Nova Notes

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

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December 2005?? *You may be wondering if you missed the December issue. Well rest assured that you did not, due to the lateness of the October issue, we have wrapped up Nova Notes 2005 with 5 issues and we are starting 2006 off on the right foot - on schedule!*

Astro ~~photo~~ sketches of the Month

Michael Gatto, Mars 2005

My main observing goal in 2005 – other than my never-ending spring list of Finest NGC's – was to complete a series of sketches illustrating a complete rotation of Mars. I was unable to do this back in 2003, but this time around I felt better prepared: I had a few better eyepieces; I had installed a fan to hasten the cooling of my mirror; and was generally more determined to succeed. And to my surprise I got lucky with the weather, which is what it all comes down to in the end. I was able to capture all the major features of Mars centered on the face of the planet. They are represented here in the first 7 sketches, with each one labelled as to which major feature is visible, see the 2005 Handbook, p. 189 for any smaller feature names. The eighth sketch represents the dust storm that developed – then luckily dissipated in a few days – around the end of October. The dust storm appeared on that night as 3 bright segments which were easily viewed with or without filters.

The sketches here were all completed from my backyard in Dartmouth, under better than average seeing conditions. There were many more nights that I tried to observe but quickly packed it in when I saw the poor seeing. Generally I would observe at 300X (5mm Tak LE eyepiece) with an 8" (1550mm focal length) newtonian on a dobsonian mount, sometimes I would briefly push that to 600X with a barlow. I would use green, red and neutral density colour filters. My routine consisted of first looking at the image unfiltered to see what I could pick up and gauge the seeing, do a check in green, then do my sketching in red for the major albedo features and shading. I would then switch back to a neutral density filter to check for atmospheric effects like limb brightening or the North Polar Hood, and any bright areas or changes in colour. I would always go back to an unfiltered view to evaluate the sketch, and see if I felt it was an accurate representation of what I was picking up visually, and would revise only if needed. Then I scan the image and balance the intenstities of the dark areas in Photoshop, and add in some tone so that I could add in some highlights to the image. ✯

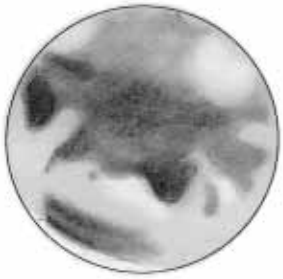
September 25/05 3:55–4:35 a.m.
Hellas/Syrtis Major

October 3/05 3:45–5:00 a.m.
Mare Cimmerium

November 8/05 10:25–11:00 p.m.*
Mare Sirenum

November 13/05 10:25–11:30 p.m.
Solis Lacus/Mare Sirenum

November 18/05 9:15–10:00 p.m.
Aurorea Sinus/Solis Lacus



November 25/05 10:00–11:00 p.m.
Meridiani Sinus/Aurorea Sinus

November 28/05 10:25–11:00 p.m.*
Hellas/Sabaeus Sinus/Meridiani Sinus

October 22/05 3:00 a.m.
Dust storm in Aurorea Sinus
(compare with image Nov 25)

* *These dates may be out by a day or so, I had a mix-up on my log sheets and "rebuilt" the timeline with Starry Night.*

Battered Trophy gets New Lease on Life

Mary Lou Whitehorne

The Simon Newcomb Award trophy leads a dangerous life. Every time the prize is awarded to a society member, it gets packed up and shipped to the winner. Usually it changes hands at the General Assembly. The previous winner might bring it to the GA in person, or ask their centre rep to bring it, or it gets shipped to national office and Bonnie Bird carries it to the GA. At the GA it is presented to the new winner, who then has to find a way to get it home. The trophy is so well traveled that it should be collecting frequent flyer points.

Things do not always go smoothly. The trophy was awarded to me in 2004 at the St. John's GA. Circumstances prevented me from carrying it home. To make a long story short, the trophy went from St. John's to Winnipeg, then to Halifax and back to Winnipeg, before finally returning to its rightful place in Halifax. When I opened the box, the trophy came out in pieces.

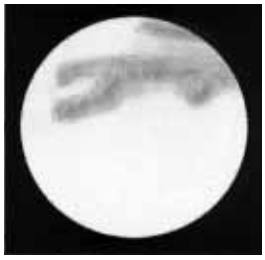
Sixteen months later I finally got approval to have this unique trophy repaired. Take a look at the before and after pictures to see what can be done with $50 and lots of legwork. It looks suitably prestigious sitting on my living room table. It's a trophy worth writing for, and one to be proud of once achieved. So what are you waiting for? Start writing!

The Simon Newcomb Award was initiated in the Halifax Centre to honour one of Nova Scotia's own – the world-renowned astronomer and mathematician Simon Newcomb. The Award is intended to encourage members of the RASC to write on the topic of astronomy for the Society or the general public, and to recognize the best published works through an annual award.

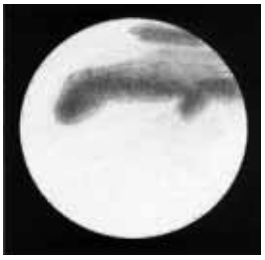
More information on this award is on the RASC Web site at:
http://www.rasc.ca/awards/ ✭

Mars Images *Michael Boschat*

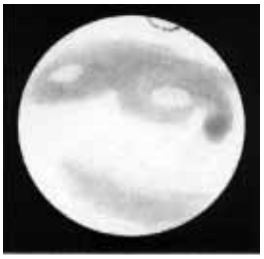
October 21/05



October 30/05



November 01/05



November 07/05

11cm f/10 refractor, 112X to 209X with #21 Orange filter from Halifax, N.S.

HALIFAX CENTRE

Material for the next issue should reach the editor by March 17/06

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.

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Nova Notes is also available as a PDF file on our Centre's website at **www.halifax.rasc.ca**

If you are a person who downloads the latest issue of Nova Notes off of the web to print it at home, then you may be interested in taking your name off of the mailing list for the printed version. If so, please email me at the address above with the subject line "Remove from mailing list" and you will no longer be mailed a paper copy.

