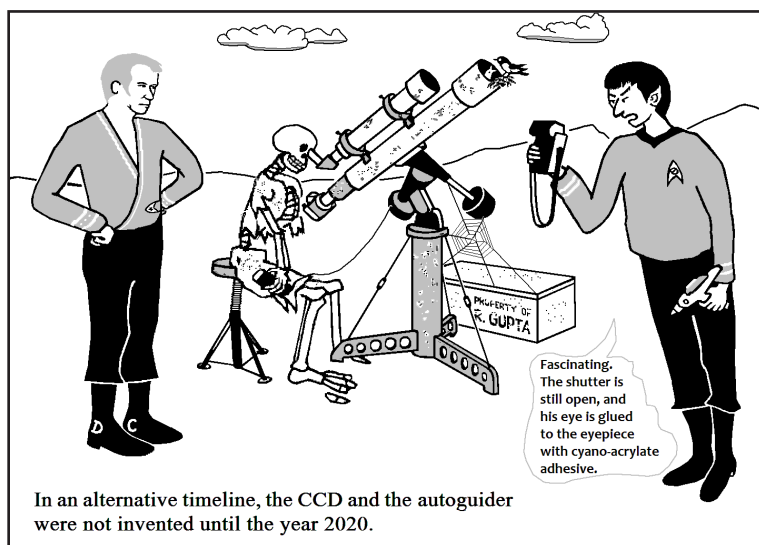
As a member in 2015, you will see more activity geared specifically to you and for the public. We hope your interactions will lead you to join the RASC and get even more benefits to help feed your astronomy hunger. Membership has

its privileges.

As always, 2015 will be an outstanding year for astronomy enthusiasts. Be sure to make time to enjoy some or all of the Vancouver Centre's offerings. I encourage you to get connected whichever way you can.

Remember, look up then look around and share your *VIEWS*.

Welcome everyone; clear skies. ★



cartoon by Dan Collier

2014 RASC-Van Volunteer Appreciation Award

by Suzanna Nagy

The RASC Vancouver Centre Volunteer Appreciation Award is acknowledgment to an RASC member for his/her long-standing commitment to the society, its administration, events, and success.

And when I mean long-standing, this year is no exception. This year's recipient has been a member of the RASC since 1977.

The recipient for the 2014 Appreciation Award is J. Karl Miller.

Karl became interested in astronomy from the time he was a young boy in Germany. His father had astronomy books that Karl enjoyed reading. While a young lad in Berlin, Karl was member of the local astronomy club.

Karl came to Canada in 1955. In 1965, Karl married his lovely wife Hilikka. Both Karl and Hilikka became life members of the RASC.

In 1986, Karl was President of Vancouver Centre.

In the late 80's, Karl was relocated to Toronto for three years with his work for the Hudson's Bay Company. While

living in Toronto, Karl was jointly a member of Toronto and Vancouver centres and became active with the National Office where he was National Treasurer for two years.

Since returning to Vancouver, Karl has remained active in the RASC, regularly volunteering at events.

In 2005, Karl was asked to accept the honorary role of Trustee. The Trustee is a background role—an appointed position who is there solely to ensure that the council for the Vancouver Centre follows the rules and procedures of the society and also to step in should any crisis occur.

Despite the fact that Trustees are not expected to take an active role in council, Karl has chosen to be active and has attended all council meeting, lending his past experiences and expertise to council activities and decisions.

Karl's love of astronomy was put to the test this year when in January, Karl and I attended a winter Boy Scout camp on Seymour Mountain where Karl

slipped on ice and fell, fracturing his pelvis.

Thankfully, surgery was not required but Karl was wheelchair-bound and home-bound for a few weeks. Despite that, Karl didn't miss a council meeting, attending the meetings via Skype.

It is with great pleasure that RASC Vancouver Centre awards Karl Miller the 2014 Volunteer Appreciation Award. *



Membership has its Privileges!

