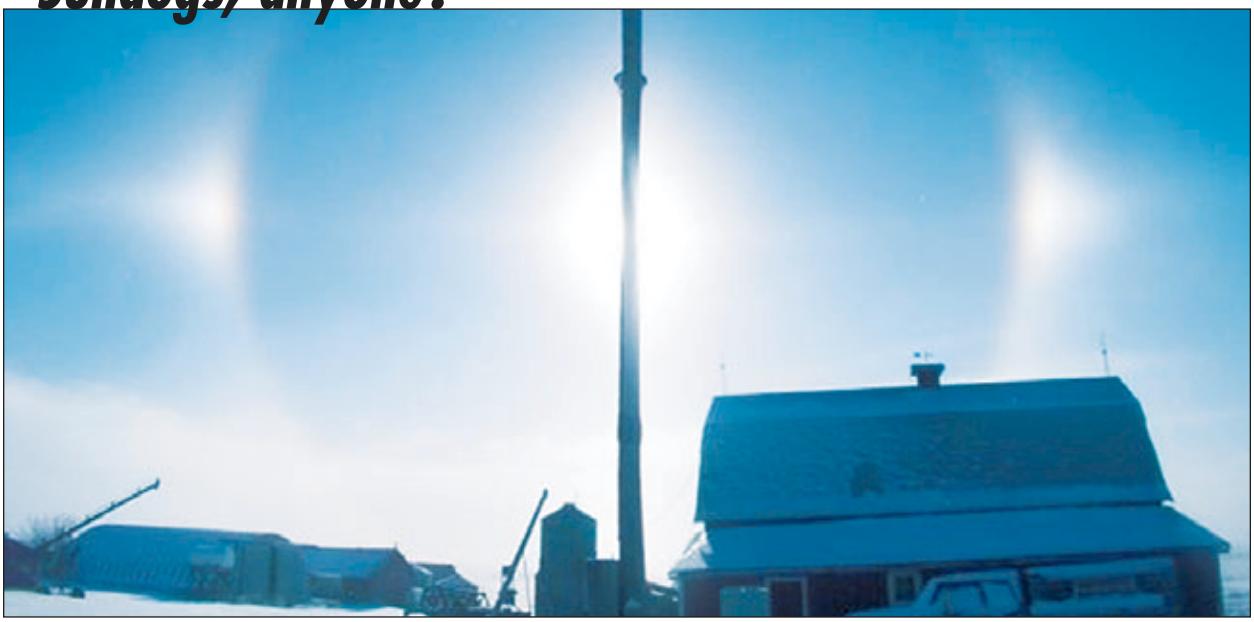
Saskatoon Skies

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

Vol. 34, No. 3 **March 2003**

Sundogs, anyone?



February was an amazingly poor month for astronomy, with us astronomers wondering if the night sky would ever clear. Indeed, there were only 4 clear nights last month, each with thick haze – maybe the poorest on record! Tenho Tuomi used clear days (not nights!) to do some photography of the ever-present sundogs! "Beautiful sundogs today. I pieced two pictures together to make this. The solar halo is 22 degrees from the sun so I should have been able to get both sundogs into the 50° width of my digital camera, but I would have missed the structure outside the sundogs."

In this issue...

Saskatoon Centre
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Membership?

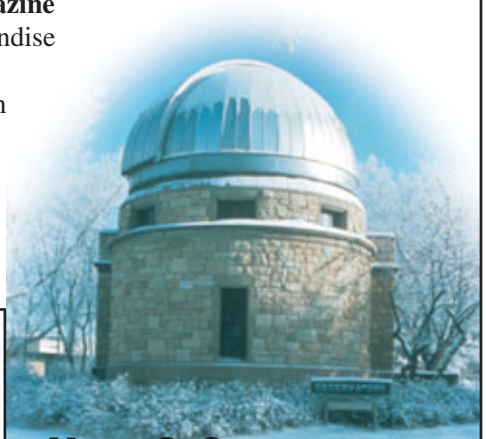
It's never too late to join!

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!



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.

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

General Meeting

Monday, Mar. 17, 2003, 7:30 pm
Room 8313, City Hospital

Presenting:

The Puzzle of Ultra-High Energy Cosmic Rays

Dr. Rainer Dick, U of S

Exactly where high-energy cosmic rays come from and how they are generated has baffled astronomers for many years. New observations are shedding light on their origin and nature.

Admission is free and non-members are welcome to attend.

About this Newsletter…

Newsletter Editor – *Richard Huziak*
Production & Layout – *Linda Janzen*
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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 .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.