Meeting Report October 2005

Chris Beckett

President Craig Levine welcomed all members both new and old alike and introduced potential new members to the benefits of joining the RASC. Mary Lou Whitehorne stood up and presented some astronomy related "prizes", including a Starry Night Companion DVD to those whom had identified themselves as non-members or new members.

This month's special guest was Alan Whitman, a former Halifax Member and meteorologist who now observes in the Okanagan of British Columbia. His presentation to the Halifax Center focused on his observations made from the southern US states as well as countries below the equator. Alan began his slide show describing his journeys to some of the first real star parties in Texas in 1982/3 where highlights of his observing including viewing Omega Centuri and Centaurus A in his eyepiece.

In July of 1991 Alan traveled south of the equator to Mazatlan for some eclipse viewing. He also traveled south of the equator in 1998 when Sky and Telescope presented him with an opportunity to do meteorological consultation for two ships chasing a solar eclipse that year off of Granada and St. Thomas. The slide show went from beautiful daytime images to those of deep space objects which he observed while the ships kept their lights off so passengers could take in the southern deep sky wonders.

Moving from his eclipse trips Alan presented us with some beautiful slides of his observing experience with the Astronomical Society of New South Wales north of Sydney Australia. Alan prepared a list of 250 objects for the trip and recommends that anyone making a similar trip be prepared to spend some time with their scope firmly pointed at 47 Tucanae. The description of several objects like the nearby spiral NGC 4945 and others were fascinating to listen to for those of us who have yet to make a trek south. Alan recommends leaving your scope behind and hooking up with locals such as Tony Buckley who might be kind enough to share his club's 14.5-inch f/7 dob or Andrew Morley with his 20-inch dob!

Alan focused on many deep sky objects from bright/dim nebula, globular clusters, galaxies and, my personal favorite, dark nebula. For more information on his observing please see, August 2005 Jewels on Velvet and August 1998 The Outer Limits: Seeking Summer's Dark Nebulae.

After Alan's presentation we had our usual snack break followed by Blair MacDonald's second part in his series "Astro Photos 101". This month Blair focused on histograms and image stretching for getting the most out of your deep sky digital shots.

According to Blair there are four important steps for this function;

1. Histogram and equalization to spread the image for a custom spread.

2. Create a transfer function for the histogram shape

3. Invert

4. Apply to image

Following Blair's brief but detailed lesson our Observing Chair, Daryl DeWolfe asked the observers to focus on Mars this month and to sketch and log their observations in order to solidify your memories. ✯

From the Library

Alex LeCreux, Centre Librarian

Happy New Year everyone!

I've made a resolution this year to address the issue of a large quantity of outstanding books from the library. When I began the position of Centre Librarian a little more than a year ago, I inherited a fairly long list of over due books, some of which were loaned out prior to the year 2000. I would really like to see these books returned to the library so other members could have access to them. I'm sure some are lost and will not be recovered. Please check your bookshelves at home for any that may have been forgotten about. I have had to turn down requests from members for several books over the past months that were due to be returned and remain outstanding. Your assistance in this matter would be greatly appreciated. ✯

National Office E-mails

Pat Kelly

In order to serve members of the society, the national office keeps track of e-mail addresses of members, when that information is provided on membership application and renewal forms. This information, in turn, is passed on the the centre in our monthly membership updates. The centre uses this information primarily to make announcements of important events that cannot wait for the next issue of Nova Notes (such as changes to meeting dates or locations, or astronomy speakers brought in by other groups).

Currently the national office uses these e-mail addresses for two main functions. In an effort to reduce postage costs, the first membership renewal notice now goes out to the e-mail address on record. The electronic version of the Journal is available on the society's web site before the printed version arrives and e-mail is used to announce its availability. If you are not receiving these notices you either do not have an e-mail address on file, or the one on file is incorrect.

If you want to have your e-mail address added to your membership information, or correct one that is out of date, send the information to nationaloffice@rasc.ca. It is hoped in the near future that members will be able to update their own contact information at the national web site.

If you have any concerns about the privacy of this information, the society's privacy policy can be found at

http://www.rasc.ca/privacypolicy.htm

and the centre's privacy policy can be found at

http://halifax.rasc.ca/documents/privacy.pdf.

✯

The Lunar X-Files: an Occasional Feature near the Crater Werner

by Dave Chapman

Introduction

Every month–or to be more precise, every 29.530589 days–the Moon cycles through its phases and alternately reveals and hides the features on its surface. As experienced lunar observers know, the appearance of a particular surface feature depends on the relief of the feature (that is, the height of the feature above or below the surrounding terrain) and the angle of the illumination of the Sun. One of the most interesting regions on the Moon to observe on any given night is the terminator, that is, the demarcation between the dark and light portions of the lunar surface. The term "line" is used very loosely here, as the terminator can become quite convoluted in especially rough areas on the Moon. In extreme cases, one can see mountain peaks and crater walls that have been "caught in a noose of light" and stand out brilliantly against the surrounding blackness. This high contrast is aided by the lack of an atmosphere on the Moon, as there is nothing to scatter sunlight into the shadows and soften the illumination.

One of the most interesting features that one can observe at the terminator is an X-shaped structure that appears at coordinates S 25 degrees, E 5 degrees, near the crater Werner. Although it must appear every month, it does not seem to be well known. Although it most certainly has been observed before, the author observed the Werner X first in August 2004 and for a second time not until November 2005. Others have seen the X on these dates, some dates in between, and evidently beforehand. If one knows when and where to look, the Werner X can be observed by anyone with a modest telescope.

