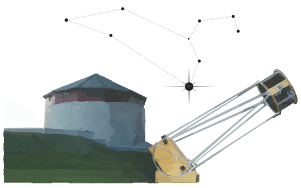
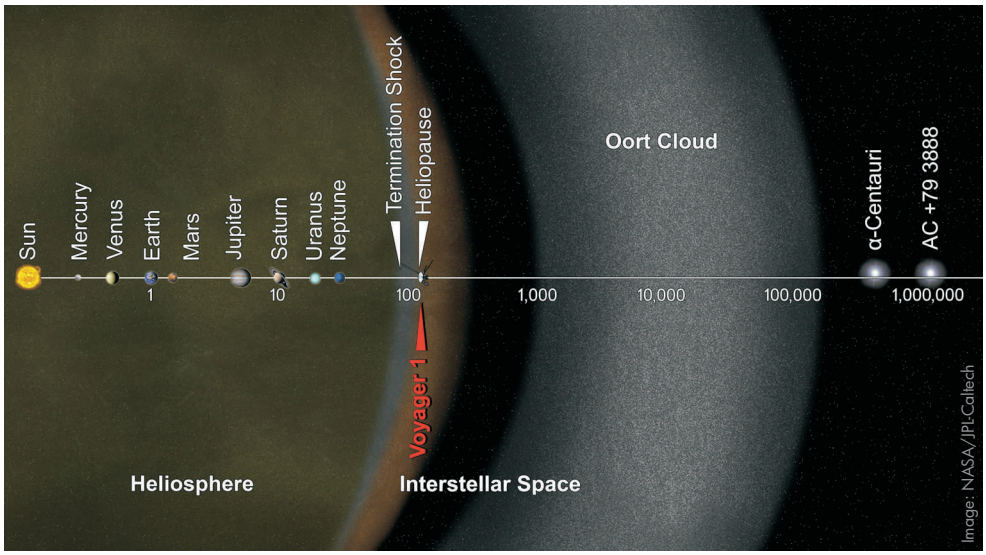
October 2013

Regulus

RASC Kingston Centre





Voyager Goes Interstellar

NASA

THIS ARTIST'S CONCEPT puts solar system distances in perspective. The scale bar is in astronomical units, with each set distance beyond 1 AU representing 10 times the previous distance. One AU is the distance from the sun to the Earth, which is about 93 million miles or 150 million kilometers. Neptune, the most distant planet from the sun, is about 30 AU.

Informally, the term "solar system" is often used to mean the space out to the last planet. Scientific consensus, however, says the solar system goes out to the Oort Cloud, the source of the comets that swing by our sun on long time scales. Beyond the outer edge of the Oort Cloud, the gravity of other stars begins to dominate that of the sun.

The inner edge of the main part of the Oort Cloud could be as close as 1,000 AU from our sun. The outer edge is estimated to be around 100,000 AU.

continues on page 2...

Upcoming Meetings

Thursday, October 10 7 p.m.
Members' Night

Saturday, October 12 7:30 p.m.
KAON Observing Session

Thursday, November 14 7 p.m.
Annual Meeting & Elections

Thursday, December 12, 5:30 p.m.
Annual Dinner
Aunt Lucy's restaurant, Kingston
Note: No meeting tonight!

Meetings are held in Room B201 at Mackintosh Corry Hall on University Avenue at Queen's University in Kingston, Ontario. **KAON** (Kingston Astronomy Outreach Network) sessions are held at Queen's Observatory on the 4th floor of Ellis Hall. ★

In this issue:

Reports and Other Items

From Kingston Centre, the RASC, and Beyond...

KC Annual Meeting

The positions of President, VP, and Treasurer are up for grabs in November. Please consider volunteering for one of these positions!

KC Annual Dinner

The Centre's annual dinner will be at Aunt Lucy's restaurant on Thursday, December 12th. Drinks start at 5:30 and dinner is at 6:00 p.m. Everyone will pick from the dinner menu: you choose, you pay.

So come out and celebrate 2013 with your fellow astronomers! **RSVP** to Kim Hay at cdnspooky (at) gmail (dot) com or 613-377-6028.

We have the front room booked, but if more than 24 show up, we will get a larger room.

We did this last year and the food was great and the prices were very good. In addition the private room was roomy and nice and quiet (compared to an open restaurant).

We are going to have a slide show running up against one of the walls if we can, so start collecting up to a dozen or so of your images from 2013 to submit (preferably before the actual dinner!), and if you like, you can annotate the image with your name so the folks seeing it know whose it is.

E-mail images up to 1024x768 (they should be fairly small relatively speaking) to kevin (at) starlight-cascade (dot) ca.

Red Acetate for Screens

Kevin Kell reports that he recently purchased a sheet of red acetate from Wallacks Art Supplies on Princess Street near Clergy, to cover up a couple of computer displays in the observatory.

A sheet of about 18"x24" was a whopping $3 and did indeed cover both standard 15" and 17" displays. Optically it is very good and does not

continues on page 2...

...Voyager

NASA's Voyager 1, humankind's most distant spacecraft, is around 125 AU. Scientists believe it entered interstellar space, or the space between stars, on Aug. 25, 2012. Much of interstellar space is actually inside our solar system. It will take about 300 years for Voyager 1 to reach the inner edge of the Oort Cloud and possibly about 30,000 years to fly beyond it.

Alpha Centauri is currently the closest star to our solar system. But, in 40,000 years, Voyager 1 will be closer to the star AC +79 3888 than to our own sun. AC +79 3888 is actually traveling faster toward Voyager 1 than the spacecraft is traveling toward it.

The Voyager spacecraft were built and continue to be operated by NASA's Jet Propulsion Laboratory, in Pasadena, Calif. Caltech manages JPL for NASA. The Voyager missions are a part of NASA's Heliophysics System Observatory, sponsored by the Heliophysics Division of the Science Mission Directorate at NASA Headquarters in Washington.

For more information about Voyager, visit nasa.gov/voyager and voyager.jpl.nasa.gov.★

...Reports

degrade the legibility. The only issue is red-coloured items being much harder to make out.

Fall'n'Stars 2013

Hank Bartlett *reports*: A big thank you to all the Kingston & Belleville members who make FnS happen every year, especially **Mark** [Coady] for heading it up again. Regardless of the weather I considered this year to be a great success and well worth going to, even with the pain of camping.

If you didn't go, so sad. FnS isn't just about observing, it is also about getting to know your fellow members better, sharing the time and chat and a movie.

The short of it: 2014 BE THERE!

Other Items

The web server running the centre's website, kingston.rasc.ca, was upgraded on September 16th to Fedora 19...**Dr. Arthur McDonald** (Queen's) accepted the Giuseppe and Vanna Cocconi Prize on behalf of the Sudbury Neutrino Observatory Collaboration...secure.rasc.ca has been completely rebuilt and offers a much better experience for joining/renewing and donating to the Society.★

Regulus Needs You!

Items of interest from members—full articles, or even just a couple of paragraphs are always welcome. Items are gratefully accepted on each and every day of the year! Send items to:

walter.macdonald2 (at)
gmail (dot) com

or:

Walter MacDonald
PO Box 142
Winchester ON K0C 2K0

The Fine Print:
Members of the Kingston Centre receive *Regulus* as a benefit of membership. Non-commercial **advertisements** are free to members of the Centre. Paid commercial advertising is also welcome and should be in electronic format.

RASC-KC Board of Directors

President:	Susan Gagnon
Vice President:	Kim Hay
Secretary:	Kim Hay
Treasurer:	Kevin Kell
Librarian:	David Maguire
Editor:	Walter MacDonald
National Council Rep:	*vacant*

Committee Chairs/Coordinators

Equipment Loan:	Kevin Kell
KAON:	Susan Gagnon
Webmaster:	Walter MacDonald

RASC Kingston Centre
c/o 151 Nicholson Crescent
Amherstview ON K7N 1W9

E-mail:
kingston@rasc.ca

Website:
kingston.rasc.ca

Meeting Report: September 12

Various Members

THE CENTRE'S SEPTEMBER MEETING *was a Members' Night as is our custom*.

Hank: I missed the first half hour but I think that was an excellent meeting tonight. I enjoyed it very much and a big congrats and thank you to the Torus Tech Crew!

Rose-Marie: And a thank you to Kevin for putting the meeting online! I had been running errands in town all day, my feet were killing me, had to come home. At least I caught most of it on the computer, so didn't entirely miss out.

Kevin K: The main USB web camera broke—it was only giving bad video. The main audio went into some weird feedback loop at the beginning of the meeting, so we switched over to the built-in camera and microphone.

When Leslie made his presentation it was on his own computer, so we could not share it on the video stream like we could the rest of the meeting. The netbook we bring to do this is not powerful enough and I think we will stop using it and try to find a regular laptop (with better resolution of 1024x768) so that the video projection also does not squeeze everything into different aspect ratios as well.

All in all a frustrating technological time, but what else is new with tech? ☺

Paul W: Yeah, my favourite kind of meeting! Thanks, everyone. And special thanks to Kevin and Kim for hosting the Torus and coordinating all the intricate troubleshooting that has been needed!