RASC Calendar of Events

DATE (2003)	EVENT	CONTACT	TELEPHONE
Mar. 14	Rick Huziak speaking at **Winnipeg Centre Meeting**	Rick Huziak	665-3392
Mar. 14	**Youth Group Meeting** – Nutana Collegiate, 7:00 p.m.	Tyrone Klassen	652-4599
Mar. 17	**Executive Meeting** – Room 8313, City Hospital, 6:30 p.m.	Les Dickson	249-1091
Mar. 17	**General Meeting – Ultra-High Energy Cosmic Rays – Dr. Rainer Dick, U of S** – Room 8313, City Hospital, 7:30 p.m.	Les Dickson	249-1091
Mar. 28&29	**Messier Marathon Night at Sleaford** – Be there for start of dusk!	Rick Huziak	665-3392
Apr. 8&9	**Learning Variable Stars Under the Sleaford Moon** – Dusk	Rick Huziak	665-3392
Apr. 11	**Youth Group Meeting** – Nutana Collegiate, 7:00 p.m.	Tyrone Klassen	652-4599
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** – location may be Circle Centre Mall	Les Dickson	249-1091
May 10	**Astronomy Day Star night** – notice: date may change due to moon	Sandy Ferguson	931-3184
May 12	**General Meeting – A Trip to Arizona's Observatories & the AAVSO Meeting – Rick Huziak.** ***NOTE: EARLY DATE*** *due to Victoria Day weekend* – 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
Nov. 8	Total Eclipse of the Moon – 5:00 p.m. to 10:22 p.m.	Rick Huziak	665-3392

Bonehead Moments in Observing

by Richard Huziak *<huziak@SEDSystems.ca>*

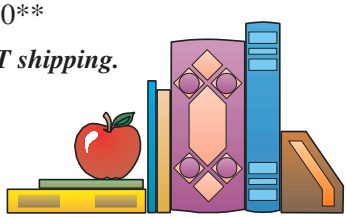
I was out one night many years ago at the Rystrom Observatory. It was –26°C, but with a HOWLing wind from the south. At the end of the night I was using Eetook, the 12.5" Dobsonian in the observatory yard, completely unprotected. As the last objects of the night, I thought I'd just 'cool down' by checking out some Herschel 400 galaxies only a few degrees above the south horizon. I found what I wanted. But as I was watching, I got the impression that the image was fading, and soon it was very dim and unspectacular. I checked the eyepiece for fog, but it was clear. So I went around the front of the scope to see if one of the mirrors had fogged up. Well – it wasn't fog! Snow had blown in to the tube so much that about 3/4 of the primary mirror was shielded by a snow drift inside the tube up against the mirror! It was definitely time to go home!

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
- Cambridge Star Atlas (1) - $40.00
- Astrophotography *by GN Patterson* (lots) - $5.00 **
- ***NEW*** - 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.



REMEMBER... YOU CAN SIGN UP TO GET THIS NEWSLETTER ON THE INTERNET instead of waiting for snail-mail. Current electronic subscribers *save us over $320/year* in mailing costs.

Supernova Hunter – Tom Boles of Coddenham, UK

by Darrell Chatfield

I thought I would write a small article about a very avid supernova hunter by the name of Tom Boles. I came across his name while I was looking at the latest supernova discoveries, which I do most times while I am on the Internet. Since I am interested in looking for supernovae, I thought I would learn how he has discovered so many of them, which number 38 to date.

Tom hails from Glasgow, where he spent many hours designing and making telescopes with Charles Frank. This is a source of telescopes for people in the U.K. even today. Today, he is a retired computer and telecom support engineer. He is a member of the British Astronomical Society and the Webb Society.

His love for supernovae started on August 19, 2001, when Patrick Moore opened his observatory. Tom's roll-off houses twin C-14 Schmidt-Cassegrain telescopes. Each telescope is fitted with an Apogee AP7 CCD camera, with 512x512x24 micron back illuminated pixels. He has adapted his cameras so they can receive more light by machining out excess silicone from the rear of the chip. The telescopes themselves are controlled by an array of software, which includes: The Sky for the scope, CCDSoft for the cameras, Orchestrate for turning and pointing, and Tpoint for increasing pointing accuracy of the whole system.

Tom added a third robotic telescope, which is also a C-14 S-C. This one is housed in a domed observatory to reduce the affect of wind during a patrol. With all this equipment, Tom can patrol 12,000 galaxies on any given clear night!! Most of his discoveries have come from obscure galaxies from the MGC and UGC catalogues, but some hail from the NGC list. His latest one came on February 13 of this year.

As an aside note, the town in which he is living used to be a Roman outpost called "Cambretorium," and is only 1 of 2 known Roman forts in Suffolk, a county on the east side of England. Also, there are 21 sundials in Suffolk County alone, with one dating back to the 15th century!

