

# Nova Notes

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



Volume 35 | Number 4 | August 2004

PO Box 31011, Halifax, Nova Scotia, Canada B3K 5T9 [www.halifax.rasc.ca](http://www.halifax.rasc.ca) [halifax@rasc.ca](mailto:halifax@rasc.ca)



## ***Astrophoto of the Month***

— *The Milky Way,*  
*Simon d'Entremont*

This shot was taken at SCO with a 35mm camera, 50mm lens at f/2 on 800 speed film, 10 minute exposure, piggybacked on my Vixen refractor and Vixen Great Polaris mount for tracking. I'm new to photography, and this was only my fourth roll of film (filled with mostly boo-boos...)



See the Nova East 2004 photos on page 8 and throughout the issue. Thanks to Roy Bishop, Tim Doucette, Paul Gray, and Gary Weber for sending the pictures.

# As heard on hfxrasc@rasc.ca...

If you're a member with email, why not become part of the Centre's email list? The list is a great resource for people looking for other members to observe with, for reminders of upcoming astronomical events, or for sharing information. Members who observe at

St. Croix usually post a notice to say if they'll be out that night. Log on to our website ([www.halifax.rasc.ca](http://www.halifax.rasc.ca)) to get signed up and you too could participate in lively intellectual discussions, or at least read them!

## Nova East

For those who couldn't make the Sunday observing session at NE, you missed a good one. Approximately 20 telescopes (A real star party!) and super atmosphere to boot. Good observing through a fairly transparent sky made Gary and Ian's big truss dobs real hits, as well as some of the big cassegrains hosted by the likes of John MacNeil and Tony McGrath. Jaw dropping views in Tony Jones' 5" Starfire on his thick Astrophysics mount were the highlight of the night for me, as well as the usual social aspects of hanging out with the boys just sitting and looking up.

We all enjoyed a few pops and Alice MacNeil's morning breakfast convinced me that Jeff Dalton and I will be fighting over the spot next to their trailer next year. Best NE yet for me.

Ron Mills – [RFMILLS@gov.ns.ca](mailto:RFMILLS@gov.ns.ca)

## Nova East

This was my first and definitely not my last Nova East. I have been looking forward to attending it since last year at this time when I first joined the Halifax Centre, a little too late to attend that party. The highlight for me was actually meeting and talking with many of the seasoned, and not so seasoned, members, most of whom I knew by name via this discussion group and the regular meetings. For me, to actually talk with and get to know people with a similar passion for astronomy (...as opposed to the usual friends and family who somewhat just humour me when I go on about it :-)) was akin to having been adopted as

a child, not knowing who your real family was, and subsequently being reunited with that family. I found the group to be like a big family itself and I consider myself fortunate to now be part of it.

Thanks to all the Nova East organizers for a wonderful event. It was obvious a lot of work and effort went into it. Also, thanks to all of you who took the time to chat and answer questions, I know I have lots. The number of excellent speakers in the centre amazes me. You make it look easy. Of particular interest to me was to watch the many individuals prepare for an observing session. Everyone seems to have their own routine. I learned much from the experience.

Alex LeCreux – [LeCreux.AF@forces.gc.ca](mailto:LeCreux.AF@forces.gc.ca)

## Nova East

Let me add my voice to the chorus of "thanks" for Nova East. The speakers

were great, the door prizes very good, and the camaraderie of Sunday observing was excellent. We had 21 folks show up for the SCO tour, and the collimation clinic had at least 6 patients. I had a 27 slide "What's Up" talk that covered the milky way, comets, dark nebulae, bright nebulae, clusters of all sorts, and supernovae that got preempted on Saturday by door prizes and perhaps weather. When you're clouded out, you're clouded out!

Craig Levine – [clevine@ns.sympatico.ca](mailto:clevine@ns.sympatico.ca)

## Nova East

Just wanted to say that Nova East was a great time again this year and that it still is one of the most enjoyable star parties I been to and I been to a lot after my time in the states. Size does not always matter.

Paul Gray – [PGray@ngl.ca](mailto:PGray@ngl.ca)



## Nova Notes

The Newsletter of the  
Halifax Centre of the RASC

PO Box 31011  
Halifax, Nova Scotia  
B3K 5T9

Articles on any aspect of Astronomy will be considered for publication.

Nova Notes is published bi-monthly in February, April, June, August, October and December. The opinions expressed herein are not necessarily those of the Halifax Centre.

"Letters to the Editor" or letters to our resident expert "Gazer" are also most welcome.

Contact the editor at the following:

Michael Gatto  
[michael@allura.com](mailto:michael@allura.com)  
453-5486 (Home) 482-1013 (Work)

Nova Notes is also available as a PDF file on our centre's website at [www.halifax.rasc.ca](http://www.halifax.rasc.ca)

Material for the next issue should reach the editor by Oct. 15



# eyes Up!

*eyes Up!* is a forum for observing news from Centre members. This is where you can see what your fellow members have been looking at for the last two months and share your own latest discoveries.

## Observing Challenge: Cross on the Moon

David Chapman

On the third night (and the only observing night) of Nova East 2004, while setting up during the evening, I noticed an unusual feature on the 6-day-old Moon: a bright cross about 1/4 of the way up from the bottom along the terminator, on the dark side, totally surrounded by darkness. The date was Sunday, August 22, and the time was 21:00 ADT.

By coincidence, Tony Jones took a photo of the entire Moon about the same time (Figure 1). He used a 130 mm f/8 Starfire refractor with a TeleVue 25 mm wide field eyepiece connected afocally to a Kodak DX 3900 digital camera with a Scopetronix digital camera mount. One can see the cross on a good print. The solar colongitude was 359 degrees and the Moon was 45% illuminated. North is up and East is left. (First quarter took place the next morning.)