Hank: Now that you mention all of that Kevin, seeing as it is a member service the centre should have adequate equipment for the job. I know it is an executive decision but I cannot see anyone objecting to the expenditure for a good up-to-date laptop for the job. If my guess is right you have been using your own equipment for a long time. My first reaction to the web casting was "will anyone really use it" but as the meeting progresses and comments pop up on the screen the whole effort is validated more all the time. Maybe we should start imaging the Timbits too so they see what they are missing.

Rose-Marie: If I hadn't had some leftover pie to go with my coffee last night, that remark would just be cruel! ★

KAON Report: September 14

Kevin Kell

THE FIRST Kingston Astronomy Outreach network (KAON) open house/public observing session/ astronomy lecture of the "new season" was held on Saturday September 14th, 2013 at the Ellis Hall Observatory on Queen's campus.

Jonathan Sick (an astronomy grad student at Queen's University) gave a talk from 8:05 until about 9:00 p.m. on "A Journey Through the Andromeda Galaxy" to a crowd of about 90 people.

Following that, tours of the observatory and the Celestron C14 and observing with 3 telescopes out on the observing deck. **Laurie** and son **Devon Graham** brought their 20cm Schmidt-Cass scope, **Kim Hay** manned the 20cm Fitzerald and **Susan Gagnon** brought her 10cm scope to observe, variously, the Moon (with and without filters), Alberio, M31 and other objects. The moon was nine days old and was causing a lot of lit up haze in the area.

We also put out free books and magazines from our outreach collection along with Starfinders (rasc.ca/star-finder), moon charts, Sidewalk Astronomer Handbooks (rasc.ca/sidewalk-astronomers-handbook), collector cards and more. Most were gone by the end of the evening!

Nathalie Ouellette manned the C14, which was unfortunately not functioning that night. We had a new undergrad volunteer by the name of **Nathan** who helped out as well.

All in all a good evening with no bugs, a good stiff wind that shook the telescopes, and a lot of happy people. ★

Terry Dickinson Honoured


Join family, friends and colleagues of Terence Dickinson as he receives the County of Lennox & Addington Award for Lifetime Achievement.

A special presentation will be held

Thursday, August 29, 2013
12 noon
Lennox & Addington County Dark Sky Viewing Area
7980 County Road 41, Erinsville, Ontario

The Award for Lifetime Achievement is presented to individuals who demonstrate exceptional dedication and make an outstanding contribution to the County of Lennox & Addington.

Mr. Dickinson is a very deserving recipient of this award.

A light lunch will be served. Please RSVP by August 27th by calling 613-354-4883 or by emailing rplumley@lennox-addington.on.ca.

Lennox & Addington County Warden **Doug Bearance**, left, presents the L&A Lifetime Achievement Award to author, editor, and promoter of astronomy, **Terence Dickinson**. The plaque on the granite stone is temporary; a permanent bronze plaque will replace it when it is completed. *Photo by Guy Nason.* ★

Observing Reports: September

Various Members

Sat/Sun, Aug 31/Sep 1

Rose-Marie: Spaceweather had lofty promises of the auroras fired up, and I was suckered in yet again. Kept resetting the alarm and checking throughout the night. I finally got dressed and headed out around 4:20 a.m. to see if there were any sparklies from the Aurigid meteor shower, only saw one little *pffft!* go through Taurus. Took some pics of the morning sky from my dock, this one was taken at 4:48 a.m. *Sigh*, summer's coming to an end: Orion is appearing.

Walter: Sorry, but I've always considered the end of summer to coincide with the heliacal rising of Sirius and I saw Sirius about a week ago. Welcome to fall!

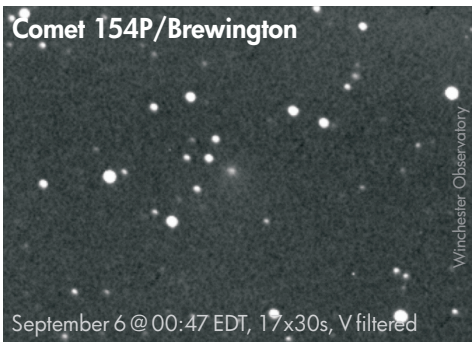
Thu/Fri, September 5/6

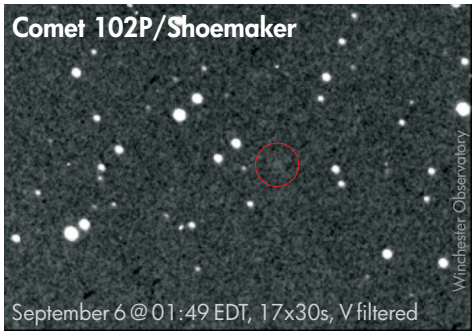
Rose-Marie: In spite of the predictions of cold temperatures it was a lovely clear night, got myself set up on the dock for some observing time. I was focusing on Sagittarius and Scorpius, wanted some obeservations for the *Observe the Universe* project which I have haphazardly been working on for months. A couple of nights ago I had the 7x50 binocs out scanning through Sagittarius trying to sort out the various M's. It was hazy on the southern horizon, could not make out M4 in Scorpius. I took some shots with the barn door tracker so I could study the scene on computer screen with *NightWatch* in hand, trying to sort out what I was looking at. Last night I took the 15x70 big honkin' binocs out, and with the clear sky found M4 and a whole bunch of other stuff as well. I'm a bit peeved that I don't have my issue of *SkyNews* that had a lovely article on Sagittarius either last year or the year before, got everything but. Must tear the house apart and find it, and put all my *SkyNews* mags in one box, along with some other reference materials. When I first set up I took some shots with the barndoor tracker, wanted pics of Scorpius and Sagittarius while they're still shining front and center and the Moon isn't glaring them out. Last night the light pollution seemed a little less from Kingston, likely just the cold air clearing out the haze. Whichever, I took advantage of the conditions until the cold got me chilled and the mist off the lake starting making the air damp around me.

Walter: Finally a clear, moonless night with good transparency and no bugs! 175 variables were imaged, plus two comets—at least I think I detected Shoemaker. While the dome was running itself, I was out in the Merry-Go-Round with the C8 doing some variables and deep sky objects visually.

I looked at Nova Del with my crappy 7x50 binocs but without pinpoint focus and a tripod adaptor (I do have one somewhere!) it was just a tad faint to pin a number on. Oh well, it will soon be faint enough to estimate with the C8. While I was looking at M13 at 22:00, a bright satellite passed right over it! At 23:28 I saw a zero mag, very short meteor just NE of Delphinus.

At +9C it was comfortable, though there was moderate dew. We've definitely turned the corner from summer into autumn now. I observed from 21:45 to 00:30 and then went to bed, falling asleep to the sound of **Merlin** babbling on about what the scope was doing and how bright "my" variables were.





Fri/Sat, September 6/7

Kim *on Fall'n'Stars*: ...cloud moved in Friday, in the late afternoon. We did manage to see two very bright Iridium flares, one was –8.5; through the cloud it was spectacular. There was some clear patches here and there, others stayed up to get a clear spot, then packed it in.

Saturday was cloud rain, drizzle. It stopped raining and did not clear up, even in the wee hours as what was predicted.

It did clear Sunday morning. We viewed the Sun in white light and Hα, and also observed Jupiter in the morning thanks to **Hank**, then found it in our Dob. There were nice prominences on the Sun, but no sunspots or groups. Hank tried for Sirius, did not find it.

It was a good weekend with friends, astronomy and camp fires.

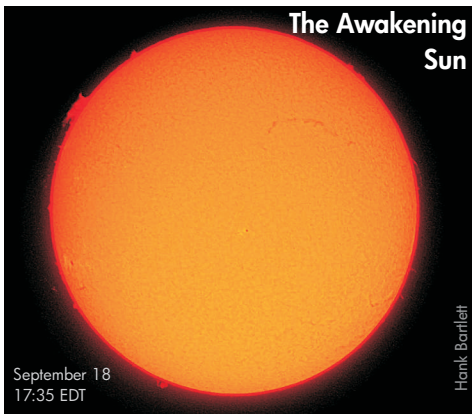
Sun/Mon, September 8/9

Mark K *observed the Moon-Venus conjunction in the afternoon, and Venus was much closer to the Moon*

(<1° ~16:00) than at dusk. **Kevin F** *reported spotting at least 20 moving stars* [*geosats*].
Mark C *viewed the conjunction* ...through the Orion APEX 90mm Mak Cass that I bought from **Greg Lisk** at the Fall'n'Stars swap table. It was an impressive sight, and this is a nice, compact, grab-and-go scope.

Rick W: Lovely shot, Rose-Marie! While setting up my telescopes for observing I noticed the conjunction—beautiful silvery-white Moon and Venus in a deep blue twilight sky—almost exactly as your picture shows, only much higher above the horizon. I decided to head down and take pictures from the dock once that was done. By then they were too close to the horizon and getting into a brownish (Kingston light pollution) bank of cloud. They also were only visible from out on the floating dock. So, in spite of trying to stand very still, most of my pictures are trailed as the dock bobbed about. Even the image stabilization didn't seem to help.