So, now I know how he can be so prolific at finding supernovae. Is there hope for me in my supernova quest? I think that there is. As Robert Evans puts it, just try to limit a search to 30 to 40 galaxies that are at least visible from your setting and equipment. (I know that clear skies will also help!)

Next month, I will have an article about Robert Evans, who is also an avid supernova hunter. Keep looking up.

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.

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

Saskatoon's Telescope Rental Program

The Centre has a few loaner scopes that we can rent to members for a nominal monthly (fund-raising) fee, negotiable with Gord Sarty, the scopes' curator. If you do not have a scope, you may want to use one of these for a while. Currently, there are three scopes available, each with their own set of eyepieces. These are:

3.1" f/12 Tasco refractor on Equatorial mount – excellent on planets since the long focal length lends itself to the use of very high powers. 3" refractors show planet detail wonderfully and have very sharp images!

6" f/5 Rich-field scope – on a home-made rickety but passable equatorial mount. Excellent for wide-field viewing of the Milky Way and large star clusters.

4.5" f/3.3 Astroscan reflector – a very nice wide-field scope that can be cradled in the lap or used on its table-top mount. Excellent for wide-field Milky Way views, but not so hot for planetary detail. It is, however, extremely portable.

If you are interested, visit our Centre website for more details, or call Gord Sarty at 665-6448.

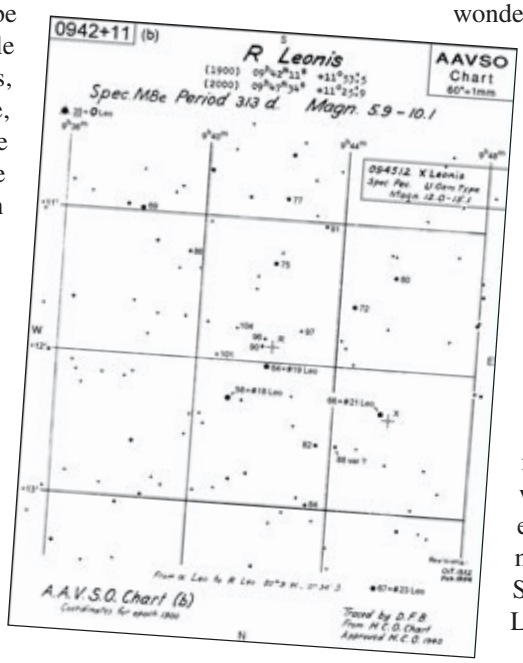
Upcoming Sleaford Observing:
The Messier Marathon, a Variable Star Clinic & a Total Lunar Eclipse

*by **Richard Huziak** <huziak@SEDSystems.ca>*

The coming warmer spring weather gives us an opportunity to get into some observing sessions for our members. Thus, members are invited to attend these sessions, which will be held at the Sleaford Observatory.

The Messier Marathon happens every March, and presents the opportunity, if weather cooperates, to view 109 of the 110 Messier objects between early dusk and late dawn – all in one night. We will hold these observing sessions on March 28th and March 29th, hopefully going all night long. I am uncertain if I can personally make the session on the 28th, but that should not deter anyone from attending, since the Messier list can be done by anyone unaided. However, if you are inexperienced and need help, surely some older members will be in attendance on the 28th. I will be there on the 29th to provide guidance for anyone needing it. To start the Marathon, the nuclei of M77 & M74, galaxies in Cetus & Piscis, must be picked up in very bright twilight. After this, 107 more objects await! Only the globular M30 in Capricornus cannot be found since it is in conjunction behind the sun. Be sure to arrive with the sun still up so the first objects do not set before you are ready. We will try to go both nights, but pick the first clear night to make sure you get this event in. By April, some of the first objects have set for the year, and the Marathon is no longer possible. Even if you cannot stay all night, come anyway and either start or get further on your Messier list. (I have never completed the Marathon myself). I will bring 'object viewing order' sheets if you have not yet planned your viewing session.

A Variable Star Clinic – After the moon comes up for the month, many of you stop observing. This is a shame, and there are many types of objects that can be seen with the moon up – double stars, lunar craters, planets, asteroids, and my favourite, variable stars. I will give a Variable Star Clinic to members who are interested mid-week on April 8th and 9th at Sleaford. This coincides with a first quarter moon – a moon too bright for most observers. (Variable star observers just keep observing!) Just show up if the weather is clear. I'll be waiting. The clinic will start at dusk – about 9:00 p.m. – and go for about the next hour. (I am doing this mid-week since I do not have any weekends free in April.) You can attend the workshop, do a bit of personal practice afterward and be home well before midnight. This clinic will be an introduction to variable star observing with the naked eye, binoculars and telescopes. You will need no previous experience and I will bring all any charts you will need. Once you complete this workshop, you are welcome to submit any observations you make to the AAVSO in support of my "Great Canadian Variable Star Challenge" (see the November '02 issue of *Saskatoon Skies*, pp. 4-6) and help me get 100 Canadians reporting to the AAVSO this year. (I am around 25 observers short of the goal right now.)