New members, did you know? The Vancouver Centre has several telescopes available for loan free of charge! We have telescopes ranging from 60mm to 10" in diameter. For more information see the Director of Telescopes after the members meeting. The loaner period is for one month, to be returned after the next meeting. Telescopes are not allowed to circulate outside of these meetings. You

can now reserve two different telescopes per year and use what is left at the end of the meeting anytime.

Your greatest opportunity as a member of the RASC is to take advantage of the company of other enthusiasts to increase your knowledge, enjoyment and skill in astronomy.

The best thing you can do to gain the most from your membership is to get ac-

tive! Take in the club meetings; engage other members with questions; come out to observing sessions (also known as "star parties"), and, by all means, volunteer to take part in our many public events.

For the usual observing sites and times, visit our website at <http://rasc-vancouver.com/observing-sites/> or contact the Observing Chair at observing@rasc-vancouver.com.

Upcoming Events

January

31 – Paul Sykes lecture at SFU (see front page for details)

May

9 – Astronomy Day at SFU

July

1-5 – RASC General Assembly in Halifax

August

8 - 16 – Mt. Kobau Star Party

September

Sept. 11 - 19 – Merritt Star Quest

December

10 – AGM

Two Dog Nights: Visions of the Nearest Stars

by Bill Burnyeat

Winter stars turn into view, Orion and his dogs take the stage. Sirius, the leader of Canis Major, shoots darts of coloured rays through cold, black air. Tonight, the bright Moon sails high, drowning the glamour of faint stars but hardly extinguishing Sirius. Even blanketed by a bit of haze blown in from the sea, Sirius, the Dog Star, still dominates the scene. The Moon will hurry away.

The Dog Star stays in its place, brightest of the fixed stars. It can't leave home but, like a faithful dog, sits steady at its spot amid the flights and travails going on all around it. It recalls another faithful dog. This fellow, an Orion brought

low, went with his dog down to a quiet river bank. Standing on the bank of this literal Eridanus, he undressed and stepped in.

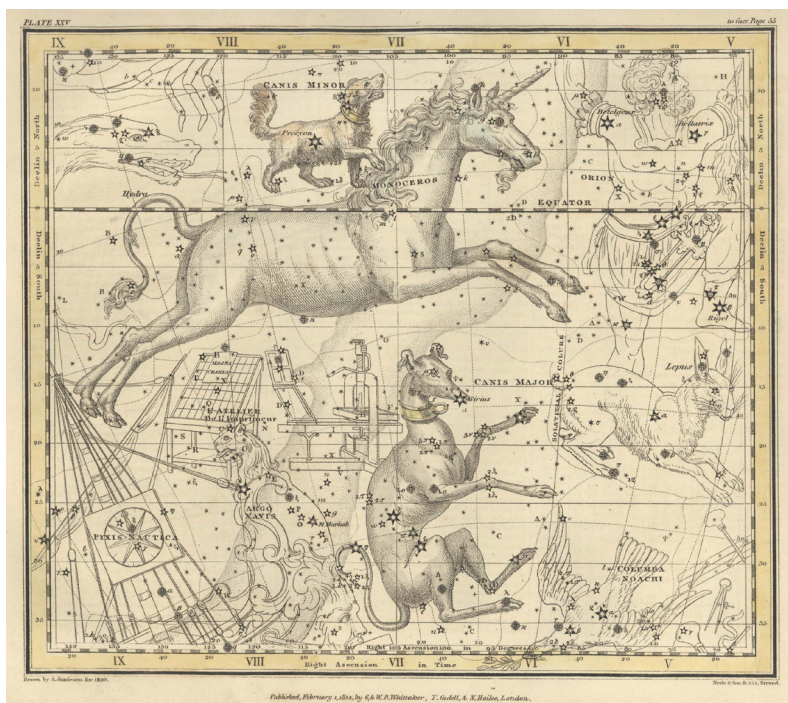
remains in his river bank amid the frothing Milky Way.

Sometimes, we hear rumours to the contrary. From time to time stars are said to leave their spot. The most famous is Vega, called the Weaver Maiden in the Far East. In July, this star flies on magic birds across the Milky Way to meet her husband, the Ox Herder (Altair). Of course, this is a mythical flight, although it was widely

thought the star did cross the sky. If rain fell on the appointed day, it was the Maid's tears upon learning her trip was prevented or delayed.