August 22, 2004: the author's first view

On August 22, 2004, at the Nova East star party at Smiley's Provincial Park near Windsor Nova Scotia, the author trained his TeleVue Ranger 70 mm telescope on the Moon just as dusk was gathering at about 9 p.m. Other amateur astronomers were making their own preparations for an evening of under the dark sky, but it was a little too soon for serious observing. Having a glance at the nearly first-quarter Moon seemed like a good way to start the night. The author focussed his telescope on the terminator and immediately noticed a bright X-shaped feature on the dark side of the terminator. Unlike many other astronomical views through a telescope, this observation took no imagination whatsoever, and the surrounding group of astronomers soon joined in the observation. Tony Jones took a picture of the Moon at this time. As the phase of the Moon was first quarter, the Moon was roughly due south at sunset, and proceeded to set throughout the evening, eventually becoming too low in the sky to comfortably observe.

Previous observations of the Lunar X

Following the observation, research on the internet and in astronomy books turned up very little information, other than a single astrophoto taken on June 24, almost exactly 59 days earlier. (The photo was posted to the Lunar Picture of the Day web site after the Nova East observation was announced.) Veteran lunar observer Charles Wood was aware of this appearance, but no other, and noted that several people had seen the X in August. Word of the X spread, and the author was contacted by Dana Thompson in Hebron, Ohio, who reported seeing this feature (in Newark, Ohio) in 1978, but had not seen (or looked for) it since. Dana recalls that–with the unaided eye–he first saw a point of light on the dark side of the terminator, which turned out to be an X in the telescope. (Dana does not have observing records from that date, but he has correspondence indicating that the event took place 324 lunations before the Nova East sighting, on June 12, 1978.) Mike Boschat found a photo of the X in Dinsmore Alter's Lunar Atlas, plate 111, page 247. Pat Kelly wondered why the X had not been mentioned before, as observers often concentrate on the terminator, because of the interesting detail to be seen.

A Digression on Lunar Months and Solar Days

At first thought, one would expect that the X would appear every month, at about the same time just before first quarter. Why would it not be very well known? The answer could be a combination of two effects: (1) the apparition may only last a few hours, and (2) the lunar month is not an exact number of 24-hour days. If one saw the X one evening in a given month, then it would appear again 29 1/2 days later, but the 1/2 day would mean that the Moon would have set at the original location and be unobservable; however, an observer on the other side of the world would be in a good position to see the X on that occasion.

On the other hand, an interval of 2 lunar months works out to 59 days and 88 minutes. As the X was seen 59 days earlier from Eastern North America, then there was a good chance it could be seen again slightly later on the evenings of October 20, December 18, and perhaps February 15. However, at first quarter, there is only a short interval of time–perhaps 4-5 hours between sunset and moonset–that the Moon can be seen. The residual 88 minutes means that the Moon would be that much closer to setting at the observer's location each successive time the X appears. Eventually, the X would appear so late in the evening that the Moon would have already set. Because the Moon sets later (in Universal Time) as the observer moves west, this implies that the optimum longitude for seeing the X would gradually move westward by 3 time zones every 4 months. A persistent observer may see the X every other month for several appearances, but then there would be a long hiatus of a year or so during which the X would not be seen.

Subsequent views of the Lunar X the following October, December (2004), and February (2005)

A letter by the author featuring the Tony Jones photo appeared in the Nov/Dec SkyNews magazine, alerting observers to the events. The author also posted the relevant information to the RASC national discussion list. The Lunar X was discussed in several astronomy newsgroups, but it is almost impossible to document these discussions.

This is what was seen in Fall 2004:

On the night of October 20, it was cloudy in Halifax, but around 22:00 ADT Ted Dunphy of Fredericton independently observed the X and took a photograph. Only afterwards did he learn about the author's observation and the SkyNews letter. Curt Nason of St. John also saw the X.

These sightings were reported in the Autumn 2004 issue of Horizon, the newsletter of the RASC Moncton Centre.

On December 18, it was again cloudy in Halifax, but Joe Carr and Bill Weir from the RASC Centre in Victoria, B.C., both observed the X. Note that they observe far to the west of Nova Scotia and New Brunswick.

On February 15, 2005, Bill Weir of Victoria made a lengthy and detailed observation of the X: the centre became visible at 8:30 p.m. PST, and the X was fully illuminated from 9:15 p.m. until at least 11:00 p.m. At these times the Moon would have already set in the Maritimes. Bill's observations, and the absence of any observations from the East, confirms that the optimum longitude for observing the X gradually moves westward from one appearance to the next.

This was the last of this sequence of observations from North America during even-numbered months.

Attempts to view the Lunar X in July and September (2005)

In between the sequence of observations above, there were rumours of observations of the X from "down under" in Australia, during odd-numbered months. No details are available. Due to the westward drift of optimum observing longitude, it was only a matter of time before this sequence made its way to North America. On July 12/13, Bill Weir observed the first quarter Moon in B.C. until midnight, but says it was "too soon" for the X. On September 10, the author and others observed in the East, and it was also deemed to be "too soon". These unsuccessful observations are not surprising.

November 8, 2005: the author's second view

On the evening of November 8, 2005, the author was able to observe the X almost as soon as the Sun set. The Moon was visible earlier, but the poor contrast in daylight made detailed observation of the Moon difficult. Many observers from Eastern Canada supplied reports, drawings, and pictures of the Lunar X *(see Table 1)*

These observations help define the temporal extent of the visible extent of the phenomenon, but are not definitive, as the commencement is uncertain. It seems that the effect lasts at least 4 hours. Observations from the evening of January 6, 2006, will be most valuable. Ultimately, the phases of commencement, peak visibility, and termination of the lunar X near crater Werner will be linked to values of selenographic colongitude. This identification will assist future observers in capturing the phenomenon.

Why is the Lunar X not better known?

