Saskatoon Skies

The Newsletter of the Saskatoon Centre of the Royal Astronomical Society of Canada

Vol. 47, No. 1 January 2016

The annual Christmas Potluck was a great success on December 7th, with great food and company enjoyed by all. Photo by Tenho Tuomi.

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http://www.usask.ca/rasc/newsletters.html

In This Issue:

MEMBERSHIP? JOIN TODAY!

Regular: $85.00 /year **Youth: $45.00 /year** **Family: $80/year**

The Saskatoon Centre operates on a one-year revolving membership. You will be a member for the next 12 months no matter when in the year you join. If you do not want to join at this time, ask to get onto our FREE 3-month Temporary Membership list. You will receive regular mailings of our Saskatoon Skies newsletter and will be invited to participate in Centre activities. Members are encouraged to renew early to avoid disruption in publications. Renew through the National Office at http://www.rasc.ca/join-us

Benefits of Membership in the Saskatoon Centre

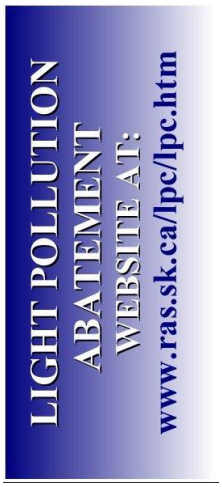
- knowledgeable & friendly amateur astronomers
- use of the Sleaford Observatory
- use of the U of S Observatory (after training)
- Saskatoon Skies Newsletter
- Observer's Handbook
- Journal of the RASC (electronic format)
- SkyNews Magazine (bimonthly)
- use of the Centre library
- borrow the Centre's Data Projector to give astronomy outreach presentations – contact Les Dickson at astrochem@sasktel.net
- rent the Centre's Telescopes http://homepage.usask.ca/ges125/rasc/telescopes.html
- discounts to Sky &Telescope Magazine*
- free, no-cost, no-obligation, 3-month temporary membership if you don 't want to join right now!

SASKATOON CENTRE'S
MAIN OFFICERS:

Interim President – Les Dickson
Vice-President – to be filled
Secretary – Tenho Tuomi, 306-858-2453
Treasurer – Norma Jensen, 306-244-7360
National Council Rep – to be filled

Bottle Drive &
Canadian Tire $
By Les Dickson

If you cannot attend a meeting but would like to donate your Canadian Tire money please email me at astrochem@sasktel.net



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Saskatoon Skies is published monthly by the Saskatoon Centre of the RASC. Distribution is approximately 100 copies per issue. Saskatoon Skies welcomes unsolicited articles, sketches, photographs, cartoons, and other astronomy or space science material. Submissions should be sent by e-mail to the editor at krisohn@gmail.com in msword or text format. Images: any format, less than 30MB, sent by e-mail as attached files. **Deadline for submission of all articles for an upcoming issue is the first Friday of the month!**

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RASC CALENDAR OF EVENTS

Jan 18	**RASC General Meeting**	Les Dickson
Feb 6	**Observers Group**	Larry Scott
Feb 22	**RASC General Meeting**	Les Dickson
Mar 5	**Observers Group**	Larry Scott
March 21	**RASC General Meeting**	Les Dickson
April 2	**Messier Marathon (Observers Group Night)**	Larry Scott
April 9	**Messier Marathon (Observers Group Night)**	Larry Scott
April 18	**RASC General Meeting**	Les Dickson

For a complete list of club events, please visit: http://www.usask.ca/rasc/activities.html

January RASC General Meeting

for all members and guests
Room 175 Physics Bldg
University of Saskatchewan
on

Monday, January 18th, 2016 at 8:00PM

Presentation by Tenho Tuomi:
Introduction of an Astroimaging Certificate
First impressions and feedback.