...and Even a Lunar Eclipse – If the May 15th lunar eclipse does not become the Astronomy Day Public Starnite, then eclipse observing will happen at the Sleaford Observatory. This is a Thursday. The moon will rise as the sun sets and will already be in partial eclipse, soon becoming total for the rest of the evening. Although visible from anywhere, observing at Sleaford gives you a sense of community, and you will be able to learn more about the eclipse from others in attendance. Watch the April edition of this newsletter to see if the observing place for this eclipse changes.

General Observing Anytime – An Invitation – I hope that members will take advantage of these sessions and the wonderful Sleaford Observatory. Suggestions for other observing topics are welcome. However, a group of us observe clear nights at Sleaford 7 nights a week. Typically we try to observe from last quarter through the new moon, and until the moon becomes about 5 days old (and will still set at a reasonable time in the evening). After these dates, I try to observe at the site one or two additional nights a month doing things that can be done under a moonlit sky. However, personally, I cannot observe Friday nights and every second Saturday night, so I make up for it by observing week nights. So, anyone interested in observing anytime can give me a call to see who is going out to the site on a particular evening. Likely, if it is clear, and if the moon is not too bright, someone will be going out to Sleaford. You are certainly welcome to attend! Let's go observing!

The Planets this Month – March 2003

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

Mercury will be in conjunction with the sun on March 21st. As the sun crosses the spring equinox, Mercury passes 1.25 degrees below it. Three weeks later on April 13th, Mercury sits at dichotomy, 19 degrees from the sun in 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 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.

Our morning sky is bedecked with a dazzling white jewel, Venus. It starts off the month in the depths of Sagittarius, sitting 2-1/2 degrees above the ecliptic, about as far south of the celestial equator as it gets. It shines at magnitude -4.3 and shows a 20" slightly gibbous disk in the eyepiece. Over the month the disk waxes and shrinks in size. On the morning of March 28th, Venus will pass 2.8 minutes of arc away from the planet Uranus. At magnitude -4.0, Venus will shine 10 magnitudes brighter than Uranus. In the eyepiece, it now shows a 13.65" gibbous disk – enormous compared to Uranus's diminutive 3.36" disk. Venus sits at 1.22 AU and Uranus is at a distant 20.8 AU. This conjunction will have a tight timeline with Venus rising less than an hour before the sun. Venus's magnitude -4 beacon in the east-southeast should make it a fairly easy target.

Mars starts out March at 6.4" in diameter and will expand to 7.9" in early April. By early May it will swell to 10" and it would be worth watching except for the fact that it rises in the early morning hours. For those who would image it, there will be significant details by the time it gets this big. The moon joins Mars in the morning sky and sits 4 degrees below it on March 25.

I have finally managed to see one pair of mutual events of Jupiter's moons on the night of our Edmonton February 10th meeting. Europa occulted Ganymede and then 45 minutes later, eclipsed Ganymede. The wind was buffeting my less than adequately mounted scope so the occultation was the simple observation of the two moons merging into one and then becoming a tight but widening double. The eclipse was interesting. I had hoped to see a change in the small disc of Ganymede as the shadow played across it, and I did see an asymmetry, but the wind made it difficult. The brightness of Ganymede was very similar to Europa during the eclipse, and then it became obviously brighter as the event concluded. The change was only about 1/2 magnitude. 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 March 14th the moon sits 3.3 degrees above Jupiter just after dark.

The weather has been so poor that I have missed a lot of the Saturn season. We still have a few more good months to observe it if the weather cooperates! It will be the highlight of Astronomy Day. Saturn and the moon set only 2.5 degrees apart on the morning of Mar 11th. (This is at 3 a.m. on the evening of March 10th). Again, one month later, the moon sits less than 4 degrees above Saturn on April 7th after sunset. As you gaze upon Saturn, remember that next year the rings will start on the way back down. 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

9 Mar	3:53	IV	Sha	end:
12 Mar	0:46	I	Sha	start:
12 Mar	2:13	I	Tra	end:
12 Mar	3:04	I	Sha	end:
12 Mar	4:58	II	Tra	start:
12 Mar	6:42	II	Sha	start:
12 Mar	7:53	II	Tra	end:
12 Mar	9:37	II	Sha	end:
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:

