

Editorial

At the January 9th meeting, we managed to fill the position of Treasurer for the PAA. I would like to thank Diane Paterson, for offering to take on this very important position.

On January 16th, the first board meeting of the year was held at Wimpy's Diner in Peterborough. In attendance were John Crossen, Dave Duffus, Charles Baetsen, Rene Bowe, Don McDonald, Dian Paterson and Al Day. Between bites of hamburger and sips of root beer, we did actually get down to some club business.

We discussed potential club projects like the "all sky camera" suggested by Peter Shewchuk, placing ads in the local newspapers to promoting the club, and what to do for a club field trip this year. John also presented us with a copy of his new "Beginner's Guide". John and I agreed use our contacts to line up some speakers for the next few months. Dave will plan out some future observing sessions.

We did run into one snag however and that was with the bank. How come that does not surprise me! Since "September 11th", the banks have been getting real picky as to who they want to let open accounts. It seems that there are many more hoops to jump through before we can set this up. Dave agreed to check into the "old" club account that we had in the past, in hopes of resurrecting that! In the meantime the club will have to work without this until this is resolved.

Last month there were some reasonably clear nights, but unfortunately the -25°C weather was not conducive to much observing. Hopefully this month we can get some clear nights that are not so cold. I did attempt to do some observing one



Students from Michael George's grade 6 class from Bobcaygeon Pubic School get turned on to astronomy.

night, but the cold weather sucked almost all the juice out of my battery that powered my telescope. It also sucked the (thermal) juice out of me as well!

Clear Skies

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Oh To Be A Kid Again!

The other day I talked astronomy to a group of Grade 6 students. As I walked into the classroom with its line of computer monitors along the back wall, and built-in lab table, I reflected on how

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much technology has changed the world.

I introduced myself to the class and thanked the teacher for inviting me. Then, as I gazed out at the bright-eyed, eager faces before me, a thought flashed through the back of my mind - oh to be kid again.

Not that I wanted to avoid my grownup's responsibilities. But as I talk about astronomy with the class, I realized that they are the ones who will live my dream. Their generation will walk on Mars. They are the people who will live in colonies on the Moon. They will be the pioneers pressing back the frontiers of space travel.

In my day Buck Rogers, Flash Gordon, and Dale Arden were science fiction characters. But today it's Jason, Aaron and Whitney. They're real people - sitting right in front of me. And they're the ones who will live the exciting adventure of real interplanetary travel.

If George Bush's space program stays on schedule, that group of kids should be twenty something as they colonize our Moon. And by the time they reach their early 30's they may be setting foot on Martian soil - the first men and women from Earth to stride across another planet. At their feet will be answers to questions that my generation has long pondered. In their hands will be tools we haven't even dreamed of yet. And the sites they will see are unimaginable.

Sure, it was great to be there when Sputnik first sped about the Earth. It was exciting to witness the first space walks and Apollo 11 - our first man on the moon. But when I think about what's coming in the next decade or two - oh to be a kid again!

John Crossen
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Meeting Notes

PAA Meeting Jan 9th

The first meeting of the new year opened with the presentation of the new book, *Seeing in the Dark* by Timothy Ferris, to the PAA's new Observing Coordinator, Dave Duffus. Everyone present signed the book and join in thanking Dave for his years of service to the PAA as its leader. We have yet another surprise for Dave at our next meeting, but mum's the word until then.

John Crossen then gave a quick rundown on a number of new videos that just arrived in the PAA Library - thank you Santa! Ian Craig also presented the library with a new book - thank you Ian.

Colin Cross took the group through an in-depth look at our constellation of the month, Orion. The group then proceeded to discuss a number of points about the constellation and the Messier/NGC objects within it.

We were happy to welcome Stanley Poe to the group as a potential new member. Stan, Wendy and Jim took some time to address the needs of new members. The result is that John Crossen will pull together a data sheet with commonly used astronomical terms so that beginners won't be left out.

