

Saskatoon Skies

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

Vol. 34, No. 4

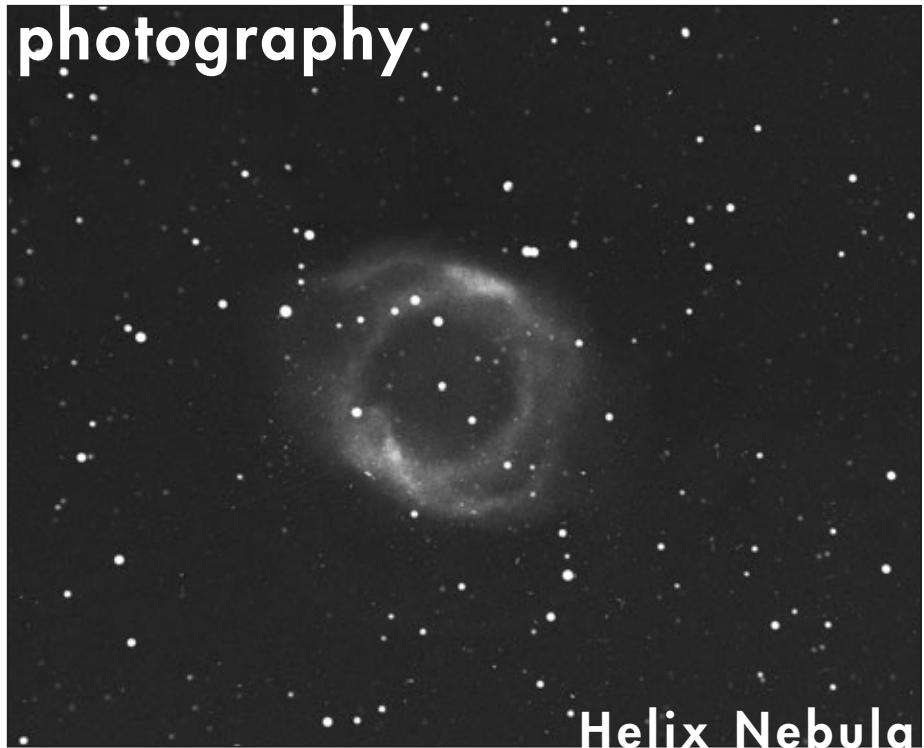
April 2003

Astrophotography

The Helix Nebula NGC 7293 is usually regarded as the nearest and largest planetary nebula. It has a diameter of about 15 mins. on the sky or about 1.75 light years at its suspected distance of approximately 450 light years. Even though this is a fairly large object it has a very low surface brightness and is therefore quite difficult to see.

— Al Hartridge

Take note that Rajiv Gupta, national president for RASC, will be speaking about astrophotography at our next general meeting on April 21.



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Helix Nebula

In this issue...

Membership, Bottle Drive & U of S Observatory Hours	2
Calendar of Events, Saskatoon Centre Books 4 Sale	3
General Meeting with RASC National President Rajiv Gupta	3
Subscribing to <i>Sky & Telescope</i> through the Saskatoon Centre	4
Sky Buys and Mirror Cells — the swap and shop page	4
About Astronomy Day — Mostly for New Members	4
Amazing XZ Cygni	5
The Planets this Month — April 2003	6
Variable Stars Any Night!	7
Minutes of the March Executive and General Meetings	8
More on Newsletter Browser Problems	8
The Messier, FNGC, H-400, Binoc & EtU Page	9
A Short Note on the ETX60 Go-To Scope	9
Ask AstroNut	10
Notes from the Messier Marathon	10



Saskatoon Centre

The Royal Astronomical Society of Canada

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Membership?

It's never too late to join!

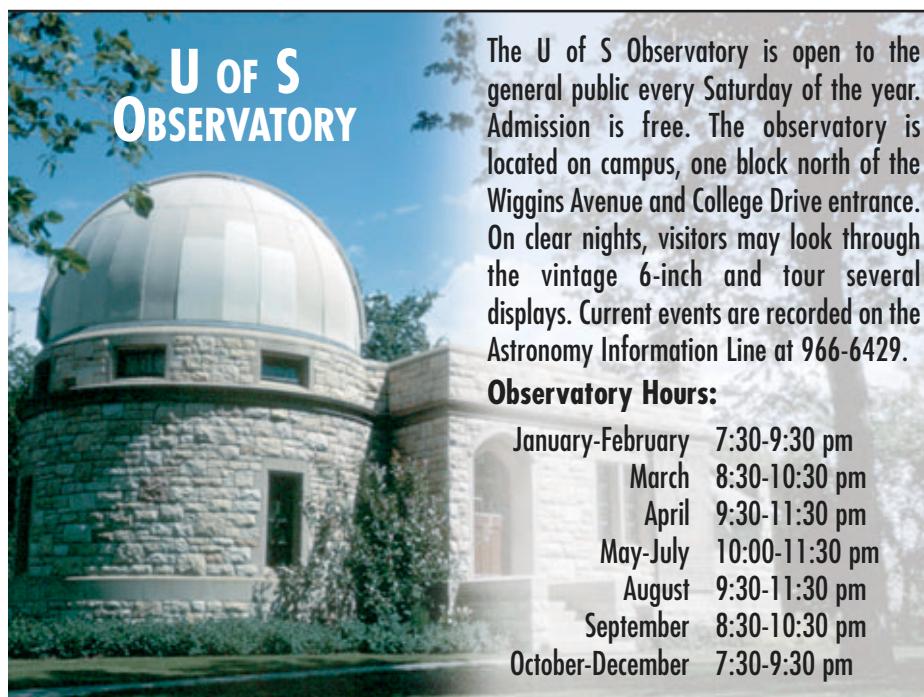
Regular: \$52.00/year

Youth: \$27.50/year

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 2003**
- **The Journal of the RASC** (bimonthly)
- **SkyNews Magazine** (bimonthly)
- 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

The U of S Observatory is open to the general public every Saturday of the year. Admission is free. The observatory is located on campus, one block north of the Wiggins Avenue and College Drive entrance. On clear nights, visitors may look through the vintage 6-inch and tour several displays. Current events are recorded on the Astronomy Information Line at 966-6429.

