

NOVA

NEWSLETTER OF THE VANCOUVER CENTRE RASC
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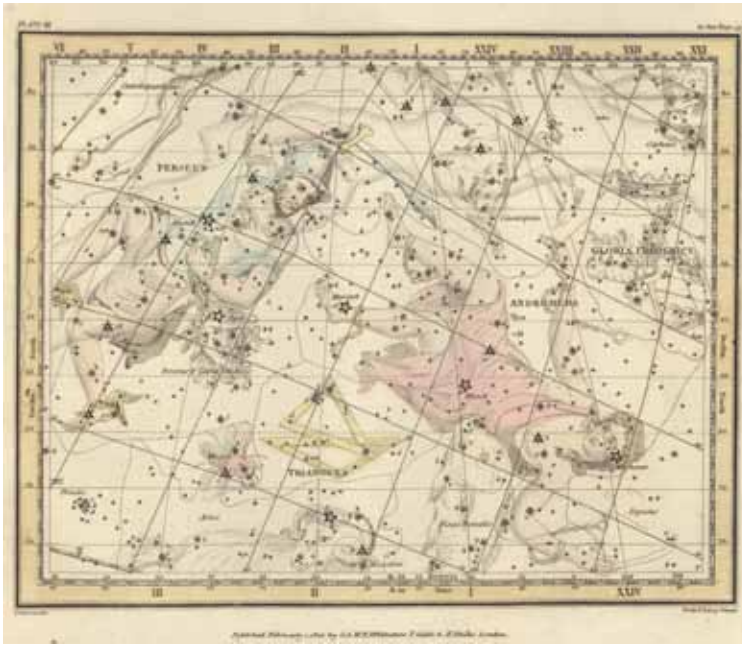
The Lady Andromeda

by Bill Burnyeat

Andromeda is the lady of high latitudes, pleasing proportions, appointed with bright treasures within her handbag of vapour. She ventures forth in the latter part of the year. Stark scenes of summer she avoids as vulgar and very bad for the skin, no doubt. Her fancy inclines towards pumpkins, leaves mimicking a painter's gaudy pallet, and she watches with a m u s e m e n t, from star-lit

realms, snow geese flying with tail feathers pointed to the pole. Her suitors, arrayed at random

compass points, sit melancholy by the fireplace, rain roaring against windows and roof; to-



night they must dream of but will not catch sight of the lady Andromeda.

She lives reclined through her assigned stars, which are in a row and called by the alphabet's first three letters, a tiny Greek lesson in as many points of light. How easy it would be to learn our alpha (α), beta (β), and gamma (γ) if they were keyed to this wonderful procession.

As she takes to the sky amid fresh winds, swirling the summer dust away, her foot is embellished by a gem ankle bracelet in the star gamma. It's a beautiful double star with a
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SEPTEMBER 11

Dr. J.J. Kavelaars of the HIA in Victoria and member of the New Horizons science team: Where to go after Pluto. See map on p. 4.

SFU

SFU

OCTOBER 9

A representative from Urthcast will speak on their plans to live stream HD video from the ISS. See map on p. 4.

SFU

SFU

NOVEMBER 13

Dr. Catherine Johnson of UBC's EOS dept. speaking on what we've learned from the Apollo lunar science experiments. See map on p. 4.

SFU

SFU

Members' Gallery: Merritt Star Quest

by Harvey Dueck



Kobau 2014

Alan Jones:

I wasn't able to plan time off this year to attend the 30th anniversary of the Mount Kobau star party. As it turned out, I was able to take a few days off and joined the party underway on Wednesday. I usually hit the road the evening after work, which gets me an extra night observing, but I was unable to

reach the mountain before red light only curfew. This was not a problem because I could make Hampton campground in Manning which had excellent crystal-clear views. It is too easy to call it a night early on your own. Encouragement from fellow star party observers can make up for a night with no sleep and keep me going through the wee hours.

by Alan Jones and Doug Montgomery

Kobau, as always, came through with a mixture of very good skies contrasting some unusable time for astronomy. The best thing about the weather there is that if you don't like it, wait—it will change. This year, my mountain-neighbourhood observers put some of the party back into the star party. We re-

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About RASC

The RASC Vancouver Centre meets at 7:30 PM on the second Thursday of every month at various locations in Metro Vancouver (see page 1 for meeting locations and page 4 for maps). 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) and can be obtained by writing to

the Treasurer at the address on page 5. 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.