Charles Baetsen, Editor of the PAA Reflector unveiled the idea of putting together a group tour to Turkey for the solar eclipse of 2006. When asked who might be interested in going, three hands flew up. That's a good start.

Peter Shewchuk, along with his plans for building a video recorder to detect fire balls, was reinvigorated via discussion of an article in the current issue of the RASC's Journal. We have the necessary hubcap and location already. Hopefully we'll be ready to roll come spring of '04.

Perhaps most importantly, we now have a PAA Treasurer. Diane Paterson took up the reigns of responsibility with the grateful thanks of everyone. As Treasurer, Diane also becomes an important member of Council. Not to mention the fact that we can now pay our dues for the year.

The meeting concluded with council members agreeing to meet on Friday, January 16th to discuss the 2004 observing, speaker and event calendar. The goal is to have the first couple of months nailed down in time for our next meeting.

PAA Meeting January 23

This Friday night's meeting began at our new time of 8:00. Most of us remembered which was good because it wasn't a night to standing outside.

John Crossen opened the meeting with an update of the news from Mars. The European Space Agency's Mars Orbiter *Mars Express* had succeeded in confirming that water ice does exist on the planet's surface. The orbiter detected the water ice as it passed over the Martian south polar cap. Prior to this it was thought that the frozen material was only Carbon Dioxide. Those who



**Peterborough
Astronomical
Association**

The Reflector is a publication of the Peterborough Astronomical Association (PAA). Founded in 1970, the PAA is your local group for astronomy in Peterborough and the Kawarthas.

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speculate that Mars did at one time have an abundant water supply are now speculating whether this essential catalyst to life as we know it actually did spawn life, even if only in the form of microbes. That big question remains unanswered.

The good news continued with the announcement that the Mars rover, *Spirit*, had actually relayed 20 minutes worth of data back to Earth. The rover went silent last Wednesday, and then would only transmit a few seconds worth of gibberish. NASA scientists are hoping that the problem is in the software, which can be fixed from Earth.

Also introduced at the meeting were three new videos for the library; *Destiny in Space*, *A Space Story*, and *Blue Planet*. Among the new books to be found on the library shelf were *Practical Astrophotography*, *Seeing in the Dark*, and *The Red Limit*, the last two authored by Timothy Ferris.

Dave Duffus brought along two photographs to demonstrate the “before” and “after” effects a little visual massaging with PhotoShop can produce. The subject was from last fall’s auroral display, and the positive difference in the “after” shot was quite easily noticeable.

Dave also outlined some observing dates and subjects for the next couple of months including a double shadow transit on Jupiter on February 7th. Dave then, confirmed with Don McDonald that we will be meeting at Don’s observatory for a little stargazing the night of April 16th. Dave is also checking into the availability of an observing spot near the Zoo for after-meeting casual observing.

It was also announced that PAA members have been invited to visit the Haliburton Forest Observatory. John Crossen will contact Thomas Kovac to choose a date in either April or May.

The PAA places great deal of importance on helping beginners get started in astronomy. To that end, John Crossen presented the club with a 6-inch Dobsonian that was given to him last

spring. Over the summer and fall he refurbished the scope and built a Dobsonian base for it. Crossen also put together a list of commonly used astronomical terms to act as a booster rocket to get beginners into space faster.

Rene Bowe announced that he had videotaped the initial HST repair as broadcast on the CBC in 1993. He’s going to dig it out for editing and adding to the PAA video library. Rene also brought along a graphic from the 1986 Halley’s Comet pass that we can use as an example of how comets orbit our sun.

We were pleased to welcome Richard Matthews to his first PAA meeting. Richard heard about us via a talk John Crossen was giving to the Ontario Professional Engineers during a seminar in November. Richard has designed satellites and his father is with Spar Aerospace. Somehow me thinks there’s a presentation to PAA members in there somewhere. The question now is “what can we do for Richard”?

