

# STARDUST

Newsletter of the Royal Astronomical Society of Canada  
Edmonton Centre



January 2006

Volume 51 Issue 5



*Looking both forward and backward, Janus was the Roman god of gateways, doors, and beginnings. January is named for him. The image is from a rather imperfectly struck coin. I hope it's public domain.*

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## Centre Contact Information

If you do not want your email and/or phone listed here, please contact the editor.

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President	Orla Aaquist		
Vice-president	Krista Stefan		
Secretary	Luca Vanzella		
Treasurer	Cheryl Salava		
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Councillor	Alicja Borowski		
Councillor	vacant		
Councillor	vacant		
Councillor	vacant		
Co-Nat'l Council Rep	Bruce McCurdy		
Co-Nat'l Council Rep	vacant		
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Public Education Director	vacant		
Equipment Director	Bob Jahrig		
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Light Pollution Abatement	John Cliff		
Casino Manager	Franklin Loehde		
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Public Relations Officer	Shelly Sodergren		
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Scope Rentals	Larry Wood		
New Member Advisor	Pat Abbott		
Speaker Coordinator	Orla Aaquist		
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<b>Finance</b>	Sharon Tansey	<b>Dark Sky Preserve</b>	John Cliff
<b>Black Nugget Lake Obs.</b>	Dave Robinson	<b>Bylaws</b>	Richard Vanderberg

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**Stardust** Articles to Stardust may be submitted by email to [mward@interbaun.com](mailto:mward@interbaun.com) or [aaquisto@macewan.ca](mailto:aaquisto@macewan.ca) or [edmpresident@edmontonrasc.com](mailto:edmpresident@edmontonrasc.com). Submission deadline is the last day of the previous month (e.g. for the May issue submit by 30 Apr). Preferred format is MSOffice OR OpenOffice OR AbiWord OR plain text. For alternative forms of delivery, call Michael Ward (editor, 439-3584) or Orla Aaquist (assistant editor, 486-8661).

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## Editor's Message

An experiment with columns this month. It does not save any space, but I think it is easier to read. Feedback welcome.

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## Upcoming Events, Meetings, Deadlines - remember it's 2006

January 9	Annual General Meeting & General Meeting: guest speaker national president Peter Jedicke on Neutrinos and Astronomy (see abstract below)
January 24	Council Meeting, Grant MacEwan rm 5-238, 7:15pm
January 31	Deadline for February Stardust
February 13	General Meeting
February 21	Council Meeting, Grant MacEwan rm 5-238, 7:15pm
February 28	Deadline for March Stardust

**Neutrinos and Astronomy:** In 2001, the Sudbury Neutrino Observatory announced the solution of the solar neutrino problem. This talk will provide a general introduction to neutrinos, the history of the solar neutrino problem and other aspects of neutrinos in astronomy. No neutrinos were harmed in the making of this talk.

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## President's Message *By Orla Aaquist*

Welcome to 2006, the year of the Dog. I hope everyone had a Merry Christmas and a Happy New Year. Shannon and I spent the holiday season in Winnipeg where we had a wonderful time with family and friends, but there was little time to think about RASC matters and very little inspiration to write a President's Report in time for this issue of Stardust. After numerous Christmas turkeys (or the equivalent), endless supplies of wine, scotch and beer, I'm not even sure I recognize the difference between astronomy and astrology. On Christmas Evening, we stayed up till 2 AM and read our horoscopes from "The New Astrology", a synthesis of Chinese and Western astrology, where I discovered that I am a Capricorn Ox and have several personality traits that make me unsuitable to be Centre President, so Krista might have to take over in the new year.

After our December general meeting, it became apparent that we were spending more and more time on Centre business at our general meetings. We need to turn this trend around. Several council members offered various solutions, and I have spent a little time considering their suggestions and decided on a strategy. Initial business at our general meetings will be restricted to 15 minutes at most: five to 10 minutes of general announcements, three minutes for speed reading an abbreviated version of the Minutes from the previous meeting, followed by 3 minutes for a bare-bones treasurer's report. The detailed Meeting minutes will be posted on the Centre website a week prior to the meeting for interested members to read, and I am investigating the possibility