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

M	D	hr	m	s	Moon	Event	Moon		Magn. Drop	Durat. sec
3	3	7	47	31	1	ECL	2	A	0.853	163
3	9	7	24	36	4	ECL	1	A	0.704	175
3	10	10	0	17	1	ECL	2	A	0.853	166
3	17	12	13	17	1	ECL	2	P	0.71	157
3	21	1	19	54	1	ECL	2	P	0.613	148
3	25	4	14	19	4	ECL	2	A	0.822	213
3	28	3	33	19	1	ECL	2	P	0.404	116
4	4	5	50	47	3	ECL	4	A	0.7	378
4	10	1	15	36	2	ECL	1	P	0.429	188
4	12	3	37	6	3	ECL	1	P	0.688	194

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

Celestron's EQ 114 SHORTY

by Mike Clancy
<mclancy@sasktel.net>

Purchased in late November of 2001 as a Christmas gift from my loving family (who seem to want me outdoors at night – go figure!) at a cost of $350, this shortened Newtonian-style telescope uses a multiplier or corrective lens in the objective mount to simulate a 1000 mm focal length on a 500 mm barrel. At 114 mm in width, the telescope functions well as a beginner's tool as it isn't as susceptible to vibration and shake as the typically longer examples of this aperture. As it is shorter it is also easier to manipulate as one navigates the heavens and should be easier to collimate although I have yet to attempt that function. It weighs 7.27 kg (16 lbs) compared to the longer variant's 8.64 kg, so it's a bit easier to horse around. The scope comes bundled with Celestron's "The Sky" software, a poorer version of more useful computer tools like "Starry Night – Backyard Edition," as well as a serviceable collapsible three-legged stool. It was easy to assemble straight from the box, with all parts fitting together well and with little wasted effort. The instructions that come with the scope are somewhat vague as they describe setting circles and the use of the equatorial mount, none of which is useful as the mount isn't accurate enough for that use. It does allow one to smoothly track objects during viewing much easier though, and that was the big reason I chose the equatorial mount over the Dobsonian one. The aluminum mount itself is sturdy enough for the task although I would have preferred that the triangular mid-leg support be hinged to facilitate setup. It comes with three wing nuts to hold each side to one of the legs so it does work; I just don't like fiddling with it after transport!

The unit comes with two Super Modified Achromatic (SMA) lenses, a sort of "super-Kellner." Celestron states that they are "fully coated, economical 4-element lenses well suited to the amateur observer." The 20 mm and 10 mm objective lenses supplied work well enough although the unit requires superb skies to get much use out of the 10 mm. They both have 52-degree apparent fields of view and are definitely better when objects are centered. Objects at the edge of the 10 mm SMA can be markedly blurry particularly with any haze in the sky. I found it useful when viewing lunar craters and large star clusters but haven't had much luck with deep-space objects. I bought an after-market 15 mm Plossl and a 2x Barlow which help immensely. As supplied, the telescope has a limiting magnification of 269x under perfect skies, but realistically (with 10 mm objective and 2x Barlow) 200x is as far as I can go and still get stable images. On the reverse side, 16x is the lowest functional magnification possible. The scope has a light-gathering ability 265x that of the naked eye, and a limiting magnitude of approximately 13. From my back yard I doubt I can see objects much dimmer than about 6 to 8 or so, depending on which direction and how low to the horizon I must look. I measured the sky's apparent motion with the 15 mm Plossl, and found it to be approximately 1 degree (about 4 min to cross the field of view).

The star pointer supplied in place of a finder scope works very well, and I strongly suggest those considering replacing a small finder scope with a Telrad look at this option. They function in a similar fashion except that the Celestron variant is smaller and lighter. It can be a bit more difficult to find the red dot but one soon gets used to it. The two knurled bolts holding the unit to the scope barrel can loosen allowing the pointer to go out of alignment, but it is a simple fix. Overall, I found the star pointer simple to use and very effective once I got used to "star-hopping." Given the cost of a decent finder scope, I thought this an excellent compromise.

I have had the instrument for a little over a year now, and have used it for almost 100 observations. It has been a forgiving mistress, traveling with us with little complaint even when I had to disassemble and reassemble from the mount to get it in the trunk. It hasn't gotten out of collimation yet, quite probably another function of the short tube. The rest of the family, comfortably ensconced in the house, have also quite enjoyed trooping out to see whatever marvels I've located that night. Their first views of the planets, particularly Saturn, were especially memorable. The fact that most nebulae and galaxies are greenish-grey smudges dims their enthusiasm somewhat, but that is not a function of this scope's limitations.

Overall, I have found this to be an excellent first scope for this budding astronomer. As I've mentioned in a previous edition, I've had some experience with the night sky through our family's binoculars, so a scope was a logical progression. This unit is quickly and easily portable, simple to set up, and fairly straight forward to use. It's also easy to store, which helps. Although it doesn't have the capabilities of larger apertures, its modest price made it a smooth first step into a larger world. It will probably not be the last scope I ever own, but I'm pleased with it as a first scope. As with any optical equipment, buy something you will use and thereby learn your own path. This gift may well have set my feet on a life-long journey, so many thanks to Anna and the boys!