Haliburton Forest Observatory Tour – May 15

Sure it’s still February, but spring (and warmer weather) are just around the corner. So we’ve made reservations at the Haliburton Forest



There are sky charts and then there’s the Haliburton Forest Sky Chart. It’s filled with information on the Moon, planets, and constellations for all seasons.



During the day time you can walk in the clouds with the canopy walk .

Observatory for an observing session in their unique two-story observatory.

Also at our disposal will be a planetarium and a fascinating outdoor, walk-around star chart – the largest I have ever seen. If it’s a clear night and we’re up until the morning hours, cottages are also available for sleepy heads.

Of course there’s more to do on this phenomenal 60,000-acre nature and dark sky reserve. There’s a guided tour on a walkway built through the treetops that takes you into another world of plant and critter life. Plus there’s the famed Haliburton Forest Wolf Centre. It features an indoor wolf study and history exhibit along with a walkout glass room where you can settle in with the wolf pack. Great for taking pictures.

That’s what’s waiting for us. Here’s the deal.

Observatory & Sky Tour:

\$15.00 adults/\$10.00 children.*

Planetarium tour: Included with sky tour.

Overnight cottage rental (optional) – \$50 per adult – 2 night minimum*

Forest Canopy Tour (optional) – \$85**

Wolf Centre admission (optional) - \$8.00 on site.

*Must be paid in advance. Not refundable.

**\$25 non-refundable deposit required in advance – also includes admission to the

Wolf Centre. Call 705-754-2198 and make your own booking for the Canopy Tour.

For those seeking alternate accommodation, Ian Craig is looking into some local motels and hotels for us. More on that soon at the PAA web site

Astronomy in Philately

The **International Geophysical Year (IGY)** was an international project of concentrated and coordinated exploration of the earth and its cosmic environment. The period chosen (July 1957-December 1958) was one of intense solar activity. Important scientific results were obtained in many areas of geophysics. Highlights included the launching of artificial satellites, which among other things led to the discovery of the Van Allen belts surrounding the Earth and soundings of the ocean floor, which contributed to the theory of plate tectonics. The IGY also resulted in the Antarctic Treaty, which in 1959 dedicated this continent to peaceful scientific investigation by all nations. A total of 66 nations took part in the IGY, which was coordinated by the International Council of Scientific Unions.

On October 15, 1958 the Republic of Indonesia issued a set of postage stamps that celebrated the IGY that was coming to a close. The attached image shows a First Day Cover (FDC) of this issue of five stamps. The cancellation shows the date of issue and that they were first released in Bandung. The stamps show a coloured globe being circled by a satellite. At this time in history, the use of satellites was increasing and expansion of scientific knowledge was being accomplished in this fashion.

The cachet on the left side of the FDC is nicely illustrated with planet Earth in space (Indonesia in red facing you) and a satellite orbiting. There is a lovely background of planets like Saturn, spiral galaxies, stars and nebulousity's. This is one of the older space related FDC's in my collection and one that shows that space has been important and recognized through the world's postal history for almost 50 years. Who would have thought so many years ago, that we would have come as far as we have both with exploration of our planet from space and space from our planet?

Rick Stankiewicz
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On October 15, 1958 the Republic of Indonesia issued a set of postage stamps that celebrated the International Geophysical Year.

More to Read, More To See in the PAA Library

This week we add three new videos and three new books to our growing list of offerings. Here's what's new. Check one out for a cloudy night or two, or more, given the weather we've had lately.



A Space Story gets my vote as one of the most informative, fascinating and inspiring presentations of its type. The "Story" in this case is veteran astronaut Story Musgrave. Of course, he's also a fighter

pilot...a doctor...an engineer...a poet... and one highly motivating speaker. Not your typical video, *A Space Story* features Story Musgrave making a presentation to a crowd who are riveted to their seats at "The One World Theatre" in Austin, Texas. His 80-minute stage performance takes you through the launch of the Hubble Space Telescope to the history STS-61 mission to repair its flawed optics. Musgrave was one of the key figures on this mission, but the work and preparation that led up to it, make a fascinating story. It's different point of view on space travel and our reasons for going "out there." A different point of view you won't want to miss.