Figure 2 shows detail of Figure 1 processed by me. I cropped Tony's picture and adjusted the levels to highlight the cross-shaped feature

I noticed on the dark side of the terminator that night. This apparition is caused by the rising sun catching the peaks of the lunar topography, which is quite rugged in that part of the lunar surface. The deeply shadowed crater to the left and down from the cross is Werner, a circular crater 71 km across with steep, 4200 m walls, located at South 28 degrees, East 4 degrees.

Avid American lunar observer Chuck Wood reports that 2-3 people observed the effect the same month, and that Carol Lakomiak took a picture on June 24, available to view online at <http://www.lpod.org/LPOD-2004-08-29.htm> In fact, the lunar phase almost exactly repeats at the same time of night every 8 weeks and 3 days, so the effect may repeat on the evenings of Wednesday October 20 and Saturday December 18, 2004. Chuck is not aware of anyone having seen this feature before! It is possible that it is a trick of the light that is moderated both by the phase of the Moon and also by the libration of the Moon.

The challenge is to try to observe, sketch, and/or photograph the feature at the next opportunity, and to establish for how long it appears. It would help to consult an atlas of the moon and familiarize oneself with the topography before trying to observe.

In addition to the above dates, the same approximate phase will occur on the evenings of Mon/Tue 20/21 September and Thu/Fri 18/19 November 2004.

Please send your observations, sketches, and photos to the editor of Nova Notes.

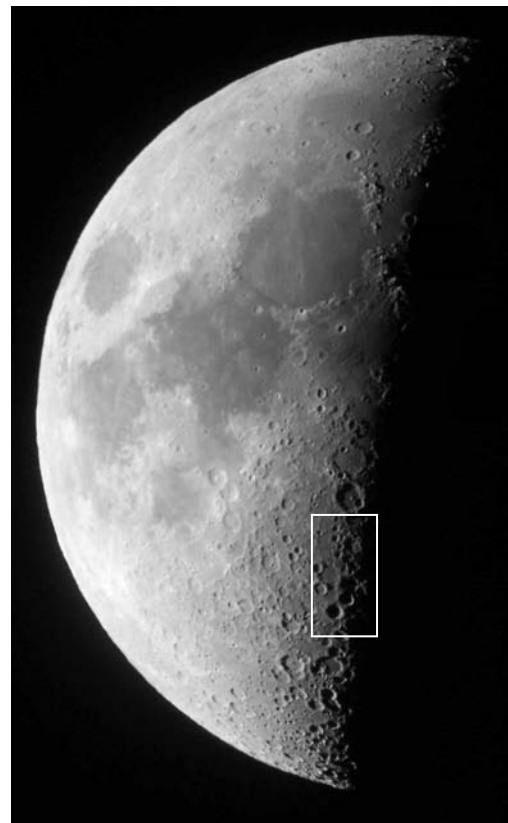
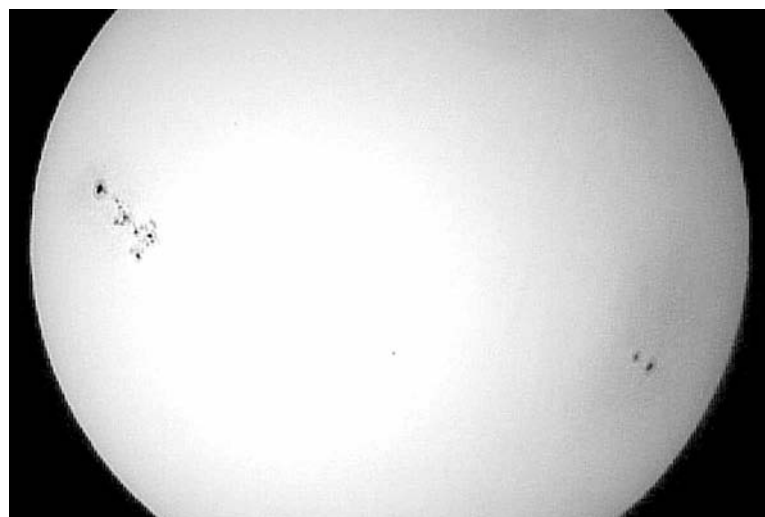


Figure 1

Figure 2



## Solar Image – Mike Boshat

Date: June 18, 2004, Time: 1100 UT

Telescope: 10cm Maksutov with a full aperture solar filter at 40X. Camera: Centrios 3.0 megapixel DSC-3020 digital camera. Exposure unknown. I held the camera over the eyepiece. I then used Photoshop and XnView to mess with the image.

# National Council Report

By Patrick Kelly and Mary Lou Whitehorne

This year's General Assembly was held in Newfoundland, and was just as much fun as the one that the St. John's Centre hosted ten years ago. Business first, then the fun stuff!

At the first national council meeting, reports were received from all of the society's officers and committees. We will try to touch on items of interest to centre members.

The report from the finance committee always draws a lot of attention. While there were lots of figures presented, one of the problems has always been that there are significant revenues and expenditures that come late in the fiscal year so it is hard to know how closely the final budget amounts will be to those approved in the spring. Nevertheless, the original forecast of a deficit of \$32,000 will likely be close to the year-end figures. As the report says: unexpected expenses show up far more often than unexpected revenues.

The publications committee brought forward a proposal to have each issue of the Journal placed online in the member's section of the national web site. The password will be changed bimonthly with the new password appearing in each issue of the Journal. Some preliminary work has been done to have RASC publications sold at Chapters bookstores. A French equivalent to the handbook is currently being produced in Quebec by the Federation of Amateur Astronomers of Quebec. It is produced in a different fashion in the sense that when an order is received a version for the coming twelve months is printed "on demand". The committee will see if this method might be of use to the society. Rajiv Gupta has indicated that the 2006 Observer's Calendar may be the last one that he does, so the committee is looking for a replacement.

The constitution committee has finished a new set of sample centre bylaws. There have been a number of changes to the national bylaws over the years, and the sample ones have been updated to reflect this. The Halifax Centre will have to review its bylaws to make sure that they are not in conflict with the national

bylaws. Based on preliminary results from the membership survey, there appears to be a significant interest in a new "sustaining" membership category. If the national council wishes to pursue this, the necessary changes to the national bylaws would need to be approved at the 2005 GA.