Wednesday, September 18



Sun/Mon, September 22/23

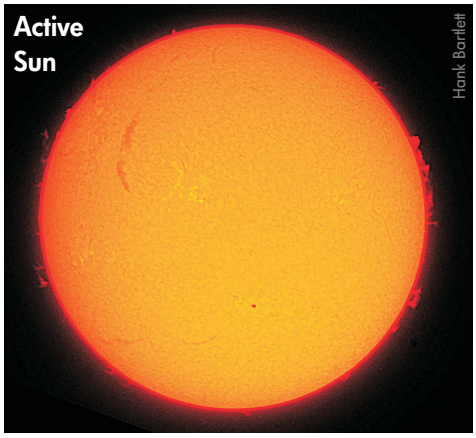
Walter: The clouds finally cleared off by midnight and I was able to image 88 variables.

Mon/Tue, September 23/24

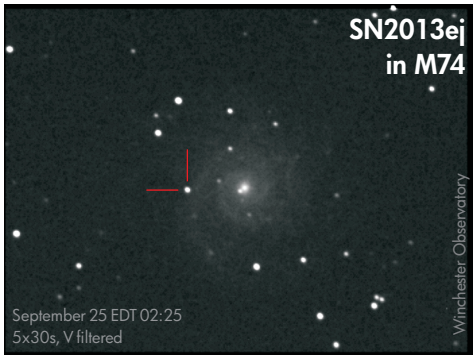
Walter: Despite a favourable CSC, tonight was overcast all night long: easternmost Ontario was the victim of some cloud bulging out of the Maritimes.

Tue/Wed, September 24/25

Hank: I took this image around 1400; things are looking up!



It was luck that I was able to observe just before going back to work and that the air was clear and still. The observing has not been really good lately on average. I sure hope that some of that activity erupts and bring us some aurora or just good sunspot activity.
Walter: It was a totally clear night, so I was finally able to work the whole



sky, starting with my Miras in the evening. 134 variables were imaged as well as SN2013ej (still 13th mag!) in M74.

Wed/Thu, September 25/26

Walter: Well, I tightened up my focuser and rotated the camera back to a normal position, then got new flat frames at dusk. After imaging 10 variables, the sky clouded over. CSC says totally clear tonight, but the radio and Weather Network say mainly clear / cloudy periods. [*A short time later it did clear.*]
Mark K: Now you know why I never listen to the clear sky chart.

It was clear here with brief moments of high-speed low-level cloud, I suspect more likely mist, coming off the lake. I took the time to get my ST4 working and guiding properly and then fired off a series of one minute exposures of [comet] 2012 S1 until the sky brightened.

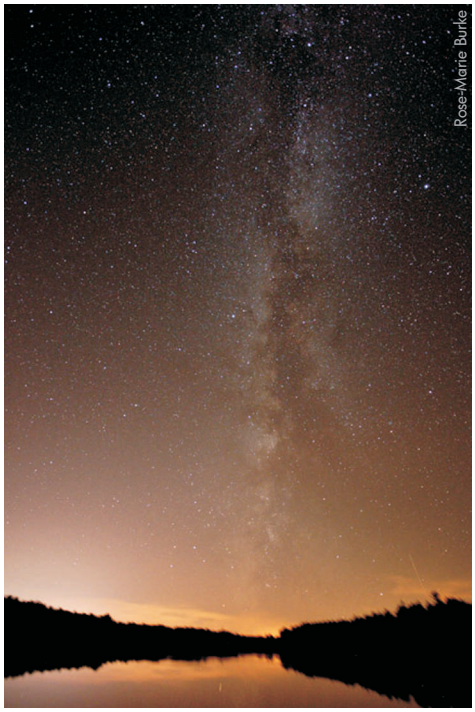
Last night, I thought I could see it. I put in a 35Pan and noticed an extremely faint fuzzy star and it stayed there when I pumped up the volume to the 10Rad, but did not improve. Then I switched to the camera and the fuzzy star and the comet were in the same position. But I was just doing unguided shots and none of them are very good. This morning, with the guiding working, the images all look tight. But I could not see any comet in the eyepiece. Problem is, I went looking with the eyepiece when the comet was extremely low and then it was getting light when I stopped imaging. I find it hard to believe that I could see it last night: the imagination is a powerful observing tool.

Trouble is, I have the images in the can, but I do not know what to do with them. I took raws at 3200 ISO, but my camera is limited to 60 seconds. It has a bulb setting, but the stupid camera requires that one hold

down the shutter button to use it. Whoever thought of that should drawn, quartered and fed to the pikes. So I have the data and until I figure out how to subtract a dark and combine frames, the images will have to wait. Stupid digital cameras. Film you just take the image and process it, none of this silly manipulation to get an image. Seems like fakery to me, I can use a drawing program and manage each pixel one at a time to get any image I please. Just a bunch of numbers, nothing real about it...

Kevin K: Last night was nice and clear, but being inside running computers and troubleshooting, we only got to see the sky on the way in.

Rose-Marie: I did however manage a few shots with the tracker, here is one taken at 10:18 p.m., ISO 1600, 158s, 10mm, f/4. Note Mark's clouds at the sky horizon in the south.



THU/FRI, SEPTEMBER 26/27

Walter: 59 variables were imaged, mostly cataclysmics, but also a few Miras in Taurus and Orion.

FRI/SAT, SEPTEMBER 27/28

Hank: So far the general expectation level is dropping for Comet ISON. We have not yet attempted to observe it.

Mark K: I have been imaging it the last three mornings. It is a struggle learning how to get all this gear up and working again. I think I could see it Wednesday and this morning, but not yesterday. It is about magnitude 10.6 according to best estimates. Comets are always fainter than the estimates because it is integrated over the whole beast. I have images in which I can see the comet, but I do not know how to do dark subtract, etc. so until I figure that out, they will remain a bunch of numbers on a computer. Next week will be better as the Moon will get out of the way. Of course, I will be in light pollution hell then.

Walter: Well, it's Friday, we've got a sky that just won't quit, iOS7 is downloading to my iPad, and the pizza is just out of the oven. Life is good!

Hank: You certainly know how to do it right!

Polaris is at the top of the dead pine tree, the meteor coming down through Cassiopeia.
Image data: Sep. 27 EDT 21:13, 10mm f/4, ISO 1600, 25s.

Rose-Marie: I was too tired to go out so I set the camera up in "set-and-forget" mode. First session was up in a clearing by the dead pine where Polaris sits at the top of the tree. I managed to catch one meteor.

Walter: Tonight's imaging run hauled in 64 variables and 9 comets (see page 11). A handful of the variables were Miras in Taurus, Auriga, and Orion. I am gradually chipping away at the dawn Miras as the Moon becomes less of a problem in that area of the sky.

SAT/SUN, SEPTEMBER 28/29

Mark K: Today would be a good day to look for Jupiter with the unaided eye. This morning, while the Moon is still up, look for Jupiter about two finger widths to the north (above). With something to focus on, if the skies remain clear, Jupiter should be there.

Here in Ontario, we are having an unprecedented stretch of clear weather. Usually by this time of the year, especially in the Kingston region, we get nothing but cloud with rain. This is at least the fourth night in a row that it has been clear all night long and the days have been warm, not too humid and mostly cloud free. Fabulous conditions.

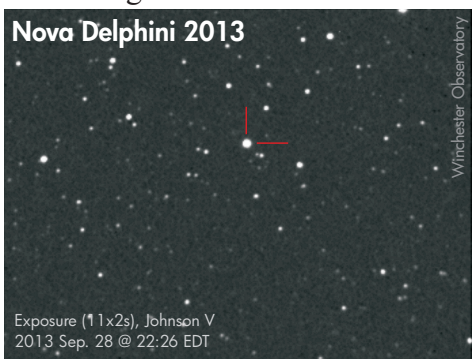
Later in the day Mark reported: Alas, the separation has grown to much. I can find Jupiter in binoculars, but it has moved five degrees from the Moon and my eyes lose their focus when I move to the spot I know Jupiter is.

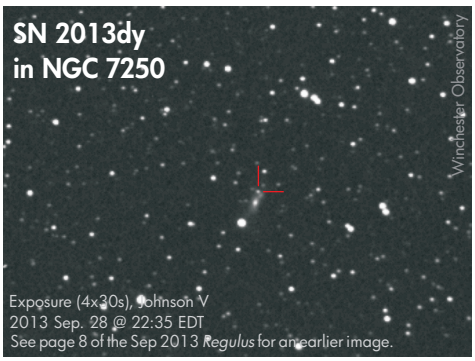
Kevin K: I was up and outside at 4 a.m. to do some digital imaging runs of Jupiter. Too bad the Moon is still a lot in the way. Too bad I forgot the dew shield on the LX-200GPS. Too bad it was very dewy this morning and the corrector plate fogged right over, even with the primary heater going 90%.

Walter: More sky, more images! I

notched one more comet—C/2011 L4 (PANSTARRS) in Bootes, SNe 2013ej (see light curve on page 8) & 2013dy, and of course Nova Delphini 2013 (now also known as V399 Delphini).