Blue Planet gives you a world tour like you've never had before. For starters, it was originally filmed in IMAX and you're about 320km up aboard a NASA space shuttle. During your 42 minute flight you'll

float through the shuttle, meet the crew, experience zero-gravity living and then you'll drift over to the observation window. It's mostly eye-candy, but of the tastiest variety. *Blue Planet* change the way you see planet Earth forever.



Destiny in Space is another IMAX original. Board the space shuttle and launch yourself into Earth orbit as the astronauts move the Hubble Space Telescope into position, the return to repair it's malfunctioning systems. In all there were a dozen fixes to be made, all while drifting above the Earth's sphere. Narrated by Dr. Spock – Leneord Nemoy – the video shows the shuttle's exterior and the astronauts working in space via some of the most striking 70mm film footage ever taken. And by the way, it was all filmed by the astronauts themselves. I can remember watching NASA TV during the repairs. But this is even better – way better!



The Red Limit, by gifted astronomy writer Timothy Ferris takes you on the journey that put an end to the concept of a static universe. While the discovery of galaxies red shifting (moving away) from Earth confirmed the fact that our universe was expanding, all the credit can't go to Edwin Hubble. *The Red Limit* tells the tale of the red shift discovery, its meaning to us, and of the many astronomers who spent their lives in search of the answers. A good read by a great writer.

Seeing in the Dark is yet another of Timothy Ferris' offerings. The latest in a series of eleven books by Ferris, *Seeing in the Dark* is a tribute to amateur astronomers and their increasingly important contributions to the science of astronomy. Ferris describes different celestial phenomena via interviews with

amateurs such as Don Parker, David Levy and luminaries including Patrick Moore. It's a unique and revealing technique.

Practical Astrophotography was written by Jeffrey Charles and edited by no less than Briton's answer to Terry Dickinson, Sir Patrick Moore. Any of you who have tried your hand at astrophotography may wonder how the word "practical" ever came to be associated with it. Batteries fail in the middle of a one-hour exposure. You forget to ratchet the film forward. If Jack Frost isn't nipping at your toes, the mosquitoes are dining on whatever is left over. And just about as you're going to close the shutter on that great shot of the Horse Head, a 747 flies through your camera's field of view. However, if you're one of those crazy people who just has to do it, *Practical Astrophotography* is an excellent start. The book covers all the techniques, all the targets and all the gear – including some of the more recent CCD equipment. *Practical Astrophotography* bills itself as "the complete guide" for amateur astrophotographers at all levels of ability. And, indeed it is. It's just the title I'm having trouble with.

The Sky This Month

MERCURY:

Mercury is not visible at this time.

VENUS:

Venus is visible in the evening sky after sunset.

MARS:

Located will be located in Pisces and is visible in the evening sky.

JUPITER:

Jupiter will be in Leo and appears above the horizon late evening.

SATURN:

Saturn is visible this month after sunset, located in Gemini. It is the closest it gets for another 30 years.

URANUS & NEPTUNE:

Uranus and Neptune are not visible at this time.

PLUTO:

Pluto is not visible at this time.

METEOR SHOWERS:

There are no major showers this month, however there are three minor showers visible from the northern hemisphere:

<u>Aurigids:</u>	Feb. 5-10
<u>Delta Leonids:</u>	Feb. 22/23
<u>Sigma Leonids:</u>	Feb. 25/26

No Scope? No Problem.

While owning a telescope isn't essential to being a PAA member, sooner or later just about everyone wants to see things a little bigger and brighter. However, that can be an expensive jump. And the last thing you want to do is waste your hard-earned cash on some department store disaster.

Now the PAA can offer its members an alternative – free. The PAA loaner scope is yours for 30 days. And if another member isn't waiting in line for it, go ahead and keep it another 30 days while you learn your way around the sky.

