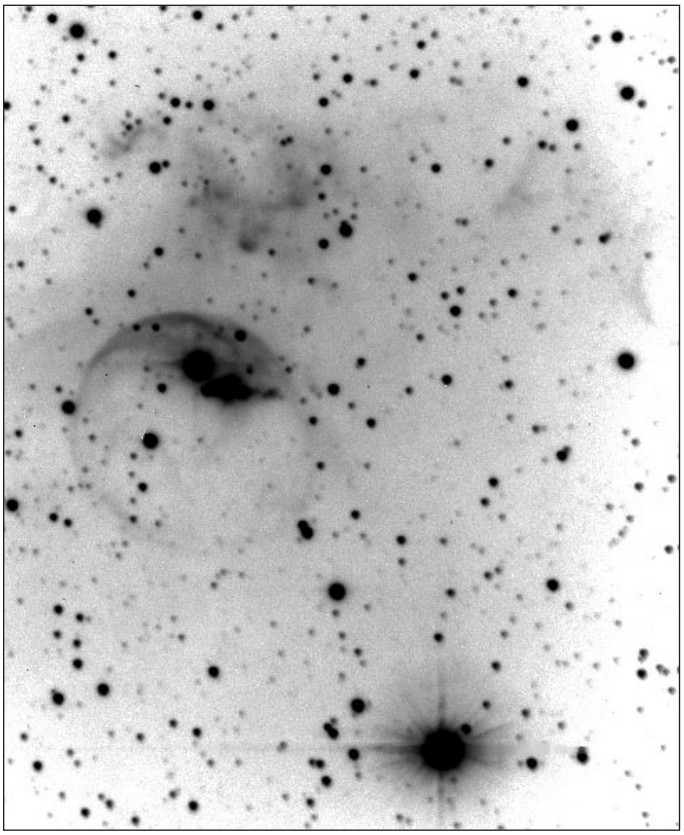
Saskatoon Skies

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

Vol. 36, No. 1 **January 2005**



Bubble Nebula

Some of us have struggled to find the very faint NGC 7635, known as the Bubble Nebula, for the FNGC award. Al Hartridge makes it seem easy by photographing it in this 8.5 x 11 arcminute picture: "This is a 10 min. autoguided shot with a CCD camera. A single 10 min. dark frame was subtracted from the raw image and some manipulation of the image in Photoshop was also carried out. No flat field was used. This image is really just experimental at this stage and not a real keeper but I am pleased at this point, just need some more favorable conditions to work out some more of the bugs." – PHOTO BY AL HARTRIDGE

In this issue...

Saskatoon Centre
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Membership? It's never too late to join!

Regular: $58.00/year Youth: $31.25/year Lifetime: $1000

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, Mike Clancy, or renew through the National Office and let Mike 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**
- **The Journal of the RASC** (bimonthly)
- **SkyNews Magazine** (bimonthly)
- use of the Centre library
- discounts to **Sky & Telescope Magazine**
- free, no-cost, no-obligation, 3-month temporary membership if you don't want to join right now!

Saskatoon Centre's main officers:

President – Ron Waldron
Vice-President – Garry Stone
Secretary – Al Hartridge
Treasurer – tbd

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...

Newsletter Editors – *Tenho Tuomi, Linda Janzen*
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Collate – *Brian Friesen, Walter Essar, Jim Young, Les & Ellen Dickson, Yannis Pahatouroglou*
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Printing of this Newsletter is courtesy of

WBM OFFICE SYSTEMS
601 2nd Avenue North
Saskatoon, SK S7K 2C7

Copying is provided on a Risograph copier for a nominal fee.

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 .JPGs (.GIFs also accepted). Send e-mail submissions to the editor at <tuomi@sasktel.net>. 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

Canadian Tire Money collected to date is $50. Thank you to all who contributed to our fundraising for the Centre. Please bring your bottles and Canadian Tire Money to the 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.

2005 RASC Calendar of Events

DATE	EVENT	CONTACT	TELEPHONE
Jan. 17	**RASC Executive Meeting** – 6:30 p.m., 175 Physics, U of S	Ron Waldron	382-9428
Jan. 17	**RASC General Meeting** – 7:30 p.m., 175 Physics, U of S – **The Photometry of Variable Stars** by Rick Huziak; Book Talk: Bill Bryson's ***A Short History of Nearly Everything*** by Ron Waldron	Ron Waldron	382-9428
Feb. 11	**Observers Group** – 8:00 p.m., Sleaford Observatory	Bill Hydomako	384-4781
Feb. 21	**RASC Executive Meeting** – 6:30 p.m., 175 Physics, U of S	Ron Waldron	382-9428
Feb. 21	**RASC General Meeting** – 7:30 p.m., 175 Physics, U of S – program TBA	Ron Waldron	382-9428
Mar. 11	**Observers Group** – 8:00 p.m., Sleaford Observatory	Bill Hydomako	384-4781
Mar. 21	**RASC Executive Meeting** – 6:30 p.m., 175 Physics, U of S	Ron Waldron	382-9428
Mar. 21	**RASC General Meeting** – 7:30 p.m., 175 Physics, U of S – program TBA	Ron Waldron	382-9428
Apr. 8	**Observers Group** – 8:00 p.m., Sleaford Observatory	Bill Hydomako	384-4781
Apr. 16	**International Astronomy Day**		
May 20-23	**RASC General Assembly** – Kelowna, BC	Jim Failes	(250) 763-6962
Jul. 30-Aug. 7	**Mt. Kobau Star Party** – Osoyoos, BC	Jim Failes	(250) 763-6962
Aug. 4-7	**Saskatchewan Summer Star Party** (SSSP'05), Cypress Hills Inter-provincial Park	Les Dickson	249-1091

