

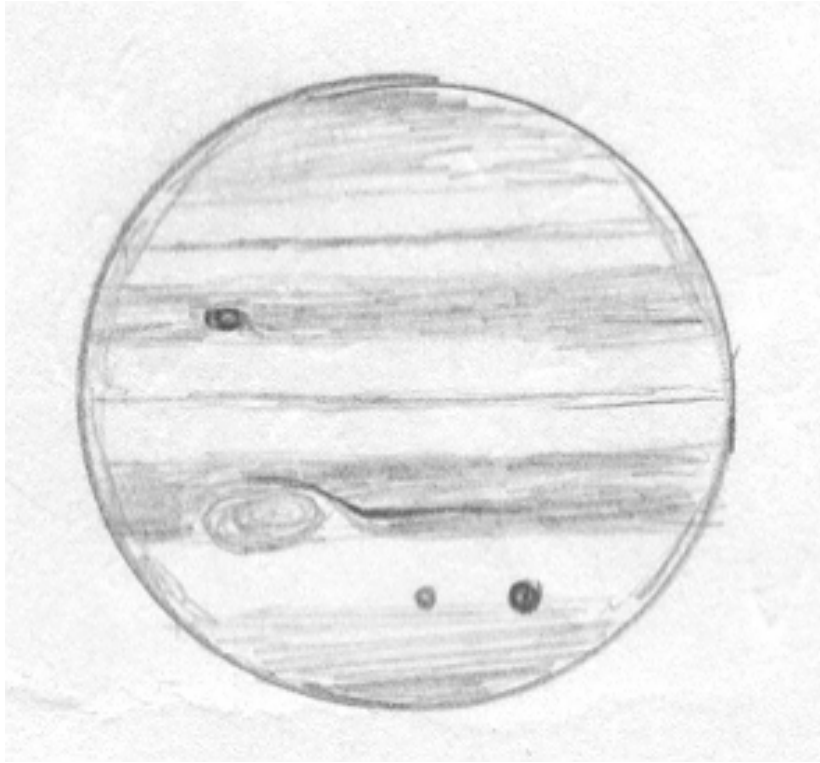
# Saskatoon Skies

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

Volume 33

March 2002

Number 3



Ganymede and its shadow (larger dot) transit Jupiter as a pair as seen at 2:35 a.m. on Christmas morning as sketched by the newsletter editor from Sleaford Observatory. The Great Red Spot (GRS) is dragging a long cloud band from the South Equatorial Band (SEB) into the storm. Meanwhile, a long-lived dark barge meanders its way through the North Equatorial Band (NEB) directly above the GRS. The drawing was made using his 10-inch Newtonian at 320x magnification. Murray Paulson's article on page 7 gives times when two shadows will be visible on this planet at the same time!

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## Saskatoon Centre

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## Membership?

Regular - \$52.00 per year

Youth - \$27.50 per year

## It's never too late to join!

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

### Benefits of Membership in the Saskatoon Centre

- knowledgeable & friendly amateur astronomers
- use of the Sleaford Observatory
- use of the U of S Observatory (after training)
- Saskatoon Skies Newsletter
- Observer's Handbook 2001
- The Journal of the RASC (bi-monthly)
- SkyNews Magazine (bi-monthly)
- use of the Centre library
- discounts to Sky & Telescope Magazine
- discounts of Sky Publishing merchandise
- discounts to Firefly Books
- free, no cost, no obligation, 3-month temporary membership if you don't want to join right now!

## U of S Observatory Hours

The U of S Observatory is open to the general public every Saturday in March & April from 8:30 p.m. to 10:30 p.m. Admission is free. The observatory is located on campus, one block north of the Wiggins Avenue and College Drive entrance. On clear evenings visitors may look through the 6-inch refractor to the moon, star clusters, Jupiter, Saturn, and other exciting astronomical objects. For further information, phone the recorded Astronomy Information Line at 966-6429.

## About this Newsletter

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Collate - Brian Friesen, Bob Christie, Les & Ellen Dickson, Sandy Ferguson, Walter Essar

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*Saskatoon Skies* is published monthly by the Saskatoon Centre of the RASC. Distribution is approximately 100 copies per issue. *Saskatoon Skies* welcomes unsolicited articles, sketches, photographs, cartoons, and other astronomy or space science articles. Articles can be sent by mail in any format to the Centre's mailbox. Submitted materials can be returned upon request. Submissions may also be sent by e-mail - preferred as **plain unformatted ASCII text files without line breaks**. Images sent by e-mail should be attached .GIFs, .TIFs .JPGs or similar. Send e-mail submissions to the editor at <[huziak@SEDSsystems.ca](mailto:huziak@SEDSsystems.ca)>. Please send articles in "generic" formats, with standard grammatical formatting appreciated - 5 spaces at the beginning of paragraphs, two spaces after periods, one space after commas. A separate by-mail subscription to *Saskatoon Skies* is available for **\$15.00** per year. *Saskatoon Skies* is also posted on our Saskatoon Centre homepage as a .pdf file and can be downloaded free-of-charge. Members may choose to receive the newsletter by regular mail or via the Internet. Articles may be reprinted from *Saskatoon Skies* without expressed permission (unless otherwise stated), but source credit is requested. **DEADLINE for submissions is the 26th of each month.** *Saskatoon Skies* accepts commercial advertising. Please call the editor for rates. Members can advertise non-commercial items free of charge.

