Nova Notes

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

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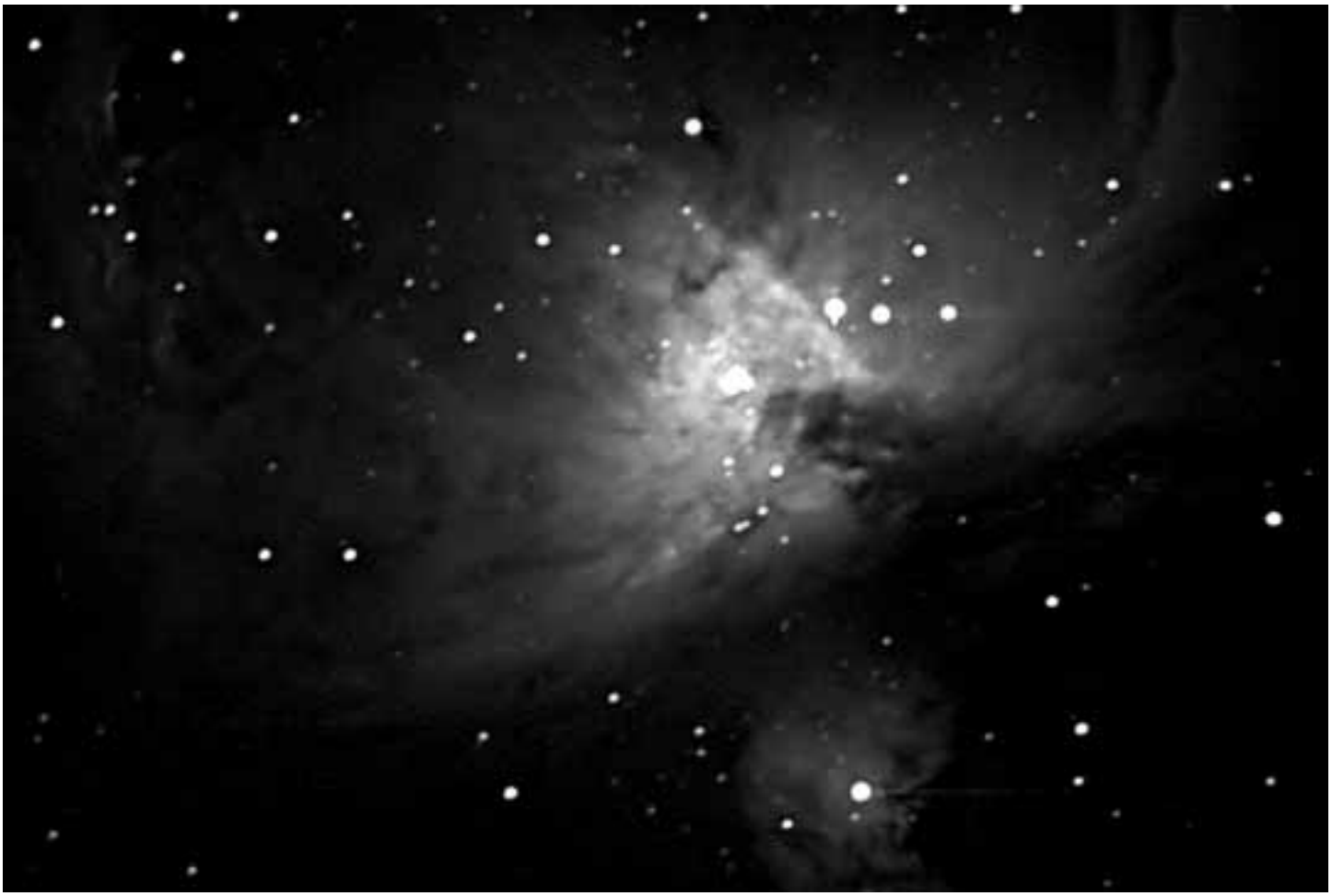
Astrophoto of the Month *M42 — Blair MacDonald*

Here's a recent shot of M42 taken with an 8" f/4 Schmidt Newtonian and a Meade 416XT camera. Exposure is the addition of 10 ten second shots.



Why is this man so happy?
see page 4

Inside...

New Award

The Murray Cunningham Astrophotography Award was established by the Halifax Centre in 2003 to promote interest among centre members in astrophotography, including digital imaging. The award is named after Dr. Murray Cunningham, one of the centre's founding members and long-time Honorary President, who always displayed a sense of wonder and marvel when looking at the photographic achievements of Centre members.

Rules

1. Subject: The award will be given annually for photographs and digital images taken in a given calendar year. While photographs and digital images will be considered, submissions must be in the form of a print (see Rule 3).

2. Eligibility: Any member of the Halifax Centre in good standing is eligible. Previous winners are eligible after a five year lapse (i.e. the 2003 winner would eligible for the 2008 award).