The membership and promotion committee has come up with a new pricing structure that separates the shipping costs of items. You can check the electronic store on the society's web site for details. The committee also conducted an informal survey at the GA to see what new "RASC-crested" items members might like to purchase. The main business item from this committee was the membership survey. There have been some preliminary results, but the committee hopes to have a report based on all of the surveys received prepared for discussion at the fall council meeting.

The information technology committee had a proposal approved that may streamline membership renewals. Currently four paper renewal notices are mailed. Beginning shortly, the first of these will be replaced with an e-mail reminder for those members for whom the society has an e-mail address.

Future GAs are usually approved two years in advance and it is rare for more than one centre to "bid" on the same year. In an unusual twist, two centres showed up offering to host the 2007 GA, Calgary and Edmonton. Neither centre had been aware of what the other was planning, so they decided to work it out between themselves. I (Pat) suggested it should go to the city whose NHL team had the most points at the next all-star break! Ottawa was approved as the host for 2006.

At the annual meeting, things went a lot more quickly than anyone would have guessed. There was no discussion at all on the \$6 annual fee increase. It was approved by a factor of about ten to one by the time the proxies were counted up. Similarly, the by-law change to amend the terms for national council representatives was approved. We also had an election at the annual meeting. As there was only one nominee for each position, "election" is probably not the correct term. For the coming year the national "politburo" will consist of Peter Jedicke (London) as president, Scott Young (Winnipeg) as first vice-president, Dave Lane (Halifax—YEA!) as second vice-

president, and David Clark (London) as treasurer. We are not sure which is more worrying: having two Royal Astronomical Society of Daves members or two London Centre members!

One of the main items of business at the second national council meeting is to confirm the composition of the society's various committees. The Halifax Centre has a number of members that will be serving in the coming year. They are: Roy Bishop (Historical), David Chapman (Awards), Patrick Kelly (Publications), Dave Lane (Finance, Information Technology), and Mary Lou Whitehorne (Education).

One unexpected turn at this meeting was a proposal from David Levy. David is a member of the board of directors of the Astronomical Society of the Pacific (ASP). He felt that there might be some areas in which the RASC and the ASP could cooperate and that he would be willing to listen to ideas and take them back to the ASP. His offer was greeted with a lot of enthusiasm and there was a lot of discussion on possible areas of common interest. David will write two articles – one for JRASC and one for the ASP's Mercury magazine – to introduce the members of each society to the other.

The topic of choice for paper sessions this year was – guess what? – Yes! You guessed it! Transits! Three papers came from members of the Historical Committee. Each provided a different perspective on the expeditions, observers, observations, public awareness of, and the significance of, previous transits. We also heard and saw how some RASCals recently enjoyed themselves in Egypt. I think their trip had something to do with wanting clear skies to observe the transit. Some people are so picky...

The paper sessions had something for everyone. Topics included casual and more formal observing, our new lunar observing certificate program, Mars, Saturn, asteroid occultations, astronomy in Egypt, cosmology, light pollution abatement, CCD imaging, astronomical archives, and the benefits of organizational vision and mission statements. An education roundtable discussion enjoyed active participation from everyone in the room. A highlight was the Constellation Quest board game developed by a member who wanted a fun way to teach his kids about the night sky.

David Levy gave a delightful talk entitled "A Nightwatchman's Journey: My Adventures as a Star Gazer and Comet Hunter." If you ever want to know what makes a stargazer tick, you should listen to David Levy describe the inner workings of his relationship with the stars. His talk touched the heart of everyone in the room. To add to the fun, he tossed out random quotes from literature and the audience got to guess whom the quotes came from. We kept incorrectly guessing Gene Shoemaker until David was forced to recall and recite a genuine Shoemaker pronouncement. Finally, we got one right!

Dr. Sara Schechner of Harvard University gave the Helen Sawyer Hogg public lecture. Titled "Politics and the Dimensions of the Solar System: John Winthrop's Observations of the Transits of Venus," this was an in-depth look at Winthrop's 1761 transit expedition to St. John's, Newfoundland. Although it took place well over two hundred years ago, it sounded strangely familiar. Winthrop had to contend with other people's decisions, equipment and money problems, the challenge of long distance travel, bad weather, difficult conditions, and the endless bane of politics. In spite of all the hurdles, he managed to get his observations. Historical talks like this are wonderful reminders of just how much things have changed and yet not changed.

So much for the official business, now let's talk about the other part of the GA—the fun part! One of the more interesting activities that occurred during breaks in the council meetings was the constant exchange of wads of money for CDs containing the latest edition of ECU. At times Dave looked like a drug dealer: the money was coming in so quickly! One of the most important traditions at the GA is the building of the human pyramid. Newly anointed national president, Peter Jedicke organized the first-ever five-level pyramid! I (Pat) was one of the flying buttresses.

The gab sessions in the residence lasted well into the nights, and, as the old Irish ballad goes: the whiskey flowed like buttermilk! For some attendees, this part IS the GA! Topics of discussion ranged from CCD astronomy to whether the Turks and Caicos Islands should become part of Canada. We had astronomy songs sung by the duo of Peter Jedicke and David Levy, and no Atlantic festivities would be complete without at least one singing of Barrett's Privateers.

Another highlight of the fun activities had to be the Murphy's slide show contest. In addition to the usual type of pictures, there were two special events. The first was Dr. Brian Payton of Memorial's Faculty of Medicine. At the 1994 GA he regaled us with his "documentary" of the hunt for the Great Newfoundland Leech. This year he was back to tell us about some eighteenth-century medical textbooks which he had recently "discovered". He had everyone in stitches but the best was yet to come! It was time for the Screech-In, hosted by long-time St. John's member Garry Dymond. Garry Dymond cannot be described. He has to be experienced. It is not often you see an RASC member wearing a sou'wester, CNR raincoat, fishing boots, a toilet seat around his neck with the lid emblazoned with the RASC crest, a fish net in one hand and a broken oar in the other. The Screech-In was on! Rank had no privilege when it came to

being dragged to the front of the room: past-president, current president, David Levy, the Hogg lecturer and her children, no one was spared. There also had to be one person from each centre. Garry passed me (Pat) over, noting that "I got you good in '94". The search was on and although he tried to hide, Dave Lane was the chosen one. At least he now has immunity at the next St. John's GA!