The scope is a classic 6-inch, f8 Newtonian from the mid-60s. But today, instead of a creaky old Criterion mount, it rides on a sturdy Dob base. It's easy to tote, easy to set up, and simplicity itself to use. Plus it has been updated with a pair of plossl eyepieces and a right angle finder scope that delivers a correct view of the sky. That way what you see will



The Peterborough Astronomical Association now has its very own loaner scope available for club members.

match your star charts. It also boasts a fresh coat of paint. Both the primary and secondary mirrors required little more than washing up to make them useable. So how good is it?

I took it out during first quarter moon, and the lunar detail was terrific. Contrast and image crispness are excellent at 120 power. I swung around to the Orion Nebula and at 48 power the view was excellent despite the moon's wash. I could even make out 3 of the 4 brighter stars in the trapezium. Saturn, too, was bright and crisp. I also took in M35 and was pleased with the image. In short, it's a decent scope. Perfect for beginners.

If you're a PAA member and you'd like to check it out, contact John Crossen at 705-657-7718 or write him at johncstargazer@aol.com.

Being scopeless is no longer hopeless!

The Orion Nebula

Anyone who has examined the Orion Nebula (M42) through a telescope and seen its knotted tangle streaming gas clouds has also seen the wonder of star

birth. For peppered throughout the nebula are proto-stars in the process of evolving into suns and in some instances, complete solar systems. These new-born stars, interacting with the huge clouds of gas that comprise the nebula, cause it to light up like a cosmic neon sign. And like any good sign, it draws the attention of those who travel the night sky. In fact, the Orion Nebula is one of the first deep sky objects new-comers to the hobby seek out with naked eyes, binoculars, or a telescope. For it can be enjoyed in different degrees by all three.

I can recall wandering through M42 one night with a friend's 16-inch scope outfitted with an OIII filter. The detail, also lit by 6 bright stars at the core of the nebula, was stunning.* At about 200X the nebula exceeded the field of view, so that it was necessary to view it in sections. I could almost imagine the huge clouds of gas and dust rolling and tumbling. Yet they seemed frozen in time, like a single frame from a time-lapse film. One that was impatient to begin rolling again.

I can also recall my premier look at M42 through my first telescope, a humble 60 mm peashooter from Black's

Camera Shop. The view, while less detailed, was no less breathtaking to a star-struck first-timer.

The Orion Nebula lies at a distance of 1,400 light years from Earth and is 30 light years across. To put that into a more meaningful perspective, the fastest rocket we currently have would take about a million and a half years to travel from one side of the nebula to the other. Being that large, it's no wonder that M42 shines so brightly in the handle of Orion's sword.

But the significance of the Orion Nebula goes far beyond its physical beauty. Here, before our eyes, is concrete, photographed and documented proof that our theories and computer models of solar system formation were correct. Through the Hubble Space Telescope's 92-inch eye we have seen and photographed proto-planets already orbiting their central sun. Someday, a few billion years in the future these solar systems may contain life forms. Life forms incomprehensible to us, or perhaps quite like you and I.

Viewing the Orion Nebula also reminds me of Carl Sagan's comment that we are all stardust. It's hard not to look at those massive, swirling clouds of dust knowing that there are young solar systems within it and not feel that I am looking back in time. Back to an distant age when the complex elements formed in the unimaginable temperatures and forces of a supernova brought forth a myriad of heavy metals, including carbon, upon which our life form is based.



The Orion Nebula (M42/M43) is your cosmic time machine.

Now, I wonder what will happen on the solar systems emerging within that giant nebula. Will the huge clouds of dust that currently shield them from view be blown away as they have from our own solar system? Will one of the proto-planets eventually spring forth with life in a few billion years? And if so, will it be intelligent life that will look out across the cosmos and wonder where it came from? And with that question, will it set out on the great journey to find its origin and its destiny?

*This area is known as the Trapezium. And while composed of six stars, many observers never see more than four of the brightest.