Observatory Hours:

January-February	7:30-9:30 pm
March	8:30-10:30 pm
April	9:30-11:30 pm
May-July	10:00-11:30 pm
August	9:30-11:30 pm
September	8:30-10:30 pm
October-December	7:30-9:30 pm

About this Newsletter...

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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 .EPSS, .TIFs or .JPGs (.GIFs also accepted). Send e-mail submissions to the editor at <huziak@SEDSystems.ca>. Please send articles in "generic" formats with simple formatting – one tab at the beginning of paragraphs, one space after commas and periods. 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 & Canadian Tire \$

by *Darrell Chatfield*

Please remember our on-going bottle and now Canadian Tire money drive to fundraise for the Centre. Bring them to General meetings. 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.

DATE (2003)	EVENT	RASC Calendar of Events	CONTACT	TELEPHONE
Apr. 21	Pre-meeting Gastronomy for Rajiv Gupta – 5:45 p.m., Tomas Cook Family Restaurant, Old Train Station downtown		Les Dickson	249-1091
Apr. 21	General Meeting – Rajiv Gupta, National President of RASC – Room 8313, City Hospital, 7:30 p.m.		Les Dickson	249-1091
May 10	International Astronomy Day – Mall at Circle & 8th (Walmart Side)	Les Dickson	249-1091	
May 10	Astronomy Day Star night – Beaver Creek Conservation Area, dusk	Sandy Ferguson	931-3184	
May 12	General Meeting – A Trip to Arizona's Observatories & the AAVSO Meeting – Rick Huziak. <i>NOTE: EARLY DATE due to Victoria Day weekend</i> – Room 8313, City Hospital, 7:30 p.m.	Les Dickson	249-1091	
May 15	Total Eclipse of the Moon – 8:30 p.m. to 12:15 a.m.	Rick Huziak	665-3392	
June 16	General Meeting – "tbd" – Room 8313, City Hospital, 7:30 p.m.	Les Dickson	249-1091	
Aug. 22-24	Sask. Summer Star Party 2003 – Cypress Hills Prov. Park	Les Dickson	249-1091	
Sept. 15	General Meeting – "What I Did This Summer – SSSP & More – Room 8313, City Hospital, 7:30 p.m.	Les Dickson	249-1091	
Oct. 20	General Meeting – Annual Elections – Room 8313, City Hospital, 7:30 p.m.	Les Dickson	249-1091	
Nov. 8	Total Eclipse of the Moon – 5:00 p.m. to 10:22 p.m.	Rick Huziak	665-3392	

GENERAL MEETING

Monday, April 21, 2003, 7:30 pm – Room 8313, City Hospital

Presenting: Rajiv Gupta, National President, RASC

Imaging the Heavens

Composite Digital Techniques for High-Resolution Astrophotography with Film

Astrophotography is one of the more challenging branches of amateur astronomy, because the objects being photographed are so faint. The best deep-sky images now being produced are composites, formed by combining two or more individual exposures into a single image. Thanks to various powerful computer programs on the market, composite imaging is now easy, and with these techniques amateur astronomers are now producing images that rival those produced at professional observatories a decade or so ago. This talk will demonstrate some of these exciting techniques as applied to film, with several real-time demonstrations.

About Mr. Gupta: Over the past 8 years, Rajiv Gupta has been developing methods to produce finely detailed colour images using the wonder film of astrophotography, Kodak's black-and-white Technical Pan. Rajiv is co-developer of RegiStar software, which automates the alignment of images, and is also editor of the *Royal Astronomical Society of Canada's Observer's Calendar*, in which many composite images have appeared, editor of the *RASC Observer's Handbook*, and President of the RASC. His photos have appeared in *Sky & Telescope* magazine, where he has also written about his imaging techniques. By profession, Rajiv is a mathematics professor at the University of British Columbia.



Members –

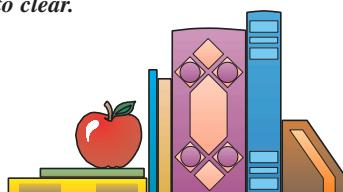
*Remember the Pre-meeting Gastronomy, 5:45 p.m.
at the downtown Tomas Cook Restaurant!*

Saskatoon Centre Books 4 Sale

The Saskatoon Centre has purchased a number of Sky Publishing & Firefly Books for SSSP sales, and these are available to general members to purchase at discount rates! Contact Rick Huziak at huziak@SEDSystems.ca or 665-3392. **Note:** If you would like to be the new Book Sales Coordinator, call Les Dickson at 249-1091.