of publishing a monthly treasurer's report in Stardust and on the members' area of the web. After this initial business, astronomy-related presentations by members or guest speakers will take precedence until 9:10 PM, at which time any remaining business items or council reports will be presented. Members who are not interested in this business, can retire to the Star Lounge outside the Star Theatre of juice and cookies (IF WE HAD A SOCIAL DIRECTOR!) to pursue private discussions. To avoid computer issues during the meeting, I will strongly encourage all presenters to submit their PowerPoint slides to Frank at least two days prior to the meeting so that he can place the presentations on the Star Theatre's computer desktop. Anyone who brings their own laptop to the meeting and has difficulty with the hook-up will be asked to step aside as soon as the problem becomes apparent. As chair, I will keep track of the presenters' requirements so that transitions between speakers is more streamlined. In order to plan the meeting, it is imperative that you request meeting time one week before the meeting, except for quick announcements. If the agenda is full when you submit your agenda item you will be placed in a queue and given time only if time permits OR if your presentation is of immediate and crucial interest to the members.

There will, of course, be exceptions when we have important money motions or elections of officers (like the AGM), but in my second year as president, I will try very hard to have the general meetings focus on astronomy rather than on Centre business.

Welcome to 2006.

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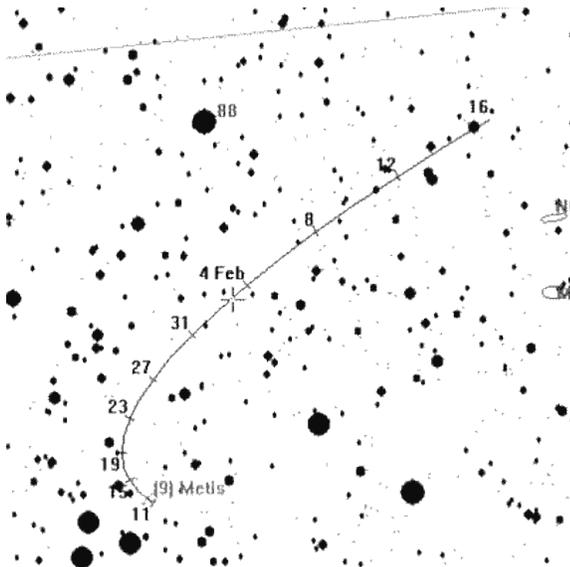
## Observer's Report *By Larry Wood*

Nice weather the last few days enticed some observers to head out to Blackfoot to do some deep sky observing. On Friday Dec 23 Jnani Cevvel, Tim Bihuniak, and I went out, but unfortunately we were followed by some unexpected high haze which made for so-so observing conditions. We were able to view Mars and Saturn and did look at some of the brighter deep sky objects but by 11:30 the skies had deteriorated ending our session.

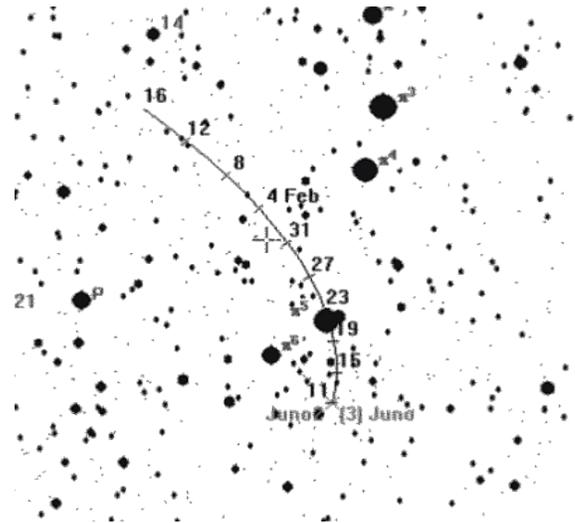
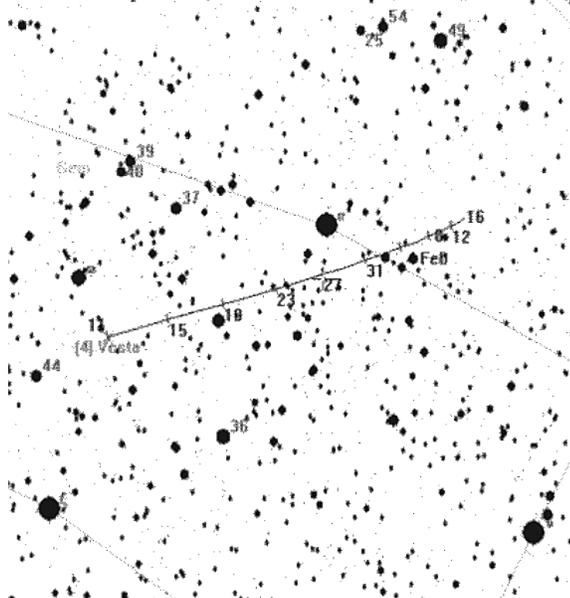
Then on Thursday Dec 29 a clear and glorious evening saw the same few of us head out to Blackfoot again. Joining us were Ashesh Patel, Wyatt ?? along with his girlfriend and her daughter, as well as a former RASC member (now living down east). Tim and Jnani were trying to locate the Bubble Nebula – not great with the average observing conditions, and Ashesh was trying for some