Does the Dog Star wander?

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The heaviness that he felt turned him to a rock and he sank out of sight of a world he was so mad as to try to master. A day later, the dog was discovered by the police, still sitting next to the vacant pile of clothes. Sirius, faithful,

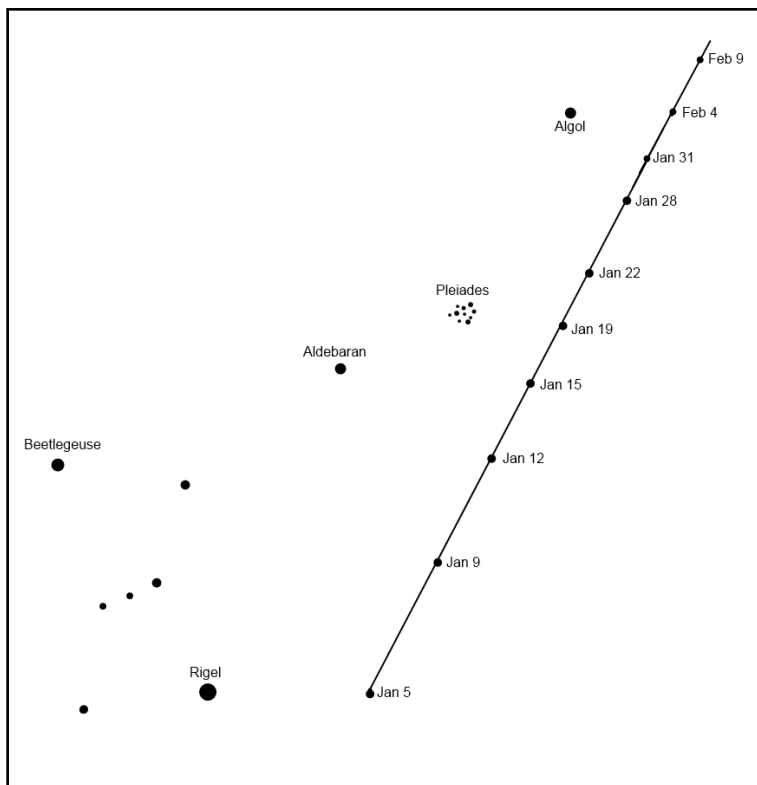
Observing Comet Lovejoy C/2014 Q2

by Scott McGillivray

We're kicking off 2015 with the binocular Comet Lovejoy C/2014 Q2. Lovejoy crossed the celestial equator on January 9th, heading toward Polaris in an orbit perpendicular to the plane of the solar system.

Lovejoy is expected to peak at magnitude 4.5 in early January, however Vancouver's best observing comes later in January with a new moon while the comet climbs higher in our sky. Lovejoy has been easily visible as a binocular object from the southern hemisphere since late 2014. A few of the keenest eyes in the darkest skies have managed a naked-eye sighting.

In early January, look for Lovejoy low on the south horizon a few degrees right of Rigel. The comet's path will bring it near the Pleiades around January 20 and close to Algol in the first week of February. Weather pending, January 23 is



a double feature for Vancouver astronomers with Comet

Lovejoy and a triple eclipse on Jupiter. ★

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Tonight I am carefully scanning an issue of the magazine *Observatory*. I am somewhat behind in my reading, so, it's the issue for October 1903.

The magazine reports that according to an old tradition from the near east, both Sirius and Procyon have fled across the Milky Way. One story tells of Suhail, the adventurer who snatches a sister from amongst feminine stars in Orion and then runs with his bride across the

sky to where he sits as Procyon in the smaller dog. The luckless bride, for the marriage is not voluntary, is the star Gomeisa (it means to weep) and refers to the third magnitude star at the other end of the short stick of stars making the constellation of Canis Minor. Similar stories are told of the greater Dog Star.