- Build Your Own Telescope (1) - \$42.00
- Astrophotography by GN Patterson (lots) - \$5.00 **
- 2003 RASC Calendars (only 1 left!) - \$15.00
- RASC Stickers - \$0.50**
- Other Worlds (1) - \$7.00**
- Extraterrestrials (1) - \$6.50**

*All prices include GST, but NOT shipping.
Prices marked ** are at COST and reduced to clear.*



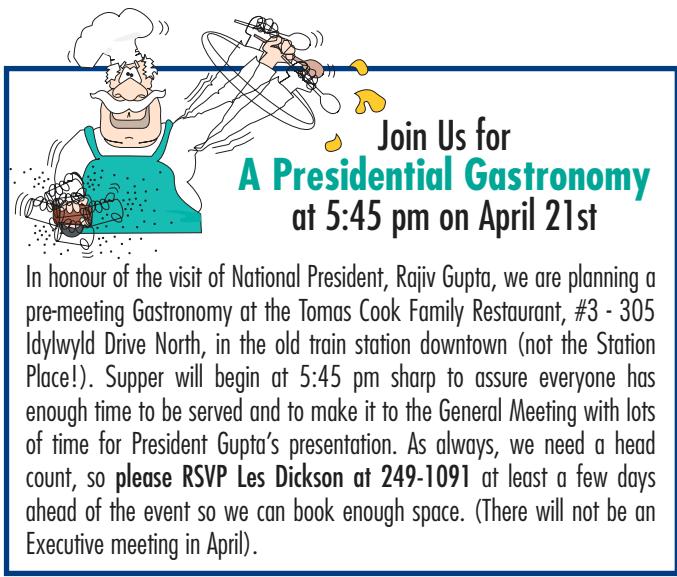
SUBSCRIBING TO SKY & TELESCOPE MAGAZINE THROUGH THE SASKATOON CENTRE

Our brochure advertises that you will get a discount to *Sky & Telescope* magazine if you are a member of this Centre, and that is indeed true. *Sky & Telescope* is one of the two standard magazines of astronomy published in the U.S. (*Astronomy* is the other magazine). If you decide to buy *S&T*, you'll like it, since it does have great articles on leading edge astronomy and equipment.

To subscribe through the Centre, you fill out the application form – whatever you have, and give (with payment) to Barb Young our Treasurer. She will then forward it to *S&T* for processing. Make sure somewhere on the application you indicate that you are a member of the Saskatoon Centre of the RASC. *S&T* will then apply the standard 10% (?) discount to your subscription for the next year, and continue to do so as long as you continue subscribing. This is an OK deal, though quite frankly, they offer better discounts if you renew 3 or more years prepaid, not as a 'club member.' On the other hand, subscribing through the Centre qualifies you for merchandise discounts through *Sky & Telescope* and Sky Publishing Corporation.

In this way, you get 10% to 20% off of books, atlases, software, etc. automatically. If you order that kind of stuff, you simply place your order with them, and indicate you are a member in good standing with the Saskatoon Centre. They check with Barb, and if this is true, you get your

discount. About once a year, the Centre orders books for SSSP, and you can also tag any merchandise order onto that if the timing is right. Yearly, when you get the renewal card, pass that through Barb as well. You can get hold of Barb at 249-1990, (she lives in Sutherland), mail the form to our Centre mailbox or wait until next meeting. Our Centre appreciates your support of this program, since the discount on merchandise is dependent on us maintaining a minimum number of subscribers.



Join Us for
A Presidential Gastronomy
at 5:45 pm on April 21st

In honour of the visit of National President, Rajiv Gupta, we are planning a pre-meeting Gastronomy at the Tomas Cook Family Restaurant, #3 - 305 Idylwyld Drive North, in the old train station downtown (not the Station Place!). Supper will begin at 5:45 pm sharp to assure everyone has enough time to be served and to make it to the General Meeting with lots of time for President Gupta's presentation. As always, we need a head count, so please RSVP Les Dickson at 249-1091 at least a few days ahead of the event so we can book enough space. (There will not be an Executive meeting in April).

SKY BUYS & MIRROR CELLS

The Saskatoon Centre's Swap and Sale Page!

For Sale: Large Astronomical and Cosmology library – come and take a peek; **T-mount camera adapter for Canon** – \$25.00. Call Dale Jeffrey at Laird, (306) 223-4447 or e-mail dale.jeffrey@sk.sympatico.ca

For Sale: Sky Catalog 2000 - Vol.2, by Sinnott – \$30.00. **Astronomy**, 2002, by Robert Burnham – Color sky charts, planet information, etc., – \$15.00. **Guide to Stars and Planets**, by Patrick Moore, 256pp, softbound, 1995. Color photos and star charts – \$12.50. **35mm Bausch and Lomb Plossl eyepiece**, fully coated. Excellent shape; in original box with dust caps – \$80.00. Call Darrell at 374-9278.

For Sale: Meade 4400 4.5" Newtonian upgraded with **Celestron 6x30 finder, Meade MA25 and MA9 1.25" eyepieces, RA motor drive** – \$300 or best offer. Call Brent at 224-9872 or e-mail brent.burlingham@usask.ca

Wanted: Older opaque projector or the lens and lamp from one. Call Don Friesen at 343-4962.

ABOUT ASTRONOMY DAY – *Mostly for New Members*

Please remember Astronomy Day is on Saturday, May 10th at the Mall at Circle & 8th (Walmart side). We always need volunteers, and especially new members, to come out and help with the display, bring out their 'scopes and answer questions. If you can't help, make sure you visit the display sometime during the day to see what we are doing! If you can help, we normally set up at about 8:45 to 9:15 a.m. and take turns manning (or womanning) the display until the stores close. You can contribute a few hours of work or the entire day. It's fun! Following the display, the group will likely have an Astronomy Gastronomy at a restaurant in or near the Mall (location to be decided during the display).

Later that evening, we are planning to set up our scopes for the public star night at the Beaver Creek Conservation Area, 17 km S on Lorne Avenue. We should begin setting up at about 7:30 p.m. and get observing the moon and planets by 8:30 p.m. Members setting up scopes can take the service road at BCCA – a sandy road to the left after the last gate before the main parking lot. This will allow easier transporting of telescopes. If you are not setting up a scope, please park in the main lot.