As you can gather, a great time was had by all. There will be pictures of some of the events at a future centre meeting. Hopefully this article and the centre presentation will convince you to attend a future GA and join in on the fun. Unfortunately you missed your chance for a nearby one. The 2005 GA is being hosted by the Okanagan Centre (in Kelowna), as mentioned 2006 is in Ottawa, and it would appear that 2007 will be somewhere in Alberta! ☆

---

## April 2004 Meeting Report

by Patrick Kelly

John Jarvo was the main speaker for the evening. Given the amount of interest in the first transit of Venus in over a century, a presentation on that topic was bound to be of interest to many. While a good turnout was expected, some of us had to make several trips to one of the neighbouring classrooms to "borrow" enough chairs to give everyone a seat.

John started with a bit of history on our understanding of the solar system, starting with Copernicus, who put the Sun back at the centre of the solar system, and Kepler who discovered laws governing the motions of the planets. With Copernicus' model and Kepler's Laws there was still no way to determine the absolute size of the solar system, only the relative sizes of the orbits. Kepler actually predicted the transit of Venus that would occur in 1631, but died before it happened. In England, Jeremiah Horrocks predicted that a transit would occur in 1639. He and a friend, William Crabtree, made several observations and were the first people to ever witness this type of event.

Edmond Halley realized that observations of the next transit (1761) could be used to determine the distance from the Earth to the Sun if it could be observed from

simultaneously from widely-separated locations. The parallax would allow the distance from the Earth to Venus to be calculated and once this was done the size of the astronomical unit, and then the sizes of the orbits of all of the planets would easily follow. John showed how this parallax method worked and noted that the actual apparent shift in the location of Venus on the Sun was a very small angle, only 0.75 arcminutes. To get accurate results three pieces of information were needed for each observation: the time; the latitude and longitude of the observer, and the location of Venus on the solar disk.

The transits of 1761 and 1769 produced the first worldwide collaborative endeavour in the history of science. 150 observers were dispatched to 110 locations around the globe, with observers from England, France, Russia, Sweden, German, the American colonies, and several other countries. While Captain James Cook is probably the most famous of the people who traveled to measure the transit, another well-known pair of surveyors measured it from South Africa: Charles Mason and Jeremiah Dixon who later surveyed the disputed border between the colonies of Maryland and Pennsylvania, which came to be known as the Mason-Dixon Line.

Observations of these two transits had sources of error, especially from the "black drop" effect which made the



timings of second and third contact difficult. The results from the 1761 transit resulted in a value for the astronomical unit that ranged from 125 to 154 million kilometres, while the 1769 event narrowed it down to 149 to 154 million kilometres. It was thought at the time that the black drop effect was an effect of the Earth's atmosphere, but the 1999 transit of Mercury was observed by orbiting spacecraft which also saw the same effect and there was no atmosphere, either in the telescope or on Mercury!

The transits of 1874 and 1882 were observed by many, including Nova Scotian Simon Newcomb who saw both events. Improvements in technology resulted in a further improvement in the value for the astronomical unit. While transits are still rare events, the coming one will not be of any great use in determining the value of the astronomical unit as astronomers have developed better methods and the value is now known quite accurately, 149,597,870 kilometres!

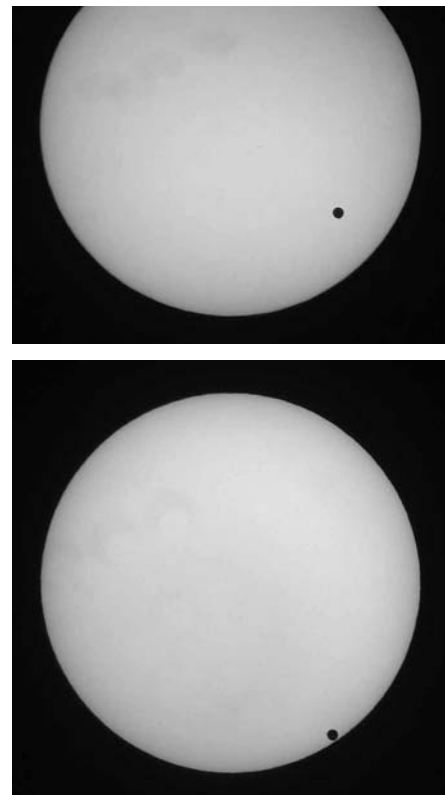
Transits only occur when Venus is lined up with the Earth and Sun while it is

near on of the nodes in its orbit. When this happens at a descending node, the transit occurs in June and Venus appears to move "down" over the solar disk; events at the ascending node happen in December with Venus moving "up" as it crosses in front of the Sun.

The transits currently occur in pairs, eight years apart and the pairs are separated by unequal gaps of 105.5 years and 121.5 years. Thus there is an actual repeating period of 243 years:  $8 + 121.5 + 8 + 105.5$ . Each transit in a pair will be of the same type, either ascending or descending.

John then went into a discussion of the "families" of transits and how their appearance from Earth changes over time. He used a computer program to look at transits and near-transits and showed them collectively as a series of lines superimposed on the image of the Sun.

It was an interesting presentation and I am sure that it gave many in the audience a new understanding of what we would hopefully be seeing in June. ★



John Jarvo was lucky enough to be travelling in Italy during the transit and witnessed the entire event. These are two of his great pictures.