The correspondent in the *Observatory*, J. Ellard Gore, in a letter from Dublin dated Sept. 8, 1903, suggests that Sirius having been on the opposite side of

the Milky Way to observers "of the Stone Age" about 60,000 years ago represents a tradition from that long ago. Evidence for this remarkable theory comes from the curious fact that both Procyon and Sirius have a very high proper motion. Sirius

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Classified Ads

Free for the taking: All RASC Journal issues from Dec. 1998 through Oct. 2006. Interested parties please contact Phil at plmorris@telus.net

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moves 1.3 arcseconds per year in a direction that would have placed it on the opposite side (eastern) of the Milky Way 60,000 years ago. Procyon, with proper motion of 1.25 arcseconds per year, at that time sat in Cancer and thus both dog stars have drifted steadily west during this huge period of time. Although this seems a mere creeping, remember that both stars are amongst the closest to the sun and therefore these motions are large compared to most stars. It seems hard to envision that a tale of wandering stars could have been engendered at that time and survived. Yet, it is not impossible. A more telling critique is made by considering how anyone so long ago could have located the stars on an accurate grid and subsequent observers take note of tiny changes over tens of thousands of years. This seems hard to swallow.

We have been misled before by the tricky Dog Stars. In ancient journals and in the works of the playwright, Seneca, Sirius is called reddish in colour. This error is repeated in a few other works by early Greeks and Romans and led to a wild goose chase of speculations attempting to explain it. Some suggested that either the Dog Star itself or its white dwarf companion might have been a red giant star 2000 years ago and shone like Betelgeuse or Antares. We have seen that the adventure stories

founded on runaway stars dating from the Stone Age span times that are impossibly long. Here the time frame is impossibly short.

Changes in stars come over huge amounts of time, particularly in main sequence stars and it seems clear (unless we are very mixed up about something) that stars can't change in this way over a paltry few thousand years. A clue to the solution of the "red Sirius controversy" comes from early Chinese records which never call this star red. The issue is one of culture and not cosmology. In the the tradition of Greek and later writers of the classical period, the dog was associated with heat and its mouth was depicted as blazing hot. Those bitten by a dog were sure to suffer burns as well as puncture marks. It is a reference to the dog's hot mouth that makes classical writers use red as an adjective describing the star. This is related to the so-called dog days of summer, a time of maximum heat. It's not the perception of a red colour but a reference to one of the properties of being "doggy." It means to be red hot.

These speculations led me to wonder what colour Sirius appears to an observer.

Standing outside, I spot Sirius attempting to hide between the drooping boughs of a tall fir tree. Finding a spot in the clear, I watch the star in a small pair of binoculars, then throw the image out of focus so Sirius appears as

a small disk with a bright edge ringing it. The colour appears a dull grey, like the colour of the eye, but like the grey of the human eye it is tinged with a very subtle tint (like a hint) of green. I would call it greyish green. I try the same technique with Procyon. Again, a grey disk but this time tinged with a very pale yellow. This star is an F5 while the greater dog is A0. Since the greater dog is hotter, this makes sense but it is an impression and not any kind of measurement. Since colour viewed by eye is a subjective impression, there is really no right and wrong in this and any impression is really just as valid as any other.

In 1973, Patrick Moore, host of the British television show *The Sky at Night*, asked viewers to watch Sirius and to send in reports of colour. Over 5000 responded and the results are tabulated below:

Bluish or bluish white	50%
White	23%
All colours	14%
Greenish	9%
Yellowish	2%
Orange	2%
Red	0%

As you can see, my personal pick, green, was the selection of comparatively few.

Most who saw all colours laboured under the effects of bad seeing; at least this is what Patrick concluded. Not one modern British observer saw Sirius as red. ★

What do Draco and the State of Maryland Have in Common?

by David A. Rodger

The constellation Draco the dragon frustrates me. I do most of my observing from a north-facing patio at my North Vancouver townhouse complex. Sometimes I find this restrictive, since I can't see anything south of the equatorial region of the sky because our building blocks the south. However, I've learned to compensate. I've spent many happy hours exploring Ursa Major, Ursa Minor, Cassiopeia, Perseus, Cepheus and even faint Camelopardalis and Lynx. Yet, with the exception of its stunning planetary nebula NGC 6543 ("The Cat's Eye"), the north circumpolar constellation Draco is mostly *terra incognito* to me.