## Bottle Drive to Raise Some Cash

By Darrell Chatfield

In January I announced a 'bring-it-to-the-meeting' bottle drive to do some fundraising for the Centre. If you did not bring your empties last time, bring them to the March meeting. I will collect them after the meeting concludes. If you cannot make it to the meeting, but would like to contribute, please call me at 374-9278.

### RASC Calendar Happenings

Date (2002)	Event	Contact	Telephone
Mar. 13	<b>Double Shadow on Jupiter – 11:13 p.m.</b> (see <i>Planets this Month</i> )		
Mar. 18	<b>Executive Meeting</b> , Room 8313, City Hospital, 6:30 p.m.	Les Dickson	249-1091
Mar. 18	<b>General Meeting</b> , Room 8313, City Hospital, 7:30 p.m., speaker tbd	Les Dickson	249-1091
Mar. 20/21	<b>Double Shadow on Jupiter – 1:08 a.m.</b> (see <i>Planets this Month</i> )		
Mar. 28	<b>Double Shadow on Jupiter – 4:14 a.m.</b> (see <i>Planets this Month</i> )		
Apr. 5 & 6	<b>Messier Marathon Nights at Sleaford</b>	Rick Huziak	665-3392
Apr. 5 - 7	Edmonton Centre <b>George Moore's Astronomy &amp; Teacher Workshop</b>	Rick Huziak	665-3392
Apr. 7	<b>Double Shadow on Jupiter – 5:57 p.m.</b> (In daylight – try and find it!)	Your Handbook	
Apr. 12 & 13	<b>Messier Marathon Nights at Sleaford</b>	Rick Huziak	665-3392
Apr. 15	<b>Executive Meeting</b> , Room 8313, City Hospital, 6:30 p.m.	Les Dickson	249-1091
Apr. 15	<b>General Meeting</b> , Room 8313, City Hospital, 7:30 p.m., speaker tbd	Les Dickson	249-1091
Apr. 20	<b>Astronomy Day Display</b> , Lawson Heights Mall	Mike Stephens	682-5989
Apr. 20	<b>Astronomy Day Starnight</b> , location tbd	Mike Stephens	682-5989
Apr. 21/22	<b>Lyrid Meteor Peak</b>	Rick Huziak	665-3392
May 13	<b>General Meeting</b> , Room 8313, City Hospital, 7:30 p.m., <b>The StarLab Planetarium</b> – toured by Ron Waldron – <b>NOTE EARLY DATE</b>	Les Dickson	249-1091
Jun. 17	<b>General Meeting</b> , Room 8313, City Hospital, 7:30 p.m.,	Les Dickson	249-1091

### Notice of the General Meeting of the Saskatoon Centre

**Monday, March 18, 2002 at 7:30 p.m.**

**Room 8313 City Hospital**

**Presenting:**

*Well, we're really not sure, but it will be great!*

### Saskatoon Centre Books 4 Sale

The Saskatoon Centre has a number of Firefly Books left over from SSSP sales, and these are now available to general members to purchase at discount rates! There are only one or two copies remaining of the following titles. Contact Debbie Anderson at 242-8854 or bazoo.inc@shaw.ca. Prices include GST, shipping and handling.

- Binocular Astronomy (hardcover) - \$37.00
- Astrophotography (G.N.Patterson) - \$10.00\*\*
- Exploring the Sky by Day - \$7.00
- Cambridge Star Atlas - \$35.00
- RASC 2002 Calendars - \$8.00\*\*



- SkyWatchers Calendar - \$8.00\*\*
  - RASC Stickers - \$0.50
  - Other Worlds - \$7.00
  - Extraterrestrials - \$8.00

**All prices are reduced.**  
Prices marked \*\* are reduced to clear.

### Sky Buys and Mirror Cells

**The Saskatoon Centre's Swap and Sale Page!**

**Wanted:** I'm looking for a **6mm eyepiece** – most any type will do. Call Gord Sarty at 966-2321 (work).

**For Sale:** *Astronomy*, by Menzel, 320pp, color plates - \$15.00; *Burnham's Celestial Handbook*, 3-vol. set - \$30.00; *Sky Catalog 2000 -Vol 2*, by Sinnott - \$30.00; **Brass lined trunk** - will carry an 8" or 10" SCT - \$75.00; **Accessory case c/w pull and pluck foam**, 18" x 13" x 8" - \$20.00; **Parts tool kit**, 16" x 8" x 7"-\$10.00; **9-mm Kellner eyepiece** - \$20.00; Please note: all items are either in good or excellent condition. Please call Darrell at 374-9278 for details.