3. Submission of Entries: A call for submissions will appear in the last issue of Nova Notes for each year. Entries should be submitted to the Centre's First Vice-President. A maximum of three images may be submitted by each eligible member. Submissions may only be made by the person who actually set up the equipment and took the exposure. Images shared at meetings, posted on personal or RASC web sites, or appearing in Nova Notes, are acceptable. Images which have been previously published (magazine, book, calendar, etc.) or otherwise have been widely circulated are ineligible. Submissions must be accompanied by a brief description of the equipment and processing used in its production. Submissions are to consist of a print, measuring between 5x7 inches and 8x10 inches. Commercial printing of negatives, slides, or digital images to the photographer's satisfaction is permitted.

4. Judging: The winner will be selected by a committee that will be chaired by the First Vice-President and consisting of three members of the Centre, appointed by the Centre's executive. Judges cannot be immediate family members of candidates. The committee chair will circulate the submissions to the other members of the committee, so that, as much as possible, the submissions remain anonymous. Images will be judged based on composition, subject matter, aesthetics, and technical merit. If the judges feel that no suitable images have been submitted, they have the option of not granting the award.

5. Prize: The winner will receive as a prize one book, or telescope accessory, of the winner's choice, to a maximum value of $75 (including taxes). ✭

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.*

News may include observing reports, observational project status, witnessed daytime or nighttime astronomical phenomena, new equipment reviews, or any other notes of observational interest.

Craig Levine — Leo's Backside
(Edited from an excellent observing report posted to the email list on March first)

I continued on to NGC 2967, a bright 11.93 mag galaxy, followed by the showpiece mag 9.6 galaxy off Leo's nose. Beautiful! There was mottling evident, along with a bright core and a gradually fading disk. Nearby NGC 1242 was an easy target. From there, I decided to sniff around Leo's backside (I bet you won't see a description like that in S&T!). What a buffet! NGCs 3608 and 3607, with faint 3605 (not charted on SA2000) just southwest of 3607; NGCs 3599, 3626, 3659, 3686, 3684, 3691, 3681, 3655, bright 3596; the Leo Triplet (a favourite sight!) M65, M66, and beautiful edge-on NGC 3628; NGC 3593. I swung my scope to the high north-east and grabbed a long look at M109 before the rapidly plunging temperatures crept into my many layers and sent me in for the night by 12:30. This was not a night for careful examination of each object, for teasing detail out of them by staring intently for an hour at them, no, this was a night for gorging myself on the sheer quantity of delights available to me!

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Halifax, Nova Scotia
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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.

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

Material for the next issue should reach the editor by May. 26

Chris Beckett — Digital Moon picture

Last night a friend and I went out and tried to do some imaging of the Moon. I used a Nikon Coolpix 950 21mm @ f/6.4 in extra fine mode and simply held it over my 80mm f5 at 12.5x. Kayte then took the images, picked the best one and enhanced it in Adobe Photoshop. Next time we'll take another tripod to keep the camera still, not use a diagonal and use filters to take care of the glare. I don't think the results are too bad for our first attempt though.

Michael Gatto — Jupiter Sketch, March 19

I couldn't make it out to SCO last night but I did set up in the backyard (Woodlawn, Dartmouth) to look at Jupiter. Seeing was OK at first between 9 and 10 P.M., but between 10 and 11 the seeing became excellent (about 9/10) and I was able to make out all kinds of details in the main bands and a few extra small bands as well. The best views seemed to be at around 170X. The GRS was very noticeable and I was able to make a very detailed sketch of what I was seeing.

Graeme Hill — Observing report, March 19

The seeing at SCO seemed to vary as the night progressed. While observing Jupiter with the big scope I would occasionally duck into the Beehive cluster to assess the conditions using the Pickering scale (and the many bright stars). With the scope at 14" I noted P3-6. However, best views of Jupiter came through Gary's scope with his 7mm Nikon eyepiece, which appeared to be very sharp and "contrasty" right to the edge of its wonderfully wide field of view! I could make out lots of small festoons in the rift following the GRS, a hint of the white ovals in the south temperate zone, a few dark condensations - particularly the big one in the NEB, following the GRS in longitude, a hint of the thin greyish belt that runs around portions of the EZ (it was best seen during December/January but has faded since), and much much more! I also noted that the GRS looked almost "bean shaped" with a pusy yellow colour running through it, and the south polar region has a distinctly yellow hue compared to the NPR.

Anne Hooper — Jupiter picture, March 19

Brian and I set up in our front yard to have a look at Jupiter approaching the Beehive – it was really beautiful in our wide-field refractor. We also took a few pictures of Jupiter and the Great Red Spot through our 5" Mak before we packed up at around 10:00. It was so nice to finally enjoy clear skies!

Check out the colour image on-line at… http://www.pbase.com/image/14509552

Roy Bishop — f-ratio misconceptions

Adapted from a post to the email list.

For visual use, brightness or darkness has nothing to do with the f/-number of a scope (for example a 10" f/6 as opposed to an f/4.5). Any 10" telescope operating at a magnification of, for example, 150X will give the same brightness irrespective of its f/-number. The f/4.5 telescope will require a shorter focal length eyepiece to achieve this magnification, but the field will be identical (other than possibly a different angular field, but this depends only upon the eyepiece design, e.g. Nagler vs Plossl).