Why is that?

I think it has to do with Draco's unusual position in the sky and its territorial boundaries. Sure, there are other "lanky" constellations. Hydra the water snake comes to mind. It encompasses more territory than any other of the 88 constellations, as it unlocks its starry coils in an east-west pattern across some seven hours of right ascension (over 100 degrees) in the springtime evening sky. Even so, you need only look south in March and April to find the water snake. I challenge you to point to Draco.

I think that's where the problem lies. Draco doesn't occupy a cohesive block of sky. If I ask you to point out Perseus in November, you know to look northeastward. Where's the Big Dipper in March? That's easy—it's overhead. Can you find Messier 103 in Cassiopeia? If it's May, look to the northwest. But if I suggest you find an object in Draco tonight, where would you point your telescope? It could be overhead, or in the northwest, the northeast or near the northern horizon. The twisted, sprawling territory of Draco can be in all those places *at the same time!* If you've ever looked at the convoluted boundaries of the US state of Maryland, especially where it gets compressed between Pennsylvania and West Virginia, Draco is its astronomical equivalent.

This, then, is why I tend to ignore Draco when I'm preparing my lists of double stars and deep-sky objects to seek out on a clear night. I'm probably being unfair to Draco since I have GoTo systems on my telescopes and could easily locate objects, wherever they are. But even with GoTo, I like to anticipate the direction and angle to which the motorized telescope will be heading before I press the "go" button.

If the instrument spins towards me, I need to get out of the way. With Draco, this can be a real hazard, especially if you guess that NGC 6543 is low in the north and, in fact, it turns out to be high in the west.

Okay, enough with the excuses! What's there to look at in this famous but bewildering constellation? I've already mentioned NGC 6543 (Cat's Eye) and I do so again because it's arguably one of the finest planetaries in the northern sky. It's bright, circular and shows considerable structure, especially if you have a large aperture telescope and an OIII filter.

Does Draco have a Messier object? Apparently it does, although the designation of the galaxy NGC 5866 ("The Spindle") as M 102, remains controversial. Some people believe that Messier accidentally counted the nearby galaxy M 101 twice!

Just for fun, I entered "M 102" on my 10-inch reflector's remote control to see where it would take me. It took me to NGC 5866. Well, if Sky-Watcher says NGC 5866 is M 102, who am I to argue? M 102 is close to the star Edasich (Iota Draconis).

Draco also boasts some attractive double stars of which

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Rastaban (Beta Draconis), Arrakis (Mu Draconis), 16/17 Draconis and 40/41 stand out.

Finally, don't overlook the star Thuban, located in the very narrowest part of this winding constellation. When

the ancient Egyptians built some of the first pyramids nearly 5,000 years ago, Thuban was the closest bright star to the north celestial pole. It gives one quite a sense of time to realize just how far the Precession of the Equinoxes

has carried the pole, now pointed to an even brighter star, Polaris. ✱

David A. Rodger, who served as President of the Vancouver Centre in the early 1970s, has been observing the sky for nearly 60 years.

Comet Lovejoy (C/2014 Q2)



Using Scott's article on page 7 as a guide, I took the above image of Comet Lovejoy (just right of centre) on the night of Tuesday, 13 January from my balcony in Kitsilano. The unguided 8-second exposure may be a slightly streaked, but it does show the comet's blue-green hue and lack of a dust tail (but long exposures show the blue-white ion tail and just a hint of a dust tail beginning to form). Shot using a Canon 40D at ISO 1600 through a 200 mm lens. The inset shows an enlarged view of the comet.

– Gordon Farrell

Members' Gallery



Partial Solar Eclipse (left) and Sunspots (right) by Hormoz Djahanshahi

Images of the partial solar eclipse of Oct. 24, 2014 and the giant sunspot AR 2192 taken three days later. These images were taken through tripod-mounted 20x80mm binoculars with inexpensive plastic filters using a Canon PowerShot G12 camera handheld in front on one eyepiece.



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