Monday, Jan. 17, 7:30 PM — Room 175 Physics, U of S

Presenting:

The Photometry of Variable Stars *by Rick Huziak*

Book Talk: **Bill Bryson's**

A Short History of Nearly Everything *by Ron Waldron*

Sky Buys & Mirror Cells

The Saskatoon Centre's Swap and Sale Page!

For Loan to Members: Slide set for talks on general astronomy and light pollution. You can borrow this set any time you want to give a talk to your favourite group. Contact Rick Huziak at 665-3392.

For Sale: RASC Royal Centenary coffee mugs. Pick yours up at the next General Meeting – $9 each

This space is reserved for YOUR "for sale" or "wanted" ad!

BOOKS FOR SALE

by Bruce Brandell, Sales Coordinator

The following items are left from the Star Party and will be available at our next meeting on January 17/04. Call 249-1119, or email <*bruce_brandell@yahoo.com*>

Title	Author	No. Avail.	Price Cdn$
Calendar, RASC 2005	Rajiv Gupta, Editor	11	$10.00
Calendar, Skywatcher 2005	Stan Shadick	10	$10.00
Beginners Observer's Guide	Leo Enright	1	$18.00
RASC Centennial Mug		7	$ 8.00
Messier Cards, laminated	Sky Publishing	5	$ 6.00
Messier Poster, colored	Sky Publishing	2	$27.00
Milkyway Poster	Sky Publishing	2	$32.00
Touring the Universe through Binoculars	Philip S. Harrington	1	$58.00
The Moon Map	Sky Publishing	1	$20.00
Pins SSSP 2004			$ 5.00
Pins SSSP, other years			$ 4.00

Please note Special Price on RASC & Skywatcher Calendars!

Minutes of the Executive Meeting
Dec 13, 2004, 6:30pm – Rm 175 Physics, U of S

1. Meeting called to order at 6:30 p.m.
2. Minutes of October executive meeting approved. Moved by Mike Clancy and seconded by Ellen Dickson and carried.
3. **Treasurer's Report:** postponed to next meeting.
4. **Hobby Show:** correspondence was received from the hobby show committee that was positive regarding our display.
5. **Bills:** Insurance with Saskatoon Agencies has already been paid. Twenty-eight dollars spent on photocopying for the workshop to be paid to Ron Waldron.
6. **Insurance policy for Sleaford:** the U of S needs a copy of our insurance policy to make sure that it jives with theirs in regard to the Sleaford site and that we are covered adequately.
7. **Saskatoon Centre Mailing Address and Postal Box:** It was decided to make no change at the present time.
8. **Committee Reports:**

   Events: Jeff Swick stated that an observing group website has been set up. He also stated that he would like to see more sidewalk astronomy events take place to promote our centre.

   Fundraising: $115.00 from the bottle drive was given to Barb by Darrell Chatfield.

   Membership: Mike Clancy stated that there are 81 members at present including four youth and one associate member.

   Sleaford Site and Observing: Nothing new to report. There were 14 people out to the first observing night. The latest one was clouded out.

   SSSP: The last meeting was held on Dec. 12. Les will be putting information in the newsletters to let people know what is going on. He is developing a manual so that others in the future will have a guideline as how to run this event. Next meeting will be January 13th at Barb's. The profit from this year's starparty was approximately $1600.00.

   Writing a Goals Statement and Planning for Implementation of ideas arising from the Planning for the Future Workshop: The executive could take on the design step, highlighting seven or eight of the recurrent themes and develop a five-year plan or a goal-driven plan with time limits set.

   Saskatchewan Light Abatement Committee: The dark sky committee continues to meet. City council as a limited trial will have developers install full cutoff lighting in several new areas. Casinos in Saskatchewan also need to be controlled. Motion: by Rick Huziak and seconded by Ron Waldron and carried that a budget of $250.00 be established for this committee.
10. **Newsletter:** Tenho reported that he is getting a good response regarding material for the newsletter.
11. Meeting adjourned at 7:33 p.m.