For photography, either film or CCD, done through the telescope (and you can't do this without a good, heavy, expensive, motor-driven, equatorial mount), the f/-number is important for extended targets like galaxies and nebulae (for stars it does not matter other than for image scale in which case f/6 is preferable). The smaller f/-number ("faster", "brighter") will give shorter exposure times of extended objects by a factor of (6/4.5) squared = 1.78x.

For visual use there are two advantages of f/4.5 over f/6: A wider true field with a given eyepiece, and a more compact, easier-to-transport telescope.

However there are two advantages of f/6 over f/4.5: higher magnification with a given eyepiece, and likely better image quality, especially for planets (f/6 can use a smaller secondary mirror (less diffraction), the narrower light cone is less demanding on eyepiece optics, and it is easier to make a good f/6 mirror than a good f/4.5 mirror).

David Tindall — SCO GPS readings

My best estimates for the coordinates of the St Croix Observatory – obtained with a Magellan GPS2000 at the South-West corner of the observatory floor on 2000-09-30 at about 0h UT.

Lat/Long 44 56' 53.2" N 64 02' 27.4"
WUTM 20 4 17 883 E 49 77 714 N

(Both using WGS84 Datum) I averaged about 10 readings taken over a one hour period and I would estimate that each position is accurate to better than 20 metres. This corresponds to less than 1" in latitude or longitude.

New Scope in Town

Craig Levine

I ordered the mirrors for the telescope in late August 2002. They arrived as promised almost exactly four weeks later. In the interim, I sold my 8" f/6 Discovery dob to our own Dave Chapman. The decision to acquire new optics was a quick and easy one. Discovery Telescopes in Oceanside California had about a dozen 13.1" mirror blanks left over from a production run for a Japanese company. They were offering these coupled with a 2.6" secondary mirror at a price that was too good to pass up. A quick phone call to their facility convinced me that I had to act quickly, as there were only a half-dozen left. My 8" telescope had wonderful optics, as did two other Discovery mirrors I've had the opportunity to observe through at length. Discovery is well regarded for the quality and price of their optics, so I had no reservations about ordering another mirror from them.

The primary mirror has a focal ratio of f/4.5. The advantage of this ratio is that I don't need a ladder to see through the eyepiece. Ladders are bad enough, but climbing one in the dark does not strike me as a sane thing to do!

I brought the mirrors and the 2" JMI Crayford focuser over to Steve Tancock, our Centre's 2003 president and the builder of the 17.5" telescope at the St. Croix Observatory. I also took over my heaviest eyepiece, Rigel Quikfinder (since replaced with a Telrad), 9x60 finder scope, and Lumicon Multi-filter Selector. By doing so, Steve could effectively balance the telescope based on its heaviest probable load so that no counter-weights would be required. I wanted a truss design

rather than a sonotube for several reasons, primarily portability. The truss design is lighter, can fit in my car or truck easily, and it only takes me about ten minutes to set up. For the wood, we decided to go with my

(Continued on page 8)

January 2003 Meeting Report

Pat Kelly

Steve Tancock, our new president, kicked the new year off by announcing a fire sale. We had a number of dated T-shirts left over from various events, and if you purchased a normal item (calendar, etc.) you got a free T-shirt to go with it. After a quick review of benefits of membership in the RASC, Steve introduced the main presentation, "The Skies of Mauna Kea" by quoting from the meeting announcement that appeared in the Coast; some of our members had gone to Hawaii to visit a "bad-ass observatory". I know that I will never think of Mauna Kea the same way again!

Dave Lane kicked the presentation off with the theme music from Hawaii-Five-O while shots of sunny Hawaii flashed by on the screen. Those of us who had braved a cold, messy, Halifax winter evening to attend, could immediately see the advantages of observing in Hawaii! Dave then stripped—off his shirt to reveal a brightly coloured Hawaiian shirt. Gasps of "Sunglasses" and "Close the blast doors" could be heard from the audience. He showed us some pictures of the telescope that they had used. A 0.6-metre (24-inch) scope sounds big until you look at a shot of the summit of Mauna Kea. The 0.6 metre scope's dome looked like a small outhouse; it was so dwarfed by the size of the other structures. Dave said that one advantage the 0.6 metre telescope had over all of the others was that they were never designed for visual observing, you could not actually look through them. The 0.6-metre scope could be used for visual observing, but it was strictly BYOE (bring your own eyepieces). Michael West, who was at Saint Mary's but is now at the University of Hawaii at Hilo, had applied for time on the telescope for them. (One advantage of being at the University of Hawaii at Hilo is that its astronomers get 10% of the time on most of the instruments on Mauna Kea. The only drawback is that unlike Honolulu, Hilo gets a lot of rain. They were granted the time; in fact, for that six-month period they were the only ones who had applied for time on that instrument.