I was out observing visually too. At +13C is was quite pleasant, but also quite dewy. The Milky Way became rather muted as the night went along.





Rose-Marie: Tonight I set the camera down on the dock for an hour, caught Venus setting and then let it run on Sagittarius. I actually got out the telescope, hauled it out on the patio and targeted the Lagoon Nebula. After some frustrating searching finally got it in view. Gotta get someone to show me how to point these darned Dobs more effectively. No guys, you can't have the equipment just yet. My big brother has dibs. Anyway, got a good look at the nebula, then did what everyone tells you not to do: swing the thing around every which way. When you're tired you don't care about proper observing protocols. Just show me the sparklies. At least I laid out those lens caps where I could find them. I did get stickers, haven't got them on the scope caps yet, but my camera lens caps are now sporting the loveliest cutesy little flowers. Got a set of stars for the scope lenses, just have to take a few minutes to stick them on.

In response to Rose-Marie's pointing difficulties, several members chimed in:

Hank: Do you have a Telrad on it?

Rose-Marie: No, just the little finder scope that came with it.

Hank: Get a Telrad, your troubles will be over!

Mark K: Well, a TelRad or Rigel Quickfinder (and suitable dew protection) should be high on your list as next accessory. They make finding things in the sky so much easier.

Susan: It does make a difference in your enjoyment for sure.

I have used a simple finder on my ETX and it has been OK but I spend a lot less time getting to my target using my Rigel Quickfinder. Except for last night when it was a whole lotta 'Who stole my universe?'

I made a quick set up of the finder, which needed tweeking as its previous use was with the ETX and last night I moved it to the 10 inch. I did not take the time to notice that I had a different star in the eyepiece than in the finder and in my quick tour to check out how well centered it was I found... Alberio...GONE!, Ring Nebula...GONE! I noticed my mistake before I called...well I'm not sure who I would have called.

Anyways, the Rigel is a bit more

On Comet ISON

Kim: I have been out the last few mornings, trying for Comet ISON. I have the 8" Starbuck & 26 mm, I have the map from *Starry Night*, I am in the field of view, but no visual sighting of the comet. The last estimate I had was 11.3 which, if it was a star, Starbuck could get; pushing her to mag 12 has been challenging.

Rose-Marie: I'm waiting til it gets a whole lot brighter, as much trouble as I had finding the Lagoon Nebula; don't think I'd have much luck yet.

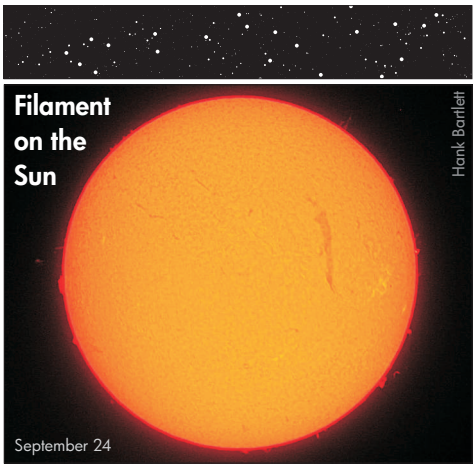
Mark K: I agree, comets can be very frustrating. The trouble with magnitudes of objects is that it is for the whole object. So with a star, as a point source, you can see 10.6 magnitude easily, but a 10.6 magnitude comet will be very difficult. That is why M33, for example, is quite hard to see, despite it having a listed magnitude of 5.7, while the Little Dumbbell, M76, is actually quite easy, even though its magnitude is 10. So looking for comets takes training. You have to not look at it to see it. It may sound counter-intuitive, but due to the way your eye works, looking directly at an object uses parts of your eyes that do not see faint things as well as using the periphery of your eyes. You will see it as you move your eye around the field, but when you look straight at it, it will disappear.

Right now you have a good jumping point to find C/2012 S1: Mars. It is a degree and a half north. I think I have been able to see it on two of five nights of observing because I was able to put the camera right on it from what I could see in the eyepiece. So you, with your big dob, should at least give it a try. Either you will see it or you will not, but since it is getting brighter each night by about a 1/10 of a magnitude, one of these nights you will go *Ahah*!

(*An image of Comet ISON appears on page 11 of this issue.*)

...Observing Reports: September

Various Members



money than a Telrad but I've been very happy with it.

SUNDAY, SEPTEMBER 29

Hank: I imaged this huge filament on the 24th. Most often they dissipate or SNAP! I figured if this snapped it would be good for aurora, as you can see it is rotating off and then it will SNAP!

MONDAY, SEPTEMBER 30

Hank: Yesterday I watched the Sun until 16:06 EDT waiting for the filament to snap. We were having family for supper so I quit observing, yeah, at 16:30 it SNAPPED!
Mark K: Oh snap! Now we know where that expression comes from...
Hank: I was *that* close to imaging the event. I went in early to have a game of cards with Mom, a more important thing, but I would have liked to see it happen. In 2012 I witnessed a solar eruption and it was very exciting! ★

Variable Views & News

Walter MacDonald

R CORONAE BOREALIS: After going half-way back to its usual maximum brightness, R CrB turned around and went back down to 14th magnitude. Oh well, maybe next time! The way things are going, this could be a decade-long fading event for R.

U AQUARII: This is another R CrB type star. At –16° declination it is low, but still accessible from our mid-northern latitude. U is currently recovering from a fade to 17th magnitude (or is it?!). British observer **Gary Poyner** notes ...*this is new ground for this star, with this being the deepest fade it has experienced. Previous fades back to the early 1900s have all been in the 15 or 16 mag range...*

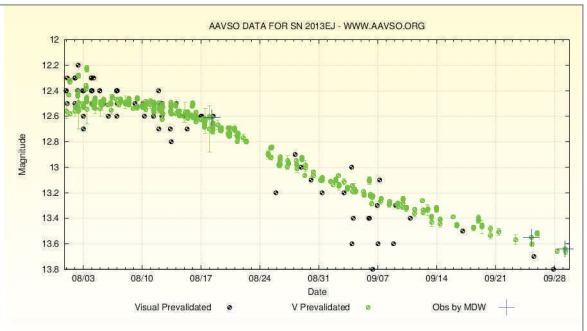
RU HERCULIS: In addition to the interesting "humps" in its light curve (see below), RU has maxima that vary in brightness. As usual, regular, long-term monitoring is essential to observe the full range of behaviour of this star.

NOVA DELPHINI 2013: This summer-time nova peaked at mag 4½ and so was visible to the unaided eye. **Mike Simonsen** of the AAVSO notes that there are only 29 recorded novae that have peaked brighter than this one. See the top 30 brightest nova list at: aavso.org/nova-del-2013-makes-top-30

Dave Chapman (Aug 21): I received a nice email from AAVSO welcoming me as a new observer. Sarah (the correspondent) particularly noted that 10 of the 40 new observers were Canadian...
Rick Huziak (Aug. 27): thirty four Canadians have now made observations and reported them... Remember that AAVSO chart 12508MG can be downloaded from aavso.org/vsp/ This will provide the binocular comparison stars you can use to make an estimate. And you can report on the AAVSO website by getting an AAVSO observer code, and then reporting individual visual observations.
Get code here: aavso.org/observers
Report here: aavso.org/webobs

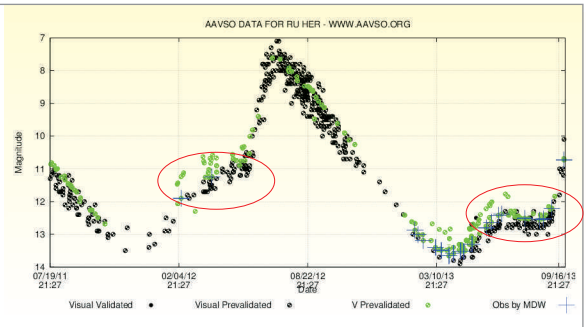
Once the star fades below binocular level, the AAVSO will provide a new calibration of the field for telescopic use.
Your editor observed the nova at mag 8.7 on September 28/29. ★

SUPERNOVA SN2013EJ
With a peak brightness of ~12½, this supernova in M74 was visually accessible to modest aperture telescopes. (If you haven't seen an extragalactic supernova visually, you really should try at the next opportunity—whenever that is!) EJ is slowly fading, but is still pretty bright at 13th magnitude.



RU Her is a Mira star (range 6.7 - 14.3 V) notable for the "humps" in its light curve. Elizabeth Waagen (AAVSO) reports that a quick survey of RU's light curve shows the current hump is the longest except for the one observed in 1981. The AAVSO's Long Period Variable Section maintains an LPV Hump Star page:

https://sites.google.com/site/aavsolpvsection/aavso-lpv-program/lpv-humps



An 800-day light curve for RU Her. The last cycle's hump was smaller than the latest one. The blue crosses are your editor's CCD observations.

The Tardis Observatory Project

Kevin Kell

UPDATE: SEPTEMBER 9TH

Brian Hunter came over last night and after a couple of hours' work, we got the Torus operational. We saved, printed, and e-mailed the configuration files. Basically you can now power it up and it knows where it is pointing.