Minutes of the General Meeting
Dec 13, 2004, 7:30pm – Rm 175 Physics, U of S

1. Meeting called to order at 7:45 p.m.
2. **Approval of minutes:** The minutes of the General Meetings for October and November were approved as read. Motion by Les Dickson and seconded by Jim Young and carried.
3. **Observing Awards:**
   Tenho Tuomi – Finest NGC objects.
   George Charpentier – Messier List.
4. **Light Pollution Abatement Committee:** Rick Huziak stated that Saskatoon City Council will carry out a light pollution trial in Hampton Court to install full cut off lighting. A budget for Rick Huziak in regard to his work in this committee of $250.00 has been approved.
5. **Program:**
   Meteor Counting – Tenho Tuomi
   A Day at the Lethbridge Astronomical Society – Rick Huziak
   Good Heavens, an astronomical card game – Ron Waldron
   Student Astronomy Lab Project Posters – Stan Shadick
6. **Observing Chairs:** Les Dickson has seen ironing chairs at one of the local department stores that are very similar to the observing chairs that are advertised in the astronomy magazines but a much better price of approximately $30.00.
7. **Refractor part kits:** Bill Hydomako demonstrated parts for a small refractor that would make an excellent telescope or finder scope. He obtained these from a New York firm that sells these army surplus items. He is able to order more for anyone interested.
8. Meeting adjourned at 9:30 p.m.

Digitized Sky Survey Photographs *by Tenho Tuomi*

I had seen Digitized Sky Survey photographs before in the pages of *Saskatoon Skies* but never thought they were available for just anyone to download until Rick Huziak told me about them. If you want to see a detailed picture of any part of the sky go to the web site: http://archive.stsci.edu/cgi-bin/dss_form?

Enter the coordinates of the part of sky you want to look at, or even simpler, enter a Messier, NGC or other object name and press GET COORDINATES. I usually change "Retrieve from" to Quick-V (Palomar) or HST Phase 2 (Hubble). Change the Height and Width if you want a different picture size than the default 15 x 15 arcminutes. Change File format to GIF and press RETRIEVE IMAGE. Press Help if you want more detailed instructions.

Newsletters from Other Centres...

Hello all. Here are the newsletters that have been received for the past month by your Central Mailer. *Darrell Chatfield* is the new librarian and he can arrange a time to go to the library. This is to let you know what is available and what other Centres have been doing. — Ellen Dickson, Central Mailer

Dec/04	• Scope (Toronto Centre) – *"CAO Report: Here We Grow Again!", "Free Camping for Astronomers?"*
Nov/04	• The StarSeeker (Calgary Centre) – *"Observing Certificates", "CYPRESS HILLS DARK SKY Official Site"* • Stardust (Edmonton Centre) – *"Book Reviews", "Backyard Observatory"* • Stardust 50th Anniversary Ed. (Edmonton) – *"The 'Glossy' Edition of 50 years of Astronomy for the Centre"*
Oct/04	• The StarSeeker (Calgary Centre) – *"Youth Members Observers Group", "Venus Transit Expedition Chapter Two"* • Saskatoon Skies (Saskatoon Centre) – *"CYPRESS HILLS DARK SKY PRESERVE DECLARATION"*
Sep-Oct/04	• Nova (Vancouver Centre) – *"Mount Kobau, Aug 14-22/04", "Aldergrove Lake Perseid Meteor Shower"*

SSSP 2005 Organization *by Les Dickson, SSSP 2005 Chairman*

This article is the first in a series of articles on the Saskatchewan Summer Star Party, which in 2005 takes place August 4-7 at the Cypress Hills Interprovincial Park near Maple Creek, SK. In this article, I want to introduce you to the organizational structure of the committee of volunteers that does all the hard work putting on what has become one of the most successful, and dare I say, one of the best run star parties in Canada, and to the schedule of planning and organizational activities that lead up to it.

The overall organization of the Saskatchewan Summer Star Party [with responsibilities] is given below.

SSSP Chairman (Les Dickson)

- Organization
- Scheduling
- Coordination
- Liaison

> **Meadows** (Rick Huziak)

- Tent City
- Signs/Notices
- Security
- Weiner Roast
- Swap Meet
- First Aid
- Volunteers
- Vendors
- Transport
- Walk-About
- Observing Clinics

> **Wapiti Room** (??)

- MC
- Room Set Up
- Key Holder
- A/V Equipment
- Book Sales
- Drink Sales
- Pin Sales
- Door Prizes
- Astrophoto
- Shopping

> **Other** (Les Dickson)

- Programming
- Photography
- T-Shirts
- Website
- Advertising/Promotion
- Public Star Night
- Banquet
- Logo

> **Registration** (Bill and Marianne Hydomako)

- Pre-registration
- Registration
- Mailing Lists
- Feedback Forms
- Mail-Outs

> **Finances** (Barb Wright)

- Treasurer
- Bookkeeping
- Money

The Chairman plus the four people that coordinate the Meadows, Wapiti Room, Registration and Finances are the "Executive" for SSSP.