of the Messiers: i.e. M34, M76, and M52. We all had a good look at Saturn and Mars at 250x. The identities of the Moons of Saturn were not obvious as there were a couple of extra (stars) in the FOV. I was busy showing a few of the brighter objects to the visitors and locating some of the tougher bright nebulae for all to see, some I hadn't seen for some years: i.e. IC 2003, NGC 2022, IC 2149, and a couple of near stellar PK Planetaries. The cool temperatures finally took a toll after several hours and I was the last to call it a night at 2:15 after a very pleasurable evening.

### Metis in Leo



**Vesta in Gemini**



**Juno in Orion**

On Wednesday Dec 28 several of the observing group met at BP for some friendly discussion. Tim Bihuniak showed off his new very sturdy red dot finder and Garry Solonyko was inquiring about the components needed to build a Poncet Equatorial table. I think there were a few collimating tidbits thrown in there some place as well. Jnani reported he is heading to Australia in the New Year so he will give us a report on his return.

On the evening of Jan 14 at 18:32:47 MST the mag 13.3 Asteroid (1248) Jugurtha will occult a mag 11.3 star and the combined light of the asteroid and the star will drop by 2.2 magnitudes, for at most 3.1 seconds. For more info see Steve Preston's website at:

<http://www.asteroidoccultation.com/>

During the next couple of months the following three Asteroids will be well placed for viewing: Juno will be located near Orion's shield, Vesta near the middle of Gemini, and Metis just below the tail of Leo. See the charts.

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**New Members Report** by *Pat Abbott*

**Mark Archer** was previously a member of the Centre with his father, and has now decided to rejoin. He describes himself as an "armchair astronomer" and has an aversion to cold weather observing. He still has the 8" mirror from his dad's scope. This was mounted on an old Edmund Scientific german equatorial which "weighed a ton". He is thinking of making a dobsonian mount for it.

**Vicki Huntsman** uses a pair of binoculars in the city. She comments that the combination of light pollution and the thin cloud lately makes finding the constellations rather difficult. As she does not drive outside the city, she is hoping that someone will give her a lift to Blackfoot on an observing night.

**Garry Kieller** also uses binoculars. He would like to buy a telescope, but wisely wants to try out different types before putting down a chunk of hard earned cash. He is therefore very interested in the Loaner Scope program.

To all our new members: cead mile failte (A hundred thousand welcomes).

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**Centre Budgets for 2006** by *Sharon Tansey*

<b>2006 General Account Budget</b>	
<b>Item</b>	<b>Amount</b>
<b><u>Revenue</u></b>	
Membership	\$5,500.00
Advertising	125.00
Calendars	1,000.00
Public Donations	
Bank Interest	15.00
Cookie Jar	100.00
<b>Total Revenue</b>	<b>\$ 6,740.00</b>
<b><u>Expenses</u></b>	
<b>Calendars</b>	<b>\$1,000.00</b>
<b>Volunteer Expenses</b>	
General Meetings	350.00
DSP	100.00
<b>Events</b>	
Astro Days	100.00
Earth Day	30.00
Public Events at Deck	100.00
<b>Recognition</b>	
Observatory volunteers	300.00
Council/portfolio/committee	100.00
<b>Gas</b>	
BNLO	400.00
DSP	200.00
<b>Stardust Distribution</b>	
Stamps	1,100.00
Labels	133.00
Toner	95.00
<b>National Meetings</b>	<b>2,000.00</b>
<b>Office Expenses</b>	
Administration	300.00
Bank charges	0.00
BNLO paperwork	100.00
<b>New Members</b>	<b>0.00</b>
<b>IDS Annual Membership</b>	<b>120.00</b>
<b>Meetings</b>	
Speaker awards	400.00
President's awards	300.00
Speaker dinners	120.00
<b>Sky Publishing Order</b>	<b>50.00</b>
<b>Total Expenses</b>	<b>\$7,398.00</b>
<b>Revenue – Expenses</b>	<b>(\$658.00)</b>