It is evident that alerted observers have no difficulty finding and observing the Lunar X. However, there seems to be almost no evidence that the X has been observed previous to recent times. Perhaps it was observed, but because an observer in a given location may have difficulty repeating the observation, it has not been reported. For a start, the X does not appear at every lunation if observed from a given location. Also, from a given location, there is a long interval of time during which the illumination of the X and the appearance of the Moon in the sky of do not coincide. The combination of the synodic lunar month and the solar day results in a quasi-periodic, almost random, sequence of apparitions. Perhaps cognitive psychology could shed some light on the apprehension of the Lunar X. Another interesting question is whether the almost instantaneous communication between widely-separated observers afforded by the internet has aided in the observation of such phenomena. Have we entered an era of network-enabled astronomy? In a future article the author and collaborators hope to more deeply explore these concepts. ✯

Figure 1: Mike Boschat took one of the best images of the Lunar X on 2005 November 8, 2045 UT.

Figure 2a: A close-up by Roger Hill in Ontario at 2145 UT,

Figure 2b: Roger Hill shows the surroundings of the X filling in at 2330 UT.

Table 1

Time (UT)	Mode	Observer	Location	Remarks
2030	visual	Dave Chapman	Halifax, N.S.	(X visible, but contrast low due to daylight)
2043	photo	Mike Boschat	Halifax, N.S.	
2100	visual	Dave Chapman	Halifax, N.S.	(definite X visible)
2115	visual	Chris Hanham	Halifax, N.S.	(confirmed X visibility)
2145	video	Roger Hill	Milton, ON	
2200	visual	Ted Dunphy	Fredericton, NB	(peak of effect)
2215	visual	Paul Gray	Fredericton, NB	(middle of half-hour session)
????	video	Kevin Fetter	Brockville, ON	
2330	video	Roger Hill	Milton, ON	
2355	photo	Chris Beckett	Halifax, NS	(middle of 20-minute session)
2356	sketch	Paul Heath	Halifax, NS	(middle of half-hour session)
+0014	photo	Clarence Hemeon	Halifax, NS	
	photo	Simon d'Entremont	Halifax, NS	
+0130	visual	Dave Chapman	Halifax, N.S.	(surroundings of X filled with sunlight)
+0215	visual	Curt Nason	St. John, NB	(X still visible, but surroundings illuminated)

RASC, Halifax Centre 2004/2005 Treasurer's Report

2004/2005 has been a reasonably good financial year for the Halifax Centre. Paul Evans, our outgoing treasurer had expected a large deficit for this year. That prediction was based on a "regular" year for revenue (last year's revenue was very high as a result of the donations received in the memory of Bill Thurlow), and that we would be making use of some of those funds, thus increasing our expenses this year. The plans for the use of those funds have been developed more slowly than expected, the year ended with only a small deficit.

At our September 30th year-end, we had a deficit of $495.82. The original forecast of a deficit had assumed that we would have a profit from Nova East. Since the accumulated "surplus" from Nova East had grown fairly large, the Nova East committee, with the approval of the Centre executive, decided to use some of that surplus to bring in John Dobson this year. The net loss for Nova East was $1546.37.

Following a motion of the executive at its September 1999 meeting, two-thirds of the profit is to be recorded as profit earned by the other two astronomy clubs that co-hosted Nova East. Ordinarily, the RASC would have paid the profit to these clubs, however neither the Minas Astronomy Club nor the Nova Central Astronomy Club have bank accounts. (See also Assets – Cash.) In this case the net loss was similarly divided, with the Centre's third being about the same as this year's deficit. Thus the actual deficit actually came from our accumulated Nova East profits and was not a true operating deficit.

Counting the observatory, we are now worth (at least on paper) just over $50,000 with no significant liabilities.

I would like to thank Johnny McPherson, our auditor for the 2003/2004 books. He has raised some good points that could be used to improve the way that the books and year end report are done. I am hoping to incorporate many of his suggestions into the books over the coming year.

Below are some explanatory details pertaining to the Income Statement and Balance Sheet.

Respectfully submitted,
Patrick Kelly, Treasurer

Details of the 2004/2005 Income Statement

REVENUES:

Membership Fees $3,145.16 : Despite the recent fee increase membership fees are down slightly from last year due to a drop in membership numbers. At September 30, 2005 the Centre had 184 members (153 regular, 9 youth and 22 life. Regular membership is $55 of which $22 is retained by Centre. The Society retains $33 to provide nationally delivered services to members. For youth members, the numbers are $34.25, $13.70, and $20.55 respectively.

Life Members Grant $500.00 : This amount represents the life member grant we receive from National Office each year.

Donations and Observatory Donations $734.91 : Over $500 was donated to the Centre by The Atlantic Space Sciences Foundation. We have also started to receive donations as a result of the Society's new sustaining membership programme.

Interest $46.31 : This was earned mainly in our money market mutual fund, we are looking at putting some of the funds in an account that pays higher interest.

Handbook Sales (net) $153.70 : Handbook sales are up from last year.

Sales of Merchandise (net) $437.92 : Merchandise net sales were lower than last year mainly due to having a lot of 2005 calendars left over. We have ordered less for the current year.

Nova East (Net) $0.00 : As mentioned in the introduction, Nova East ran a deficit this year.

EXPENSES:

Meetings and Newsletter $1,399.52 : This expense is comparable to last year. $336.81 was spent on our meeting treats. Nova Notes cost $573.96 to print and $495.38 to send to our members.

Office Administration $154.57 : This includes the cost of postage for routine correspondence, office supplies, and the rental of our post office box.

Legal Expenses $25.00 : This is the annual fee paid to the Provincial Government to maintain our registration under the Society's Act.

Educational Activities $113.85 : This was for the rental of the advertising sign for our summer sidewalk astronomy day events.

Insurance $1,316.00 : This is entirely the insurance for the observatory. Our insurance costs increased by 10% over last year – and the previous years have seen increases of 20% and 31%. Hopefully, the rate of increases will continue to slow.

Awards and Donations $191.75 : About $54 was for the Cunningham Astrophotography Award. For a one-year period the Centre is returning its share of the last two membership fee increases. The remaining $138 is the amount for July, August, and September of 2005.