The Chairman's job is primarily the organization and coordination of the work of the Coordinators; liaison with the Guest of Honour, Park, Resort and Regina Centre; and chairing the Committee meetings. The Chairman will also coordinate the jobs that do not easily fall under the other four areas of responsibility, i.e. "Other". Note that the current Chairman (me) will be stepping down as of the end of SSSP 2005, so a replacement will have to be found/shanghaied/arm-twisted-unmercifully.

The four Coordinators' primary responsibility is to see that the work that is assigned to their respective areas is done properly and on schedule. They do not have to do all of the work themselves, but find enough other volunteers to get the work done. It is up to a Coordinator to decide how much to do themselves and how much to delegate.

We still need volunteers to help with organizing the star party, especially someone willing to coordinate the activities of the Wapiti Room. Last year the Chairman did this job as well. Help with this area would be very much appreciated. The other areas also need volunteers that would be willing to help with planning as well as on-site activities. Please contact the Chairman or any of the Coordinators if you would like to volunteer or if you have any questions.

Scheduling

The schedule of planning and organizational activities for SSSP. (Note: "M" = month and "W" = week, so "–12M" indicates a date 12 months before the next SSSP, and "–2W" indicates 2 weeks before SSSP.)

Aug **–12M** - Sign contract with Resort (at SSSP)
Sep **–11M** - Post-mortem on previous SSSP
Oct **–10M** - Close books on previous SSSP
- Formation of new SSSP Committee
- Division of Committee duties
- Select Co-ordinators
- Establish books for SSSP

Nov **–9M**: - Establish schedule of events and tasks
- Website set-up (updated as new info available)
- Start search for Guest of Honour

Jan **–7M**: - Select Guest-of-Honour
- Establish budget
- Prepare Logo
- Draft One-sheet
- Send out notices to astronomy magazines and tourism boards. Send out e-mail notices to previous attendees regarding website.

Feb **–6M**: - One-sheet finished
- Draft version of brochure

Mar **–5M**: - Brochure mail-out to RASC Centres and astronomy clubs

Apr **–4M**: - Registration form published in Centre Newsletter
- Brochure mail-out to previous attendees
- Start search for other speakers
- Visits to other Centres and clubs

May **–3M**: - Visits to other Centres and clubs continues
- Start collection of Door Prizes

Jun **–2M**: - Visits to other Centres and clubs continues
- Check status of equipment
- Buy new equipment where necessary

Jul **–1M**: - Deadline for mail-registration
- Program and speakers finalized

SSSP **–3W**: - PANIC!

SSSP **–2W**: - Organize collection and transport of equipment
- Contact grocery store re: food/drink/supplies

SSSP **–1W**: - Registration packages prepared

SSSP - Buy groceries and any other last-minute items
- Run star party
- Collapse in exhaustion and relief that another star party is done!

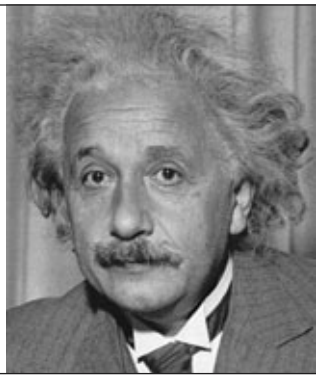
As you can see, much time and effort goes into organizing and planning each year's SSSP. We can always use the help, so please contact me or any of the Coordinators if you wish to volunteer.

Department of Physics and Engineering Physics Public Lecture

Space, Time, Light and Heat

A multimedia presentation celebrating 100 years since Einstein published his three papers on:

Special Relativity
The Photoelectric Effect
Brownian Motion



Presented by:
Dr. Rainer Dick, Dr. Rob Pywell and Dr. Andrew Robinson

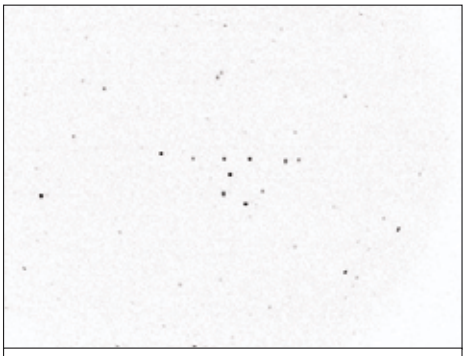
Come and hear how these ideas
forever changed the way we view our world.

7:30 pm • Thursday, January 20, 2005 • Room 107 Physics Building • University of Saskatchewan

A free coffee and cookie reception to follow the presentation.