Amazing XZ Cygni

by Richard Huziak <huziak@sedsystems.ca>

Tucked away at the tip of Cygnus's left wing, at 1932.5 +5623, is an exciting variable star of the RR Lyrae type. RR Lyrae stars are sometimes called "cluster variables" since they were discovered at the turn of the century in photographs of globulars, but since have been recognized all over the sky, most often free of clusters altogether. Indeed, RR Lyrae stars are the most common of all variable types. Despite being common in number, XZ cannot be considered "common" at all and it has a very exciting light curve. XZ varies from magnitude 8.7 to 10.4 in a period of only 11.2 hours. These parameters are pretty normal for RR Lyrae stars – they have very short period and usually vary about one magnitude. What makes XZ special is that it recovers from its minimum of 10.4 to its maximum of 8.7 in only 51 minutes! It then spends the next 10.3 hours slowly fading in a fairly predictable manner.

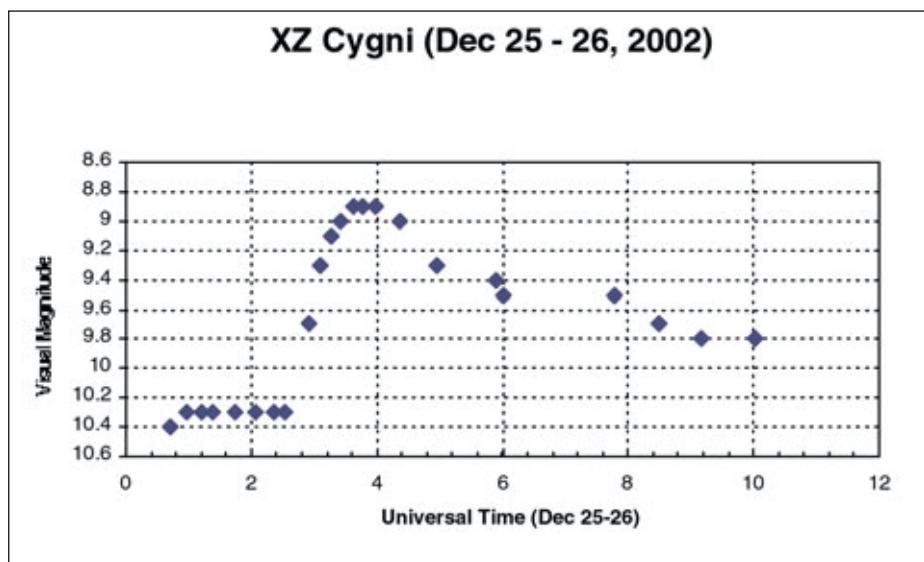
At first glance, the shape of the RR Lyrae lightcurves looks much like that of Cepheid variables, but here the similarity ends. Although RR Lyras pulsate like Cepheids do, they are members of the galactic halo, whereas Cepheids belong to the Milky Way's disk. RR Lyras are also low-mass stars – usually with masses smaller than the sun with Cepheids being much more massive. RR Lyrae stars are now beginning the fight of gravity versus radiation pressure as they are beginning to transfer from burning hydrogen to burning helium, and each cycle of the struggle results in a pulsation. Most RR Lyrae stars pulsate in the fundamental mode, faithfully repeating the brightening and fading every period, but some, like XZ, also pulsate in the first overtone, which complicates the light curve.

Besides the fundamental lightcurve that repeats every 0.467 days (11 hrs, 17 min.), the 1st overtone vibration results in a second wave over top of the first, of 57.4 days period. With these beating against each other, the effect is a lightcurve that changes over time, then every 57 days, repeats its shape. This traveling wave is known as the Blazhko Effect. This feature makes XZ fun to watch, since you can never be certain what the lightcurve will be doing that evening. The lightcurve can

have humps and bumps, and even the height of the maximum or minimum may vary by 0.3 to 0.4 magnitude. The exact period also changes slowly for unknown reasons, but likely due to the effect of real-time evolution of the star! Researchers study these stars to observe the period change and Blazhko effect.

Since the range is 8.7 to 10.4, the entire range is visible with a 4-inch scope! You can download a good chart for this star from the AAVSO site at www.aavso.org. Make observations every hour if the star is fading, but if it is fainter than magnitude 10, it might be ready to shoot up in an amazing burst almost quick enough to see in real time! At this time, begin estimating the star every 5 minutes and continue doing so for at least one hour after the star has reached maximum. Make sure your watch is well synchronized to true (WWV) time, as timings to the minute are very important. Observations can be reported to the RR Lyrae Commission of the AAVSO, but soon will be reportable to the AAVSO main site. (More on XZ Cygni and other RR Lyrae stars can be found in the Variable Star of the Month section of the AAVSO site).

Currently, XZ is skimming the north horizon, so to the AAVSO this makes the observations extremely valuable, since only northerly observers (ie. you) can see the star at this time of the year. The accompanying graph shows a very good run I managed to do covering 2/3rds of the star's period on Christmas Day 2002. The curve is typical of how this star behaves. Enjoy!



The fun of variable stars is often in the realization that things in the sky can change very quickly. XZ Cygni goes from its minimum to its maximum in only 51 minutes!