**Wanted: Piggyback camera mount** to fit C8. **1-1/4 LPR filter**, such as Lumicon or Orion. Call Darrell at 374-9278.

**Wanted: 25mm Eyepiece:** Orthoscopic, Kellner or Plossl in almost any condition. Call Rick Huziak at 665-3392.

## Say "Gravistar" not "Black Hole"

By Gordon Sarty

Some of you may know that I have never been a real believer in black holes. The reason for my skepticism has been that the equation of state of the matter inside the black hole solution to Einstein's equations is not modeled. It is well known that real properties of matter prevent the lighter mass stars from collapsing into black holes. By squeezing electrons sufficiently hard they will push back with an "electron degeneracy" pressure, caused by the Pauli Exclusion Principle that we learn about in high school chemistry. The quantum mechanical electron pressure is enough to prevent some stars from further gravitational collapse and a white dwarf is formed. For heavier stars, gravity can overcome the electron degeneracy pressure and then the electrons get squeezed into the protons to make neutrons. At that point a similar "neutron degeneracy" pressure arises which, for stars that are not too massive, prevents further gravitational collapse and a neutron star is formed.



In my relatively uninformed knowledge of physics, I have previously guessed that further physical properties of real matter would come into play to prevent the formation of the "singularity" (*read: nonsense point*) at the centre of the black hole. It turns out, at least according to calculations made by Pawel O. Mazur and Emil Mottola, that real matter does have further properties that can prevent the formation of the nonsense singularity. It turns out that an ultracold (1microKelvin) macroscopic quantum state form of matter known as a Bose-Einstein Condensate (BEC) can replace the event horizon in the "black hole" solution to Einstein's equations to leave a solution that has no singularity. BECs are a hot topic of research by physicists today - just pick up a copy of the latest *Nature* or *Science* magazine and the chances are high that you'll find an article on the latest weird things that have been discovered about BECs.

Mazur and Mottola have dubbed their new object a "gravistar". I really like their solution. It surprises me that the equation of state of the matter works on the "event horizon" and not at the centre, but that just shows how much I know. If you want to follow Mazur and Mottola's calculations, they have put a short paper on the web at <http://www.arxiv.org/abs/gr-qc/0109035> (on the famous "preprint server"). Now if we can just get people to say "primordial atom" instead of "big bang"...

## Sleaford Site Partnership Agreement Soon To Be In Effect

by Les Dickson, President

Last February 22, we had a special meeting in which Rick Huziak presented the Partnership Agreement developed by the Saskatoon Centre and the University of Saskatchewan. The turnout for the meeting was very disappointing, with only 5 people, other than Rick, attending. However, the meeting was momentous, as myself, Barb Young, and Alan Hartridge signed the agreement on behalf of the Centre. It has now gone on to the University, where it has been signed by the Head of the Physics and Engineering Physics department. Two further signatures are necessary before the Agreement goes into effect.

This Agreement, under negotiation for over three years, will govern the joint use of the Sleaford Observatory site, which is owned by the University. This Agreement includes a requirement for a code of conduct to be developed and displayed at the site that our members and their guests must follow. Serious violations of the code of conduct, such as willful damage to property, could result in the Centre being evicted from the site, with the requirement that we remove all our buildings and equipment in only a few months. We will be reviewing our keys policy and writing this code of conduct in the next few months. In the meantime, we remind all our members who want to use the site to use common sense and be careful with any University equipment that they have been trained in and cleared to use.

## Paul and Sherry Will Attend the March Meeting

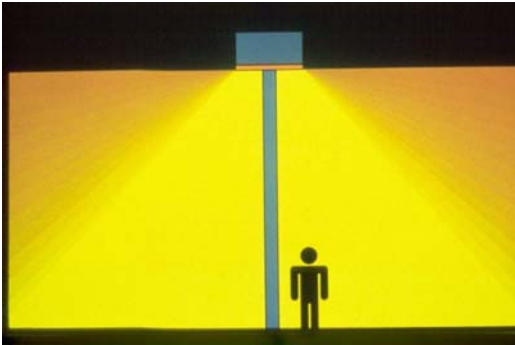
Those of you who know Paul Campbell and Sherry McLeod from the Edmonton Centre may want to make sure they attend the March General Meeting. Paul writes: "*We will be in Saskatoon the week of March 18th to do our annual shutdown of Saskatchewan's phone system by pumping water through SaskTel. Hope to catch one of your meetings. This time I'm strictly a guest so have some money motions ready for us to vote NO on! See ya then.*" Paul promises not to talk, so meeting attendance should be brisk!

## Thoughts on Getting Back into the Light Pollution Fight

An Editorial by Richard Huziak <huziak@SEDSYSTEMS.CA>

Recent statements by Catharine Ford of the Calgary Herald in a forum on CBC Radio made me think about getting back into the light pollution fight. Ford's comments on the negative side of changes that result from light pollution progress were very misinformed and quite unfortunate. She gave the usual misinterpretation of the outcome of "reducing" light in the environment – that streets would become dark and unsafe. This cannot be farther from the truth, and no light pollution advocate has ever suggested that streetlights be turned off or reduced in brightness to the extent that the night-walking becomes unsafe! Indeed, with full cut-off fixtures on streetlights, *lighting improves*, glare is reduced and money is saved in the process. It's hard to get such an obviously excellent idea past a politician or newspaper reporter these days!