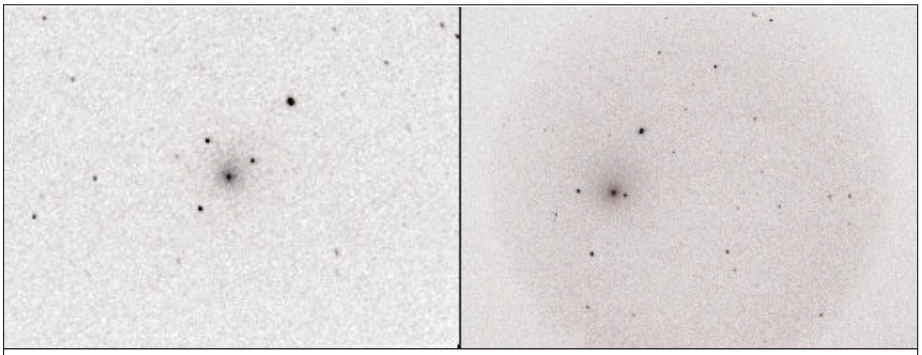
Digital Cameras and Deep Sky Photography *by Tenho Tuomi*

Recently I bought a 3.2 megapixel Canon PowerShot A75 digital camera and have been pleased with the astronomical photographs that I have been able to take with it, particularly of deep sky objects. Here are some samples. Most pictures are computer enhanced.

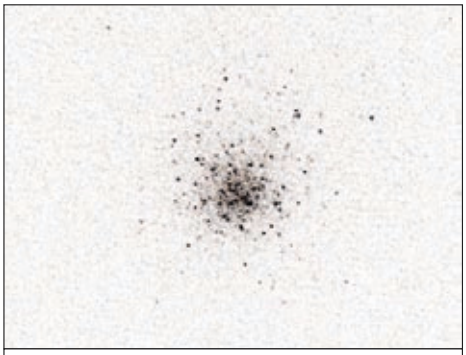


Brocchi's cluster or Coathanger in Vulpecula, taken through a 6x30 finderscope. 15 sec, F2.8, ISO 50. Open clusters are the easiest to photograph.

Daytime gazing lunar occultation of Jupiter, November9 at 9:44 am CST. Inset shows enlargement of Jupiter partly covered by the moon. Picture taken through 8-inch Newtonian at 49 power, at 1/320 sec, F4.8, ISO 400.



Comet C/2004 Q2 Machholz, December 12, at 0604 and 0733 UT. 15 sec, F2.8, ISO 400. Notice the movement in 1.5 hours. Left picture was taken at 16x with 80mm refractor and cropped to size, and the right was taken at 49x with 8-inch Newtonian.



M13 Hercules Cluster, 1/4 degree across, with 8-inch Newtonian at 98 power. 15 sec, F2.8, ISO 400.

Naming the Stars *by Richard Huziak*

Beginning astronomers may be confused by naming conventions that astronomers use for the stars. This article is meant to unravel this mystery, though there is a lot to learn about how and why stars are named how they are.

Naked eye stars brighter than 4th magnitude – most of the stars easily visible in the sky – were named centuries ago and the names have been adopted into western civilization mostly from ancient Arabic sources. These names remain in common use today. New star seekers may come across such names as Algenib, Algol, Kalb al 'Akreb and many others. The stars were originally named with descriptive meanings – the stars already mentioned mean: *The Wing*, the *Demon Star* and *the Heart of the Scorpion* – obviously descriptions of their significance in their constellations. However, it is difficult to remember all of these names and the names themselves have little useful meaning unless you are fluent in Arabic. Each culture around the world created their own names and legends for all of the major stars.

In an effort to create a standardized and unambiguous map of the sky that all astronomers could use, Bavarian astronomer Johann Bayer in 1603 created a new star atlas called *Uranometria* based on the naked eye star-position measurements of Tycho Brahe. In this atlas, Bayer introduced the use of a roughly brightness-based system of classifying the stars and assigned the lower-case Greek alphabet, in order, to the stars, beginning with the brightest star first (usually). Thus the brightest star in the constellation Ursa Minor is known as alpha (α) Ursa Minoris. The second brightest is beta (β) UMi, the third is gamma, and so on. When the Greek alphabet ran out in each constellation, he stopped labeling stars or sometimes extended the sequences with small English letters. Because the use of Greek letters is so prevalent in astronomy, new astronomers should make a point of learning the Greek alphabet reasonably well.

Because more stars can be seen by the naked eye than there are Greek letters, in the 1780's, Frenchman Joseph de Lalande began numbering the stars in the French edition of England's John Flamsteed's atlas. Lalande decided to give simple numbers to all stars to the 6th magnitude so that it was easier to describe the fainter stars. He thus named all naked eye stars working from west to east by increasing right ascension, beginning with "1", regardless of the stars' brightnesses, giving the next star to the east the name "2" and so on, and ending when he ran out of visible stars in the constellation. Future editions of this atlas adopted this practice, and the system became errantly known as "Flamsteed Numbers".