— Graph by Rick Huziak

The Planets this Month – April 2003

by Murray D. Paulson, Edmonton Centre <mpaulson@ecn.ab.ca>

Last month I mentioned that Mercury would be in conjunction with the sun on March 21st. Now, three weeks later, Mercury sits at dichotomy, 19 degrees from the sun on April 13th. This is its best evening apparition of this year. Don't miss it! Mercury sets a full two hours after the sun! You should be able to see this fleeting planet over the 2 weeks surrounding the 15th. One hour after the sun sets, it sits almost vertically over the point where the sun set. If you miss sunset, the point on the horizon is 15 degrees north of due west. In the eyepiece, Mercury is a 7.2" half disk shining at magnitude -0.2. You should be able to sweep it up in binoculars and then turn the scope on it. A little less than one month later, Mercury will transit the sun for those more fortunate than us! The event last 5-1/4 hours and in Thunder Bay you would see the sunrise with Mercury slipping off the edge. Anywhere farther east, you will see more of it. Hmm, I wonder if there is any way I can arrange a speaker exchange with an eastern centre for that week...

Our morning companion, Venus, has disappeared into the twilight glare but will still be a good daytime target for those with go-to capability or setting circles. It presents a 12.8" gibbous disk in the eyepiece and shines at magnitude -4.0. Venus trails the sun at 32 degrees in mid April and this declines to 25 degrees by mid-May.

Mars starts out at 7.9" diameter disk in early April. By early May it will swell to 10" and it would be worth watching except for the fact that it rises at 3:40 a.m. For those who would image it, there will be significant details by the time it gets this big. The moon sits 5 degrees below Mars on the morning of April 23rd.

I recently have had the pleasure of observing Jupiter as it closes in on the Beehive, M44. The sight is quite stunning in a low power field. The little disk of Jupiter accompanied by its string of moons against a backdrop of brilliant sharp points of the Beehive. This

cluster always catches me with its many pairings of stars. Quite the visual treat! I have included a list of mutual events that includes a few very good events. There also are a number of interesting regular moon events and I have compiled a short list here. Notable among them is a shadow transit of Callisto. I have yet to observe one in watching Jupiter for 15 years, so this would be a good one to get. On April 10th the moon sits 4 degrees above Jupiter just after dark.

Saturn will be the highlight of Astronomy Days. On April 7th just after sunset, the moon sits less than 4 degrees above Saturn. As you gaze upon Saturn, remember that next year the rings will start on the way back down. Right now they are tipped up at an angle of 29.6 degrees. It will be another 7 years before they are edge-on, so the changes will not be dramatic, but enjoy the view.

Regular Satellite Events – All times in UT

5 Apr	0:08	III	Tra	end:
5 Apr	0:38	I	Ecl	end:
5 Apr	1:13	III	Sha	start:
5 Apr	4:52	III	Sha	end:
12 Apr	0:16	III	Tra	start:
12 Apr	2:33	I	Ecl	end:
12 Apr	3:54	III	Tra	end:
12 Apr	5:12	III	Sha	start:
12 Apr	8:51	III	Sha	end:
19 Apr	0:54	I	Occ	start:
19 Apr	4:06	III	Tra	start:
19 Apr	4:28	I	Ecl	end:
19 Apr	6:54	IV	Occ	start:
19 Apr	7:44	III	Tra	end:
19 Apr	9:11	III	Sha	start:
28 Apr	0:52	I	Sha	start:
28 Apr	5:07	IV	Sha	start:
28 Apr	9:56	IV	Sha	end:

Mutual Events of Jupiter's Moons – All times in UT

M	D	hr	m	s	Moon	Event	Moon	Magn. Drop	Durat. sec
4	2	3	31	52	2	ECL	3	A	0.258
4	4	4	5	23	1	OCC	2	P	0.203
4	4	5	47	1	1	ECL	2	P	0.218
4	4	5	50	47	3	ECL	4	A	0.7
4	9	2	38	20	1	ECL	3	P	0.278
4	9	3	8	1	2	OCC	3	P	0.026
4	9	6	52	6	2	ECL	3	P	0.19
4	10	1	15	36	2	ECL	1	P	0.429
4	11	3	31	29	4	OCC	1	P	0.15
4	11	6	14	2	1	OCC	2	P	0.211
4	12	3	37	6	3	ECL	1	P	0.688
4	16	5	36	52	1	ECL	3	A	0.378
4	16	6	21	31	2	OCC	3	P	0.007
4	17	3	31	35	2	ECL	1	A	0.565
4	18	8	24	32	1	OCC	2	P	0.231
4	19	6	22	3	3	ECL	1	P	0.86
4	23	8	29	43	1	ECL	3	A	0.452
4	23	9	36	55	2	OCC	3	P	0
4	24	5	47	9	2	ECL	1	A	0.654
4	26	3	35	19	3	ECL	2	P	0.362
4	26	9	8	36	3	ECL	1	P	0.951
5	1	8	2	17	2	ECL	1	A	0.648
5	3	6	52	37	3	ECL	2	P	0.518
5	6	1	58	33	1	OCC	2	P	0.345
5	7	2	41	2	2	OCC	4	A	0.406

Data used in my column courtesy of Guide 7.0 and Mutual events COPYRIGHT on the server of the *Institut de mecanique celeste et de calcul des ephemeredes (Bureau des longitudes - Observatoire de Paris - CNRS)* Web site: http://www.bdl.fr/ephem/ephesat/en/phenomena_eng.html

Variable Stars Any Night!

by Richard Huziak, Saskatoon Centre, RASC
Huziak@SEDSsystems.ca

I have now spoken to the Edmonton, Winnipeg and Saskatoon Centres hoping to make the point that you could take your observing program to a new *scientific* level by collecting and reporting useful data on all kinds of objects in the sky, from planets and the sun, to asteroids, to meteors, to the stars, and that amateur scientific data collecting on these objects was really “dirt easy.” If you keep good notes about your observing adventures, it is a very small step to keeping notes that other amateur or professional astronomy researchers would love to get their hands on. I also suggested that a really good place to start was by observing variable stars, but I never really talked much about variables themselves. A structured, scientific program consists of observing for fun, recording standard details about the objects, then reporting your observations to an astronomy group that collects and analyzes these data.