What light-pollution critics such as Ford do not realize are the gigungous environmental and civil costs that are perpetuated with allowing poor lighting to spread. Lit-up backyards are the first to be burglerized, well-lit back alleys are the first to be defaced. (Criminals and delinquents abhor the darkness, since they have to use obvious flashlights). These areas



do not need lighting at night. Places where you *should* walk, such as on streets, do. Using full cut-off fixtures eliminates *glare*, which allows your eyes to see *better* with existing light. Eliminating light that shines sideways or up (wasted light) by use of a proper shade allows 100% of light to go to the street. Thus a 200-watt streetlight that is 50% wasted, can be replaced with a 100-watt streetlight with 100% downward-shone light with no reduction of the final illumination. The byproduct is a 50% reduction in power cost. The real byproducts are no necessity to build more power plants, less necessity to burn air-polluting hydrocarbons, and less necessity to dam new rivers.

In the July/August 2001 issue of *SkyNews*, it is reported that the City of Calgary stands to save \$3,000,000 per year once their 117,000 streetlight fixtures are replaced. The project will cost about \$7,200,000. It doesn't take a brain surgeon to figure out that this is a really good business proposition, and that it is self-funding – requiring no additional taxation! The other byproduct of addressing light pollution is that Alberta will reduce carbon-dioxide emissions by 17,000 tonnes per year! They will also reduce glare, light trespass and improve the natural wildlife habitat throughout their city. The best part about future planned lighting development is that it has *no cost* and large benefit, since if you just plan it right, it works! I can't believe that anyone opposes this! Similarly, the City of Saskatoon stands to save over \$1,000,000 per year of your taxes. They simply have not caught on! I guess they do not read magazines nor the newspaper.

There are some conclusions that I came to after working on a light pollution campaign in Saskatoon (to deaf ears) a few years ago. The first is that *if you want it done, you have to do it yourself*. It is difficult to plant an idea into a city councilor's head and make them anywhere as excited as you are! They are mainly interested their own agendas for this current term (just as we all are). So, doing it yourself involves:

- 1) writing the by-law,
- 2) researching the alternative lights and lighting practices and having this information available to answer questions and provide source data when required, and....
- 3) lobby, lobby, lobby. This takes incredible dedication of your part.

Only once most of the work is done (and your work seems like a very good idea to others) will someone from city council take it under their wing (as their idea). Provincial guidance would also be nice. The provincial environmental ministers or the ministers in charge of fund transfers to rural municipalities might be lobbied to change provincial rules to conserve energy - which might be tied to amounts of funds transferred to towns who show conservation efforts. Passing on of 'rules' from top governments have great effect on cities. Again, you'd have to write the provincial laws yourself and then get someone to take it through enactment. Wouldn't it be nice if we even had a National policy on light pollution? It seems that none of these guys read *SkyNews*!

Alternate and very useful ideas are to lobby civil architectural and engineering firms to change their landscaping designs to light-pollution-friendly ones. (They are far more receptive, and cities often just accept what their contract designers give them.) By the way, the newest Canadian Electrical Code has LP provisions, but the code is rarely enforced. The same can be done with lighting suppliers - they could push cut-off fixtures if they have a reason – i.e. *LP-friendly* is a great advertising angle. It is even useful to lobby the electrical engineering departments of towns and cities instead of city council. If they recommend change to the councilors, often the councilors will just accept it.

Besides this advice, I haven't seen much published about other cities' successes (maybe I just don't know where to look), but I'd love to see published details of the lobbying efforts that Oshawa, and recently, Calgary did. These successful programs would be useful to other if they appeared in the *Journal*.



## Keeping Fresh

By Dale Jeffrey, Living Skies Astronomical Observatory, Laird, Saskatchewan

Sometimes, in astronomical observing, I find myself becoming bored. I don't want to spend another night in the freezing cold, or the dew and mosquitoes, pursuing yet one more elusive galaxy. Perhaps you've felt like that on a few occasions as well, and yet there we are, with perhaps thousands of dollars invested in optical equipment, years of commitment, but no wind left in the sails.

Try something different. The other night, I decided I was going to throw my star charts away - not really! - but I was not going to use them. Instead, I just fired up the scope, pointing it arbitrarily, and had a look. Wandering around from my initial starting point, I went, degree by degree, in varying directions, using different magnifications. I stumbled, by blind luck, across a number of double stars, some very pretty asterisms, a few clusters, and at least one galaxy over the next two hours! This is how the astronomers of the past did their first work, and for me it was fun. No guided tour, and no prior expectations - just wander, and let your eyes be fed!

I'm primarily a deep-sky enthusiast. As a result, I spend a lot of very long hours squinting at incredibly faint fuzzies. Another sort of break for me is the moon and planets. No, it's not my prime interest, but it is fascinating, and the detail you can glean from Jupiter or Saturn after training your eyes on 14th magnitude galaxies is truly amazing. How about that asteroid you've read about in *Sky & Telescope*? Track it down just for fun, or even have a serious look at the moon. How many features can you identify? Check out one of the faint comets in the sky (there's nearly always at least one), take the challenge and measure a variable star or two, or tour some old favourites from your prior observations. The essence here is to take a break from the routine you've established, and try something that can restore your enthusiasm.