<b>2006 Casino Operating Budget</b>	
<b>Item</b>	<b>Amount</b>
<b><u>Revenue</u></b>	
Rental Scopes	\$500.00
Bank interest	0.00
<b>Total Revenue</b>	<b>\$500.00</b>
<b><u>Expenses</u></b>	
<b>Stardust Publication</b>	<b>\$2,700.00</b>
<b>Guest Speaker Fund</b>	
Guest speaker accommodation	300.00
Guest speaker travel	300.00
<b>Website</b>	<b>700.00</b>
<b>Library</b>	<b>1,000.00</b>
<b>Outreach</b>	
Kidscope Program	0.00
Park interpreters program	1,000.00
<b>Rental Scopes</b>	
Maintenance	0.00
Accessories	600.00
<b>Observatory</b>	
Maintenance, equipment	2,000.00
Supplies	350.00
<b>Public Education Programs</b>	
Earth Day	120.00
Relay for Life	100.00
Astronomy Days	200.00
Public events at deck	100.00
Other supplies	500.00
<b>Promotions</b>	<b>0.00</b>
<b>Light Pollution Abatement (urban)</b>	<b>0.00</b>
<b>Total Expenses</b>	<b>\$9,970.00</b>
<b>Expenses – Revenue</b>	<b>\$9,470.00</b>

Above are the centre's 2006 budgets: one each for the **general account** (what we do with your membership fee) and for the **casino operating** expenses (the ongoing centre expenses that fall under the Gaming Commission guidelines for the use of casino proceeds).

So, where did we get these numbers? The finance committee solicited budget estimates from every committee chair, project leader, portfolio holder and council member: those people with the authorization to spend centre funds. The budget numbers are their submissions. A draft of each budget went to the September council meeting for revision. The final draft was passed by council at the November 29<sup>th</sup> meeting.

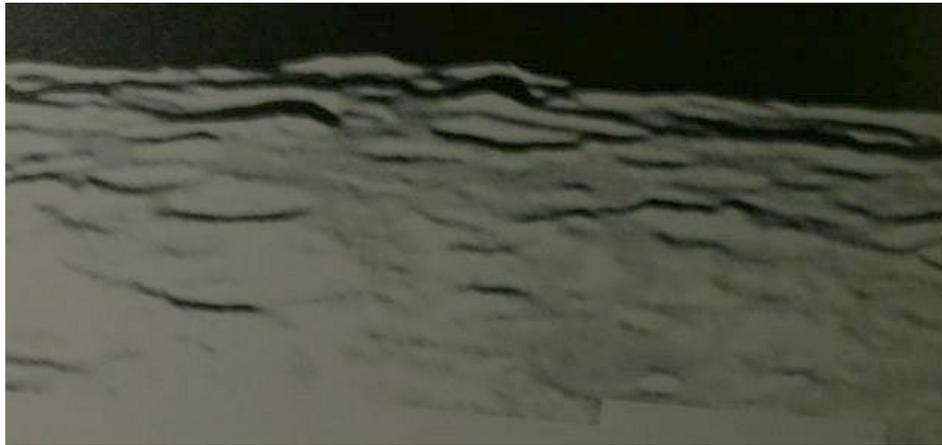
One thing to note about the **general account budget** is the

inclusion of "Volunteer Expenses" as a formal category. Some volunteer expenses have always been reimbursed, but this is the first time we are looking at them as a whole. For this budget, we simply listed the numbers submitted by those with spending authorization. By the 2007 budget, we expect to develop guidelines for making reimbursement consistent and uniform. Any suggestions from centre members to help us with the guidelines are welcome.

If you have any questions or want more information about the 2006 budgets, or have suggestions for future budgets, please contact a member of the finance committee, **Sharon Tansey**, **Cheryl Salava**, or **Sheldon Helbert**. See Centre Contact Information on page 2.