Observatory — Operating $759.63 : This figure includes the $1.15 annual land lease with the balance being for operating expenses such as batteries, cutting keys, propane for the furnace, and other operating expenses for the observatory buildings and surrounding property. There were no major expenses this year. Capital spending that has been expensed on the observatory has totalled $21,869.64 since the project was started in the spring of 1996.

Details of the 2004/2005 Balance Sheet

Cash $9,049.42 : This represents the cash balance at the TD Bank in Halifax on September 30, 2005 (but not including the profits from Nova East attributed to the Minas Astronomy Group and the Nova Central Astronomy Club, see below).

Cash – Nova East Profits $1,055.12 : This represents two-thirds of the total profits from the Nova East star parties (year 2000 to present) which are attributed to the Minas Astronomy Group and the Nova Central Astronomy Club. This profit is currently held in our regular TD bank account but recorded separately within our accounting system.

Handbook Inventory – $116.91 : If you are wondering how you can have a negative

COMPARATIVE INCOME STATEMENT FOR 2003/2004 AND 2004/2005 MEMBERSHIP YEARS

	Year Oct 2004 to Sept. 2005	Year Oct 2003 to Sept. 2004	Increase over 2003/2004
REVENUE			
Membership Fees	$ 3,145.16	$ 3,429.23	$ –284.07
Life Members Grant	500.00	457.60	42.40
Donations and Obs. Donations	734.91	4,738.09	–4,003.18
Interest	46.31	50.96	–4.65
Handbook Sales (Net)	153.70	70.64	83.06
Sales of Merchandise (Net)	437.92	786.30	–348.38
Nova East (Net)	0.00	876.18	–876.18
Miscellaneous	$ 0.00	$ 0.00	$ 0.00
Total Income	$ 5,018.00	$ 10,409.00	$ –5,391.00
EXPENSES			
Meetings & Newsletter	$ 1,406.15	$ 1,399.52	$ 6.63
Nova East (Net)	1,546.37	0.00	1,546.37
Equipment & Supplies	0.00	296.03	–296.03
Office Administration	154.57	149.27	5.30
Legal Expenses	25.00	25.00	0.00
Educational Activities	113.85	0.00	113.85
Insurance	1,316.00	1,208.00	108.00
Awards & Donations	191.75	0.00	191.75
Observatory - Operating	759.63	3,639.27	–2,879.64
Miscellaneous Expenses	$ 0.50	$ 147.31	$ –146.81
Total Expenses	$ 5,513.82	$ 6,864.40	$ –1,350.58
NET INCOME	$ –495.82	$ 3,544.60	$ –4,040.42

Approved by: Pat Kelly, Treasurer Craig Levine, President

COMPARATIVE BALANCE SHEET FOR 2003/2004 AND 2004/2005 MEMBERSHIP YEARS

	Year Oct 2004 to Sep 2005	Year Oct 2003 to Sep 2004	Increase over 2003/2004
ASSETS			
Cash	$ 9,049.42	$ 8,768.27	$ 281.15
Nova East Profits (MAG/NCAC)	1,055.12	2,086.03	–1,030.91
Undeposited Funds	0.00	324.97	–324.97
Accounts Receivable	0.00	0.00	0.00
Handbook Inventory	–116.91	796.00	–912.91
Merchandise Inventory	2,241.92	2,789.22	–547.30
Investments	2,000.00	2,000.00	0.00
Accrued Interest	768.96	726.82	42.14
Estimated Library	3,556.42	3,417.50	138.92
Observatory Equipment	9,542.77	9,542.77	0.00
Estimated Miscellaneous	$ 452.54	$ 452.54	$ 0.00
Total Assets	$ 28,550.24	$ 30,904.12	$ –2,353.88
LIABILITIES			
Accounts Payable	$ 0.00	$ 1,858.06	$ –1,858.06
Fees owed to National Office	0.00	0.00	0.00
Other Liabilities	$ 0.00	$ 0.00	$ 0.00
Total Liabilities	$ 0.00	$ 1,858.06	$ –1,858.06
EQUITY	$ 28,550.24	$ 29,046.06	$ –495.82
Observatory Investment to Date	$ 21,869.64	$ 21,869.64	$ 0.00

Approved by: Pat Kelly, Treasurer Craig Levine, President

MEMBERSHIP	1999	2000	2001	2002	2003	2004	2005
	157	164	180	192	209	211	184

inventory, that makes two of us. It seems to be due to the way our accounting software is set up to track inventory and there was a shipment of handbooks that we were not charged for. Since this only became apparent at the end of the fiscal year, there was not enough time to resolve it.

Merchandise Inventory $2,241.92 : This consists of our inventory of BOGS, Skyways, T-Shirts, Calendars, lapel pins, RASC stickers, RASC embroidered crests, mugs, and key chains. This number is usually high at the end of September as we have just purchased the 2006 handbooks and calendars.

Investments $2000.00 : The Halifax Centre holds a money market account with the TD Bank.

Accrued Interest $768.96 : Accrued interest on our money market account as reported on four quarterly statements from the TD Bank.

Estimated Library $3,556.42 : This value represents an estimate of all the money invested in the library. $138.92 was spent on books for the library this year.

Observatory Equipment $9,542.77 : The value of our observatory equipment is unchanged from last year.

Estimated Miscellaneous $452.54 : These other holdings of the Centre were unchanged this year.

Historically, $250 has included a slide projector, a mirror grinding apparatus, and some slides and material available for use at the planetarium.

Observatory Investment to Date $21,869.64 : This amount represents the total amount of money that the Centre has spent on the St. Croix Observatory for capital expenses (i.e. concrete slabs, landscaping, the main observatory buildings) that are deem to be fixed and that could not be moved if we were to leave the St. Croix site. ✯

Web-only version of Nova Notes?