Bill Thurlow then talked about the effect of altitude on physiology, one of the things they had gone there to investigate. At an altitude of 4200 metres, Mauna Kea is below the usual definition of extreme altitude which is 5800 metres. At that elevation humans cannot become acclimated to the thin air and suffer from two common ailments: high-altitude pulmonary edema (water build up in the lungs) and high-altitude cerebral edema (swelling of the brain). As genetic factors can cause these problems in some people even at the elevation of Mauna Kea, an emergency evacuation vehicle is always ready, as the only cure for these conditions is immediate evacuation to a lower elevation.

Another effect of reduced oxygen is that it tends to impair brain function. At Mauna Kea, the amount of oxygen available is only 58% of the value at sea level. This may not sound like a big difference, but brain cells consume, on average, about ten times as much oxygen as the cells in the rest of your body. Since the brain requires so much oxygen, it contains a special neuroglobin that allows it to extract as much oxygen as possible from the blood. Cells in the retina of the eye consume ten times as much oxygen as brain cells. As a result, it is commonly believed that at higher elevations, an observer should not be able to see objects as faint as they could at lower elevations. That also leads to the belief that supplemental oxygen will benefit observers at higher altitudes. Is this really the case?

Mary Lou Whitehorne was up next to explain the material that will be in a paper in the next issue of the RASC Journal. The issue of whether visual acuity changes with elevation was one of the things that the group investigated while in Hawaii. They did this by observing from three different elevations: 2000, 2800, and 4200 metres. At each location, the participants waited for 15 minutes to ensure that they were dark adapted. (At least that had been the plan; it turned out that it took 15 minutes to unload all of the equipment so the dark adaptation sort of took care of itself.) Their blood oxygen level was tested with a portable blood oxymeter. They then determined their minimum visual magnitude (MVM) by identifying stars inside the triangle that makes Leo's tail. They did not know the magnitudes of the stars, they were simply given a chart with all of the stars indicated by letters. They were then given oxygen to bring their blood oxygen levels up to normal and they repeated the observation. The MVM was later determined by matching the letters of the stars seen to their magnitudes.

One of the interesting results was that while some instances occurred where the extra oxygen produced changes, for the most part there was little, or no difference. At 2000 metres, the five observers had a unsupplemented blood oxygen reading of 96% with an MVM that averaged 6.43. At the summit, with an unsupplemented blood oxygen reading of 85%, the average MVM was 6.48 implying that with less oxygen they actually saw fainter stars! Another interesting observation was that at the 2000 metre level, the oxygen supplements increased the average MVM from 6.43 to 6.66 while at the summit the extra oxygen had no effect, with the average MVM dropping slightly from 6.48 to 6.46.

The last scientific part of the presentation was made by Roy Bishop. Also dressed in a festive Hawaiian shirt, Roy explained how they had attempted to measure the actual shutter speed of the human eye under dark sky conditions. Just as film and CCD chips allow an image to form by collecting photons, the human eye does the same thing, but it continually resets itself, so that your brain gets a series of still images that it interprets as "normal" vision. As Roy pointed out, the shutter speed for each of these still images is quite short, otherwise when you woke up in the middle of the night there would be a delay between when you opened your eyes and when you actually saw an image!

Dr. Gary Welch, of the astronomy and physics department, had provided them with an electronic shutter, to which Dave Lane added a control system which allowed the observer to increase or decrease the amount of time that the shutter was open. The experiment was done by having observers use the 0.6-metre telescope to observe M16's "Pillars of Creation". The shutter time would be set and after a 2-second delay it would fire to open and close the shutter for the predetermined time. The observer would then sketch what they had seen, and continue with a different time setting. Roy showed a sketch made by Dave Lane with a shutter speed of 800 milliseconds and the pillars showed up fairly well. In a CCD image with a 5-second exposure the pillars were barely visible. Roy will be publishing the detailed results it the near future.

That wrapped up the science part of the presentation. We were then treated to a variety of slides: shadow figures of Bill and Mary Lou supporting the observatory's dome, Dave Lane at an elevation of –4 metres, beaches where the water was "too hot to swim in", Omega Centauri, and even a series of stacked CCD images that showed the motion of asteroid 6901 roybishop!

After the break, we had the handbook talk. The presentation was made by David Chapman, and this was his first-ever handbook talk. It seemed hard to believe as he has done so many short presentations at centre meetings. He decided that anyone who was still here this late on a Friday evening was due for some more suffering (i.e. math and physics). He chose the "Basic Data" section of the handbook, but finding that a rather dry title he chose to call his presentation "Orbital Oddities: Fun With a Pocket Calculator".

He brought our attention to the figures concerning the rotation rates and synodic periods of the Earth and Venus. At first glance, there did not seem to be much of a relationship between the numbers, but David did what is often done to correct that, you change to a different frame of reference. In this case, he switched to one which was looking from the Sun's location at the Earth and rotating to follow it in its orbit, effectively, causing it to appear motionless, except for its daily rotation.