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## Expedition to the South Pole by *Alister Ling*



**Advertisement:** Take a look at the south polar region of the Moon. A really close look. If the weather and your personal schedule permit, observe it for three or four nights in a row – that's what I did last month. Begin on Thursday the 12<sup>th</sup> or Friday the 13<sup>th</sup> and continue to the 17<sup>th</sup>. The cycle repeats itself, but not exactly, from February 11-16<sup>th</sup>.

**Story:** You might expect that after 30 years of sky gazing I would stop being surprised at how many things in the sky are interesting. There's more than one way of interpreting that! After all this time, I should have experienced pretty much everything there is to see. But there is always more – and I ought to know that. It appears that like many people, I have only scratched the surface of the universe.

After a night of variable star observing (a story for another time), just before shutting everything down, I turned my scope onto the nearly full Moon just to see what stark beauty lay there awaiting for me to see. I've seen the Moon like this before, some 18 years ago, but this time my mind was open and I was ready to walk down another path.

I was immediately struck by how much relief there was to see near the south pole. At full Moon, the Sun is "overhead" for most features, so there are no shadows. And without those, the surface looks flat. Towards the limbs, where there would be shadows because the Sun is lower in the lunar sky, we observers are looking directly at the features which are hiding them from view. It's an easy experiment to replicate outside at night by the street with a friend. Stand in between them and a streetlight, and you will quickly notice that you cannot see their shadow. As you move slowly to the side, you see more and more it. Have them

crouch down a fair bit, and soon enough you will see their shadow behind them.

Because the Moon is currently experiencing extreme declinations, we get to see this effect of "looking over the pole" like the example above. All mountain peaks and high rims of craters are in sunlight facing us, but we can look over them and see their shadows extending into the distance. Peaks on the lunar limb stand out like white pimples in profile. This shadow play gives the whole scene a strong 3-D feel. Imagine flying low over a series of waves heading for the beach – every now and then a crest rises up hiding smaller crests from view. Each crater rim is like the crest of a wave – I could see dozens and dozens!

Standing out on the limb were two peaks and a flat-topped mesa. The next night the mesa had disappeared, but the two rounded mountain tops remained. Two crater rims, Cabeus A and B were casting their shadows, one onto each mountain base. This scene was captured by John Westfall in his "Atlas of the Lunar Terminator".

The next night, the scene had changed slightly. All the players were there, but the shadows from Cabeus A & B were now missing the bases and off to the side. The following night, the shadows were considerably skewed to the side, and two new bumps were on the western limb, just off to the side. By the fourth night, it was obvious what these bumps were, since they were joined by a third: I was seeing a large crater in profile, its peak poking out perfectly between the raised rims.

There was a lot more happening than I have described here. I am really looking forward to following this shadow play again in January and February. One of the great observers of our time,

Father Lucian Kemble, used to love saying “you can observe a lot just by watching”. There’s no special skill you need to see all this, just an open mind, patience, and cooperative weather.

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## Money Motion Passed

At the November 29 Council Meeting, the following motion was passed.

Cheryl Salava moved and Krista Stefan seconded that up to \$3000 from the General Account be spent to subsidize a banquet to celebrate the opening of the Science Fundamentals exhibit at the Telus World of Science. Carried.

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## Edmonton RASC Centre Awards, 2005

See also <http://www.edmontonrasc.com/awards.html>

1. The President's Award for Service to the Centre

**Richard Vanderberg**

2. The Observer of the Year Award

**Paul Campbell**

3. The Angus Smith Award for Excellence in Telescope Making and Design

**Dwight Hanson**

4. The Bryce Heartwell Memorial Award for Excellence in Astroimaging

**Sherry Campbell**

5. The George Moore's Memorial Award for Excellence in Public Education

**Sky Scan Project**

Sky Scan Project participants receiving individual plaques are **Dave Cleary, Robert Rolf, Doug Hube, Guy Almborg, Sid Shugarman, Bruce McCurdy, and Kevin McCurdy.**

6. The Franklin Loehde Award for Project of the Year

**Warren Finlay**

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## Book Review by Orla Aaquist

*Looking for Life, Searching the Solar System.* by Paul Clancy, André Brack, and Gerda Horneck. New York, Cambridge University Press, 2005. 352 pages. Hardcover: 15 by 23 cm.