2014 Vancouver Centre Officers

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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>

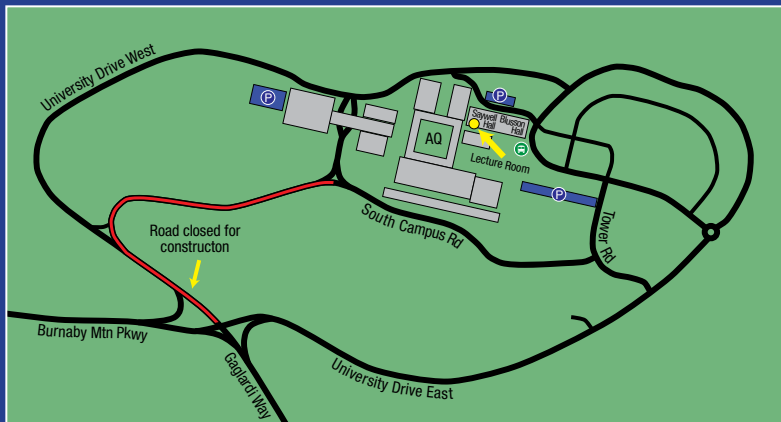


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Maps to Meeting Sites

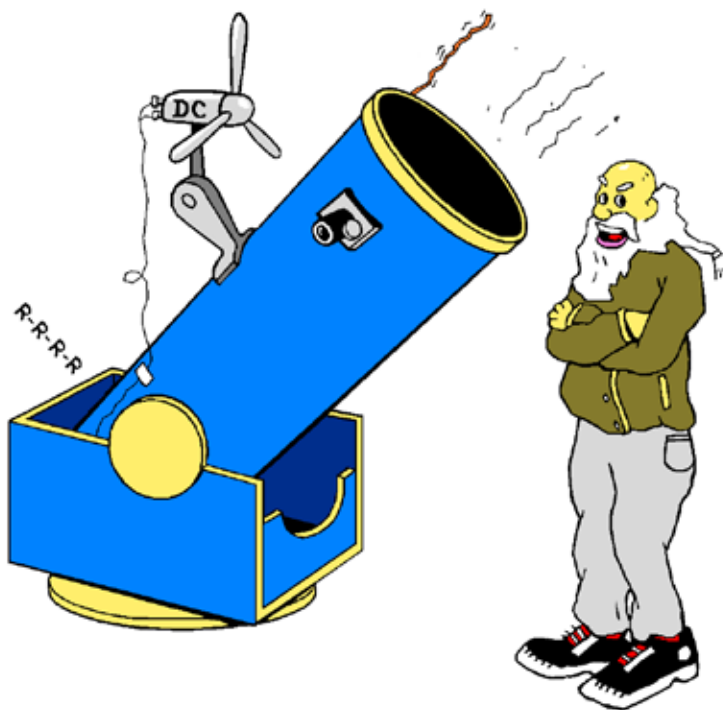


SFU

Our meetings for the rest of 2014 are in room SWH 10081 of Saywell Hall, indicated by the arrow on the map.

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

INNOVATE !



cartoon by Dan Collier

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newed acquaintances with a five o'clock social hour where we shared appetizers and our observing plans for the evening. The wonderful thing about star parties is that you have an opportunity to share with observers at all levels—new and seasoned. It is a place to make and renew friendships. It is a chance to compare notes about building telescopes, see some exquisite workmanship, and—in the dark hours—trade views through each other's scope. It is an opportunity to encourage each other's adventure in learning more about astronomy.

This year, my all-time hit for the party was viewing Pluto through my neighbour's 20-in Obsession. On the binocular 'walk,' we viewed Uranus and Neptune. I was able to find Uranus and one of its moons in my 16-in Dob after the 'walk.' Party goers this year heard many sto-

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ries about John Dobson from those who met him at earlier Mt. Kobau star parties. It was a pivotal year for the star party and a successful one. If you have second thoughts about going next year, remember the party in star party; happy times doing the things we love to do; observe and share our experiences.

Doug Montgomery:

The weather at Kobau was pretty good this year. They did have a small rainstorm before I got there. It worked out well

with all the forest fires in the early summer—a rainstorm to wash all the smoke out of the sky. There still was some to the south but everywhere else was good.

I got there on Wednesday, July 29th and stayed through to Sunday August 3rd. I wish I had more time but work did not allow that. With the exception of one thundershower, the weather was very good—I was observing every night except Saturday.

The event was not well attended but got enough to pay the bills for another year. I saw

lots of friends from years past like Lee Johnston, Ken Hewitt-White, Gary Seronik, and Murray Paulson to name a few. Harvey Dueck, Alan Jones, and Ted Allen were also there.

Kobau is a real adventure in camping. A tough road up, weather can be nasty, and this year two people saw a bear while on a hike. All that said, it is a unique and beautiful site that, if we lose it, we will never get back. So next year it may be worth a trip up that lousy road just to support the Mount Kobau Star Party. ★

photo by Harvey Dueck



Membership has its Privileges!