Michael Gatto

If you are the type of person who downloads the latest issue of Nova Notes off of the web to print it at home, then you may be interested in taking your name off of the mailing list for the printed version. If so, please email me at agatto@ns.sympatico.ca with the subject line “Remove from mailing list” and I will do just that. If enough people opt out then I will consider sending out the issue to members in a large group email. But for now, **you will be responsible for downloading the issue yourself each month,** and will not be added to the list again unless you email me again to reinclude yourself.

Thanks, Michael ✯

November 19th, 2005 Annual Meeting

Andrea Misner

Our fearless president, Craig Levine, kicked off the annual meeting with a bellowing, "hello everyone!" After the regular introductions for the RASC, Craig began his summary of the Halifax Centre in 2005, stating that we have had a great year with lots of speakers, a rise in meeting attendance, and an increasing observing group at St. Croix. In addition, public outreach was also a success with Nova East 2005 being one of the most attended.

Within the centre's membership, Mary Lou Whitehorne received the Las Cumbres Amateur Outreach Award, for her outstanding effort in the outreach of astronomy education. Further, Dave Lane and Paul Gray, in a co-discovery, uncovered a supernova. It was later announced as Supernova 2005B on 1AU Circular 8462. Craig finished off his yearly report by thanking the teamwork of the RASC exec, as well as Saint Mary's for the use of their classrooms.

Pat Kelly was up next with his Treasurer's report, and then Daryl Dewolfe with his Observing Chairman's report. Motions were carried out to elect an Auditor for the new year, and last year's minutes were approved by Dave Lane. ✯

The Modern Armchair Astronomer?

Dave Lane

Every amateur astronomer can generally be classified as either an "observer" or an "armchair astronomer". What an "observer" does is pretty obvious, but what are "armchair astronomers"? Typically, they are those who pursue their hobby through books, magazines, and/or the Internet without the use of their own telescope. Many "armchair astronomers" also enjoy reading about the activities of the more "active" participants whether that be learning of their observations or looking at their sketches or the pictures they take. Although some people waffle back and forth between the two camps during their lives, at any given point in time they are usually in one camp or another.

As some of you may have noticed I have not spent much time at the eyepiece in the last couple of years. I've been occupying my time available for astronomy activities either engaged in RASC national politics, upgrading my ECU planetarium software, or running the Abbey Ridge Observatory supernova search program with Paul Gray of the Moncton Centre. This has left me with not much time to get out to St. Croix or even visually observe from my backyard, which I actually regret not being able to do (well, maybe not in the winter!).

I have always considered myself an observer, but perhaps I am morphing into an armchair astronomer! I would never have thought this was possible, however an event which happened last evening makes me think differently.

The story begins on the evening of Tuesday, January 10th – a rare perfectly clear night. Clear weather usually means a productive night observing (imaging, not looking) galaxies for our supernova search program. That night, I imaged 598 galaxies giving Paul Gray a couple of evenings of work looking for new objects.

On Thursday evening at about 8:30 p.m., while watching TV from my armchair, Paul called me and asked me to look at a galaxy image which had an interesting extra "star" on it. This is a fairly regular occurrence because many of these suspects are near the limit of the telescope's capabilities and therefore subsequently turn out to be noise. We have techniques that we use to tell the difference between noise and real stars. For example, noise usually occupies only one or two pixels on the image – stars are blurred out over many pixels. We also compare the shape and size of the suspect star to other stars of similar brightness.

This particular suspect looked enough like a real star that it had to be followed up. We would have liked to be able to image the star ourselves but it was cloudy (when Paul calls, I always step out on the deck for a quick look at the sky before heading to the computer to look at an image). The Clear Sky Clock showed that it might clear later so I programmed the observatory to monitor the sky. If there was 15 minutes of clear skies in a row the dome was to open up, take the image, and then close up. I didn't hold up much hope that the sky would clear.

Since time is of the essence, we use our "network" of people that we know can help us obtain another image of the galaxy. I sent off an email with the details after which all we can do is wait. So, back to the armchair and the TV.

To set the scene, my armchair backs on a large picture window that overlooks the observatory which is about 20 meters from the house. I have a laptop on my coffee table so I am able to watch for incoming e-mail.

It wasn't long before Tom Glinos of the Toronto Centre emailed me to tell me that his telescope was down for repairs. He has a remotely controlled telescope located in David Levy's backyard in Arizona. Jack Newton's email was received next. It was clear at his winter home in Arizona and he would be on the case as soon as it was dark enough there. And then David Levy, also in Arizona, replied and indicated he would give it a go as well!

By 11:30 p.m. it was bedtime and on my way to bed I glanced at my office computer and noticed to my surprise that not only had it cleared, but the dome had opened, done its programmed task, closed and the images were ready for my inspection. All this took place without my knowledge 20 meters behind my back and while in my armchair! I inspected the images – unfortunately the suspected object was gone and therefore there was no supernova.

Jack Newton's first image had also just arrived and confirmed my conclusion. By morning, Jack had sent me a better image taken with his 16" Meade scope and David Levy's images had arrived as well.

In the future we may have to redefine what an "armchair astronomer" is. This term may refer to amateur astronomers who are able to practice serious observing from the comfort of their home while sitting in their favorite armchair. Centre member Doug Pitcairn joked, perhaps 10–15 years ago, that in the future we'd be able to "observe" using our TV by just selecting the appropriate channel on the remote control – perhaps this "joke" will become reality before too long! ✯

National Council Representative Report

Pat Kelly

A meeting of the National Council was held on October 29th of last year, hosted by the Hamilton Centre. I attended by teleconference.

Most of the discussion was on publications and finances.

Despite recent fee increases and cost-cutting measures, the society is still running large deficits. This is due to increases in cost, reduced sales of publications, and the continuing high value of the Canadian dollar. Two by-law changes were approved in an attempt to deal with the problem. The first change is to replace the current single membership fee which is divided between the society (60%) and centres (40%) with separate society and centre fees. The second change changes delivery of the RASC Journal so that all members receive access to the electronic copy of each issue. Those wishing a printed copy will have to pay an additional fee. Normally by-law changes are approved at the annual meeting, but it was felt that these had changes needed to be adopted as quickly as possible. As a result a special meeting of the society was called for early February. You will have already received information about this meeting, and the meeting will likely have happened before you read this. I will get a report of the special meeting and the following national council meeting in next Nova Notes.