Presented by Richard Huziak:

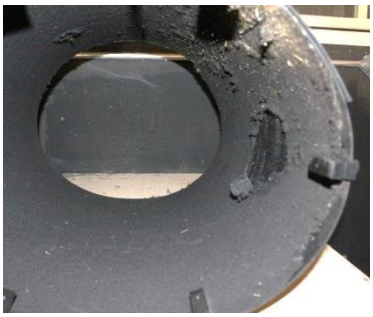
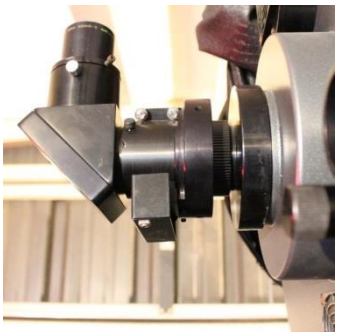
The 103rd AAVSO Meeting in Woburn, MA…
And why we should all be members!

Rick Huziak attended this meeting of the American Association of Variable Star Observers and will tell you all about how amateur and professional astronomers interact. He will also cruise you through the AAVSO website.

Note: There will be an EXECUTIVE MEETING beginning at 7:00 PM

Adventures with the 16 inch LX200 – *Tim May, Alan Duffy*

Alan and Tim have been working occasionally with the Meade LX200 this past year as the appeal of its large aperture is irresistible. We'd heard it had some issues pointing and focussing so that added interest in having a go. The mouse nest inside the dew shroud was one of the first things to get cleared up, and general check of what works with the control panel and paddle. The state of the scope was a bit out of kilter but some progress has been made since last summer. The electric focuser on the outside didn't work and the problem was tracked to the DC micromotor being "open" - no continuity through the windings. It looked a lot like a Jim's Mobile early model but after contacting Toronto's club their info pointed to a homebrew design. We replaced it with Meade's microfocuser. The old one is in a box in the lockers at the warming shelter. If a suitable Maxon motor is specified it could be a repaired as a spare.

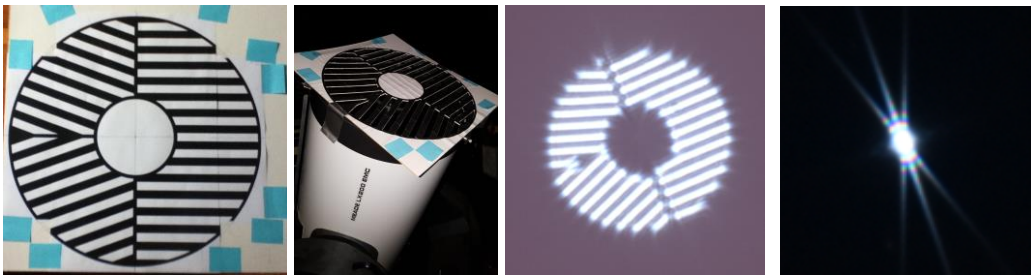

From left: mouse house in dew shield, original focuser before replacement, control panel.

Alan checked the control paddle and software operation and at this time the thing wants to forget where it is. The routine in the manual to get it oriented works but it doesn't keep the calibration, starting with a 37.8 degree offset in latitude. Upon powering up the LX200 it assumes that it is at zero degrees declination and pointing south. In fact it is parked at approximately at a declination of about -37 degrees (90 - lattitude of Sleaford). The quickest way to get it synchronized is to select a bright object that is easily found in the finder scope. It will under shoot by 37 degrees, thus the user needs to push the N button until the target is roughly aligned. After fine tuning the target until it is centered, press and hold the enter button until a beep is heard. It sometimes happens that Meade does not seem to boot up properly. The fix for this is to: 1. turn off the pier power using the switch by the door 2. turn 'on' the LX200 (it will not power up) 3. turn 'off' the LX200 4. turn on the pier power 5. turn on the LX200. p.s.

Both motors work but there is backlash. The mechanical focus knob operates and there is backlash in it. With full cw rotation to hold the mirror at the rear we started looking to see what is affecting the focus but it has not been systematically checked, nor scanned past zenith to determine if "mirror flop" is occurring. The scope obeys paddle commands though there is some question on it reversing the sense of direction. It was also steered by a laptop using the RS-232 channel via a cable Alan made, operating with an ASCOM driver he worked on; and Stellarium software. The control panel should be removed at some point and checked for corrosion and replacing the clock battery. Some cleaning and general observing with various eyepieces was tried. It was noticed that if we did eventually find flop we'd need to get into the scope and a potential problem was spotted with the corrector plate.