It was now fairly easy to see that there is a spin-orbit coupling between Earth and Venus. Between inferior conjections, Venus rotates on its axis four times so that, within 0.5° of rotation, it shows the same face to Earth at every inferior conjunction. David pointed out that while this is widely known among people who study such things, it did not appear to be well known to most amateurs. ✯

February 2003 Meeting Report

Dave Chapman

The meeting started sharp at 8, thanks to efforts by *Il Duce* Steve Tancock aimed at speeding up executive council meetings. Steve (or should we call him Stephen & Shelley, as we know him on the Halifax RASClist?) has exceeded expectations as our new leader and has introduced sweeping measures to streamline the administration. We all have the lash marks to prove it. (I am typing this standing up, so I won't be long.)

Again there was a capacity crowd of ~80 persons, which would ordinarily be wonderful but—when combined with SMUs insistence on shutting off the air circulation system—leads to a somewhat stuffy environment by the end of the night. There have been mutterings of asking to move to a larger room. Is anyone listening?

However, such discomfort is easily forgotten should the meeting itself prove to be engaging, which it turned out to be. Stevenshelly started things off briskly with the obligatory welcome and plug for membership, and with no ado, we plunged into the main talk, presented by Assistant Professor Ian Short of Saint Mary's University Department of Astronomy and Physics, entitled "The oldest red giants and the formation of the Milky Way." Ian came to SMU from a position at Florida Atlantic University (a move he may be regretting after our cold winter). Before that he studied at the University of New Brunswick and the University of Toronto. More information about Ian can be found on his web page http://www.ap.stmarys.ca/~ishort/, including some astronomical graphics he is sharing with the world.

Ian, after confessing that his own attention span was about 10 minutes, promised to speak for less than an hour, which went by quickly, but the crowd kept him another half hour with many questions, which he fielded nicely. He gave an informative and well-paced presentation on stellar evolution and how red giant stars can tell us much about the early days of the galaxy (if not the universe). His visual aids were excellent, and I enjoyed how he used them: rather than proceeding through a sequence of slides containing all the elements of his presentation he talked to us, referring to notes, and opening his PowerPoint slides only in order to illustrate a point. He would use the same slide several times.

Ian's main thesis was that massive blue stars live fast and die young, while less massive stars burn out slowly and become red giants, which are "archeological relics" of the galaxy, the most ancient stars. He described how most of the universe is made up of the elements Hydrogen and Helium, causing astronomers to abuse the English language by referring to ALL heavier elements as "metals". He showed how absorption lines in a star's spectrum were a fingerprint indicating chemical composition. He reminded us that stars were the origin of all heavy elements, with the extremely heavy elements only being produced in supernova explosions. Ian emphasized how very rare is the matter that makes us up: planets, refrigerators, and people! The newest research on stellar evolution have uncovered about two dozen XMPs or extremely metal-poor stars. These appear to be in the galactic halo along with the globular clusters, rather than in the conventional disk of the galaxy.

Some of the lighter moments of Ian's presentation included the observation that two of his slides were reminiscent of Pink Floyd album covers; The Dark Side of the Moon (prism spectrum) and The Wall (spectrum of Arcturus). Also, many missed Ian's remark that the mysterious dark matter in the universe was actually the orange powder found in Kraft Dinner boxes.

After the traditional refreshment break, we reconvened to an extended What's Up, owing to the unavailability of the Handbook Talk presenter. Dave Lane advertised Member's Night at Saint Croix Observatory and loaner scopes, and described the configuration of the planets. In response to a question from the floor, he described the circumstances of multiple shadows on Jupiter. There was also extensive discussion of how to observe the Zodiacal Light, best seen in the evening this time of year, in a dark sky location, at the end of twilight.

Finally there was an announcement (sort of) concerning a Messier Marathon, to be held before you will read this report. The object of this event is to run a 26-mile road race while carrying the largest telescope you own, which clearly gives the advantage to small 'scope owners. However, it is known that Messier himself (the hockey player), who started the event, used a small scope to achieve his fame, so those who are foolish enough to equip themselves with large telescopes only have themselves to blame. Clint Shannon recommended that the observing platform be levelled by making the small scope owners run up and down the hill at Beaverbank while Dave Lane and Paul Grey were sent to the nearest Tim Horton's (another hockey player) for sleep-deferring substances. (or something like that)

The meeting ended with a motion that the remoteness of all observing sites be measured by the distance to the nearest Tim Horton's in kilometres. In other words, a TH parking lot would be "zero", Alderney Landing is a "0.3", Beaverbank is a "20", and Mauna Kea is a very, very big number. Motion carried. ✯

Astro Ad

.965" Low Power Eyepiece Wanted

To improve view with 4 1/2" Reflector (Better than H25mm!!)

Please call Crystal Walker 431-5745

The Blue Box
(Recycled Ideas)

Don Cox,
submitted by Dave Chapman

It's remarkable how times change. It starts with a few minor trivia, and the first thing you know it's twenty years later and nothing is the same. For example, a few years ago the solar system and the galaxies were unassailable bits of clockwork, and now people are talking about parallel universes. Chaos used to mean everything was all mixed up, but now there's a chaos theory that says some mixed up things aren't entirely mixed up. It's not that the old ideas are wrong, it's just that they need tweaking and brought up to date. It's time somebody did that for quantum physics, and that's what this column is about.