Minutes…

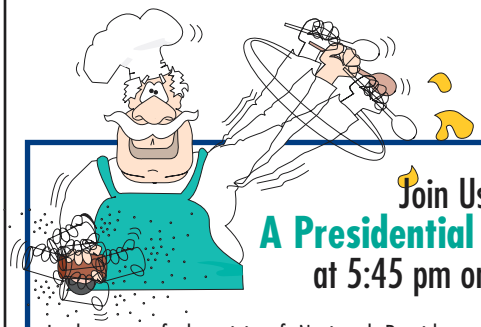
Recorded by Al Hartridge, Secretary – Room 8313, City Hospital

…*of the* Executive Meeting *of Feb 17, 2003*

1. Approval of additions to agenda. Moved by Jim Young and seconded by Ellen Dickson and carried.
2. Approval of minutes of the Executive meeting of November 18, 2002. Moved by Rick Huziak and seconded by Jim Young and carried.
3. Associate Memberships: There are some insurance and liability concerns. Our own liability should cover this. National also has a separate policy.
4. Treasurer's Report: Balance unchanged.
5. Library Report: The bee planned previously was cancelled.
6. Activities Coordinator Report: No report.
7. Fundraising Report: No report.
8. Membership Report: No report.
9. Newsletter Report: The new style of the newsletter is very attractive and has already received complements from other Centers.
10. Observing Group Report: A Messier marathon and variable star clinic will be held at the end of March at Sleaford.
11. Sales Coordinator Report: Eight calendars have been sold.
12. Sleaford Site Report: No report.
13. SSSP Report: A yellow sheet with information regarding the star party has been issued. Les will notify all web sites dealing with star party information.
14. April Meeting: Tomas Cook's in the old train station will be the place where we will have supper with Raj Gupta, the National president, prior to the April meeting. The supper will start at 5:45 p.m.
15. Light Pollution Committee: A motion was made by Rick Huziak that $250.00 of general funds be made available for operating expenses of this committee, seconded by Jim Young. A vote will be held at the next meeting when hopefully a quorum will be present. The new Casino group has also been approached regarding the issue of light pollution. A positive response has been received, however they would like our support.
16. May meeting: will be held on May 12th.
17. Astronomy Day: The public star night may be a problem because there will be a full moon which will interfere with observing.
18. New finder scope: for Eetook. Moved by Al Hartridge and seconded by Jim Young that $200.00 in funds be made available to purchase a new unit. This will be tabled for discussion to a later meeting.
19. An Executive Meeting will be held before the March meeting.
20. Meeting adjourned at 7:25pm.

…*of the* General Meeting *of Feb 17, 2003*

1. Presentation: "Project Pluto's Guide 7, How It Works and How It Predicts Jupiter Events" – Rick Huziak.
2. Approval of additions to the agenda. Moved by Jim Young and seconded by Ellen Dickson and carried.
3. Approval of minutes of the January General meeting. Moved by Darrell Chatfield and seconded by Jim Young.
4. Fundraising Report: Darrell Chatfield has an ongoing bottle and Canadian Tire money drive.
5. Newsletter: Many favorable comments regarding the appearance of the new newsletter format.
6. Observing Group Report: Rick will run a Messier marathon late March and early April at the Sleaford observatory.
7. Sales Coordinator: Rick would like to pass this job on to someone else as he already has too much on his plate.
8. SSSP Committee: Les has produced a yellow photocopy information sheet.
9. Supper at Tomas Cook's: Prior to the meeting in April with Rajiv Gupta, National President, will start at 5:45 pm.
10. Light Pollution Committee has approached the new casino group regarding environmentally friendly lighting.
11. May meeting will be held on the 12th.
12. Astronomy Day: Need to find a better date for the public star night.
13. Site Committee: Has met recently at Rick Huziak's and many issues were covered.
14. Eyepiece order is being put together by Yannis. If enough people are interested in placing an order at the same time substantial saving can be had. Contact Yannis if interested.
15. Meeting adjourned at 9:15 p.m.



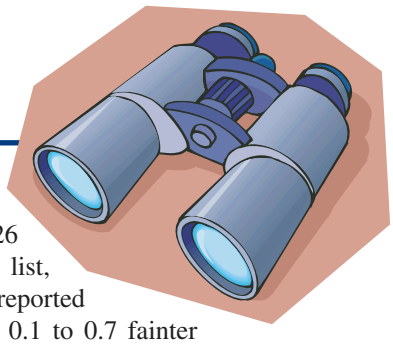
Join Us for
A Presidential Gastronomy
at 5:45 pm on April 21st

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).