Variables are easy targets with which to begin a program, because they can be seen from your backyard even when the moon is full, in winter or summer, and in any part of the visible sky. There are thousands of variables you can choose from, depending on what equipment you have, from naked eye to binocular to telescopic targets. Besides a large number of choices, access to variable star charts is better than it ever has been before, especially if you have access to the Internet. (If you are not web-literate, then find someone who is to print off your favourite charts!) At the website for the American Association of Variable Star Observers, www.aavso.org, there are over 4200 charts for variable stars for all types of telescope views – Newtonian or Cassegrain. They are all free! Besides a few charts, you will need a watch set within 1 minute of true time, a pen and paper.

If you do not have a favourite variable star, check out AAVSO’s lists under *Observing Aids of Stars Easy to Observe (& Stars ... with Binoculars)* available on-line, or read about the best variables in *Burnham’s Celestial Handbook*. In Burnham’s, each constellation has a story, light curve and chart for its most interesting variables. That’s how I got started! Star-hop to that variable by whatever means you use to star-hop, and identify the variable in the field. (Caution – sometimes some variables are too dim to be seen for part of their light curve. If you can’t identify the field, this might be the case!) Once found, find some suitable comparison stars in the field, which are indicated on the chart with their magnitudes given to 0.1 magnitude accuracy. (A 10.8 magnitude star will be marked “108,” a 7.5 star “75,” and so on.) Find a comparison star just brighter than your variable and one just fainter than your variable, and then interpolate an estimate somewhere between these two

extremes. For example, if your comparison stars are 7.8 and 8.7 magnitude, and your variable seems to be 2/3 brighter than the 8.7, and 1/3 dimmer than the 7.8, then your estimate will be 8.1 magnitude. Good enough. *Dirty easy!* If the star cannot be seen, you can still report the magnitude as less than (<) the faintest comparison star you can see. Record the name of the variable (ie. T Ori), date, time to nearest minute, magnitude of your estimate, magnitude of the comparison stars you used, latest chart date and scale, and any notes about conditions that might have affected your estimate, such as haze, moonlight, etc., which the entry program codes later. Just try your best and don’t worry too much! Out of 53 newly recruited variable star observers, *no one* has made poor estimates – that’s how easy it is! The AAVSO has an excellent on-line *Manual for Visual Observing Variable Stars* and other great tutorials to help you out with other details.

To report, you will need to download a program called *PCObs* or *PerlObs* from the AAVSO site, and will have to email the AAVSO at aavso@aavso.org to request your 3- or 4-digit observer’s code, unique to **you alone**. Your report can be emailed to the AAVSO at any interval, but at least monthly.

So far, I’ve had great response from the Edmonton and Calgary and some response from Saskatoon, with Mike Clancy and Wade Selvig taking up the Challenge, and I plan to do an under-the-stars variable night to encourage other Saskatoon Centre members to begin variable star observing as a part of their program!

For me, observing for scientific reasons is something I’ve always done, and this year I’ve expanded this observing to “The Great Canadian Observing Challenge” to promote RASC members to take up more science in their Centres. Fewer than 100 of the 4,615 national members of the RASC have science-based observing programs of any type and are reporting their data. As of last year, only 18 were observing and reporting variable stars, 15 observing and reporting meteor counts, 20 reporting noctilucent clouds, 11 reporting sunspots, 1 reporting sudden ionic disturbances (SIDs), 10 reporting asteroid occultations, and only a few others doing different programs. The Great Canadian Observing Challenge has a goal of recruiting 100 Canadian *variable star* observers over the next one year. See http://prana.usask.ca/~rasc/The_Great_Canadian_Observing_Challenge.htm. If you need help at getting started, talk to one of the variable star observers in your Centre, or email me! I’ll do what I can to get you started. (If you’d rather observe and report something else other than variables, be my guest – I can help you out there, too.) However, I think you will find variable star observing fun, rewarding, very interesting and, be careful, it is also addicting! Good observing!

Minutes...

Recorded by Al Hartridge, Secretary – Room 8313, City Hospital

...of the Executive Meeting of Mar 17, 2003

1. Additions to the Agenda and approval of the revised agenda. Moved by Darrell Chatfield and seconded by Jim Young and carried.
2. Approval of minutes of previous meeting as amended. Moved by Sandy Ferguson and seconded by Barb Young and carried.
3. National President: A motion was made by Rick Huziak and seconded by Jim Young that the club provide a hotel room for Rajiv Gupta, the National President, while he is here. Motion carried.
4. Light Pollution Committee: The tabled motion by Rick Huziak that \$250.00 be provided for operating expenses by the Centre was seconded by Jim Young and carried.
5. Astronomy Day will be on May 10th. The following star night may be held at Beaver Creek.
6. Insurance: The insurance people tell us that our local definition of memberships would qualify them for insurance under our Centre's plan. It was mentioned that we could probably obtain a much better rate if our plan was with the same company as the National plan.
7. Treasurer's Report: Present balance is \$15,734.63.
8. Library Report: A work bee is planned in the near future.
9. Activities Report: Sandy Ferguson. See the Astronomy Day report.
10. Fundraising: Darrell will approach the Saskatoon Foundation again.
11. Membership: 68 members, no Temporary Members at present.
12. Newsletter: Rick says some members are experiencing some download problems.
13. Observing Group: A Messier Marathon will be held the last Friday and Saturday evenings in March.
14. No Executive meeting in April.
15. Meeting adjourned at 7:25 p.m.