Paul Clancy, Andre Brack, and Gerda Hornebeck are all professionally involved with various agencies that deal with space exploration, astrobiology, and origins of life. Their combined effort has produced an engaging book that reports on current efforts towards human exploration of space, search for life within the Solar System, and the origins of life on Earth. It is a book that describes our search for a second genesis of life from a purely scientific perspective. Because of its formal and objective style common to scientific research papers, some readers will find the book a little dry with its attention to detail; however, the authors have been very thorough in their presentation, making the book understandable to the general public who have a scientific background obtained after a basic course in physics, chemistry and biology at the high school or first year university level.

Part one of the book answers the question, “What can we learn from our past exploration of Earth, and how does it apply to our current efforts to explore space?” The second part of the book

examines the requirements and limits of life as we know it on Earth and then addresses such questions as, “Is it possible for life to exist and thrive on the harsh conditions on Mars? Can the fundamental building blocks of life, or even life itself, survive in space? Is it theoretically possible for living organisms to survive a trip from Mars to Earth within a meteorite?” In the third part of the book, the authors describe our current efforts in the search for life within the solar system. In doing so, they look at the possibility of long-duration human space flight, the many problems associated with such efforts, and what we know so far from current research and past efforts, including the Apollo missions to the Moon. In part four, the technology required for human space exploration is described in some detail, including details of human requirements and what it will take to satisfy those requirements.

I highly recommend this book to anyone who wants to know the facts about the possibilities, and current status, of human space exploration without the overburden of fanciful schemes and dreams found in more popular books and articles.

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## The Planets by Murray D. Paulson

As Mars winds down and Venus passes above the sun, we settle into the coldest month of the year. I am starting to watch

Saturn as it rises over my neighbour's house. It is nice to have a second planet in the evening sky. If you are up to some daytime

star hopping, Venus should be fun to hunt down as it passes over the sun.

Over this next month, Mercury stays within 10 degrees of the sun as it recedes from us on its way around the sun. Mercury passes in superior conjunction, just under 2 degrees below the sun, on January 26. It is now on the far side of the sun and its disk has shrunk to 4.8". Mercury has now swung into the evening sky, but it will be late in February before it becomes visible in the evening twilight.

The month of January starts off with Venus slipping out of the evening sky. On January 13<sup>th</sup>, Venus passes inferior conjunction, one whole synodic period cycle since we saw it pass on the face of the sun. You can try your hand at sighting the razor thin crescent 5.2 degrees above the sun, but take great care not to allow the scope to be pointed at the sun without a filter. Venus is really moving, and within a week of the superior conjunction, you will be able to see it rising before the sun in the south-eastern sky. Despite the shallow angle of the ecliptic, which would otherwise make the task hard, Venus is way above the ecliptic, and it pops up into the morning sky. Venus shines at magnitude -4.3 and will show a thin 59" crescent to any early morning observer over the last week of January. By early February, Venus will brighten to magnitude -4.5 and the crescent fattens up a bit as the size shrinks to 52".

Mars starts off the month at 11" and shines at -0.3 magnitude. It is no longer the red beacon in the evening sky, but that colour still catches the eye. By the first week of February, Mars will shrink to 8 arc seconds and will dim to 0.3 magnitude. It has been