I do nearly all of my observing alone. Asking a friend to join you can be a big boost, but if that is not possible, then at least call someone else either before you observe or the following day to discuss and compare observing experiences. Knowing that someone else actually has an interest in what you're doing can make a significant difference in your attitude at 3:00 a.m.

Finally, if your observing rut is a deep one, as mine has become on more than one occasion, take off for a few days, or even weeks if necessary. Then when you come back to the eyepiece, I'll bet you'll be coming back with some desire and enthusiasm.

After all, if it ain't fun, it's not much of a hobby. Clear skies.

## Astronomy Day April 20

by Les Dickson

Spring will soon be upon us, and with it comes Astronomy Day on Saturday, April 20. This year, we will be at the Mall at Lawson Heights. We always need volunteers to come out and help with the display, bring out their 'scopes, and answer questions. We will be reminding people at our March and April meetings about the event, and encouraging people to help.

This year, we are planning to set up our 'scopes for the public star night within the city to encourage greater attendance. With so many planets visible this season, we thought the disadvantages of being in the city with all its light pollution would not be a hindrance. Mike Stephens, Ellen Dickson and I went around March 8 in the evening checking out possible sites. We have three sites in mind for the star night:

- Meewasin Park on Whiteswan Drive up beside the Water Pollution Control Plant,
- in George D. Archibald Memorial Park (on the E. side of Spadina Cr. E, S of the Circle Dr. bridge), or
- the Boat Launch below the old Board of Education Building on the river bank south of downtown.

We need to decide on a site no later than 1 week after the March General Meeting so that advertising can start. If you have any opinions on the proposed sites, and even have a chance to check the sites out for yourselves at night, please let us know.

### Dale Jeffrey's Ha-Ha Minute (Complaint to him!)

Dale Jeffrey <dale.jeffrey@sk.sympatico.ca>

*Men are from Earth. Women are from Earth. Deal with it.*

*"I cried because I had no shoes, until I met a man who had no Naglers"*

*The difference between Tasco and onions? No one cries when you cut up a Tasco.*

## The Planets This Month - March

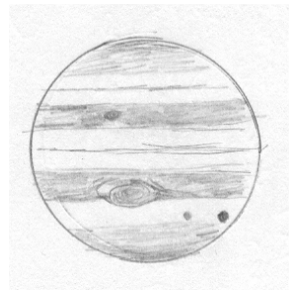
By Murray D. Paulson, Edmonton Centre, RASC

In the month of February, we saw **Mercury** swing out from in front of the sun, through greatest western elongation and then start its trip back to the far side of the sun. Boy, does that thing ever move! By early March, it will sit 23 degrees from the sun and it will gradually brighten from magnitude 0.0 to -1 as it heads toward the sun and as its disk waxes and shrinks. It is in superior conjunction on April 7th where it will sit just over half a degree below the sun. Superior conjunction is when a planet is "above", or on the far side of the sun.

On one sunny Sunday afternoon in mid February I saw **Venus** in my refractor, a brilliant white disk, 8 degrees east of the sun. It is amazing how well it stands out even with the sun so near by. I have heard rumors that Larry Wood has seen it in the twilight glow earlier in the month. Good catch Larry! Venus shows a 10" disk in the eyepiece and it shines at magnitude -3.9. On March 10<sup>th</sup>, Venus crossed the celestial equator and entered the northern sky. By early April, Venus will set 2 hours after the sun but will have only expanded to 10.6". It always amazes me how different the inner two planets behave in their course around the sun. Venus's stately rise in the evening sky from one conjunction to the next takes 9 1/2 months compared to Mercury's 2 month dash!

**Mars** continues to grace the evening sky with its ruddy presence. The 4.6" disk is not much to look at especially so close to the horizon. My home observing site has too many trees, so I haven't been able to keep track of it with a telescope but it has been a pleasure to watch as it moves up the ecliptic, swinging northward. This month it sojourns across Aries.

**The moon joins Jupiter** on the night of March 21, closing in on it all night on, but it sets with the moon 1 degree off. This could make a nice photo op. I saw the close conjunction of Jupiter and the moon last month on one of our rare conjunctions of clear sky with something worth seeing in it. In March we get a **niche double shadow** transit on the evening of the 13th. Ganymede's shadow enters the disk at 8:15 p.m. local time and exits at 11:25 local, but not before Io's shadow enters at 11:13 p.m. Io's shadow leaves the disk at 28 minutes after midnight local time. A **second double shadow transit** occurs on the night of March 20/21 with Ganymede's shadow entering the disk at 12:15 a.m. and then Io's at 1:08 a.m. Io's shadow moves much faster across the disk and catches up with Ganymede's shadow just prior to both shadows leaving the disk at 3:23 -3:26 a.m. On the next night there is one of the rare Callisto shadow transits starting at 11:06 p.m. local time. A week later, if you are in to staying up late, there is **yet another dual shadow transit** on the morning of March 28 at 4:15 a.m. local time. Please see the *2002 Observer's Handbook* for more details and more interesting events. I find that I never remember them unless I put their times on my scheduler on the computer and have it give me an alarm.