...of the General Meeting of Mar 17, 2003

1. Messier Certificate awarded to Bill Hydomako.
2. Presentations:
 - Dr. Rainer Dyck: "The Mystery of Ultra-high Energetic Cosmic Rays"
 - Rick Huziak: "Speaking at the Edmonton and Winnipeg Centres"
 - Darrell Chatfield: "Astronomical Tidbits"
3. April Meeting: Dr. Rajiv Gupta, National President, will visit. A gastronomy supper will be held at the Thomas Cook Restaurant at the old train station at 5:45 p.m.
4. Astronomy Day: May 10th at Circle Park Mall. Star-night hopefully at Beaver Creek, but to be confirmed. Call Sandy F. with questions.
5. Light Pollution Committee: Alderman Kate Waygood suggested teaming up with the Saskatoon Environmental Group. \$250.00 voted to the committee for operating expenses.
6. Finderscope for Eetook will be purchased. Cost up to \$200.00 approved.
7. Associate Members: The Centre's present insurance will cover this category.
8. Membership: Bob Christie will be leaving in June and can no longer look after this job.
9. Treasurer: Present balance is \$15,734.63.
10. Library: A work bee will be held in the near future to continue reorganization of the library.
11. Fundraising: Darrell Chatfield will be approaching the Saskatoon Foundation. He continues to collect Canadian Tire money.
12. Newsletter: Some members are having trouble downloading the electronic newsletter.
13. Observing: a Messier Marathon will be held at Sleaford the last Friday and Saturday evenings in March.
14. Sales Coordinator: Bruce Brandell has volunteered to look after book sales.
15. SSSP: Dr. Doug Hube will be the guest speaker.
16. Meeting adjourned at 9:15 p.m.

More on Newsletter Browser Problems — *By Rick Huziak, Editor*

I stand corrected in a statement that I made regarding download problems with the newsletter. I stated that the problem originated with a Windows 98 upgrade, but James Wood corrects me (thanks!) stating: *"In my case it started with the installation of Service Pack 1 for Windows XP (not Windows 98). With this system "upgrade" came Internet Explorer 6.0.2800...which I suspect is the real culprit. What worked for me was right-clicking on the newsletter link and saving to my desktop. From my desktop I was able to open it in Adobe Acrobat and bend it to my will."* Likely, a patch will appear soon on the Internet, so please be patient if you continue to have problems, and inform me exactly of which software appears to be causing problem if it is not the new Explorer 6. You can also likely fake out the new Explorer by right-clicking on your Adobe Reader icon, and getting into the \edit\preferences menu. Once there, disable "display PDF in browser," and then reboot the machine to start-up the new configuration.

The Messier, H-400, FNGC, Binoc & EtU Page

This page is taking another month of vacation due to a poor Messier Marathon night (see Tenho's article) and a rarity of updates of observing numbers. Heck – even I'm not observing! No sky – just clouds, clouds, clouds. At least Lorne Jensen managed some observing, and with his three new objects, has a total of 58 Messiers, despite a busted finder. Brent Burlingham also has upped his Messier total to 37 objects. This page will return next month – so pray for clear skies!

A Short Note on the ETX60 Go-To Scope

by Richard Huziak <huziak@sedsystems.ca>

A few weeks ago, I got to play around with a Meade ETX60, a 60mm aperture refracting go-to scope, which is found for about \$299 at Costco and similar outlets. This model is now discontinued – accounting for the low sell-off price. Most who buy this scope have no previous astronomical experience. Low-priced, small telescopes, and the “convenience of go-to” are marketed towards the general public, who should then be able to “see the wonders of the universe,” since the scope shows it all to you as you leisurely push “go-to the next object.”

If it were only that simple! Although the scope comes with a 40-page manual, it does not come with adequate star charts to help in auto-alignment, since it takes at least basic knowledge to know things that we normally find simple as amateur astronomers, such as “Which one is the North Star?” or “What’s an Arcturus?” Without this basic knowledge, the standard 2-star alignment cannot be done with confidence, and with continued evening use, as the scope continues to drift off its targets, the new users’ knowledge to continue to re-center objects and refine the alignment procedure does not happen. And although the telescope’s memory is pre-programmed with “standard stations” such as Los Angeles and Saskatoon, instructions are not too clear on what to do if you don’t live there. All in all, there is a lot of reading and head-scratching to get the scope up and running. It certainly is not plug and play. A few pages of trouble-shooting tips doesn’t inspire confidence!

There are several positive and negative features. I’ll let the reader decide which is which. The scope is pre-programmed with several menus of go-to objects that include the Messier Catalog, planets, the moon, Caldwell Catalog, the NGC Catalog and more. However, the NGC Catalog is incomplete, with no indication of what was left off. (Likely the catalog is limited by a magnitude cut-off.) I typed in several NGCs at random and most “did not exist.” (They do.) However, if you do choose an object on the catalog that is recognized, the scope faithfully slews over to the position in the sky were it should be, or you are told it is below the horizon. The scope also has axes that can be unlocked in altitude and azimuth, so should the batteries die the scope could be used manually (except there is no finder scope). The scope is also supplied with a too-small and way-too-rickety tripod that is completely unusable, and indeed, likely even a danger since its small mass and instability will likely result in unneeded dust-biting exercises. The electronics are also not designed for intermediately low

temperatures, and these scopes have been known to stop working once below –10 degrees C (or so).