We slewed to Altair and it was in the centre of the eyepiece. Then we slewed to Arcturus and it was on the edge of the field of view. Going back to Altair, it landed in the centre. Over to Vega, it was in the field of view. We slewed it back to the stow position (alt=10° az=180°), powered it off, and shut down the control software and power. Then we started everything back up and were able to repeat the pointing, slewing, and tracking! So far this was with a two star alignment and it can be better.

UPDATE: SEPTEMBER 10TH

I did some rudimentary imaging last night on the Torus, in order to provide a base-line when we start doing other things. You can see the video at:

kingston.rasc.ca/torus

(use the .m4v files—they are much smaller than the original .avi files).

Some notes:

The tracking on Arcturus was perfect. The tracking on the Moon was also perfect. I did 30s and 60s runs and did not detect anything other than atmospheric jitter.

I did not have time to do another 2 or 3 star calibration. Pointing-wise it found the Moon. Arcturus was off maybe 10 arcminutes(?) and initially out of the eyepiece.

On startup, the alt/az positional indicators were out to lunch. A "find homes" dec and the RA brought them into correct ranges.

A "find homes" on the focus took three tries; then I used the secondary mirror focusing controls. The camera images suck. I spent a lot of time and confirmed that I was at the sweet spot for focus. But swapping in a 40mm 1¼" SuperPlössl gave a much much bigger field of view and much, much better focus.

I recorded videos of Arcturus going in and out of focus, to help show if the optics are collimated. They look a little bit asymmetrical to me, but we suspected as much.

I have rehabilitated an old 2003 laptop with Windows XP on it and can dedicate that to a CCD camera on the Torus/Tardis.

UPDATE: SEPTEMBER 17TH

We spent another 90 minutes last night doing more testing and benchmarking.

kingston.rasc.ca/torus/20130917 has 14+ videos from this session (again, use the .m4v files). When using the Firefox browser and clicking on the filename, the video displays inside the browser under Windows 7. I also tested this with an Apple iMac with Safari.

So, the videos basically cover the normal operation of:

- 1. Building opening
- 2. Uncovering the scope
- 3. Connecting the scope power
- 4. Connecting CCD USB cable
- 5. Find home declination
- 6. Find home Hour Angle / RA
- 7. Find home Focus
- 8. Start-up of HandyAVI software
- 9. Focus test on Arcturus

The above were taken with the Canon Powershot A2400 camera on a tripod. Below are the Olivon digital eyepiece CCD camera images from the telescope itself:

- Altair focus and tracking test.
- Arcturus focus and tracking test.
- Moon focus and tracking test.

What came out of all of this last night were two take-homes:

1. We now have some record of what "normal" should look like with the scope operation setup.
2. We can do another multi-star calibration and NOT break it beyond repair.

We did a three star calibration last night (Arcturus, Vega, Altair). The bad news is it took over 30 minutes and I suspect the long time frame to target and mark stars gave the bad results of large solution residuals and bad pointing.

Pointing back to any of the three calibration stars had them out of place around 10–30 minutes of arc.

UPDATE: SEPTEMBER 18TH

We did another 3 star alignment with the Torus last night after we got home late. It is a much better process with two people than just one at the moment, and instead of taking 30+ minutes to find and centre 3 stars, it was under 10 minutes with what I think are better results.

We managed to center Arcturus in the field of view of the 40mm eyepiece and with the CCD camera for Vega and Altair (much more accurate due to a much smaller field of view). The results of telling the scope to go back to Arcturus, then Altair, then Vega were that the stars were in the field of view of the eyepiece but not the camera. So it is still off a tad, <10 arcmin for sure... maybe <5 minutes.

A question for Walter, how good is the pointing for your Meade scope when running on automatic? When you tell it to point, say at M57, does it put it in the middle of the FOV? I guess what I am asking is, how good should be expect this thing to be able to get to?

Walter: It depends on how long the slew is. The longer the slew, the less accurate the pointing. For variable stars, I am hopping from one to the next so the slew could be <1°, or perhaps up to 20 or 30°. I've noticed that if I slew 90° or so, it could be out by up to ~10 arcmin. A plate solve, synch, and a finishing slew always do the job.

The other factor is the size of your CCD chip (*i.e.* field of view)—the

bigger it is, the easier things will be.

Of course, it also depends on the quality of the hardware. I would hope that it would be at least as good as an LX-200.

Hank: I just watched most of these videos and I am impressed as usual with the work you have gone to in order to document and share this with all of us. The Airy discs are not as bad as I thought they would be (then I am no expert at that) and the atmosphere these days is a big problem. In short, fantastic and this certainly helps one understand the scope and its processes better. Thanks.

Kevin: There will be a test. ☺

UPDATE: SEPTEMBER 22ND

I spent a few hours on the Tardis/Torus project today.

TARDIS TASKS COMPLETED:

- lifted building, realigned track level and widened rail guards; there is easier building motion now.
- did some fitting adjustments on the southern flippy door.

TORUS TASKS COMPLETED:

- installed Tycho, a donated Celeron Pentium laptop for imaging (1.5GHz, 512MB, 40GB, Windows XP) with USB keyboard and mouse
- added a second (donated) LCD display for the imaging laptop with the bad display and keyboard
- installed software on Tycho: Olivon digital eyepiece drivers, HandyAVI v5 camera software, 5m USB active repeater cable
- added black cable tie to secondary mirror cable to the secondary vanes
- moved power distribution around Galileo: Torus on UPS, the two LCD displays are not on UPS
- ordered new network switch to put imaging laptop Tycho online
- ordered a new USB hub for installation on the telescope
- removed 90° diagonal, installed Cheshire collimator—looks good.

UPDATE: SEPTEMBER 23RD

We completed a set of baseline imaging with the Olivon digital eyepiece (300kpixel, 640x480) this morning with three runs of Jupiter and one of Sirius.

The videos are available at:

kingston.rasc.ca/torus

The pointing is still off by about 10 arcmin. It took one person about 20 minutes to find Jupiter, two people about two minutes (one looking through a 40mm eyepiece, the other driving the scope).

UPDATE: SEPTEMBER 24TH

The laser collimator made the job of collimating the Cassegrain secondary mirror very easy. It was out of alignment, and after about 15 minutes of fiddling with the push/pull bolts it looked very good.

As **Brian** mentioned: how can you collimate a primary mirror with a big hole in the middle with a laser that is in the centre of the optical system? The bad news is, once we did that, and then tried to do a multi star calibration but with the primary optics alignment having changed, the Telrad was no longer in alignment and we spent 20 minutes trying to find Mizar, then Arcturus, without any luck.

UPDATE: SEPTEMBER 25TH

Last night was nice and clear, but being inside running computers and troubleshooting, we only got to see the sky on the way in. Email issues aside, we did get together [with Brian Hunter] and installed the Starlight Xpress MX716 camera on the telescope.

After verifying that its pointing was not too bad, we first told the scope to go to Altair, and Altair was near the middle of the 40mm eyepiece (100x) and just barely in the field of the Olivon camera. We then replaced it with the MX716 and then spent an hour trying to get it to work after twice installing the software. We switched over to a netbook running Windows XP that Brian brought along and the camera worked fine!

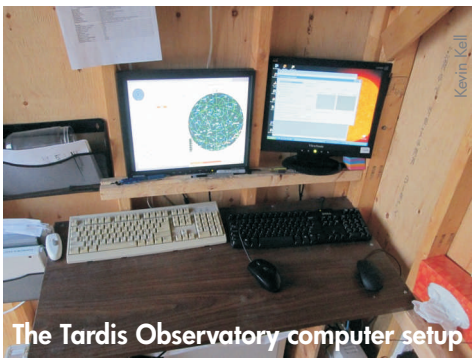
We imaged a few stars and confirmed that the primary mirror was not aligned and was also pretty filthy. The estimate is that the telescope is performing at maybe 1% of what it could/should be doing in terms of sharpness, focus, and light gathering. (**Mark K** *commented*: I have my pressure washer with me.)

Back to the "Tycho" laptop. I plugged the MX716 back into it and it would not see the camera. After a lot of thought and remembering the USB of 10 years ago, we unplugged the USB mouse, then the USB keyboard and *presto!* the camera worked. USB conflicts. Arrg. Now we actually need both the USB mouse and keyboard on the laptop to make it work well, so we are hoping that the addition of a USB hub might isolate them and allow all to work together.

UPDATE: SEPTEMBER 26TH

The work table in the observatory is shown below. On the left is the 17" LCD display for Galileo, the Linux Redhat 6.2.1 desktop computer (under the table) that controls the Torus scope. It has since been covered in a sheet of red acetate to stop it from blinding the operators. The brightness/contrast controls are

continues on next page...