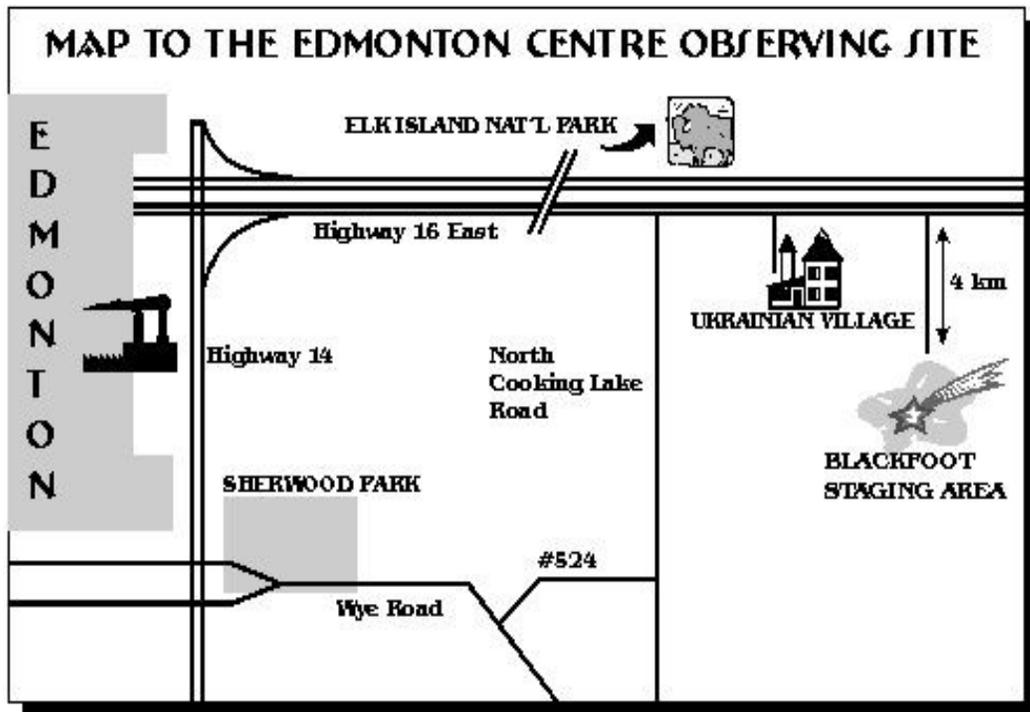
a great opposition, and there is still some good viewing. In mid January, Syrtis Major is prominent on the now quite gibbous disk. Over the next week, we see the Mare Tyrrenum and Cimmerium regions rotate into view with Syrtis Major on the terminator. By Month's end, Mare Sirenum is the faint wisp adorning the southern end of the planet. By the first weekend in February, Solis Lacus sits center stage on a now quite small planet. On February 5<sup>th</sup>, look for a first quarter moon half way between Mars and the Pleiades. Mars and the moon will be just under 3 degrees apart as in the evening twilight.

Jupiter is in Libra this month, and therefore is a morning object. It rises at 3 am and shines at magnitude -1.9. In the eyepiece you will see a 35" disk, just enormous after that last glance at Mars!

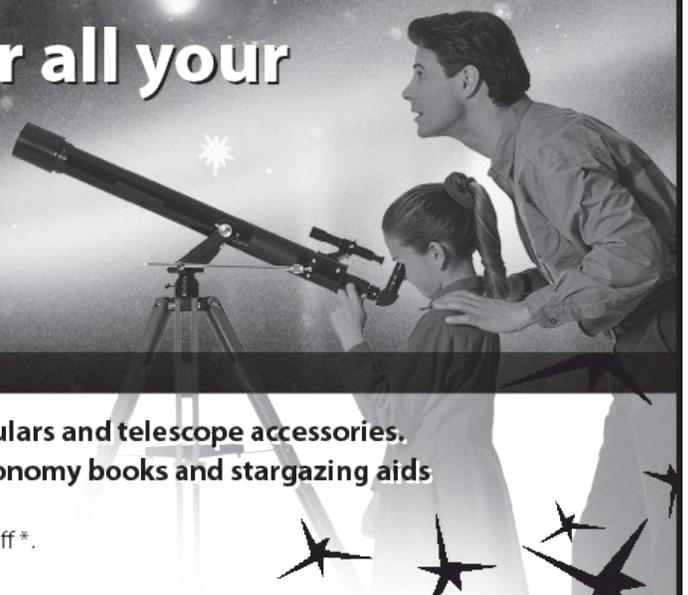
Saturn is now a good target in the evening sky as it heads to the January 27<sup>th</sup> opposition. It spends the month in the constellation of Cancer. At the beginning of the month, Saturn shines at magnitude -0.1 and has a 20.3" disk. By opposition it brightens slightly to magnitude -0.2 and the disk grows imperceptibly to 20.45". The view in December showed the rings dramatically shallower than last year and what a contrast to Mars for size. On January 15<sup>th</sup>, the moon passes 2.7 degrees above Saturn and the Beehive (M44). Saturn skirts the southern edge of the Beehive over a two week long period starting around the time of opposition. This is a good reason to shoot a few images to catch the Saturn in the cluster. A low power field of view should encompass Saturn and the cluster. It should be a fairly nice sight in a telescope.



*Photos by Murray D. Paulson, taken with the AP 130 at f 60 on a Phillips ToUcam, 1000 frames, and processed with Registax.*



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