New members, did you know? The Vancouver Centre has 8 telescopes available for loan free of charge! We have telescopes ranging from 60mm to 10" 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

December
11 – AGM

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yellowish-orange primary and a greenish-blue companion. In the 19th Century, the French astronomer Camille Flammarion, a fan of coloured doubles, hit on a method of star classification based on precious stones. Some stars would be rubies, others emeralds, garnets and other sparklers. It was an ingenious plan, and earned immediate support from the Lady, but it never flew with astronomers because it did not lend itself readily to

quantification. It couldn't be said that one ruby star is twice as "rubyish" as another. This lack of measured scale made the system out of step with the evolving techniques of mathematical astronomy.

On the opposite side is alpha. This gem, the lady's head, was formerly one of the stars of the Square of Pegasus and formerly assigned to the horse until rescued and returned to its mistress in a rare instance of justice in celestial nomenclature.

Andromeda's middle has its own attractions. The star beta, centre of the three that delineate this sign, has the obscure galaxy NGC 404 in the same close field of view as the star. The faint galaxy looks like an elliptical pale smudge and can be seen readily in an eight-inch scope. I suspect it might be seen in smaller apertures but have never made the test myself. The nearby star is so bright that, hunting for the galaxy, it is best to move the

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M31, the Andromeda Galaxy (photo by Adam Evans)

The Sky that Nearly Stands Still

by David A. Rodger

It's a frustration we experience every spring. For a while, the great constellations of winter—Orion, Canis Major, Monoceros, Eridanus—are high in the southern sky, tempting us to explore them on rare clear nights. Then, almost overnight it seems, they are gone, swallowed up by increasingly later sunsets and advancing evening twilight.

Now, we're approaching the time of year when the opposite occurs. The relentless march of the seasonal constellations towards the west seems to slow to a crawl as we pass from late July through early November. Look west at nightfall in mid-September, for example, and there will be Arcturus, with the Big Dipper high in the northwest. Look again in October and—well—there will be Arcturus, with the Big Dipper high in the northwest. The scene remains seemingly just as static in November.

What's going on here? We know that the stars advance westward by approximately four minutes a night (3 minutes, 56 seconds to be precise), which totals about half an hour a week, and two hours a month. That never varies, regardless of season. It's a function of our annual journey around the sun, and reflects the tiny additional turn our planet has to make to en-

sure we can keep time by the sun, not the stars. (Please ignore more accurate time-keeping methods involving atomic clocks, etc.)

Fighting against the advancing "tide" of the four-minutes-a-day law is the changing time of sunset. At its latest, around the June solstice, sunset at our latitude occurs at about 9:15pm. So nightfall is around 10:15pm. Then the sunset time begins to change—slowly at first, then gathering momentum through August, September and October. When the equinox arrives in September, the sun sets around 7:00pm. More importantly, for this discussion, it sets over two minutes earlier every night.

So, if you begin your observing sessions at nightfall, you'll go into action more than two minutes earlier every night. This cuts the relentless four minute advance in half. And that's why the sky seems to slow right down in late summer and fall. Conversely, in late winter and spring, we add those two-plus minutes to the four minute advance, making the sky seem to speed up.

Alright, let's get back to the sky that's beginning to slow down, the sky we see on clear nights in September. As mentioned, Arcturus is high in the west, and the Big Dipper is above and to the northwest

of it. But, as we all know, the great attraction of the early autumn sky is the arch of the Milky Way, particularly where it passes through Lacerta, Cygnus, Vulpecula, Scutum and Sagittarius. Double stars, clusters and both gaseous and planetary nebulae abound, many of which are accessible in binoculars and small telescopes.

Some suggestions for happy viewing on warm, clear September evenings:

- Lacerta: Star clusters NGC 7209 and 7243
- Cygnus: Supernova remnant NGC 6995 (The Veil nebula); star clusters M 29 and M39; planetary nebula NGC 6826 (blinking planetary); and double star Albireo
- Vulpecula: Planetary nebula M27 (The dumbbell); and asterism Collinder 399 (The coat-hanger)
- Scutum: Star cluster M11 (The flock of wild ducks)
- Sagittarius: Gaseous nebulae M8 (Lagoon) and M20 (Trifid); and Globular cluster M22. ★

David Rodger, the Founding Director of Vancouver's HR MacMillan Planetarium, has been explaining astronomy to the general public in person, in print, in planetariums and observatories and on television, for almost 60 years.



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golden star just out of the field of view and hunt in a donut pattern about beta with the star excluded in, as it were, the hole of the imagination confectionary.