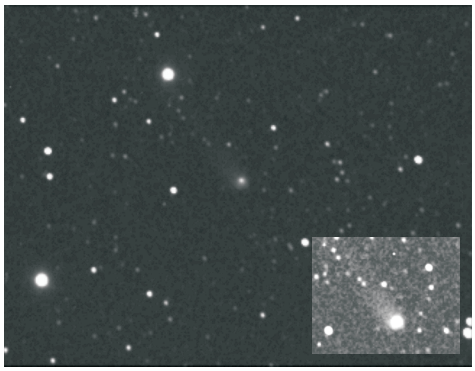


The Tardis Observatory computer setup

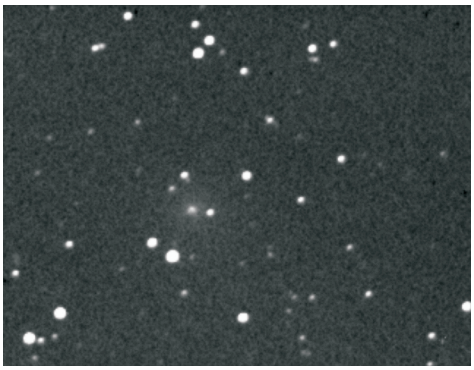
September Comets

All times are mid-point; magnitudes from ECU.

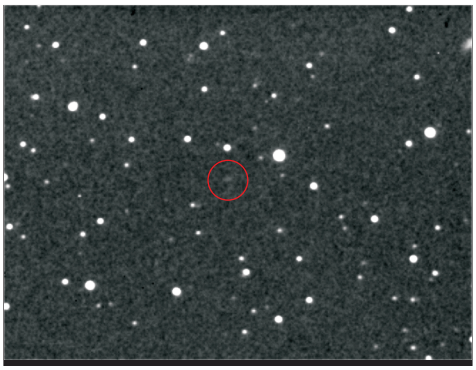
Walter MacDonald



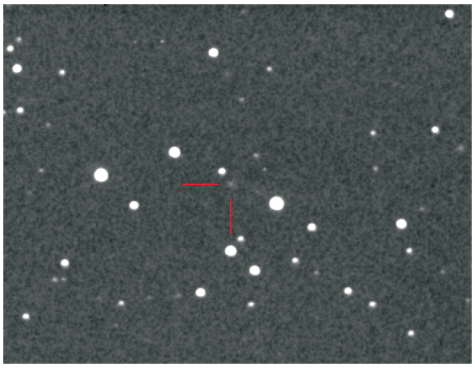
C/2010 S1 (LINEAR) (mag 15.0)
11x30s, V filtered; Sep. 27 @ 20:06 EDT
Inset shows faint tail; ½° from PAL 10.



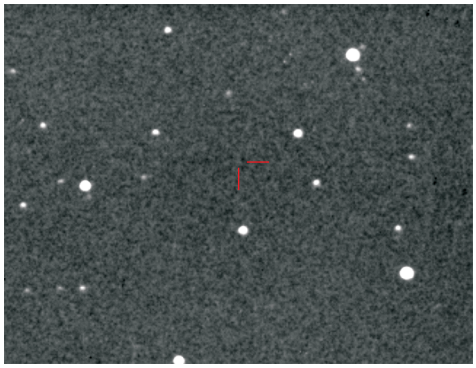
154P/Brewington (mag 9.9)
14x30s, V filtered; Sep. 27 @ 22:48 EDT
Down in Aquarius, ~5° from Neptune.



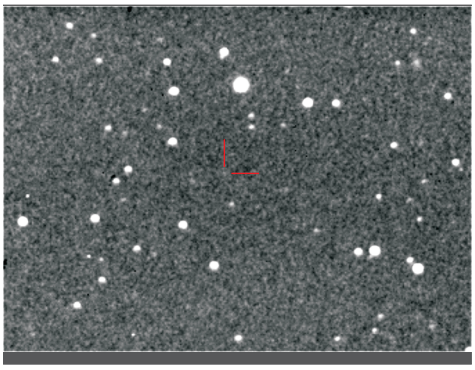
102P/Shoemaker (mag 12.5)
13x30s, V filtered; Sep. 28 @ 00:16 EST
Galaxy at upper right is PGC 72784 (15.5).



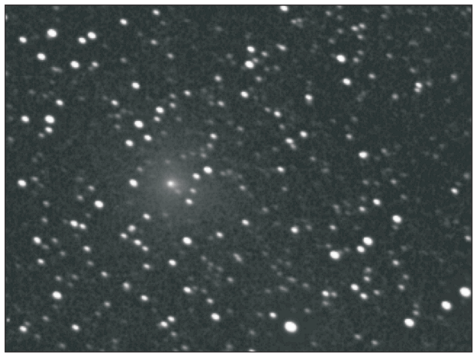
257P/Catalina (mag 15.7)
14x30s, V filtered; Sep. 28 @ 00:45 EDT
2° from γ Peg (bottom right of Great Square).



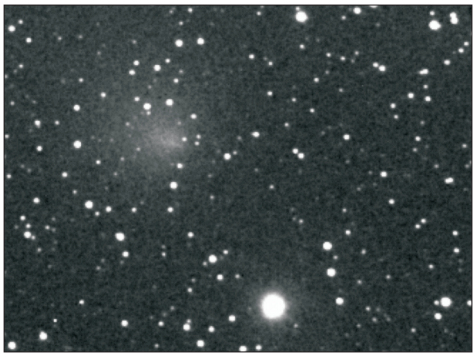
P/2010 H2 (Vales) (mag 15.4)
12x30s, V filtered; Sep. 28 @ 01:23 EDT
3° W of η Cet. Faint detection?



119P/Parker-Hartley (mag 15.3)
13x30s, V filtered; Sep. 28 @ 02:33 EDT
In Aries. Contrast stretched to bring out comet.

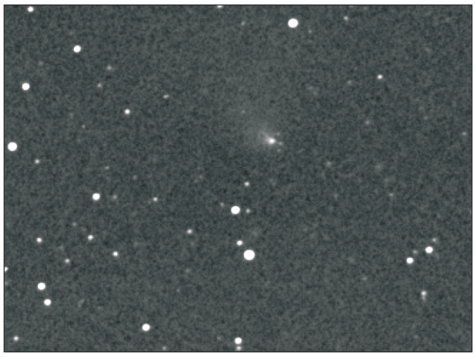


C/2013 R1 (Lovejoy) (mag 13.0)
13x30s, V filtered; Sep. 29 @ 05:32 EDT
~1½° from open cluster NGC 2232.



2P/Encke (mag 11.5)
12x30s, V filtered; Sep. 29 @ 05:02 EDT
Super diffuse but bright; very faint nucleus.

C/2012 S1 (ISON) (mag 11.0)
10x30s, V filtered; Sep. 29 @ 05:54 EDT
Imaged during nautical twilight. 2° from Mars.



C/2011 L4 (PANSTARRS) (mag 14.0)
14x30s, V filtered; Sep. 28 @20:03 EDT
~2° N of θ CrB.

...Tardis Oby Update

...continued from page 10

broken as well. Galileo is a Pentium III @ 550MHz with 196MB RAM and a 80GB IDE drive and an ISA bus. It will be difficult to find and setup a backup desktop with ISA bus, but we are looking.

On the right is a 15" LCD display for Tycho, the Windows XP laptop (also under the table) that runs the imaging software for various cameras. It has also been covered in red acetate. Tycho is a 2003-era Acer Aspire laptop (Celeron R processor @ 1.5GHz, 512Mb RAM, and a 40GB IDE drive) with a broken keyboard. This machine can be replaced with anything newer and faster at almost anytime.

A UPS can be seen in the lower right; it powers the telescope, the laptop, the desktop, and one LED white light.★

President's Message

Susan Gagnon

HELLO EVERYONE. I hope that all of you had some chance, no matter how brief, to see the sky during the last stretch of great weather we had. For the next few days [leading up to the October meeting] it looks like you can catch up on your indoor chores.

OCTOBER 10TH MEETING

Thursday October 10th is meeting night and we will be watching the movie, *City Dark* (about light pollution if you have not guessed). There will be snacks. We will also have member observing reports and other announcements.

If you are in town before the meeting and are interested in getting together at the Queen's Inn for dinner email me or the chat list. I will likely be there if that pesky day job does not interfere.

KAON: OCTOBER 12TH

It looks like the KAON (Kingston Astronomy Outreach Network) Open house at Queen's is on for October 12th. We are back to winter hours and therefore start at 7:30, Wahoo! The guest speaker is **Prof. Theresa van Vliet Wiegert** (Queen's University). The title of her talk is "Arecibo: In The Footsteps of 007." The talk begins at 7:35 p.m. on the 4th floor of Ellis Hall.

We may have a shortage of folks on the deck so if you wish to come along and operate the Centre scope on the deck (if it is clear) let me know. Or just come for the talk to get your Astro-fix!

NOVEMBER OBSERVING SESSION

Tessa Clark has offered to host a members' observing night at her place on Saturday, November 9th (our first choice); **note**: if the weather is good on Friday the 8th and bad on the Saturday we will go with the Friday. See the "Members Only" section of the website for directions. It is not far out of town.