# The Earth Centered Universe™ Planetarium and Telescope Control Software

**New  
Released!  
V4.0**

**The Earth Centered Universe Pro (ECU)** has been the Canadian choice of amateur astronomers for over a decade. This practical tool for astronomy enthusiasts — known for its ease of use, reasonable price, rich feature set, and lightning fast speed — has been upgraded yet again. See our web site for a complete list of features and to take advantage of the free demo version.

## Just a few of the features:

- Includes the Sun, Moon, Planets, and over 200,000 asteroids and comets. **Easily download new comets and asteroids from the Internet** from within ECU! Includes powerful animation features.
- Stellar databases include the Yale Catalog (9100+ stars), SAO Catalog (245,000+ stars), Tycho-2/Hipparcos Catalog (2,400,000+ stars), and the **Hubble Guide Star Catalog** (15,000,000+ stars). Also reads the amazing **US Naval Observatory S-2.0** Catalog which contains 525,000,000+ stars to fainter than 19th magnitude!
- The huge deep sky databases include the respected 10,500+ object Saguro Astronomy Club database and the 73,000+ galaxy strong **PGC Catalog**.
- Other databases include the **General Catalog of Variable Stars** and the **Washington Visual Double Star Catalog**. Add your own objects, too!
- **Prints highly-configurable, high-quality star charts**. Now includes a new split-chart feature and charts can be printed in full colour.
- Powerful interface to most computerized telescopes including the Meade **LX200** and **Autostar series**, the Celestron **NexStar**, most Digital Setting Circles, and many more. Many more telescopes are supported through complete support of the **ASCOM** initiative.
- Includes an image viewer and hundreds of astronomical images.
- **Price: CDN\$79.95+\$4.50P&H+GST/HST** (see web site or call for upgrade prices)

**NOVA**  
Astronomics

A customer had this to say:

*"I received the new release of ECU (V4.0) and loaded it on my telescope computer. The new features are very nice additions to the most efficient planetarium program with telescope control on this planet"*

- Richard M., New York

**RASC Special**  
Only \$55 (save \$35!)

(includes GST and P&H)

Send a copy of this ad with a cheque to Nova Astronomics, PO Box 31013, Halifax, NS, B3K 5T9  
(Offer expires Dec 31, 2004)

website: [www.nova-astro.com](http://www.nova-astro.com)

e-mail: [info@nova-astro.com](mailto:info@nova-astro.com)

phone: (902) 499-6196

# May 2004 Meeting Report

by Larry Bogan

This penultimate meeting for the spring of 2004 had 32 members and visitors in attendance. After a brief announcement by President Steve, giving away back issues of the RASC Journal, he introduced two salesmen.

First came Second Vice President, Patrick d'Entremont, who had two new items available for sale, the Beginners Observing Guide (BOG), 5th Edition for \$17 and solar viewing glasses for \$3 each. I had a chance to examine a BOG and it has been completely revised, with a better layout including coloured pictures. The 160 page volume is an attractive and valuable resource and learning guide for the beginning astronomer and a big improvement over the previous edition. The solar glasses are available for the June 8 transit of Venus across the Sun and you can get two for \$5.

Second came Gary Weber, head of the nominating committee for executive for next year. I learned that the Halifax RASC has grown and prospered in the last few years (now over 200 members) and is an organization that everyone will want to be a member of the executive. There are openings coming up for several positions including Treasurer, 2nd vice president, and a couple of councilors so put your name in now to the nominating committee. While Gary had the floor, he announced that Nova East will be coming up on the weekend of August 20-22 and at Smiley's Provincial Park.

Steve then introduced our two representatives to the RASC National Council, Pat Kelley and Mary Lou Whitehorne. The General Assembly and Annual Meeting of the RASC will be in St. John's, Nfld, July 1-4. Early registration was due on this day but it is a nearby venue and an opportunity to see what happens at the national level and meet amateur astronomers from the rest of Canada. Pat and Mary Lou also wanted to mention the membership survey which is being sent to all members about the future of the RASC. and the proxy for voting on the fees charged by the RASC. The survey and proxy can be given to the reps before they leave for St. John's.

Alex LeCreux, was introduced as our new Centre librarian.

Steve introduced himself as the speaker for the evening. His topic being "Extra-solar Planets", describing the discovery of planets orbiting stars other than Sol.

This topic has been one of Steve's hobbies and has followed it since the initial find in 1995 through to the present 122 planets. His primary resource has been several informative web pages on the internet but one he likes best is the "Extra-solar Planet Encyclopedia" at <http://www.usr.obspm.fr/planets>.

Steve listed the many techniques used to find new planets, some being much more successful than others. They were dynamic effects (astrometry, pulsars, radial velocity, binary eclipses), microlensing (mostly photometric), imaging, interferometry, and transits. Many astronomers are searching for extrasolar planets at present and the following website has links to most of their research: <http://www.obspm.fr/encycl/searches.html>

There are couple of new efforts being proposed based on new Earth satellites. One is the Space Interferometry Mission (SIM) and another Kepler. These are described on the Jet Propulsion Laboratory's website called "Planet Quest" <http://planetquest.jpl.nasa.gov>.

Measurement of radial velocities of stars found the first extrasolar planet and are responsible for 107 of the 122 known. The remarkable thing about this technique is that it is an old physical principle pushed to new precision with new equipment. The wobble of the central

star can now be measured to an accuracy of 3 m/s (10.8 km/hr), the speed of a fast walk. Knowing the mass of the central star (main sequence stars) and the period of the wobble along with the speed, enables the mass of the planet and its orbit to be determined. Steve showed a list of those values with masses ranging 0.5 to 50 Jupiter masses and semi-major axes 0.02 to 5 AU.

Steve finished his talk by showing us some of the artwork he produced related to the topic.