So as you can see, most brighter stars can have two or three commonly used names. The brightest star in Ursa Minor can be called Polaris (a Latin name), alpha (α) Ursa Minoris (Bayer) and 1 Ursa Minoris (Flamsteed). All can be used interchangeably.

Of course, there are far fainter stars visible with even the smallest optic, and the 1700's and 1800's became the age of cataloguing the universe. Most observatories in the world dedicated at least one telescope (called a Transit Circle Telescope) to cataloguing every star visible (to a reasonable limit – typically 8th or 9th magnitude). Some of the first surveys conducted in the modern times were the Bonner Durchmusterung (BD) by Argelander and the Cordoba Durchmusterung (CoD) which extended the survey to the south pole, and later, in 1969, these catalogues were cleaned up by the issuance of the 4-printed volume and computer-readable Smithsonian Astrophysical Observatory (SAO) Catalogue, which catalogued around 250,000 stars to the 9th magnitude, assigning Polaris the name SAO 308.

Further surveys have occurred in modern times for a variety of reasons, and so the naming and renaming of stars goes forever onward. One of the more recognizable recent surveys was the Guide Star Catalogue (GSC), which was created to provide precise pointing and guiding positions for the Hubble Space Telescope. Polaris then added the new name: GSC 04628-00237.

As a matter of fact, using an on-line utility for finding sky objects called SIMBAD (http://simbad.u-strasbg.fr/sim-fid.pl) the star commonly known as Polaris, the North Star, owns the following cacophony of names: 1 UMi, alpha UMi, alf Umi, AAVSO 0122+88, ADS 1477 A, AG+89 4, BD+88 8, CCDM J02319+8915A, CSI+88 8 1, FK5 907, GC 2243, GCRV 1037, GEN# +1.00008890A, GSC 04628-00237, HD 8890, HIC 11767, HIP 11767, HR 424, IDS 01226+8846 A, IRAS 01490+8901, JP11 498, N30 381, PLX 299, PMC 90-93 640, PPM 431, ROT 3491, SAO 308, SBC7 51, SKY# 3738,TD1 835, TYC 4628-237-1 UBV 21589, UBV M 8201.

As if this isn't enough and even though stars as faint as 17th magnitude have now been surveyed, sometimes new stars (novae and the like) may appear, and stars fainter than 17th magnitude will also have no catalogue number, but still may need to be described. In these cases (or in the case of *any* star), another proper method of unique naming is to call the star by its exact right ascension and declination in the sky according to one of the following standard systems. If Polaris was very, very faint, we might call it by its FK5 2000.0 coordinates: 02 31 49.08 +89 15 50.8, the newer ICRS 2000.0 coordinates: 02 31 49.0837 +89 15 50.794, or Galactic coordinates: 123.28 +26.46.

As you may realize, sometimes how a star is referred to in literature may not be how you are used to hearing about it. Astronomers working in the infrared part of the spectrum, for example, will refer to IRAS 01490+8901 in all of their papers without a second thought, though they are describing the North Star. Thankfully most of the time, unless there is a need to refer to specialized catalogues of the stars, the Greek letter, Flamsteed number or proper name are the normal methods for calling out star names.

Acknowledgements. Some of the information for this article was taken from, and an excellent description of star cataloguing can be found in, ***Uranometria 2000.0***, by Tirion, Rappaport, Lovi, 1987. Another excellent reference for learning about star names and their meaning is ***Burnham's Celestial Handbook***, by Robert Burnham, Jr., 1978.

The Planets This Month, January 2005

by Murray D. Paulson, Edmonton Centre

This month started off with the entanglement of **Mercury** and **Venus** in the morning sky. As I mentioned last month, the closest approach will be on January 12th when the two planets are 19 minutes of arc apart. In the eyepiece both planets will show very gibbous disks. Venus's 10.5" disk shines at magnitude –3.9 compared to Mercury's magnitude –0.3, 5.4" disk. They are very seldom this conveniently close together, and to see two planetary disks in one high power field of view is pretty cool. The long sequence of the conjunction brings it low into the south, so it will be a difficult task, but I hope that some of you managed to share in it. By January 20th, the two planets drift apart to just more than 1.5 degrees, and the pace will continue as Mercury makes its trip back to the sun. Mercury will sit in superior conjunction with the sun on February 14, Valentine's day, only 1 and 3/4 degrees below the sun.

Mars is still but a dim red ember, low in the morning sky. It shines at magnitude 1.4 and will show you a 4.3" disk if you search it out with your telescope. Not much to look at yet. On the morning of February 5th, a thin crescent moon will join it. Look about 5 degrees below Mars, which is in the rising constellation of Sagittarius. A few days later, on February 7th, Mars passes between the Lagoon and the Trifid Nebula. It would make for a cool deep sky shot if you live somewhere well south of here.