CENTRE ELECTIONS IN NOVEMBER

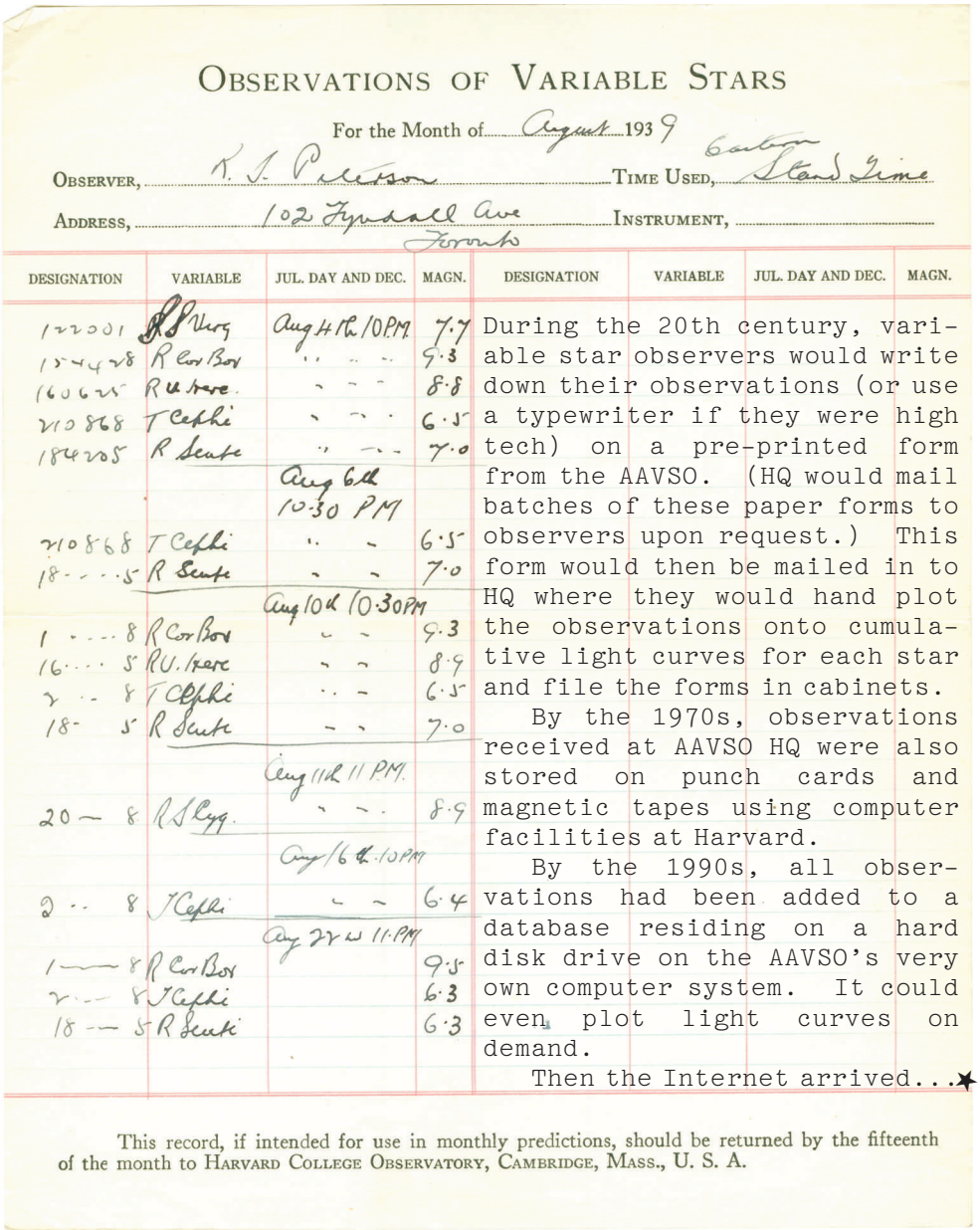
November elections are coming up, so if you would like to serve on the board in some capacity please let someone know! The board is really at minimal numbers now and we need fresh energy in the executive to keep the Centre going. Nominations will be accepted at the November meeting as well, so it is never too late. If you like interesting meetings and organized events please consider lending a hand.

MEETING ROOM

We were very disappointed in the loss of our Ellis Hall room 324 due to construction. Mac-Corry is OK but we find it a terrifically noisy room, even with the doors closed. We hope that Ellis will be back in action in January. Our desire to return there has been communicated to the room reservation folks. Let's hope that we have this nice room for our excellent winter 2014 speaker line up. The January meeting date is in flux due to speaker travel arrangements, so perhaps a change of date will serve us well. ★

Blast from the Past

R.J. Peterson, Walter MacDonald



OBSERVATIONS OF VARIABLE STARS

For the Month of August 1939

OBSERVER, R. J. Peterson — TIME USED, Eastern Standard Time

ADDRESS, 102 Tyndall Ave Toronto — INSTRUMENT,

DESIGNATION	VARIABLE	JUL. DAY AND DEC.	MAGN.	DESIGNATION	VARIABLE	JUL. DAY AND DEC.	MAGN.
172001	RS Vir	Aug 4th 10PM	7.7				
154428	R CorBor	" " "	9.3				
160625	RU Ser	" " "	8.8				
210868	T Cephi	" " "	6.5				
184205	R Scuti	" " "	7.0				
		Aug 6th 10:30 PM					
210868	T Cephi	" "	6.5				
18 - - 5	R Scuti	" "	7.0				
		Aug 10th 10:30PM					
1 - - - 8	R CorBor	" "	9.3				
16 - - - 5	RU Ser	" "	8.9				
2 - - 8	T Cephi	" "	6.5				
18 - 5	R Scuti	" "	7.0				
		Aug 11th 11 PM					
20 — 8	RS Cyg	" "	8.9				
		Aug 16th 10PM					
2 - - 8	T Cephi	" "	6.4				
		Aug 22nd 11 PM					
1 — 8	R CorBor		9.5				
2 - - 8	T Cephi		6.3				
18 — 5	R Scuti		6.3				

This record, if intended for use in monthly predictions, should be returned by the fifteenth of the month to HARVARD COLLEGE OBSERVATORY, CAMBRIDGE, MASS., U. S. A.

During the 20th century, variable star observers would write down their observations (or use a typewriter if they were high tech) on a pre-printed form from the AAVSO. (HQ would mail batches of these paper forms to observers upon request.) This form would then be mailed in to HQ where they would hand plot the observations onto cumulative light curves for each star and file the forms in cabinets.

By the 1970s, observations received at AAVSO HQ were also stored on punch cards and magnetic tapes using computer facilities at Harvard.

By the 1990s, all observations had been added to a database residing on a hard disk drive on the AAVSO's very own computer system. It could even plot light curves on demand.

Then the Internet arrived... ★

Donations to the Kingston Centre

Kevin Kell, Treasurer

A BIG THANK YOU to all those who made donations to the Royal Astronomical Society of Canada– Kingston Centre this past fiscal year (2012 October 1-2013 September 30).

Please note that your donations for tax receipt purposes are the calendar year and that I will be sending out tax receipts very early in January 2014 for 2013. The receipts for those listed for 2012 went out already, last January (2013).

Donations not targeted go into our Observatory Fund, which is used on projects relating to getting the Club set up with an Observatory and an observing site.

A more complete report will come out after the Canada Revenue Agency year end of 2013 December 31st. Thank you all again for the $1,503—it is our second highest total on record!

DONATION FROM E.I. DU PONT

Thanks are also due to **Doug Angle**. Through his work with Dupont and their Employee Sustainability Suggestion process, Doug was one of five employees whose participation in the process was recognized with a donation to the sustainability-related organization of their choice.

Our continuing work on responsible lighting, in part, qualified us as a sustainability related organization. We plan to reinvest the donation into more responsible lighting work. ★

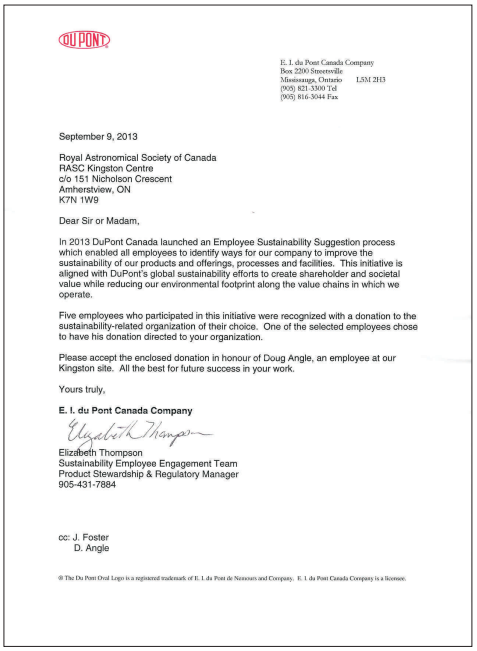
DONORS FOR 2012
(2011 Oct. 1–2012 Sept. 30)

Tessa Clarke	Kingston ON
Kim Hay	Yarker ON
Daniel Wolfe	Kingston ON
Andrew Telesca, Jr	Binghamton NY
Ruth Hicks	Kingston ON
William Blades	Valhalla NY
Brian Hunter	Kingston ON
Kevin Kell	Yarker ON
John Hurley	Sharbot Lake ON

Thank You!