After a break to meet, eat, drink, gossip and look at the library the meeting continued with Craig Levine's "What's Up". Comet Neat has had the most attention lately. It is presently naked eye at about 3rd magnitude and in the evening sky. It is near perihelion, moving quickly and brightening. On the 14-15th of May it will be near the Beehive Cluster in Cancer. Venus, Mars, Saturn are also low in the western sky at the end of twilight. Craig pointed out that there are many of his favourite objects, globular clusters, in the eastern sky early in the evening this time of the year. He showed images of several for comparison from Bootes, Hercules, and area. eg M-13 and M-3.

June 8 is the date for Venus' transit of the Sun at sunrise. Plans are being made to select a good observing sight so that interested members might gather to view this rare phenomenon. Keep track of what is happening on the Halifax RASC listserver. ☆



The happy group at this year's successful Nova East, a great time was had by all – and there was even some observing this year on Sunday night, see more pictures on the following page.



# Nova East 2004...and Beyond

by Darren Talbot

Having come off a well attended, fun and successful Nova East 2004, the Nova East committee would like to thank all those who attended, or volunteered their time and services in the form of person-power and or informative talks and workshops. We hope everyone enjoyed themselves as much as the Nova East Committee had putting the event together.

That being said, we are already looking towards next year's Nova East which will be held during the Labour Day weekend September 2, 3rd and 4th, 2005. We are already bouncing ideas off of each other in terms of what programs we might want to offer. Perhaps an extended program since this is a long weekend. Thoughts about guest speaker(s) and workshops etc. With this comes the desire for new and fresh ideas, which is where you come in.

The Nova East Committee is looking for a "Few good men and women." The current committee has been doing designated tasks for the past couple or more years. Similar to our RASC executive who bring new faces into it, the Nova East Committee would like to see some enthusiastic minded people to give the event some new fresh ideas and direction as some committee members move on. As announced at NE 2004, Chris Beckett will be taking over the door prizes from Daryl DeWolfe. Our Halifax Centre resident geologist Ron Mills has also joined up. We would like more!

Members from Nova East affiliates, Minas Astronomy Group and the Nova Central Astronomy Club should feel most welcome to join the committee. We also welcome those interested from outside our little region in Nova Scotia. Centre members in Charlottetown and Moncton should also feel invited to contribute and make Nova East a truly regional star party! To do that we want you, your suggestions, your support, and your input!

We welcome any ideas or suggestions you may have for a talk or program you wish to present at a future Nova East. Please feel free to contact and chat with any of the existing NE Committee members. Seeing people enjoying the star party that you could help provide is a social and rewarding experience. We hope you'll help us out! The Nova East Committee

<http://halifax.rasc.ca/ne/>





# June 2004 Meeting Report

by Larry Bogan

Attendance of over 60 persons this evening filled all the chairs in the room and more had to be brought in.

Steve invited Dana Thurlow to come forward for a presentation from Mary Lou Whitehorne. Mary Lou had collected remembrances of Bill Thurlow from many RASC members and friends then assembled it into an attractive bound collection. After a brief comment of Bill's role and involvement with the Halifax RASC, she presented the collection to Dana.

Steve then introduced Mary Lou as the evening's speaker whose topic would be Astronomy Aotearoa (Land of the Long White Cloud). Mary Lou and her daughter Louise recently spent a month touring New Zealand including areas of astronomical significance. She organized her presentation into four topics: Skies, Carter Observatory and Golden Bay Planetarium, Stonehenge Aotearoa, and Maori Sky Lore.

While writing this, I was pondering Mary Lou's travels and located them on the map of New Zealand so I include a map here. Note the latitude and size of the two Islands. Mary Lou and her daughter did a lot of travelling. I have indicated sites mentioned in her presentation.

**Skies:** The southern Milky Way is more beautiful than that in the north and Mary Lou agrees. Part of the reason is that at 45 degrees South, the center of the Milky Way passes directly overhead. Mary Lou illustrated this with a panoramic picture of the Milky Way from Canis Major to Scorpius via Centaurus. The Large Magellanic Cloud is also another major attraction not visible from our latitude. Listing and describing the objects in the southern skies is too multitude to include here.

**Carter Observatory and Golden Bay Planetarium:** In Wellington, New Zealand's capital city, their observatory and planetarium are in the center of a botanical garden on top of a hill. A common access to these institutions are via a cable car. Mary Lou describes the observatory and its 22 cm Cooke Refractor and the planetarium's Zeiss projector. Details are available on the website given below. One especially interesting item was the "pipe henge" in the gardens which

located the meridian, N, E, S, W points for anyone standing in its center.

**Stonehenge Aotearoa:** Mary Lou had previous contact with members of the The Phoenix Astronomical Society (TPAS) in Wellington, NZ (capital of NZ), visited this club's observatory in the Wairarapa (see map of NZ). At this site, donated by one of their active members, Richard Hall, they are constructing a 0.6 metre research grade telescope and a "henge". This latter structure is a southern hemisphere version of the famous Stonehenge in England but designed to mark the rising of the southern stars. It is also made of preserved wood and concrete rather than stone. It is in an imposing location on the Wairarapa plain with the surrounding mountains in the distance. Information and pictures are available at the TPAS website listed below.

**Maori Sky Lore:** The Maori arrived in New Zealand from Polynesia using stars and the Sun for navigation. Their folklore and legends frequently include stars and constellations of the heavens and these are tied together with the land. One of the more important is Matariki, the Pleiades, which mark the beginning of their year when rising in the dawn sky. Other seasons are marked by other rising stars. See the TPAS website mentioned below for more details.