Chaos and the universe are things that most people discuss around the breakfast table, but it's truly disturbing to learn that many others have their toast and coffee without a thought about quantum physics. This is probably because nothing basic has happened in the field since 1928 when Dr. Erwin Schroedinger upset the world of physics when he brought his cat into the lab. This cat has since become world famous because Erwin used it in a famous thought experiment. Granted he only thought about it, but how can anyone even think about treating a cat the way he did. He put the cat in a box with some poison and with an exactly fifty-fifty chance of survival. Try that today and the bureaucracy will be on your case faster than the speed of light, and I'll bet you thought there was nothing that fast. Schroedinger only got away with it because there was no RSPCA in Germany in the 1920s. If there had been, we wouldn't have quantum physics today. It was that close.

Schroedinger claimed that there were two cat states in the box, a live cat and a dead cat. Don't try to reason with him and tell him the cat is either alive or dead, he won't listen. He will get all patronizing and say, "You don't know until you open the box, that's quantum physics." This shows the genius of the man. If he had said, "You don't know until you open the box, it might be chocolate cheese cake", he would be a nobody today instead of a towering figure in science.

It's not easy to bring Dr. Schroedinger's ideas into the 21st century because nobody does experiments with animals nowadays. They don't even work in labs, they sit in cubicles with computers. No one has ideas and discovers things in today's world, that would be egotistic and antisocial, research is done by committee in a conference room where the standard equipment is a table, chairs, a white board, a thermos of coffee and a box of doughnuts. We have to wonder how a genius like Schroedinger would have handled this. I think he would immediately have identified the only uncertainty in the conference room, the doughnuts. He would have said, "There are two states in the box, doughnuts, and no doughnuts, but you don't know until you open the box, that's quantum physics."

This new way of doing research leads to possibilities that Schroedinger could never have foreseen. For instance, suppose that all the doughnuts have been eaten, is there a second box of doughnuts? Possibly, but you don't know until the first box is completely consumed, that's quantum physics. I won't challenge you with further quantum theory except to say that doughnuts past the second box are governed by a steeply declining complex parameter known as the Horton function. This was named after Tim Horton, a famous Canadian physicist and restaurateur.

I expect that this clarification of quantum physics for the 21st century will result in a demand for further efforts on my part, I'm sure there are other esoteric aspects of science that need explaining in everyday words. I am ready to serve the cause of science, and gladly await the call. ✯

National Council Report

Mary Lou Whitehorne, Alternate Rep

National Council met on February 22, 2003. Here are some of the highlights of that meeting:

As always, a number of routine items of business were dealt with. For instance:

a) Bonnie Bird and Peter Jedicke have initiated a new, standardized method for numbering motions at NC meetings. The numbering system is based on the date of the meeting.

b) Messier Certificates were approved for several members. Nominations for the Service Award (Dave McCarter) and the Simon Newcomb Award (Alister Ling) were approved.

c) Rent for the apartment upstairs from National Office will be going up. $3500 will be spent on new flooring in the apartment.

d) A dealer in Vancouver proposed a deal on 10" Dobsonian scopes for the Centres in return for free advertising. The motion was defeated because NC could not be expected to predict the observing needs of each Centre.

e) Mike Watson's budget for 2003 was approved.

f) Prices were set for Society publications for 2004. Everything goes up by one dollar.

Less routine was the decision to amend the travel policy for voting members of Council. The definition of eligible members has been changed to include the notation, "up to the maximum number of voting delegates per Centre." This means that large Centres like Ottawa and Toronto are not restricted to having only two Centre reps eligible for travel cost reimbursement. If a Centre has five reps, they are now all eligible for travel cost reimbursement.

Another controversial and confusing issue is that of changing the status of several special committees to that of standing committee. This ties in with a proposed by-law amendment that will be voted on at the Vancouver GA. The chairs of standing committees are presently voting members of council. Appointed officers and chairs of standing committees will lose their vote on council if the proposed by-law amendment is approved at the GA.

A motion to spend $8,000 on medallions to mark the Society's centenary was defeated.

Each Centre will be sent a couple of Observer's Handbooks to forward on to local TV meteorologists, in an effort to promote the RASC by having the meteorologist refer to the OH when sky events warrant such reference.

Tony Horvatin (Toronto) is looking into a cooperative insurance policy, where Centres may be able to take advantage of lower rates by signing on to a property policy that is similar to the liability policy that the society now has.

Council approved the expenditure of $12,000 for the production, printing and marketing of Skyways.

Council is actively considering an overhaul of the BOG, both the content and the layout of the book. This may include hiring the services of a professional graphic designer to spruce up the appearance of the book.

The next national Council meeting will take place in late June at the Vancouver GA. ✯

New Scope in Town, continued

wife's suggestion of birch with walnut accents. The bearings are Teflon, with Ebony Star countertop laminate on the bearing surfaces. The altitude and azimuth motions are smooth, with no sticking before it moves in the direction that I push or pull. This is important for tracking faint objects at relatively high magnification.