DONORS FOR 2013
(2012 Oct. 1–2013 Sept. 30)

Gerry Cyr	Kingston ON
Javier Ramirez	Pereira Columbia
David Maguire	Kingston ON
Gregory Latiak	Kingston ON
Judith Irwin	Kingston ON
John Griese	Rocky Hill CT
Rick Wagner	Elgin ON
Raymond Berg	Crown Point IN
William Blades	Valhalla NY
Ruth Hicks	Kingston ON
E.I. du Pont Canada	Kingston ON



DUPONT

E. I. du Pont Canada Company
Box 2200 Streetsville
Mississauga, Ontario L5M 2H3
(905) 821-3300 Tel
(905) 816-3044 Fax

September 9, 2013

Royal Astronomical Society of Canada
RASC Kingston Centre
c/o 151 Nicholson Crescent
Amherstview, ON
K7N 1W9

Dear Sir or Madam,

In 2013 DuPont Canada launched an Employee Sustainability Suggestion process which enabled all employees to identify ways for our company to improve the sustainability of our products and offerings, processes and facilities. This initiative is aligned with DuPont's global sustainability efforts to create shareholder and societal value while reducing our environmental footprint along the value chains in which we operate.

Five employees who participated in this initiative were recognized with a donation to the sustainability-related organization of their choice. One of the selected employees chose to have his donation directed to your organization.

Please accept the enclosed donation in honour of Doug Angle, an employee at our Kingston site. All the best for future success in your work.

Yours truly,

E. I. du Pont Canada Company

Elizabeth Thompson
Sustainability Employee Engagement Team
Product Stewardship & Regulatory Manager
905-431-7884

cc: J. Foster
D. Angle

® The Du Pont Oval Logo is a registered trademark of E. I. du Pont de Nemours and Company. E. I. du Pont Canada Company is a licensee.

From the RASC Honorary President

John Percy

GREETINGS! Now that my term as RASC Honorary President has officially begun, I wanted to (re)introduce myself.

But first: **Jim Hesser** is a hard act to follow, not just for his excellent service as HP—during a trying time with his day job—but for his leadership before, during, and after IYA 2009. And his contributions to astronomy outreach were extensive before that—sufficient to warrant one of the first national Michael Smith Awards for excellence in science outreach and communication —an award that I co-nominated the RASC for, a decade ago.

I have been an RASC member for 52 years. I've been active at the national level (including president) and at the Toronto Centre level (including president) and with the publications, especially the *Observers Handbook*. I've been less active recently, though I was very much involved with the national IYA effort, spearheaded by RASC, FAAQ, and CASCA under Jim's leadership. And I continue to support the Toronto Centre's work at the Dunlap Observatory, and elsewhere. And I played a small role in the establishment of the Mississauga Centre.

For over 30 years, I have been active in the American Association of Variable Star Observers, the leading organization through which amateurs can contribute meaningfully to research. I continue to edit their Journal, and my students and I use AAVSO data for research. For a decade or so, I was very active in the Astronomical Society of the Pacific (including president) because of its support of education and outreach by both professionals and amateurs. And I have a special interest in supporting astronomy in the schools.

Now in my "retirement," I give astronomy courses and lectures for later-life learners, do other outreach, work with undergrad students on variable star research, edit the *JAAVSO*. And I look forward to serving the RASC, as Honorary President, in any way that would be useful.

I have a rather basic webpage of outreach resources at:
astro.utoronto.ca/~percy/EPOindex.htm ★

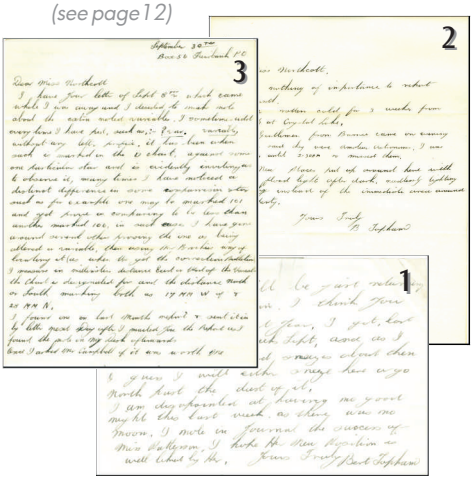
New on rasc.ca

Walter MacDonald, Geoff Gaherty

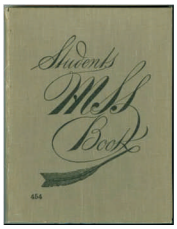
Some miscellaneous items found attached to a Toronto 1930s variable star observing logbook:

- rasc.ca/topham-letter-1
- rasc.ca/topham-letter-2
- rasc.ca/topham-letter-3
- rasc.ca/vohman-letter-19411027
- rasc.ca/peterson-varstar-report

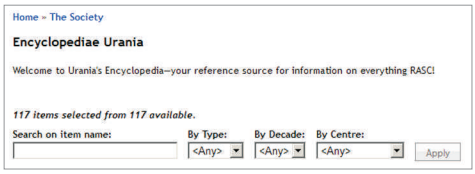
(see page 12)



The logbook itself (Toronto Centre variable star / nova search observing logbook, 1937-1946) is available at: rasc.ca/toronto-vs-logbook



Encyclopediae Urania



The RASC has its own encyclopedia now, at rasc.ca/encyclopedia. At last, topical information can be brought together in one place.

If you know what you are looking for, you can type in the search box. If you want to just browse, you can fine tune the item listing by filtering on type (person, place, thing), by decade (from the 1860s to the present), by Centre, or some combination of these.

Currently in its infancy, it is expected that EU will become more comprehensive over time as new entries are added.

Geoff Gaherty *comments on #2*:
Interesting to see how light pollution was becoming a problem even in 1939. It must have already become serious at Topham's observatory on western Castlefield Street in Toronto.

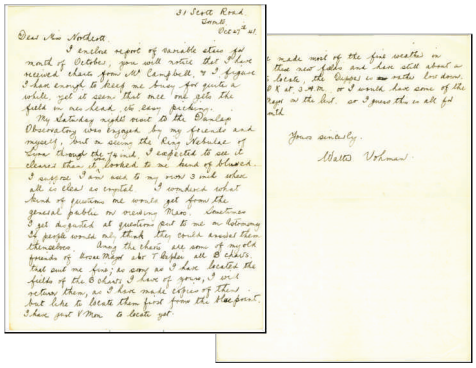
Geoff Gaherty *comments on Walter Vohman's letter*:

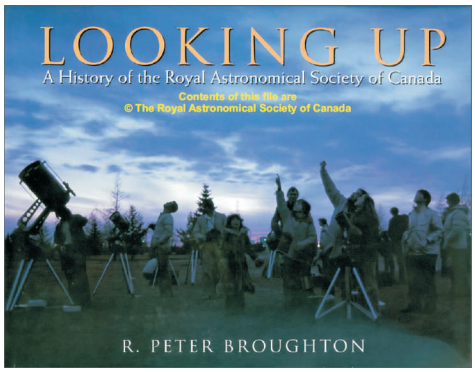
"Sometimes I get disgusted at questions put to me on Astronomy. If people would only think they could answer them themselves. Among the charts are some of my old friends of Ursae Major also T Cephei all B charts that suit me fine; as soon as I have located the fields of the B charts I have of yours, I will return them, as I have made copies of them but like to locate them first from the blueprint."

His first comment is an echo of what I wrote about in the latest *JRASC*! [August 2013, page 167.]

Back then, and even in 1963, AAVSO charts were precious. They were produced as blueprints, white on black, or rather light blue on dark blue, which worked OK under a red flashlight. They were distributed by snail mail, and you were very lucky to have access to a collection of charts nearby, as I had at the Montreal Centre's observatory, or **Vohman** had from **Ruth Northcott**. When he talks about copying her charts, he probably means *hand* copies, since photocopies were unheard of in 1939.

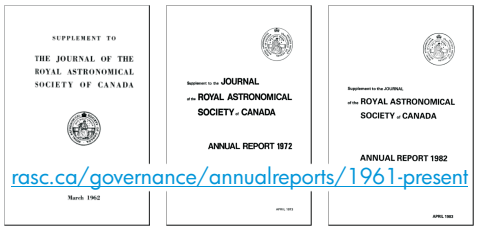
I can recall the problems I had finding anyone to photocopy my anthropological data in Paris and London in 1965, as my professor insisted that I mail him photocopies in case my plane crashed on the return journey!





Corrigenda and Updates pages have been added to the *Looking Up* page: rasc.ca/looking-up-book—just in case anyone wants to update their paper copy...

Annual Reports



rasc.ca/governance/annualreports/1961-present

New DVJU versions of the Annual Reports for 1961-89, now with searchable text, have been added.

More Audio! rasc.ca/ga-1971-audio
Over three hours of recordings from the 1971 General Assembly (Hamilton/Niagara) are now available in MP3 format (divided into 29 tracks).

The paper session, COCOCA (Committee on Coordination of Centre Activities) report plus following discussion, and annual meeting were recorded.★