At the location of the 6 screws holding the corrector plate and secondary onto the front of the scope, there appears to be cracks in the plate around them. Whether these have been there since arrival or the result of something else (temperature cycling, too tight) is unknown. What sort of trouble this will be is unclear if we want to remove the corrector to check the primary mirror mount and focus.

Tim made a Bahtinov mask from a pattern on the web*, printed on two 11x17 inch pages, glued to cardboard and openings cut out. It is scaled for the 16 inch aperture and focal ratio. This is used to see if the microfocuser is behaving and to have a way to check the imaging and focus shifts by being able to start at a good consistent focus position.



From left: mask before cutting; taped to scope; out of focus image; at focus, spikes cross symmetrically, the angled bars are +/- 20 deg. relative to the opposite side bars.

This was checked using Alan's Nikon SLR camera on a T adapter without the diagonal and adjusting the tube focus with the mask in place. It was a hazy night and Vega was the only thing making it through the high thin cloud but it was enough to see that it worked. The diffraction spikes could be seen shifting around with moving the microfocuser fairly easily. Have to waterproof the cardboard mask though as it dews up and warps a bit.

Alan made this image of M42 taken with the LX200. It is an average of six 30 second exposures at ISO 6400 on a full frame Nikon D750. Aligned using Hugin and stacked using ImageMagick.

A systematic check on the focus is planned to see where problems are – with tracking, moving past zenith, focus shift affected by the mirror focus position. A check of the polar alignment is also planned to see if any repositioning of the base is needed.

*http://www.deepskywatch.com/Articles/make-bahtinov-mask.html

A Vintage Small Scope – *Ron Waldron*

Okay, I admit it – I am a hopeless astronomical romantic and I have an incurable love for telescopes. How many telescopes is too many? I don't know but at last count I own and operate four decent telescopes and last December I added a fifth.

Here's the story. I was cruising Kijiji one Saturday evening in early December when I noticed someone selling a classic orange tube Celestron C90 scope. The C90 is a 90 mm aperture f/11 Maksutov optical system. The model was launched in 1978 and was available in three versions: as a spotting scope, as a single fork arm mounted astro version, and as a black telephoto lens. The C90 optical system was identical in all three versions. It was sold with a 5x24 finderscope, a 0.96" optical back, and came with 18mm and 30mm Kellner eyepieces. The C90 optical tube was very compact (5"diameter x 8" long) and weighs about 3 lbs. Finally, the scope is focussed by turning the black focusing ring attached to the orange tube; this screws the orange tube forward or backward, changing the distance between the primary mirror and corrector plate.

When I arrived to look, it was OTA only but included the original carrying case and foam protection. Missing was the orange finder. The best part, however, – it was in mint condition and the seller wanted only $15! In their day, they were selling for over $300, depending on which of the three models you were buying.

I paid the seller $20 instead of the $15 being asked (that took care of any guilt for picking it up so cheaply).

To make this scope worthy as an astronomical scope, I decided to convert it to accept 1 ¼" eyepieces. This required purchasing a Large Assembly Ring (LAR) and a 1 ¼" Celestron Visual Back. Then I needed eyepieces – I chose to outfit it with two 40mm and 25mm Celestron Plossls that I had kicking around. Then I added a Celestron right angle diagonal. Finally, I needed to be able to point the scope. As it did not have the original orange tube finder, I chose a low profile Celestron red dot finder that I was not using.

From left to right: C90 with the Porro prism diagonal and red dot finder; with the LAR and 1 ¼" Visual Back and DSLR attached

After mounting on a camera tripod, I was able to take a few photos through it to see how it performed. December was such a cloudy month that I have not been able to test it very well astronomically but have manage to take a few terrestrial photos to give an idea of the magnification with camera attached.

My last purchase is a focal reducer which should bring it down from f/11 to f/5. I am expecting that to arrive at the end of January.

All told, I have invested $200 in this $20 scope and plan to either use it as the ultimate travel scope or perhaps eventually mount it piggyback on my Celestron C8 CAT. Did I need a fifth scope – not really but to be honest this little scope, if nothing else, is cute. I look forward to using it on my advanced AVX mount in the spring to see how it performs as an astronomical telephoto lens.