The balance is amazing. With the telescope positioned at a low angle with my 35mm Televue Panoptic in the focuser, I can remove the eyepiece and replace it with a small orthoscopic ocular with absolutely no vertical movement during or after the transition. The Panoptic 35mm weighs 28oz and the ortho weighs only 3oz!

The fit and finish of the telescope shows the craftsman's touch. The joints are smooth, detail and accents are nicely done, and the knobs that Steve fashioned on his metal lathe have a professional quality to them. The focuser cage has plenty of room for an array of accessories. The truss poles are cut very accurately so that it does not matter what order they go in or where – the telescope will hold its collimation, with only the normal and minor pre-observing collimation tweak required. Steve also attached a 12v muffin fan behind the mirror cell to draw air out the back to facilitate a faster mirror cool-down. Integrated handles make moving the telescope around much easier, with a removable wheel assembly easily attached for moving the scope over longer distances. ✯

See eyesUp! for more on the optical performance.

August 1st – 3rd Tentative Schedule

Next Issue will contain full Star Party Details.

Friday, August 1st

Afternoon to Early Evening
Registration
At the Information/Registration Tent.

8:00 P.M.
Welcome, Announcements & Introduction of NE Committee
Event Tent.

8:15 P.M.
Nova East Guest Speaker "To Be Announced"
Event Tent.

10:15 P.M. to ???
Nova East Observing
Observing Field.

11:00 P.M.
Observing Workshop: Double Stars for Small Telescopes
Host: Gary Weber
Workshop Area.

Saturday, August 2nd

Many events during Saturday's program are public outreach events. The public is invited to participate and learn about the fun and interesting aspects of astronomy.

9:00 A.M.
Astronomers' Breakfast
Event Tent.
Coffee and baked goods will be available to registered attendees.

9:30 A.M.
Amateur Rocket Launching
Rocketeer: Paul Gray
(Public Invited)
Observing Field.

10:00 A.M.
Group Photo
Observing Field.

11:00 A.M.
Viewing Our Home Star
(Public Invited)
An opportunity to look through properly equipped telescopes to see our own sun near an active part of the solar cycle.

1:00 P.M.
Interpretive Walk - Geology of Smiley's Area. Host: Ron Mills
(Public Invited)
Gather at Event Tent.

2:00 P.M.
Childrens Astronomy Workshops (10 years and under)
(Public Invited)
Event Tent.

2:15 P.M.
Childrens Astronomy Workshops (over 10 years)
(Public Invited)
Event Tent.

3:00 P.M.
Workshop: Getting Started in Astronomy. Host: Paul Evans
(Public Invited)
Workshop Area.

3:00 P.M.
Workshop: Sketching What You See
Host: Graeme Hill
Event Tent.

4:00 P.M.
Workshop: Observing Dark Nebulae
Host: Paul Gray
Event Tent.

8:30 P.M.
Designing and Building a Backyard Observatory for Research
Host: Dave Lane
(Public Invited)
Event Tent.

9:45 P.M.
The Draw for Door Prizes
Host: Daryl Dewolfe
Event Tent.

10:00 P.M.
What's Up in the Night Sky
(Public Invited)
Event Tent.

10:15 P.M. to ???
The Night Sky Through a Telescope
(Public Invited)
A variety of telescopes and experienced amateur astronomers will be on hand to presents views of fascinating objects in the night sky.
Information Hosts will be available at the Registration Area.
Observing Field.

10:30 P.M.
Observing Workshop: Viewing with Binoculars
Host: Nova Central Astronomy Club
(Public Invited)
Workshop Area.

Sunday, August 3rd

10:30 A.M.
Workshop: A Leonid Meteor
Host: Roy Bishop
Event Tent.

11:30 A.M.
Workshop: A Hot Topic in Astronomy
Host: Norm Scrimger
Event Tent.

1:00 P.M.
Tour of St. Croix Observatory
Host: Gary Weber
Gather at the Event Tent.

3:00 P.M.
Tidal Bore Interpretive Walk
Host: Roy Bishop
Gather at the Event Tent.

Cubs visit SCO

Paul Heath

On Friday March 7th from 7-9 P.M. the 36th Halifax Cub Pack had a tour of our St. Croix Observatory. 5 Cubs, 3 Leaders, 1 parent and 2 siblings joined us to look at the stars. After a brief welcome and intro to the observatory, the group was divided up and sent to the waiting telescopes.

Gary Weber used his 4" refractor to show views of the Moon, Jupiter, M45, M47, the Double Cluster and the whole sword of Orion. Blair MacDonald used his 8" Schmidt Newtonian to show Jupiter, Saturn, M43, M45, M81/82 and M1. Darren Talbot used the clubs 17.5" Dobsonian to show the Moon, Jupiter, Saturn, M42 and M82. I used my 7X50 binoculars to show the Moon, Jupiter, Saturn, M42, M45, M44 and the double Alcor/Misar. I also did a constellation tour and helped them find the North star (a Cub badge requirement).