You have also probably noticed that your last issue of SkyNews arrived on-time! Based on a new agreement with Terence Dickinson, the publisher of SkyNews, society members issues will now be mailed out along with the copies for the normal subscribers for a cost to the society of less than $300 per year. It also turns out that our previous process of mailing SkyNews and the Journal together, even though each has a publications assistance subsidy, was actually in violation of postal regulations and they were about to start enforcing the regulations which would have cost between $9,000 to $12,000 per year.

Another item that came up relating to publications was that starting in 2006, Sky Publishing will no longer be selling items that do not have their brand on it. They normally sell a considerable number of handbooks (900 last year), calendars (750) and Beginners Observing Guides (20). There may be reduce this effect (a mailout to their past customers, and ad in Sky & Telescope, etc.) but it will likely mean that there will be a further significant negative impact on national finances.

Three editors have retired after years of dedicated volunteer service; Dr. Wayne Barkhouse (Journal); Dr. Rajiv Gupta (Observer's Calendar); and Mark Bratton (Annual Report). Our own Dave Lane was approved as the new editor of the Observer's Calendar! Late last year, due to work and family commitments, Rajiv also reluctantly stepped down an editor of the Observer's Handbook. Replacements for the three open positions are being sought and may be announced at the next council meeting

The policies the govern national awards (Chant Medal, Ken Chilton Prize, Service Award, and Simon Newcomb Award) have been streamlined and made consistent.

When renewing memberships, while you can pay by credit card, the society loses some money as there is a transaction fee for credit card payments. The national society has been giving centre their full share of the membership fee and absorbing the entire service fee. That will no longer be the case and renewals paid by credit card will now have that fee shared between the centre and the national society. If you can renew by cheque both the centre and society will have more funds. As it turns out, credit card payment doesn't really make things easier at national office. Read on.

There was a presentation from the information technology about the current computer systems in place at the national office to handle membership, sales to centres, and sales at our on-line store. These systems do not work well with each other and in some cases do not give the benefits that one might expect. One example is that sales made on the e-store and paid by credit card are not automatically processed. Instead the credit card information has to be printed and then processed by manually entering the credit card number, amount, etc. There were several options presented on how to deal with the problems. It is likely that it will be replaced with a new system in the near future.

Well those were the main topics. I will make an effort to make more timely reports of future national council events. ✯

A Novice on Scopes

John Vandermeulen

The weather-man had it right. It is 1:30 p.m., and as I am typing this it is snowing along the South Shore and working its way north-east to Halifax and surroundings. Certainly no day to set up my little 4.5" reflector (Orion Starblast). So, just the sort of weather to stay indoors, and re-read the test-report on 'Bargain Starter Scopes' in the recent issue of SKY & Telescope (December, pp. 86–90).

With the upper limit set at $200 US, which really is in the bargain range, one would expect the sort of low-priced infamous starter scopes with lousy optics and feeble tripods. One can therefore sense the pleasure of the good folks at S&T when they came up with eleven (!) scopes that clearly out-performed everything else in that price range, or at the very least 'did better'. This is not unexpected, as all eleven scopes bore big brand names – one Celestron, one Bushnell, one Edmund Scientifics, four Meades, and four Orions. All 11 scopes had been examined rigorously with respect to optics, mechanicals, etc. and were then ranked. In order, the four Orions came out on top, placing 1–4, next the Edmund Scientifics (Astroscan) at 5, Celestron at 6, the Meads at 7–10, and the Bushnell came last at 11. To my great delight the Orion 4.5" Starblast came in second, as I have one of these. In fact the little scope (it is only about 20" tall) was described as a "hands-down winner". Wow! But…

Before I had bought my Starblast I had read everything written by experts that I could find on the web. But have you ever noticed that the same line-up of critics, writers, experts all, never includes a beginner? Yet these telescopes are touted as beginner telescopes. So, where was the beginner in this crowd of reviewers? It seems to me that for anything labeled beginner, the reviewer should at least briefly step into, or seek a beginner's shoes.

So, here with, as a reasonably able beginner, are my thoughts on the Starblast (complete moniker the Orion 4.5" reflector Starblast on a dobsonian mount) as it came to me in the box. I should add that the packing of the scope (cardboard box & foam) was superb.

1. Optics. Optics look good to me (but then I really don't know any other). The scope comes with two eyepieces – 17mm and 6mm, fully coated, Orion Explorer II's. (Plossl designs)

2. Red-dot finder. The EZ-Finder II, consists of a plastic mount, on which a short tube sits about 1" long by 3/4" diameter, with a small lens affixed inside. When switched on, a red dot is projected onto this small lens, marking the center of the view field. It took me a good five minutes, and a telephone call for help (Clint S.), but once I figured it out it worked fine. Incidentally, the little nickel-size battery is available anywhere and lasts forever. As to the finder's purpose, I had not used a red-dot finder before, but this really is slick once I had figured out how to mount it by looking at the Orion web-site. I confess that initially I had it on backward.

More problematic is the way the finder is affixed. It is mounted very close to the tube, and one has to lever the head around at an unusual angle to look through it. After about five minutes of this a very painful crick in the neck develops trying to get that dot lined up with the object. And if you have neck problems, forget it. Something should be done about mounting that finder on a taller support.

3. Construction and material. The scope is very nice to look at, and sturdy – the tube is metal, no cardboard anywhere. The dob mount itself is of some sort of pressed wood that seems rigid. I don't know how that wood frame would stand up if it were left outside in the rain. The "lazy-Susan" base worked fine, smooth, no rough spots. The scope is certainly many times better than any scopes seen now and again at camera stores at the Mall.