From left to right: Picture taken through the C90; photo of the same scene with unaided DSLR

Farmers share common ground, distant galaxies

— *William DeKay*

*Original Article found at www.producer.com/2015/02/farmers-share-common-ground-distant-galaxies/

Garry Stone and Tenho Tuomi used to often find their gaze wandering up — way up — while seeding and harvesting.

On tractors and combines, they would shift their focus to infinity, admiring the aurora borealis, the moon and the Milky Way.

“It’s something to think about when you’re out on the tractor,” said Stone.

It’s no surprise that they have both found time to turn their attention to astronomy since semi-retiring from farming.

Stone and his wife, Myrna, farm near Strongfield, Sask., while Tuomi and his wife, Velma, farm northwest of Lucky Lake, Sask.

Farmers and astronomers have much in common. Their main seasons are spring and fall and both pay close attention to the weather and rely on cloudless nights.

“If we want to see something in the sky, we have to pay more attention than farming,” Stone said.
“We need clear spots to find things in the skies.”

They said they are the only farmers who belong to the Saskatoon Centre of the Royal Astronomical Society of Canada.

They meet once a month at the University of Saskatchewan's Physics Building with fellow enthusiasts to discuss individual projects, plan activities and conduct group studies of astronomical events.

"There's a comet (Lovejoy) around now that's very popular with everybody," Tuomi said.

"We're all concentrating on that because it's a one-time visitor in our lifetime and we want to see it while it's still here. It will be back in 8,000 years."

The farmers met at a club meeting in 2002 and recognized common ground beyond astronomy and farming.

They were both born the same year, both sat on municipal councils and both married women who are nurses and whose maiden names are Dyck (no relation).

As well, both men do much more than just look at the sky.

Stone used skills honed as a cabinetmaker to build functional wooden telescopes in his farm's workshop that range from a 90 millimetre refractor to 70 mm one.

Tuomi, who is a software developer, wrote a planetarium program to track stars.

As well, both have built homemade observatories a short jog from their house and barn that they can use year round.

Tuomi said gazing up through his 305 mm telescope and focusing on a distant galaxy is like looking for history in the sky.

"Every telescope is a time machine. It looks back in time. Light that we see from our closest neighbouring spiral galaxy (Andromeda nebula) started from there two and a half million light years ago," he said.

“We’re time travellers, but I don’t suppose we think about it that way when we look at objects. We read about it and then it hits us that what we were looking at was something ancient.”

Tuomi said he still gets a sense of awe, even after years of studying the cosmos.

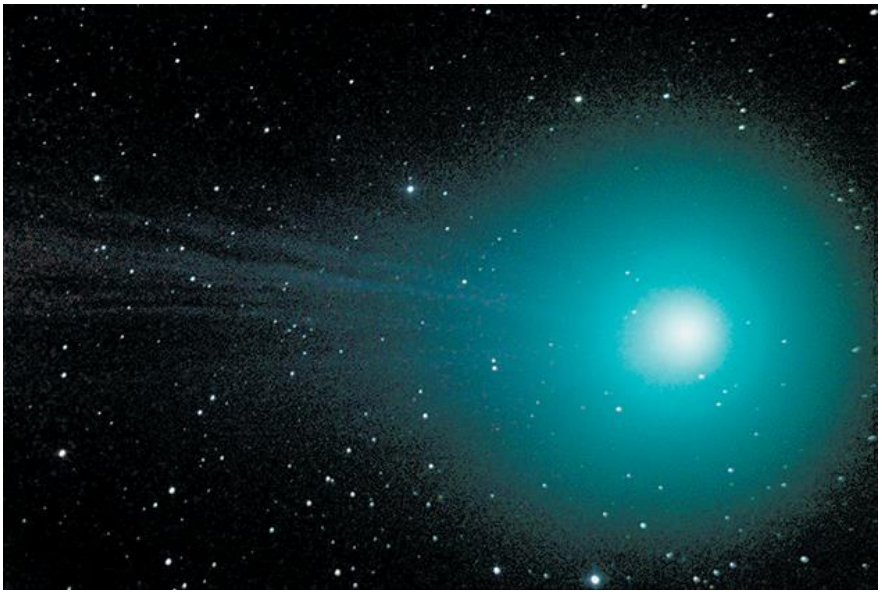
“We’re seeing things that no one else can see,” he said.