We rotated our groups at 20 minute intervals so the cubs would be able to compare views in all the types of scopes we had set up. After a little over an hour the cold sent the Cubs into the warm room for hot chocolate and Tim Bits (another similarity between scouts and astronomers!). Just as we started munching the Cubs were brought back outside to witness a moon dog and halo. Explanations were given by Darren and Paul Gray. Returning to the warm room, we had a brief question period with our hot chocolate.

Before leaving we received a "great cheer" (Scouting thank you), led by Cub William Musgrave. One of the leaders asked about becoming a member of the RASC.

Although the cold and the start of March Break had reduced the expected numbers, the tour went off very well. There was a lot of enthusiasm shown by those who attended. Future tours for youth groups could easily be worked in around full moon nights at SCO. The only addition to the tour I would have liked to add was a demonstration on how the roll-off worked—perhaps the next tour.

I again would like to thank Darren Talbot, Gary Weber, Blair MacDonald and Paul Gray for coming out and helping with the Cub tour. ✯

I am a member of the Halifax Centre and a cub leader with 36th Halifax (St. Thomas Aquinas) Just a short note to express thanks to the Centre members who spent Friday night, March 7 at St. Croix teaching our leaders and cubs about astronomy and telescopes. Our cubs are between 8 and 11 years old.

The event was extremely well received by everyone from our group, and we were very impressed by the knowledge and interest the Centre members put into their chats with the cubs.

Thanks to Dave Lane and the volunteers that cold Friday night. Special thanks to Paul Heath, who did all the work to coordinate the event and even attended an earlier meeting of our Cub Pack to prime us for the big night! Thanks to the Centre and the volunteers for a successful—very successful—event!

Don't forget... Nova East 2003 T-shirt Contest

You don't have to be a Picasso or Rembrandt to enter this contest. We're looking for a design idea for this year's Nova East T-shirt. Send us your Star Party T-shirt wearable art idea. If it is selected you will win a free Nova East 2003 T-shirt and be credited with its design. We will accept ideas on biodegradable materials such as napkins, paper, soup labels, etc. (no wood carvings please!). Or suitable electronic formats such as .JPG, .BMP, .TIF etc. on floppy disk, CDROM, or by email attachments. So send us your pencil scratchings, doodles or electronic creations and we'll see if we can popularize it by having other people wear your art!

It should be obvious that submitted designs have some astronomical reference, so no pictures of favourite relatives or lost pets! We hope everyone has some fun with this contest!

Submit all entries by May 31, 2003 to a Nova East Coordinator or to Darren Talbot via email: darren.talbot@ns.sympatico.ca

Please include your name, phone number, mailing address and email if possible. ✯

Nova Notes accepting commercial ads!

After some serious inquiries the Centre executive has approved a proposal to allow commercial advertising in Nova Notes. Three ad sizes are being offered, a 1/6th page (2.5" x 5"), a 1/3rd page (5" X 5") or a 1/2 page (7.5" X 5"). Prices per ad are $25, $35, or $45 per insertion/per issue. Ads will run on a space available policy and inclusion is at the discretion of the editor. Ads should be of an astronomical interest, or at least deemed of strong interest to most of our members. Please contact the editor *(See page 2)* regarding suitable artwork files, to submit artwork or with any questions.

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 Chairman Dave Lane at 826-7956. *Dates for Members' Nights for the following few months are:*

Fri. May. 30th *(Rain date, Sat. May 31st)* **Fri. June. 27th** *(Rain date, Sat. June 28th)*

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 Dave Lane at 826-7956.

RULES FOR THE 17.5" SCOPE

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 Dave Lane for more information or to book the scope at 826-7956.

Meeting Announcements

Halifax Centre of the Royal Astronomical Society of Canada

Note the earlier date for the May meeting.

May 9th

Three Decades of Observing or How to Make Looking Up Easier
by Mark Kaye

I outline all of the different setups that we have used in the different places we have observed, from rural to central urban. I give examples of what I have done to make observing easier and better and I also include astrophotos done with each setup.

June 20th

A Leonid Meteor
by Roy Bishop

A Leonid fireball was photographed in the dawn twilight of 2002 November 19 from two sites in Nova Scotia. Parallax data show that the meteor occurred approximately 250 km from the cameras beyond the southwestern end of Nova Scotia over the Gulf of Maine, and that the 43-km-long luminous track extended from 123 km (± 1 km) to 83 km (± 1 km) in altitude. The density of Earth's atmosphere increased by nearly three orders of magnitude along the meteor's visible track resulting in the characteristic burst near the end of the track.

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 2002

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	Craig Levine	852-1245
Treasurer	Paul Evans	423-4746
Nova Notes Editor	Michael Gatto	453-5486
National Representative	Pat Kelly	798-3329
Librarian	Dr. Michael Falk	422-5173
Observing Chairman	Dave Lane	826-7956
Councilor	Clint Shannon	889-2426
Councilor	Dave Chapman	463-9103
Councilor	Andrea Misner	??

Andrea's phone number is changing at the end of April, check the website *www.halifax.rasc.ca* for new number.

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