**Saturn** has another close call with the earth's moon on March 20 at 4:15 a.m. (the night of March 19th!) At this time it will sit only 6 minutes of arc above the northpole of the moon. This will be mid-week, but would be worth the effort. I have managed to catch Titan and Iapetus either above the pole of Saturn or out at an extreme of the orbit. It is amazing how high above the planet they can get. Iapetus will sit above (refractor/SCT with diagonal) [below - Newtonian] Saturn's pole on March 10 and the other way round on April 20th. As for Titan, the diagrams on pages 194-195 of the *Handbook* can be used to predict when Titan will sit above or below Saturn.

## MINUTES FOR RASC GENERAL MEETING

February 18, 2002, CITY HOSPITAL Room 8313

Recorded by Al Hartridge, Secretary

1. Presentations: Brigitte Hesman (U. of S.) - *Neptune- Unlocking the Mysteries Within*
2. Approval of the minutes of Jan.17, 2002. Moved by Les Dickson and seconded by Rick Huziak. Carried.
3. School Presentation: Ron Waldron would like some help with a presentation on Feb.27<sup>th</sup> at Redberry Bible Camp to about 60 students. They would like a slide presentation as well as an observing session.
4. Bottle drive: Darrell has raised over \$200.00 dollars this year collecting bottles, which really helps with on going expenses.
5. Meeting re: Partnership Agreement: A meeting will be held next Monday to go over the details of the agreement with all members who are interested in attending. Meeting will take place at 7:30 p.m.
6. Astronomy Day: would like to hold the display at Lawson Heights but facility has not yet been booked.
7. Membership: There are 77 signed up members at present and a one new member from Lucky Lake.
8. Sleaford no report, no change.
9. May Meeting on the 13th : StarLab will be set up at City Hospital in the meeting room for members to enjoy.
10. March Meeting will be on the 18<sup>th</sup>.
11. Meeting adjourned at 10:15pm.

## The Edmonton 2002 George Moores' Astronomy Workshop

<http://www.edmontonrasc.com/workshop.html>

The Edmonton Chapter of the RASC will be hosting an Astronomy Workshop the weekend of April 5-7, 2002, at St. John's School of Alberta near Wabamum, Alberta. The Workshop runs from Friday night until Sunday afternoon, and is entirely devoted to our great hobby of astronomy.

St John's School of Alberta is a boys' dormitory type school. During the Workshop, the kids will be off on Easter break, so the facilities will be entirely at our disposal and all lighting will be controlled by us. The school is enclosed with sleeping quarters, cafeteria and all classrooms devoted to the seminars within one building. The observing field is a quick 5-minute walk away in the soccer field. The school itself is fairly isolated from surrounding towns and power plants so the skies are fairly decent with a better southern horizon than at Blackfoot.

Accommodation is double bunk style and all registrants are required to bring their own sleeping bag and pillow. Showers are located across from the dorm rooms. All meals will be catered. There will be one big dinner on Saturday night and buffet style breakfasts on both Saturday and Sunday morning. Soup, sandwiches, coffee, tea and hot chocolate will be available all night during observing sessions to keep you going.

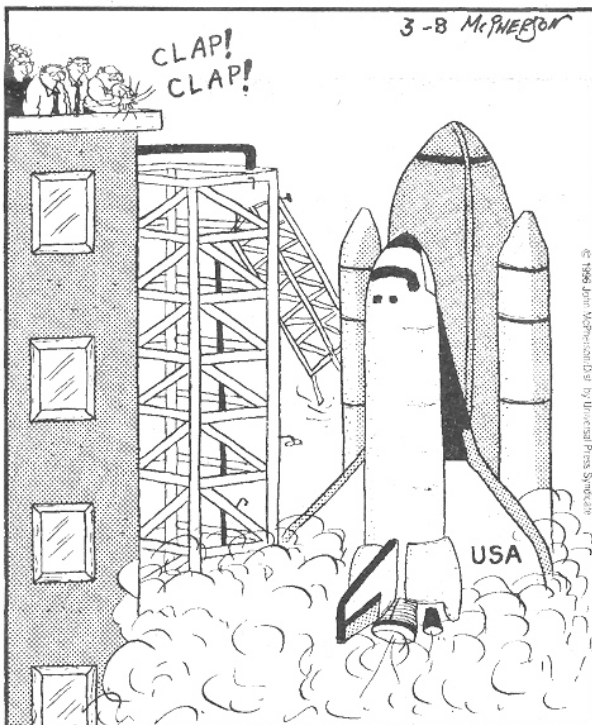
Our keynote speaker will be Ivan Semeniuk from Discovery Channel. Ivan will be speaking on *Worlds of Wonder: What Scientists Wish They Knew About the Planets*. As the five nearest and brightest planets assemble for a grand alignment in the spring sky, *Discovery Channel's* Ivan Semeniuk explores the mysteries that persist on these non-so familiar worlds, and what the latest research reveals about them. Ivan and Orla Aaquist will also be conducting Teacher Sessions during the Round Robin portion of the seminars, however everyone is welcome to attend.