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

In interest of space, we are not running the entire table of all observers' statistics for the Messier, FNGC, Binoc, H-400 and Explore the Universe list. To their credit, the following observers have sent updates which will be added to the table next month. In the meantime, please enjoy the excellent discussion between Tenho and Darrell, and please observe something before the next issue of Saskatoon Skies comes out! I'd love to hear from you. Apologies go out to Bill Hydomako and Tenho Tuomi, in that their Messier Certificates have not yet arrived from National Office.

Messier List: George Charpentier - 59; Lorne Jensen - 55
Finest NGCs: Bill Hydomako - 15
Binocular Challenge list changes to *Certified at 35 Objects:* Tenho Tuomi - 36



More on Binocular Certificate Objects

by Tenho Tuomi *<tuomi@sk.sympatico.ca>* ***& Darrell Chatfield*** *<novachat@sasktel.net>*
(edited from e-mail by Rick Huziak)

Tenho - Early this morning (Feb. 12) I got up and found enough more Binocular List objects to apply for the Chatfield Binocular Certificate. The sky was clear only from 4:25 a.m. to 6:08 a.m. but it was enough to find M12 and M10 in Ophiuchus with my 8x30 "monocular" through the warmth of the living room window. Scorpius kept going in and out of the clouds but eventually I did find M4 also, by moving the telescope slowly and using averted vision. It is large. That is the object that I got stumped on last December when I thought I would try for the Binocular Certificate, and complained to Darrell enough that he changed the certificate. Maybe my expectations of what I think I should see are lower, or maybe more experience is needed.

Last month I erroneously reported my total at 34. It should have been 33. Now it should be 36. I still need NGC 7000, M6, M11, and NGC 4756, all of which should be easy to find at the right season, except the North America Nebula, which might prove beyond what my eyes are capable of seeing. I will keep trying to find all 40 objects.

I noticed that of the 26 Messier objects on the list, the magnitudes Darrell reported on 17 of them are from 0.1 to 0.7 fainter than the magnitudes shown in the Messier list in the Observer's Handbook. He reported M4 at 6.5. The Handbook reports it at 5.8. *[Magnitude differences between different sources are very common. – Ed]* The magnitude of 11.1p is reported for M24.

Find attached an export file from my spreadsheet of the Binocular List objects and the dates I found them, and my rating for how easy or hard it was to see them.

I sorted the list by magnitude to see what correlation there was between my rating and magnitude. Very easy went from 0.5 to 4.4. Easy went from 3.1 to 6.2 plus NGC 663 at 7.1. It must have been a really clear night that night. Medium went from 3.9 to 6.4, almost same as Easy. Hard went from 5.4 to 7.5. And Very Hard from 5.7 to 8.4. Some correlation, but a lot of overlap. I don't know why I found NGC 752 at 5.7 so very hard.

Const	Object	R.A.	Dec	Type	Mag.	Date	Rating
And	M31	40	4100	Gal	3.5	020118	VE
And	752	158	3741	O/C	5.7	021204	VH
Aqr	M2	2133	-49	GL/C	6.5	021204	H
Aur	M38	529	3550	O/C	6.4	021203	M
Aur	2281	649	4104	O/C	5.4	021227	H
Cam	Ke 1	358	6306	O/C	4	030411	E
Cnc	M44	840	1959	O/C	3.1	020214	E
CVn	M3	1342	2823	GL/C	6	030103	M
CMa	M41	647	-2044	O/C	4.5	021202	M
Cas	7789	2357	5644	O/C	6.7	021205	H
Cas	663	146	6115	O/C	7.1	021204	E
Com	Me 111	1225	26	O/C	1.8	020403	VE
Cyg	7000	2059	4420	E/N	5.9		
Cyg	M39	2132	4826	O/C	4.6	021205	E
Gem	M35	609	2420	O/C	5.3	021203	E
Her	M13	1642	3628	GL/C	6	030103	E
Hya	M48	819	-548	O/C	5.9	021204	M
Mon	M50	703	-820	O/C	6	021204	M
Mon	2264	641	953	O/C	3.9	021205	M
Ori	M42	535	-527	E/N	4	030118	VE