Saturn is at opposition on January 13th, so this is the time to look at it. The ringed planet shines at magnitude –0.3 and shows a 20.6" disk in the eyepiece. At this time the rings subtend 45" and are tilted at 22.9 degrees toward us. There are a few interesting events to look forward to this month. The first is on the night of January 24th; the nearly full moon will pass 5 degrees above Saturn. On the next evenings, January 25th-26th, Saturn passes through the 8.3 magnitude open cluster NGC2420. This is probably not a good night to try and identify those faint moons you always wanted to see. Speaking of moons, I always enjoy watching Saturn's moons in their orbits, so I have tabulated a list of some of the dates when the moons reach eastern or western elongation so you can see how far they actually sit from the planet. We will work our way in, starting with Iapetus. Remember, West means preceding and East is following.

Iapetus has a 79.33 day orbital period and shines at magnitude 10.5 to 11.5 depending on which side of Saturn it is on. The reason for this darkening is thought to be due to the moon sweeping up some dark material in its orbit. It is tidally locked with Saturn, like all the rest of Saturn's major moons, and the leading side is stuck facing forward and therefore the side that takes the brunt of any material in it's orbit. The next occurrence of a western elongation of Iapetus is February 2nd-3rd but it will be near maximum brightness over the week or so before and afterward. It will sit 9.5 minutes of arc preceding Saturn and shines at magnitude 10.8. We are in luck to have a western elongation of Titan at exactly the same time, so look for the two and note the difference in the size of their orbits. 40 days later, March 15, Iapetus will be at its eastern elongation and will be 1.5 magnitudes dimmer, Magnitude 11.3. Note that since Titan has a near 5:1 resonance with Iapetus, it will be in line with Iapetus at that time in its eastern elongation as well.

Titan shines at Magnitude 8.0 and has a .9" disk. Resolution of the disk is in the realm of possibilities with a 12" or larger scope with excellent optics and excellent seeing. You need very high power, 500 plus, to resolve it and a drive to keep it in the field. Titan is at extreme west elongation on Jan 18th. It has just short of 16 days for the orbital period, so dates for east and western elongations are…

E	W
Jan 10	Jan 18
Jan 26	Feb 3
Feb 11	

Rhea has a 4.5175 day orbital period and shines at mag 9.4. It takes the Hubble to resolve any other of Saturn's moons, so don't bother on this one. A few of the elongations are listed below, but for others, look into your Observers Handbook for the dates. Elongations at about 9 pm local time:

E	W
	Jan 15
Jan 17	Jan 19
Jan 21	Jan 24

Dione has a 2.73692 day orbital period and shines at magnitude 10.1. The elongations are fairly time sensitive, and check the Handbook to find other occurrences. Elongations; note local time:

E	W
	Jan 14 2 am
Jan 15 8 pm	Jan 16 8 pm
Jan 20 8 pm	
Jan 23 8 pm	

Tethys 1.88784 day orbital period and shines at magnitude 9.9. These elongations even more time sensitive, so check the Handbook to predict other occurrences. Elongations at about 9 pm local time:

E	W
	Jan 18 12 pm
Jan 19 12 pm	Jan 20 8 pm
Jan 21 8 pm	Jan 22 8 pm

Saturn's inner moons move too quickly, so you will have to use the Handbook, Guide or some other astronomical software to predict their elongations. Remember that the moons lie in an orbital plane that is tilted up at the same angle as the rings, so you can also see the moons pass above and below the ball of the planet in the same proportions as the rings.

Jupiter still is a late night affair, rising at 12:40 am as we move into January. I have been watching it in the mornings and it is so low in the sky compared to last year. Shortly after it came into the morning sky, last September, it crossed over into the southern sky on October 6th, so from now on it will move quickly into the deep southern sky. At the beginning of January, it sill sit only 31 degrees above the southern horizon as it transits the meridian at 6 am. It shines at magnitude –2.1 and will show you a 37.5" disk in the eyepiece. On the night of January 30th, a waning gibbous moon and Jupiter will rise together, spaced just under one degree apart. Not the occultation of last November, but this one is "close". By early February, Jupiter will shine at Magnitude –2.3 and the disk has expanded to 40". It now rises at 11:00 pm and will soon be back in the limelight.