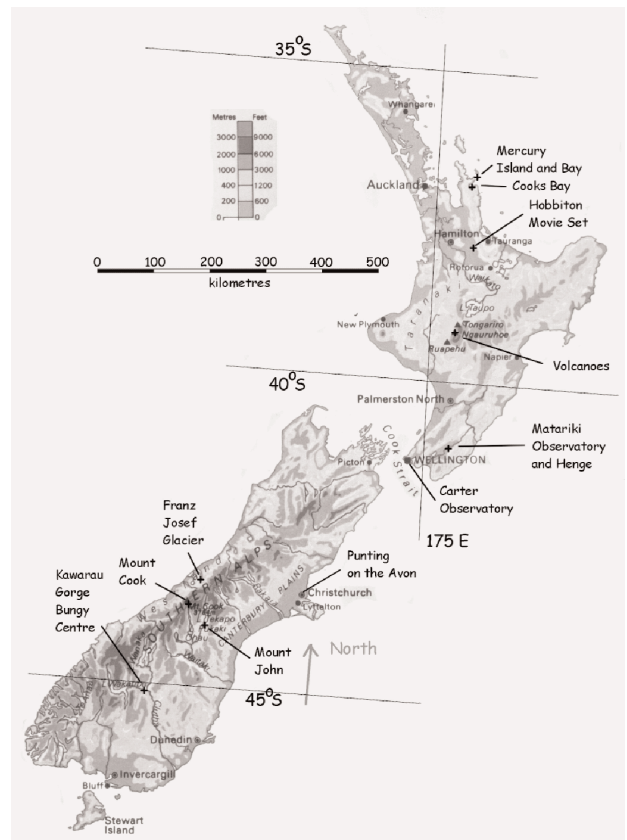
**Other New Zealand Sites:** On the North Island, the Mary Lou visited the site of Captain Cook's observation of the transit of Mercury in what is now called Mercury Bay near the Mercury Islands. She also visited Matamata where "The Lord of the Rings" Hobbiton set was constructed, and the active volcanic center of the island. On the South Island she and her daughter saw the Franz Josef Glacier, Mount Cook, and Mount John (site of N.Z. research observatory) before going to the Kawarau Gorge where Louise jumped off the bridge on a bungee cord. Mary Lou decided not to do that although she did punt down the Avon River in Christchurch.

Mary Lou enjoyed the New Zealanders and their Islands so much she is planning to return with her other daughter next year. Perhaps we will get another informative and fascinating description of the region from her then.

**N.Z. References:** Extensive information and some of the images used by Mary Lou in her presentation are available at the following websites. The Carter Observatory <http://www.carterobs.ac.nz>

The Phoenix Astronomical Society <http://www.astronomynz.org.nz>

Craig Levine, used the "What's Up" time to alert us to watch for announcements of trips to St. Croix Observatory where there is not only good observing but all sorts of wildlife to enjoy at night. While Jupiter is getting low in the sky, the Milky Way is creeping higher. Plans are in the works for a Globular Cluster Marathon to observe 60-70 clusters in one evening. Although the Transit of Venus was not seen on June 8, the gathering for the observation at Citadel Hill was a success with visitors from Calgary and Scotland and other places. Craig has been approached as a result of the television coverage of the gathering to provide more meaty astronomical pieces for ATV. There is a public observing night for Halifax planned. ☆



# Light Pollution: The Issue and some Successes

By Roy Bishop

Doug Pitcairn, a member of our Centre and a former columnist for the Chronicle-Herald once wrote:

“It surprises me how someone who would never think of leaving a plastic bottle on the ground at a picnic site will pay extra money each month to illuminate half the neighborhood with unnecessary, distracting light.”

Many people erect such lights without a second thought, and towns, cities and municipalities install unshielded streetlights which inundate communities with a bright fog of poorly-directed light. The intent is to provide useful illumination for backyards, pedestrians and drivers, but in most cases the result is less than satisfactory because of the poor design of the light fixtures used. As a consequence blinds have to be drawn to darken bedrooms, drivers' ability to see roads and pedestrians is compromised by the harsh glare of streetlights, and as night falls communities take on a trashy appearance because of their many dazzling light fixtures. Lights are also installed for security, although in instances when lights are turned off the crime rate falls. Criminals need light too, and are better able to do their dirty work hidden by the glare of unshielded lights.

Light fixtures exist that direct all their light downward where it is useful. Called “full-cut-off” or “flat-glass” fixtures, the light they emit is cut-off from spraying sideways. Not only do they provide superior illumination, but because none of the light is wasted by spraying sideways and upward, these light fixtures require only about half the power of the old-style lights: a 100-watt full-cut-off light can provide better illumination than a 200-watt unshielded light. The city of Calgary is on its way to saving \$2 million per year on the operating costs of its streetlights as it replaces its old-style lights with full-cut-off units, while also providing better lighting for its drivers and pedestrians. The test for a bad light is simple: if the light fixture shines directly in your eyes from a block away, it is a bad light.

Since light that sprays horizontally or upward is wasted light, this waste also means needless air pollution at the

associated electrical power plant, and the fossil fuel involved is being wasted. Nova Scotia Power is currently wondering where it can find a few hundred more megawatts of generating capacity to cope with the growing electricity demand. If the company began converting the lights in the province to modern designs at half the wattage, not only would street and highway intersection illumination be improved, but the need for additional generating capacity would be considerably reduced. Perhaps not surprisingly, reducing electricity demand seems to be foreign to the thinking of organizations that sell the product.

Modern, efficient, full-cut-off lights are beginning to appear around Nova Scotia, but they are the exception. For example, the Merks feed mill in Avonport has excellent lighting, as does the road leading into the Halifax Airport. In both cases the light fixtures are practically invisible until you are almost under them, yet both the feed mill and the airport road are well-illuminated. Paradoxically, the many lights on the Merks feed mill pose no hazard to drivers on nearby Highway 101, yet a short distance away the Department of Highways streetlight at eastbound exit 9 shines its unshielded, dazzling glare directly into the eyes of drivers. A full-cut-off light at this exit would make the exit easier to see and the highway safer. A similar hazardous light exists at exit 5 near Windsor for drivers entering Highway 101 to proceed westward.

For the past five years one of the worst lights in Kings County has been an unshielded floodlight at Blomidon Provincial Park. Aimed out across Minas Basin, it spoiled the nighttime profile of Cape Blomidon, upsetting many residents living within sight of this famous landmark. In response to a formal complaint, last July the light was re-located so it no longer shines across the eastern end of the Annapolis Valley. Special thanks are due to Richard Harley and Webster Andrews of the Department of Natural Resources for their action on this matter.