Const	Object	R.A.	Dec	Type	Mag.	Date	Rating
Oph	M10	1657	-406	GL/C	6.6	030103	H
Oph	M12	1647	-157	GL/C	6.9	030112	H
Peg	M15	2130	1210	GL/C	6.4	021204	H
Per	869/884	219	5709	O/C's	4.4	020411	VE
Per	M34	242	4247	O/C	5.5	021203	E
Psc	Circlet	2330	300	ASTER		021205	VE
Pup	M47	737	-1429	O/C	4.5	021204	E
Sgr	M22	1836	-2354	GL/C	6	020411	E
Sgr	M24	1818	-1825	O/C	11.1	020411	E
Sco	M4	1624	-2631	GL/C	6.5	030112	VH
Sco	M6	1740	-3212	O/C	4.6		
Sct	M11	1851	-616	O/C	5.8		
Ser	M5	1519	205	GL/C	6.2	020321	E
Ser	4756	1839	527	O/C	5		
Tau	M45	348	2407	O/C	1.2	020118	VE
Tau	Me 25	427	1600	O/C	0.5	011215	VE
Uma	M81/82	956	6904	GAL	8.4	020103	VH
Uma	Alcor	1324	5456	D/S	4	011118	VE
Vul	M27	2000	-2243	PL/NEB	7.5	021205	H
Vul	Co 399	1925	2011	ASTER	3.6	020715	VE

continued on page 10

More on Binocular Certificate Objects continued

Darrell – I found the "ease of seeing" list quite enjoyable. I thought I would answer the questions you posed in your e-mail.

1. The magnitudes were taken from the NGC Handbook that I have, so I thought they should be correct. I checked all information 3 times over, but I am sure that there are probably still some mistakes.
2. 11.1p stands for magnitude 11.1 photovisual, (or photographic). Huge clusters such as M24 are hard to rate visually because of their size and also different areas of a such an object would have different magnitudes anyways. So they photograph them to come up with an average magnitude. *[Visual "v" magnitudes are typically about 1.5 magnitudes brighter than photographic, depending on the object's exact colour. So M24 might be called 9.5v in other sources – Ed.]*

As Tenho stated, more experience will produce better results, in that you will know what to look for when confronted with a new object, and you will learn that seeing conditions greatly affect what you can see. Observing skills are usually 'earned,'and not just 'learned.' Thank you for your interest in my list.

Tenho - Your list did not seem to be getting much attention and I thought I would try to promote it, or draw attention to it anyway. It seems to be a great way to get into astronomy without getting powerful telescopes, and there seem to be some in the club who appear to be waiting until they buy a telescope before they start observing. Maybe more would join the club if it was emphasized they could observe meaningfully just with binoculars.

At my last talk I received some applause when I said I had observed 30 Messier objects with my 8x30 telescope. I don't think they realized that just by going through the Binocular List, you already have 26 objects for the Messier list also. In fact, if you complete the list you even have 4 objects towards the FNGC list; NGCs 7789, 663, 7000 and 869/884.

I love statistics and mathematics, and programming, so I wrote a spreadsheet program to analyse how many objects from the lists are visible any night. I came up with the following analysis for the Cypress Hills SSSP next August 22-24.

First column gives definitions for different levels of darkness, and in brackets how many degrees the sun is below the horizon. The next column gives the times of darkness for Cypress Hills. The next column shows how many of the 40 Binocular objects should be visible, and in brackets how many would be more then 4 degrees above the horizon during those times. The last column gives similar data for the Messier objects. Times are not exact, but should be within 5 minutes.

Darkness (solar depression angle)	Time (CST)	Binocular List	Messier List
Sunset/Sunrise (0)	20:25 06:20	40 (37)	107 (103)
Civil Twilight (-6)	21:05 05:40	38 (37)	103 (99)
Nautical Twilight (-12)	21:50 04:55	37 (35)	103 (95)
Astronomical Twilight (-18)	22:40 04:00	34 (34)	103 (84)

It seems that it should be possible to observe 34 Binocular objects and 84 Messier objects from the SSSP. Yes, you can do astronomy even when the skies are cloudy, by sitting at the computer and analysing.

More Bonehead Moments in Observing

from Mike Simonsen *<mikesimonsen@mindspring.com>*

R Leo Minoris – This is just about the perfect star for an 8" scope, range-wise, and it has good AAVSO charts. This star was my "bad luck" star for a long time. It seemed like every time I tried to observe this long-period variable something bad would happen: the corrector plate would frost over, the eyepiece would cloud up, my pen would fall in the snow, my chart would blow away or someone would drive up with the headlights glaring.

Once I was observing it almost straight overhead when the seeing just went to crap. I couldn't believe I was having trouble seeing 10.0 magnitude on a clear night overhead. I looked outside, no clouds or fronts approaching, stars were barely twinkling – seemed like everything should be fine. I pointed the scope down and looked at the corrector plate…

Some well-fed bird had dropped a smart bomb s**t right through the slot of the dome onto the corrector plate! It was huge! That's when I learned how to clean the optics of my SCT. I consider myself lucky to make an observation of R LMi without the dome blowing off or something!

Erratum in Last Issue

In the Weather Photo Contest Under Way on page 9 of *Saskatoon Skies*, the web address is incorrect. Instead of http://www.mb/ec/gc/ca, it should be http://www.mb.ec.gc.ca.

Thanks for pointing this out, Tenho! – Ed.