The Christmas Star *by Mike Clancy*

Everyone is familiar with the story of the star that led the three wise men (bonus points to those who can name them – see below for the answer) to the birthplace of Christ, but what was the actual star? Some authorities claim it was a comet, others that it was a supernova or perhaps a supernatural event. I followed the lead of a person who uses the Professional edition of the same computer star simulator that I use, Starry Night Backyard, to check the night skies of Bethlehem (31N, 35E), or "Bayt Lahm" in the ancient tongue. Most biblical scholars agree that the guiding star appeared somewhere between the year 7 and the year 2 BC by our calendar so this enterprising fellow (with far too much time on his hands) set about to check the eastern night skies of ancient Bayt Lahm by computer. Lo and behold, there was such a display! On 12Aug03 BC, between 0330 hrs and 0450 hrs, Jupiter and Venus lined up with psi-Leonis to form by far and away the brightest "star" seen in a long while. I've checked – it was certainly bright enough to be seen by day, just ahead of the sun by an hour or so. The apparition takes place just in front of the constellation Leo which is a very sacred placement in the astrologer's horoscope. Furthermore, as the regal Leo, so such an apparition would have seemed very much like announcing the birth of a king. Perhaps the rank and file shepherd might be excused for not knowing these as planets, but one would certainly expect astrologers (the wise men) to recognize the apparition. I haven't checked exhaustively, but I don't think this particular alignment has occurred since then, making it all the more significant. It didn't last all that long, either; only 24 or so hours as a combined apparition – the day before the apparition as well as the day after they were slightly apart although still exceptionally close.

So, was this rare planetary alignment the famous "Star of Bethlehem"? You have to believe the astrologers of the day would have been astute enough to predict the alignment with some precision. Furthermore, much as we travel now for a rare occultation or eclipse, these wise men would travel to observe and discuss the event with their peers. The placing of the alignment in the constellation Leo would be of enormous significance to learned people of the day. It was certainly bright enough; nothing else in the skies could compete with it for the one night. Still, one must have a little faith on this one; I would hate for science to answer every question! By the way, the three wise men were Kaspar, Melchior, and Balthazar; does anyone remember their camels' names?

Dominican Republic Star-Gazing *by Mike Clancy*

Anna and I are taking the family to the Caribbean for our 25th wedding anniversary, and she has agreed to bring along our new travel telescope, Celestron's new 90 mm Maksutov-Cassegrain. We'd purchased it at the Summer Star Party and used it a bit there; we really couldn't give it a thorough going-over as we didn't have a suitable mount, having borrowed Ellen Dickson's new alt-az for one night. Since then it's been on an old camcorder tripod and seems quite happy with that, so it has become our travel scope. As for the upcoming trip to the Dominican Republic, we'll be departing 14Feb05 and returning 15 days later, 02Mar05; this gives me 14 nights available for star-gazing. Even if one subtracts lost nights due to rum/clouds/rum/fatigue/rum I should get in a few hours of good seeing! I've checked with my trusty "Backyard Astronomer" software, making suitable changes for location and date, and there should be some interesting things to look at. Alpha- and Beta- Centauri, Canopus, and several Messier objects usually so low in the haze on our Marathon nights as to be barely detectable; all should be within my ability although some will be fairly low and I'll have to wait for 0330 hrs to see some at their highest trajectory.

I've compiled a short list of objects to find while we're there and I'm wondering if any other members have been to Puerto Plata, tried to observe, and their relative success. Are there any pratfalls I can avoid when travelling with a scope (I might as well learn from your experience!) and are there any amateur astronomers/contacts I can track down in the Dominican Republic while I'm there. Although I'm certain I will see many heavenly bodies I really would like to concentrate on the truly stellar ones! Any hints, tips, or other information (ribald or otherwise) can be directed to my email at: mclancy@sasktel.net. I plan to write an article for this journal upon my return, describing my attempts; with any luck I'll have more fun than our erstwhile French friend who tried so hard to see the Transit of Venus!

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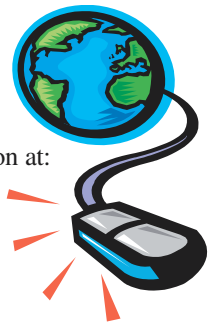
The Messier & Finest NGC lists can be found in the *Observer's Handbook*. The Explore the Universe list is available on the National web site. The Herschel 400 list is available at the web site listed below. The Binocular List will be available at each general meeting or can be mailed out on request to distant members.

On-line Messier List – For those who'd like an electronic Messier list (with DSS images), check out: http://www.seds.org/billa/dssm/messier.html

On-line Finest NGC List – For those who'd like an electronic FNGC list, check out the Edmonton Centre's version at: http://www.edmontonrasc.com/catalog.html

On-line Herschel 400 List – For those who'd like an electronic Herschel 400 list, check out the official site at: http://www.astroleague.org/al/obsclubs/herschel/hers400.html



RASC Observing Group Notes

by Bill Hydomako, Observing Group Coordinator

We had two shots at having an Observing Group session out at Sleaford. One on December 10, and one on December 17. We were clouded out both times. Chris Martin came out with me to Sleaford on December 10. Tyler Cottenie and Bruce Brandell came out on December 17. We enjoyed coffee and lively conversation on both occasions. The next Observing Group is planned for January 14. I'm not planning a formal session for that night but I will be out at Sleaford by 8:00 p.m. Observing Group sessions planned for the next few months will be on the evenings as follows:

Feb. 11 • March 11 • April 8 • May 6 • June 3

Clear Skies!

Bill Hydomako, Observing Group Coordinator