The dob mount is constructed of some sort of above mentioned compressed wood, which does feel remarkably solid. For this scope the mount consists of a wooden lazy-Susan, with a single piece of triangular-shaped wood mounted vertically on it. (Think of a single triangular sail on a very flat boat.) The scope is fixed onto the 'sail' with a single point of attachment, i.e. the tube is supported on one side only. Initially I had misgivings about the stability of this, but I could not find fault with it.

4. Aiming and focussing. Here I ran into trouble. The main problem is maneuvering the scope on that dob-mount, the very feature that gives this scope its low cost. I hunted throughout the review article for any mention of the scope/mount combination but, oddly enough, there was none concerning that mount.

This setup allows two directions of movement – tilting the tube up and down, (motion controlled and tightened with a large handy knob), and turning the scope left and right by swinging the whole thing on the lazy-Susan. There is no way of locking it into place.

Finding objects is done manually by nudging the tube by hand – which takes a fair bit of time. For example, if I want to look at a double, as described in one of the star-atlas books, I have to first line up the scope as best I can, and then do the careful zero-ing in by nudging and pushing the scope tube. I am sure that there are numerous scopes aimed by hand, but I expect that novice viewers will have some problems here.

The second problem derived from the dob mount (as is the case with all simple dob mounts) is that in order to keep an object centered in the eyepiece view, one must keep at least one eye glued to the ocular, while simultaneously nudging and tapping the scope to keep it on target. This may be less of a problem with larger dob-mounted scopes with a different length to weight ratio, but with the Starblast this has to be done very gently as the length of the tube vs the weight represents a lot of unwanted leverage. Thus the whole affair can very easily be thrown off target, plus set the tube into vibration.

Changing lenses in mid-flight is really suicidal, as the tube then vibrates and goes off target instantly.

Could the pivoting of the scope be improved? It does not have to be a precision guidance system. Something like a pair of very simple alignment levers, one for each direction, adjusted by turning two knobs – would that be possible? I am surprised that some handy tinkerer has not already thought of this. There does exist a 'computerized' dob version, but you still have to manually push/nudge the scope. The computerized bit is only a simple indicator of how close you are to your object. I agree, sounds weird.

By now the dob-enthusiasts are probably becoming a bit testy with my 'complaining', that larger dobs do not have these problems, that I am too impatient, and so on. Perhaps so, but the novice really wants to use the scope "now", and not spend a month first getting familiarized. Also, very shortly one wonders, if those guys with the heavy-duty scopes (including the monster dob-mounted reflectors) and smooth slow-motion controls can have those features, why can't I? The obvious valid reply is that the dobsonian mount was not designed for such, and if that is what you want, then spend more money and/or have more patience. All true, but please note that this particular scope is rated a beginner's scope, so why not fathom a beginner's impressions?

Another point – might the mantra of 'dob-mount for beginners' be wrong for some, and that for a beginner an alt-azimuth mount might be better, even a goto? That way she or he can get on target, without all the hassle. I often wonder how many small dob-mounted scopes may be sitting in closets? ✯

New equipment purchase in memory of Bill Thurlow

In October 2004 a request was made for members to submit proposals to Council for a suitable use of the money the Centre recieved as part of Dr. Bill Thurlow's memorial bequest.
(See Nova Notes October 2004.)

At the Council meeting held on Friday, January 20, 2006 a motion for the purchase of large binoculars on an alt-az mount was passed. The motion stemmed from a proposal that was originally researched and submitted by members Paul Evans and Daryl Dewolfe. Large binoculars were suggested for the following reasons: binoculars are easy to use for beginners and experienced observers; they would be portable enough to be used at public events such as public observing nights and Nova East; they are ideal instruments for observing Messier objects – one of Dr. Thurlows favourite objects.

Sometime in the next month or so the Centre will purchase a pair of APM 100mm binoculars and a Vixen alt-az fork mount. Watch upcoming Nova Notes for more details.

St.CROIX Observatory

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 Chair. *Dates for Members' Nights for the following few months are:*

February – Friday 24 or Saturday 25 **March – Friday 31 or April 1**

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 Chair.

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 Chair for more information.

Meeting Announcements

Halifax Centre of the Royal Astronomical Society of Canada

February 17

What heats the chromosphere and corona of the Sun?
An astrophysical mystery.

Dr. C. Ian Short, Assistant Professor, Department of Astronomy & Physics, Institute for Computational Astrophysics St. Mary's University

March 17

The SCO committee will be putting on a presentation aimed at beginning observers. (tentative - watch the website for more details as the date nears)

Two Council spots need to be filled – Observing Chair and Councillor

What's involved in being the Observing Chair? Being the Ch man of the St. Croix Observatory Management Committee; our loaner telescopes; organizing public observi the "What's Up" at the Centre meetings nthly "Members' Nights" at St. Croi Committee members to back you portant position for the Centre, and er, frequent observer, and someon why not give it a shot?

Filled! Thanks David and Tony!

What's ng the a Councillor? Councillors attend the monthly meetings and give their opinions on issues before the council – basically a sober second opinion.

If you are interested in taking a leadership role in a group that has given you so many benefits call president Craig Levine at the number below.

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 2006

Honorary President	*Dr. Roy Bishop*	
President	Craig Levine	852-1245
1st vice-president	Paul Evans	423-4746
2nd vice-president	Marc Bourque	835-2589
Secretary	Andrea Misner	425-5074
Treasurer	Pat Kelly	798-3329
Nova Notes Editor	Michael Gatto	453-5486
National Rep.	Pat Kelly	798-3329
2nd National Rep.	Mary Lou Whitehorne	865-0235
Librarian	Alex LeCreux	404-5480
Observing Chairman	Tony McGrath	**Filled!**
Councilor	Jim Dorey	**Filled!**
Councilor	Wesley Howie	**Filled!**
Councilor	David Tindall	**Filled!**

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. *Sobey 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