Two Meade modified achromatic (MA) eyepieces come with the scope, a 25mm and 8mm (I think). At the main scope’s focal length of 350mm, this translates to 14x and 44x. Using the included 2x Barlow gives 28x and 88x. One frustration that will come through immediately is how small the planets will look at these powers, and the planets really are the showpieces of the sky, especially for beginners with small scopes. You will see Saturn’s ring and Titan, but no atmospheric bands or Cassini’s Division. Jupiter’s 4 moons will show, and so will 2 or 3 cloud bands, but the red spot and other features will not show. Although the scope will slew to Uranus or Neptune, the scope does not have enough magnification to distinguish these planets from the surrounding stars. And even if there are a lot of NGCs in memory, very few will actually be visible through the scope’s 60mm aperture, limited to about 10.5 magnitude. A go-to user at the Alberta Star B-Q last year was disappointed when the scope slewed over to blank sky after he had typed in a pre-programmed object. “There’s nothing here – the scope must have screwed up!” Not really – the object was just 4 magnitudes too faint to be seen in his scope!

Unfortunately, due to our super-sucky skies, I did not get to sky-try this scope. However, views down the street at signs and trees showed nice images. I also could not see how accurate the 2-star alignment is, or how accurately objects are “gone-to,” though the scope seemed to go through the motions properly on the dining room table, and at 14x, there is a lot of leeway for pointing errors. (Then again, how would the novice know if the scope pointed to the wrong object anyway?)

This scope will work for the patient technophyles that don’t mind a lot of start-up problems and who don’t blame the scope for their lack of knowledge of the sky and what things really will look like through the scope. If you have it already, go for it! Any scope pointed at the sky is a good scope. The scope works, but is a good starting scope? It remains to be seen. Somewhere along the line, you’re going to have to learn the sky anyway! An alternative starter scope is a 4.5" or 6" Dobsonian. It will cost more – about \$350 - \$450, but has more light, much more power, a finder, less frustration in start-up (though you need to know how to collimate), and there is more (enjoyable and rewarding) incentive to learn the sky by scanning around to see what’s “between” those go-to objects!



Ask AstroNut

The **Ask AstroNut** column is an anonymous question and answer advice column, where you can ask any question you want, boneheaded or brilliant, and the editor will find someone who will give you a somewhat educated answer.

Dear AstroNut: Looking through the last SkyNews left me depressed at my poor eyes. In their article "Touring the Spring Sky's Best" they talk about the "finest galaxy pair for binoculars [M81/82]" and "M101...is easy to locate" and "M51...a snap to locate in binoculars." I found M81/82 after many nights of trying but haven't found the others in binoculars yet. Even to complete the Messier list I had to go to an 8-inch scope. Others claim they can do it with a 3-inch or less. Still I am enjoying astronomy, but what is going on?

AstroNut answers: There are many reasons for your 'failure' of naked eye or binocular view, and I wouldn't get depressed about it just yet.

1 I don't know what your eyes are doing these days, but quite frankly, the sky has REALLY SUCKED for transparency, and I have rarely seen a sky since October with a depth of better than 13.0 magnitude with a 10-inch scope. This is very poor since usual depth is 15.0 magnitude. Many others have been complaining about very poor seeing all across Canada over the winter. And 'good' seeing is what is necessary to see M81/82, M101, the North American Nebula, M51 in binoculars, etc. In normal good weather, I can easily see M81, M82, M51 in my 8x50

spotter (=binocs), but lately I cannot see them in this way. It is the sky – not you!

2 I think I understand why you can't see North American Nebula, M101 and likely others like M33 so well. Again – mostly due to the sky but also likely due to, as many will agree, a basic non-understanding of what these objects 'should' look like. All these objects are extended objects – way larger than most people give them credit for – the smallest one in this group is one-half degree across, the size of the moon! Thus what a scope shows is usually just the central core and the field is filled with fuzz that looks like the background sky, but is not – it is the rest of the object. Therefore, there are two way to see the object in it's entirety:

- a) use VERY low power – i.e. binoculars in a very good sky – you see a smudge in the middle with black all around;
- b) scan across the object from left to right and top to bottom with a scope at low or medium power giving lots of overlap. You see the sky go from black and crisp to 'an impression' the sky is 'milky' when you are on the object, then to black again once you cross over it. Using this technique, you can trace the entire border all around the North America Nebula through the scope, the outer arms of M33, the full 4-degrees of M31, comet tails WAY beyond what is normally visible, the outline of the Veil Nebula, the California Nebula, the Helix Nebula, etc. Then again, this all depends on the clear skies we do not have!

Notes from the Messier Marathon

by Tenho Tuomi <tuomi@sk.sympatico.ca>

Garry Stone and I enjoyed the Messier marathon at Sleaford on March 28th in spite of the brightest aurora that I had seen for some time. That aurora just did not seem to want to die down. Observing had to be done by playing tag around it. However, the sky was cloudless and the weather was good for this time of year. For telescopes there, I counted two 8-inch Celestrons, two 80mm refractors, one 114mm Newtonian and one 10-inch Dobsonian, plus Sleaford's own scope.

The 3 other observers left early so Garry and I left also at 2 a.m. When I got home I continued the marathon with my 16 x 80 handheld refractor for another hour from 4:30 until the sky started brightening.

I did not feel like unpacking my 8-inch reflector.

In the morning I counted up how many Messier objects I had found. I found 40 at Sleaford; 22 with the 8-inch, 15 with the 3-inch, and looked at 3 with both. At home I found another 18 with the 3-inch, bringing my total to 58. It would be nice to know how many objects the others observers found there.

Thanks to Bill for looking after us while we were there.