The other Round Robin seminars will be conducted by several talented members of our Club. Murray Paulson has agreed to give two sessions on his meteor collection and will have them on display with a microscope so everyone can get a good look at them. Pat Abbott will be giving a session on Variable Stars and Solar Observing. Dave Cleary will be giving a session on Radio Astronomy. Arnold Rivera will be passing on tips on how to Get Started in Astronomy. Warren Finlay will be educating us on the Sounds of the Night typically heard in this area of Alberta every observing session and finally Larry Wood will have a Scope Clinic set up. All of the above seminars are 45-minutes long and will take place in the afternoon on Saturday.

Registration forms will be available Richard Huziak, or at the Edmonton Centre website. The fee is \$75.00 (adult). The fee for youths is \$55.00 until March 15, 2002. Completed registration forms (with cheque) can be either given to Donna-Lee May or Sherry MacLeod at the following addresses: Donna-Lee May, RR#2, Site 208, Box 57, St. Albert, Alberta, T8N 1M9, (780) 913-2785, or Sherry MacLeod, 333 South Ridge, Edmonton, Alberta, T6H 4M9, (780) 433-1516.

Once we have a better idea of the number of people attending, we will be mailing out information packages to all registrants. Included in these packages will be a map to the site, an itinerary of the events, a list of items required by all registrants to bring and a list of school rules.

I have been to three Workshops now and I've enjoyed each one immensely. They are a great opportunity to meet new people and devote an entire weekend to our hobby with all necessities like cooking and doing dishes taken care of for you. There is a real star party atmosphere at these events but without the aching back from sleeping in a tent and creative cooking with tube steaks. If you are looking for a relaxing weekend with perfect company and stunning vistas, then consider coming to the George Moores' Astronomy Workshop on April 5-7, 2002.



In a technological breakthrough that revolutionized the space industry, NASA successfully launches the first space shuttle mission to be activated by The Clapper®.



## The Messier, Herschel 400, Finest NGC and Binocular Club

Join the Club! Observe all 110 Messier, 110 Finest NGC, 400 Herschel, or 40 Binocular objects and earn great OBSERVING CERTIFICATES!

### MESSIER CLUB

Certified at 110 Objects: R. Huziak, G. Sarty, S. Alexander, S. Ferguson, D. Jeffrey, D. Chatfield, B. Christie, K. Noesgaard, M. Stephens

Mike Oosterlaken	Wow!	93
Bill Hydumako		78
Wade Selvig		71
Lorne Jensen	Going up!	49
Brent Gratias		39
George Charpentier	New!	30
Tenho Tuomi	New!	30
Stan Noble		28
Tyrone Klassen		26
Les & Ellen Dickson		20
Debbie Anderson		17
Brian Friesen		15

### FINEST NGC CLUB

Certified at 110 Objects: R. Huziak, D. Jeffrey, G. Sarty, D. Chatfield

Scott Alexander	Come on! Scott!	89
Mike Stephens		42
Ken Noesgaard		24
Sandy Ferguson		23
Mike Oosterlaken		20

### Chatfield BINOCULAR CERTIFICATE

Certified at 40 Objects: M. Stephens

Mike Oosterlaken	32
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### HERSCHEL 400 CLUB

Certified at 400 Objects: D. Jeffrey, R. Huziak

Darrell Chatfield	Almost there!	385
Gord Sarty		171
Scott Alexander		102
Mike Stephens		59
Mike Oosterlaken		68
Ken Noesgaard		44
Sandy Ferguson		18

The first 2 lists can be found in the *Observer's Handbook*. The Binocular List & Herschel 400 list will be available at each general meeting for 50 cents (covers photocopying) or can be mailed out on request to distant members. Each month I'll be posting updates.

Mike Oosterlaken wrote: "I went home for the break and got two excellent nights of observing. Using my new 8" dob., I found 45 objects over the two nights. A few objects are from previous observation but most are from last week. Here is the list: Messiers: 97, 108, 65, 66, 95, 96, 105, 53, 64, 85, 88, 91, 98, 99, 100, 58, 59, 60, 84, 86, 87, 89, 90, 104, 106; NGCs: 3384, 4216, 4388, 4438; Herschels: 1647, 2392, 2423, 2438, 2360, 3628, 3593, 3556, 3489, 3412, 3384, 3379, 3377, 4442, 4216, 4258, 4394, 4435, 4438, 4459, 4473, 4477, 4548, 4594. **TOTALS:** Messiers = 92\*, NGCs = 20, Herschels = 68.