The star has another point of high interest, for it is like a bus terminal or train station where we arrive at, and, taking a local cab or walking on foot, leave the vicinity and travel past the local pub called mu (μ) and up the lane by an old church called nu (ν) and turning through a flagstone step in a hedge and

down a path we come to the home of the Andromeda Galaxy. The last steps are through two stars of about sixth magnitude, a wide double, whose stars are easily seen both in the finder scope and in wide field pictures of M31 itself. The stars are a seventh magnitude couple (7.0, 7.6) mentioned in older star books but do not get any attention today. Another double, forgotten as too easy, is the pair next to Kochab in Ursa Minor. Two stars of slightly brighter than magnitude seven are eas-

ily seen in my opera glasses that magnify four times and are equipped with 3 cm objectives. They look slightly orange. This pairs are found on no list newer than about 1930.

It is true today what was said of the galaxy more than 100 years ago—that no telescope was capable of plumbing the depths of this object. Few objects have played a more important role in advancing human understanding of our place in the cosmos. We now know that of the dozens

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Open cluster M34 (photo by Ole Nielsen)

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of galaxies in the local realm it is this one, called M31, that is the major player and that our own home in the Milky Way is a significant but secondary actor in the local cosmic stage. It's the final dethronement in a process that began when it was understood that the earth was not the centre of the universe but an accessory to the sun. After this, for a time, it was possible to believe the Milky Way was the whole of the cosmos and that we next to the sun were at the centre point. This too proved a passing fancy for it was shown the sun was in the remote arms of the galaxy, well off the middle bulge. Then, in the infancy of distance measurements to other galaxies, they were greatly underestimated, it seemed our own might be the largest one in the sky. Arthur Eddington cautioned that this seemed puzzling and he was right. So, our Milky Way, although impressive in size, is not nearly as large as some we can explore.

M31 is the great Andromeda galaxy. It is one of the easiest to spot and yet the most sublime object in the whole sky. M31 is the nearest great galaxy to our own Milky Way system. If we could travel to M31 and visit a habitable planet we could see our own galaxy up in the night time sky just about as bright as M31.

The galaxy was known as a "nebulous spot" long before telescopes were invented. In a

clear sky, it is a naked-eye object near the middle of the chain of three bright stars that form Andromeda. The Muslim scholar Al Sufi, in about 900 AD, mentions the "little cloud" in this part of the sky. From the city, where it can't be viewed directly, I often do just this with small field glasses of four powers. (The Moon is also a fun target for these little glasses).

Simon Marius in 1611 is probably the first person to view M31 in a telescope. He compared it to the "light of a candle shining through horn." This is still a good description of M31 in small scopes or on moonlit nights. In dark conditions and with 12-inch or larger scopes, two lanes of dust may be seen accompanying the central portions. M31 is a spiral galaxy but turned at an angle to us. Its distance is about 3 million light years.

The great galaxy is an example of an object that never seems to exhaust its surprises. In some strange way, it dominates the local scene and our galaxy is in a dynamic relationship with M31 whose details are only just now coming to light.

In the last few years, many very small galaxies, each holders of only a few thousands of stars, have been detected in the neighbourhood of M31. These ultra-light galaxies contain old stars and are the aged remnants of a local system much different than today. It seems, although this is tentative, that our Milky

Way galaxy might itself be a satellite system of M31. It may execute a very long orbit, taking at least six billion years for one go around. If so, the last of these great whirls began without our sun and planets, for our system and home had not yet been formed.

M34 is a galactic cluster on the border of Perseus and Andromeda. It is a sparse but bright cluster of a handful of stars. Low powers work best on this object and M34 is a favourite for owners of larger binoculars. It does not really improve with an increase of power or scope size. However, for those wishing to use higher power, M34 has a central double star called "h 1123". It may be split in a 76 mm telescope. About half way between M34 and gamma Andromedae sits NGC 891, the often photographed edge-on galaxy. This is a more difficult target and a larger backyard telescope is needed here.

This quick survey by no means finishes the charms of the lady. Recently, at Cultus Lake Provincial Park, I turned the telescope in her direction, but some carelessness some mischance or miscue, on my part no doubt, took the lady in ill humour and she summoned up clouds from across the lake and soon a dark sky and dark campground, everywhere, the dark prevailed. I had trouble finding the truck to pack it all up, even though the vehicle was standing where, in daylight, it was in plain view. *

More Merritt Star Quest pics,
courtesy of Harvey Dueck





Aurora over Merritt (photo by Harvey Dueck)

A composite image of Michelangelo's 'The Creation of Adam' fresco. The central figure, Adam, is shown in a reclining position. Instead of the hand of God, a pair of binoculars is held between the two hands, symbolizing astronomy and observation.

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