“Our own galaxy, the Milky Way that we live in, is about 100,000 light years across.”

Added Stone: “The farther away they are, the more you think about it.”

Tuomi said stars are constantly evolving.

“Stars are exploding, others are being born. It’s a constant evolution.”



Observer’s Group – *Larry Scott*

During the December new moon period I was fortunate enough to be in the Caribbean and saw a great, dark sky. On both the 13th and 14th I saw many Geminids. Orion was really high and as the week wore on I saw a crescent moon setting nearly like a perfect cup. Also observed some excellent aurora from the plane coming back on December 20th. Sigh. Also, as I write this on January 9th, I've just cancelled the Observer's Group meeting as its -23C and dropping. Again, sigh.

Next Observer's Group is scheduled for February 6th with Moonless evenings from January 30th till February 11th.

Observing Clubs and Certificates

Join the Club! Observe all 110 Messier, 110 Finest NGC, 400 Herschel I or II, 140 Lunar, 154 Sky Gems or 35 Binocular objects, or Explore the Universe and earn great OBSERVING CERTIFICATES!

MESSIER CLUB
Certified at 110 Objects:
R. Huziak, G. Sarty, S. Alexander, S. Ferguson, D. Jeffrey, D. Chatfield, B. Christie, K. Noesgaard, M. Stephens, B. Hydomako, T. Tuomi, L. Scott, G. Charpentier, B. Johnson, M. Clancy, L. Dickson, B. Burlingham, K. Houston, Norma Jensen

Ron Waldron	108
Wade Selvig	75
Garry Stone	57
Bernice Friesen	45
Wayne Schlapkohl	43
Barb Wright	40
Ellen Dickson	34
Jeff Swick	24
Graham Hartridge	9

Chatfield BINOCULAR CERTIFICATE
Certified at 35 to 40 Objects:
M. Stephens, T. Tuomi, M. Clancy, R. Huziak, K. Maher

Jim Goodridge	12

FINEST NGC CLUB
Certified at 110 Objects:
R. Huziak, D. Jeffrey, G. Sarty, D. Chatfield, T. Tuomi

Larry Scott	110
Scott Alexander	97
Norma Jensen	83
Sandy Ferguson	23
Kathleen Houston	23
George Charpentier	13
Mike Clancy	7

EXPLORE the UNIVERSE
Certified at 55 to 110 Objects:
M. Clancy, T. Tuomi, K. Maher, B. Gratias

Wayne Schlapkohl	55
Jim Goodridge	35
Sharon Dice	31

Isabel Williamson Lunar Observing Certificate
Certified at 140 Objects:
T. Tuomi

Norma Jensen	140
Jeff Swick	29

HERSCHEL 400 CLUB
Certified at 400 Objects:
D. Jeffrey, R. Huziak, D. Chatfield, T. Tuomi

Gordon Sarty		251
Scott Alexander		117
Larry Scott	*New!*	40
Sandy Ferguson		18

HERSCHEL 400-II CLUB

Darrell Chatfield	400
Tenho Tuomi	398
Rick Huziak	246

LEVY DEEP-SKY GEMS
Certified at 154 Objects:

Tenho Tuomi	150
Darrell Chatfield	70

The Messier, Finest NGC and David Levy's Deep-Sky Gems lists can be found in the *Observer's Handbook*.
The Explore the Universe list is available on the National website.
On-line Messier and Finest NGC lists, charts and logbooks: **http://www.rasc.ca/observing**
On-line Herschel 400 List: **http://www.astroloeague.org/al/obsclubs/herschel/hers400.html**
Binocular List is at: **http://homepage.usask.ca/%7Eges125/rasc/Chatfield_Binocular_List.pdf**
"Isabel Williamson Lunar Observing Program Guide:
http://www.rasc.ca/observing/williamson-lunar-observing-certificate
Program details can be found at: **http://www.rasc.ca/williamson/index.shtm**