I would like to comment on how easy it is was to navigate through the Virgo - Coma clusters. I shouldn't say that exactly; the first night I got confused because I wasn't able to identify exactly where I was. But the second night I was able to identify M59 & M60 and navigating was very easy from that point on. I found the best identifier in this cluster was M86 and M84. In just two eyepiece widths there 8 galaxies which makes it very easy to identify where you are." Keep observing Mike! [\* Mike also picked off a few more objects a few days later, included in the above totals. Also, welcome George Charpentier to the list. He states that he's been observing for a few years, and is well into his Messier Catalogue. Tenho Tuomi of Lucky Lake, SK, our newest member, also has written that he is a long time observer and has begun his Messier program. Welcome new participants, and keep up that good observing! Send observing numbers to [huziak@SEDSsystems.ca](mailto:huziak@SEDSsystems.ca)

## The Sleaford Observatory

Longitude: 105 deg 55' 13" +/- 13" W Latitude: 52 deg 05' 04" +/- 08" N, tel.: (306) 255-2045

by Rick Huziak

**Even More Variable Star Charts** – Well, as if 3000 charts aren't enough, another 140 eclipsing binary and RR Lyrae charts have been issued by the AAVSO, and those charts are now out as Sleaford! Use these charts to observe these fast-changing stars, as their entire light curves can be viewed in one evening!

**Winter Condition of Sleaford** – Winter conditions remain good at the site. Despite a small snow drift against the U. of S. roll-off observatory, the site has very little snow and is easily driveable with any vehicle.

## Earth Satellite Passes

By Les Dickson (from [www.heavens-above.com](http://www.heavens-above.com))

### International Space Station Evening Passes – March 13 to April 15

Date	Mag	Starts			Max. Altitude			Ends		
		Time	Alt.	Az.	Time	Alt.	Az.	Time	Alt.	Az.
01 Apr	-0.1	21:32:43	10	SW	21:35:12	39	S	21:35:12	39	S
02 Apr	0.4	20:31:54	10	SSW	20:34:33	27	SSE	20:36:49	12	E
02 Apr	0.7	22:07:05	10	WSW	22:08:55	33	WSW	22:08:55	33	WSW
03 Apr	-0.6	21:05:48	10	WSW	21:08:46	54	SSE	21:10:15	26	E
04 Apr	-0.9	21:39:59	10	W	21:43:03	80	S	21:43:24	65	ESE
05 Apr	-0.7	20:38:23	10	WSW	20:41:24	65	SSE	20:44:17	11	E
05 Apr	0.3	22:14:08	10	W	22:16:20	43	W	22:16:20	43	W
06 Apr	-0.8	21:12:22	10	W	21:15:24	84	S	21:17:01	25	E
06 Apr	1.9	22:48:10	10	W	22:49:03	17	W	22:49:03	17	W
07 Apr	-0.8	21:46:14	10	W	21:49:17	72	S	21:49:34	64	SE
08 Apr	-0.8	20:44:12	10	W	20:47:14	83	S	20:49:56	13	E
08 Apr	0.8	22:20:01	10	W	22:21:57	30	WSW	22:21:57	30	WSW
09 Apr	-0.7	21:17:48	10	W	21:20:55	61	S	21:22:10	28	ESE
10 Apr	0.3	21:51:21	10	W	21:54:05	32	SSW	21:54:17	32	SSW
11 Apr	-0.3	20:48:50	10	W	20:51:47	51	SSW	20:54:17	13	ESE
11 Apr	1.8	22:25:16	10	WSW	22:26:17	14	SW	22:26:17	14	SW
12 Apr	0.8	21:22:11	10	W	21:24:46	25	SSW	21:26:10	18	SSE

### Iridium Evening Passes – March 13 to April 15

Date	Local Time	Intensity (Mag)	Alt.	Azimuth	Distance to flare centre	Satellite
13 Mar	20:26:24	-3	40°	4° (N)	13.6 km (W)	Iridium 59
14 Mar	20:20:07	-7	41°	5° (N)	4.9 km (E)	Iridium 28
15 Mar	20:14:01	-2	43°	6° (N)	19.3 km (E)	Iridium 31
22 Mar	19:40:09	-1	54°	356° (N)	26.4 km (W)	Iridium 31
23 Mar	19:34:02	-4	55°	357° (N)	8.7 km (W)	Iridium 57
23 Mar	19:33:58	-0	56°	353° (N)	27.4 km (W)	Iridium 95
24 Mar	21:53:51	-5	11°	359° (N)	16.2 km (W)	Iridium 36
27 Mar	21:24:55	-0	21°	360° (N)	43.2 km (E)	Iridium 19
28 Mar	21:18:34	-0	23°	360° (N)	41.7 km (E)	Iridium 36
08 Apr	20:19:34	-0	41°	351° (N)	30.5 km (W)	Iridium 5
09 Apr	20:13:20	-1	43°	350° (N)	22.3 km (W)	Iridium 8
10 Apr	20:07:40	-2	44°	349° (N)	17.1 km (W)	Iridium 61
14 Apr	23:05:00	-0	12°	25° (NNE)	66.3 km (W)	Iridium 68
15 Apr	22:58:34	-3	13°	26° (NNE)	26.6 km (E)	Iridium 75
16 Apr	23:02:13	-1	16°	30° (NNE)	45.9 km (W)	Iridium 64
17 Apr	21:58:43	-0	14°	354° (N)	67.9 km (E)	Iridium 84
17 Apr	22:56:28	-3	17°	31° (NNE)	28.6 km (E)	Iridium 67
18 Apr	21:52:30	-6	15°	353° (N)	5.4 km (W)	Iridium 12
18 Apr	22:59:54	-1	20°	35° (NE)	50.5 km (W)	Iridium 75