Two of the brightest lights in North Grand

Pre, at the church in that community and at the entrance to Pheasant Road, were old-style, unshielded lights that posed a glare hazard to drivers, particularly on stormy nights when rain or snow exacerbated the glare. Both lights also sprayed much of their light needlessly across the Grand Pre dykelands, likely disturbing the nocturnal life cycles of insects in that area and disorienting nocturnal and migrating birds in the vicinity. Last June, the North Grand Pre Community Association under Ed Murphy's leadership had these two lights replaced with full-cut-off units, requiring only half the power and eliminating the wasteful, dangerous glare. Special thanks are due to Barry Walker at Nova Scotia Power for making these lights available.

This summer considerable sky glow appeared immediately north of our St. Croix Observatory. Nova Scotia power had installed several poorly-aimed floodlights at its substation in the forest only a kilometer from the observatory. Fortunately the problem has been rectified. Thanks to Darren Talbot for his work detailing the problem, to Dave Lane (chair of our Light Pollution Abatement Committee) for approaching Nova Scotia Power, and to Joe Yurchesyn at Nova Scotia Power for his assistance.

Among the various types of pollution, light pollution is unique in that it is simple to correct. There is no downside to good lighting. It is a “win-win” situation. The problem is education, to make people aware of the cost, hazards, and environmental impact of poor lighting, of the inconsiderate aspect of light trespass, and of the trashy aesthetics of old-style, unshielded lighting. Until people demand good lights, building supply stores and power companies will continue to provide the type of light fixtures they have always provided. ☆



Looking toward NSP site from Salmon Hole Dam Road before the lights were fixed.





Part of your membership in the Halifax RASC includes access to our observatory, located in the community of St. Croix, NS. The site has grown over the last few years to include a roll-off roof observatory with electrical outlets, a warm-room and washroom facilities. Enjoy dark pristine skies far away from city lights, and the company of like minded observers searching out those faint fuzzies in the night.

## Members' Night

Every weekend closest to the new Moon there is a Members' Night at St. Croix. The purpose of members' night is to attract members from the centre to share an evening of observing with other members. It's also a great night for beginners to try out different scopes and see the sky under dark conditions. For more information or transportation arrangements, please contact the Observing Chairman Craig Levine at 852-1245. *Dates for Members' Nights for the following few months are:*

**Saturday Sept. 18, Saturday Oct. 16, Saturday Nov. 13**

## Directions from Halifax

*(from Bayers Road Shopping Centre)*

1. Take Hwy 102 (the Bi-Hi) to Exit 4 (Sackville).
2. Take Hwy 101 to Exit 4 (St. Croix).
3. At the end of the off ramp, turn left.
4. Drive about 1.5 km until you cross the St. Croix River Bridge. You'll see a power dam on your left.
5. Drive about 0.2 km past the bridge and take the first left (Salmon Hole Dam Road).
6. Drive about 1 km until the pavement ends.
7. Drive another 1 km on the dirt road to the site.
8. You will recognize the site by the 3 small white buildings on the left.

## Become a St. Croix Key Holder

For a modest key fee, members in good standing for more than a year who have been briefed on observatory can gain access to the St. Croix facility. For more information on becoming a key holder, contact the Observing Chairman Craig Levine at 852-1245.

## RULES FOR THE 17.5" SCOPE (OR ANY RASC SCOPE AT SCO)

On Members' Nights the 17.5" scope must be shared by all members. The 17.5" scope can be used by anyone, but all views have to be shared with anyone interested in taking a look.

On non Members' Nights the scope can be used by individuals wishing to work on personal observing projects. Members should try to limit their use to under 45 minutes when other members are waiting to use it. Preference will be given to members who send an email to the hfxrasc list, or call the observing chair on the night they want to go out. If no one else wants to use the scope then feel free to use it all night, but it would be considerate every so often to ask members there if anyone has been quietly waiting to use it.

Please contact the Observing Chairman Craig Levine for more information or to book the scope at 852-1245.

# Meeting Announcements

Halifax Centre of the Royal Astronomical Society of Canada



## October 15th

David Turner will give the talk "Will the North Star Stop Pulsating?"

## November 19th

Annual General Meeting, plus former Halifax Centre president David Tindall will be giving a Handbook Talk.



Meetings begin at **8:00 P.M.**

*Members of the general public are welcome.*

All members—but especially new ones—are invited to come to the meetings 20 - 30 minutes early to participate in our new informal "Meet and Greet". It's a chance to ask questions about astronomy, the RASC, memberships, or to just say hello.

Room 176 Loyola Building  
Saint Mary's University (See Map Below)

*The Halifax RASC*

*Executive meetings*

*begin at 7:00 P.M.,*

*and members are*

*welcome to attend.*



### Halifax RASC Executive 2004

Honorary President	Dr. Roy Bishop	
President	Steve Tancock	465-4092
1st vice-president	Pat Kelly	798-3329
2nd vice-president	Pat d'Entremont	497-1153
Secretary	Andrea Misner	425-5074
Treasurer	Paul Evans	423-4746
Nova Notes Editor	Michael Gatto	453-5486
National Rep.	Pat Kelly	798-3329
2nd National Rep	Mary Lou Whitehome	865-0235
Librarian	Alex LeCreux	404-5480
Observing Chairman	Craig Levine	852-1245
Councilor	Shawna Mitchell	865-7026
Councilor	Gary Weber	454-8264

### Meeting Location

Meetings are held every third Friday of the month, except for the months of July and August. Meetings take place in room 176, Loyola Building (#3 on map) at Saint Mary's University.

1. McNally
  2. Sobeys Building
  3. Loyola Academic Complex
  4. Loyola Residence
  5. Patrick Power Library
  6. Science Building
  7. Burke Building
  8. Bookstore
  9. Alumni Arena
  10. The Tower
  11. Rice Residence
- P = Parking