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Spring Of '04 Speaker Lineup Is Confirmed

A phone call from Sudbury last Thursday night confirmed the final member for the PAA's spring speaker agenda. There's something for everyone from beginning and casual observers to high-tech "gotta-have-its." Here's what's on our event horizon :

"Astronomy Goes Public" – Feb 6th with John Crossen.

John has spent a good deal of his spare time lately talking astronomy to grade 9 and grade 6 classes in Peterborough, Lakefield, and Bobcaygeon. Plus he has taught backyard astronomy at Class Connections and written astronomy articles for cottage magazines and senior's publications. Via a slide presentation John will show how he's taking astronomy to the public.

"What's New Under The Stars" – March 5th with Jim Kendrick.

Jim is an astro-entrepreneur and a dedicated observer. Well known for his "Kendrick Dew Removal Systems", Jim also runs a telescope shop in Toronto and has taken on the Vixen line of products for Canada. He'll be bringing with him some of the latest observing gadgets,

eyepieces and telescope gear from a number of manufacturers – just in time for the spring observing season.

"Digital Imaging" – April 2nd with Brian Colville.

Brian is known both locally and internationally for his superb planetary images of Jupiter, Mars and Saturn. All of which are taken from his observatory in nearby Cambray, Ontario. Brian's talk will bring us up to date on the latest imaging techniques with web cams and the rapidly evolving world of CCD imaging. And even if you're not a "Techy" Brian's images alone are well worth seeing.

"Exploring Saturn" – April 30th with Dan Bortolotti.

Among the many hats Dan has worn you'll find the titles editorial assistant with *Equinox Magazine* and currently, columnist with *Chatelaine*. Dan is also an astronomy buff and is pleased to announce that Firefly has just released his latest book, *Exploring Saturn*. In it you'll find a fascinating discussion of the planet, its rings and its moons. Plus, you'll enjoy a ride along with the Cassini spacecraft to explore it's goals as well as the sophisticated equipment it is ferrying to Saturn.

"Stargazer Steve Dodson" - May 14th.

Anyone who has been to one of Ontario's summer star parties has probably rubbed shoulders with Steve Dodson. Steve is a long-time member of the Sudbury Astronomy Club, a former associate of Science North, and an award-winning amateur telescope builder. For the last few years, Steve has been encouraging beginners in astronomy by building high quality, affordable 4.5" reflector telescopes. Now he's coming to talk with us. He's not sure at this point what he'll choose from his long list of possible subjects and astronomical experiences, but one thing is certain – it'll be interesting.

John Crossen
JohnCstargazer@aol.com

Classifieds

For Sale:

Jason 7x50 binoculars with long eye relief for those who wear glasses - \$75.00



TelRad red beam finder, mount & battery - \$25.00

4 Meters **black felt**. Excellent for lining optical tubes - \$10.00

Alt/Az mount with slow motion controls for photography or mounting a small guide scope. Used successfully with a 4"/f12 SCT as a guide scope. - \$15.00

Contact: John Crossen:
Phone: 705-657-7718
E-mail: johncstargazer@aol.com

For Sale:



1.25" Diagonal Fits either Meade or Celestron SCT's. Asking \$45.

Contact Charles Baetsen
Phone (905) 983-8143
E-mail: va3ngc@rac.ca

ARTICLES

Submissions for *The Reflector* must be received by the date listed below. E-mail or "sneaker-net" (i.e., floppy disk) submissions are preferred (Microsoft Word, ASCII and most graphics formats are acceptable). Typed or hand-written submissions are acceptable provided they are legible (and not too long). Copyrighted materials will not be published without written permission from the copyright holder. Submissions may be edited for grammar, brevity, or clarity. Submissions will be published at the editor's sole discretion. Depending on the volume of submissions, some articles may be published at a later date. Please submit any articles, thoughts, or ideas to this address:

Charles Baetsen
4094 Squair Rd
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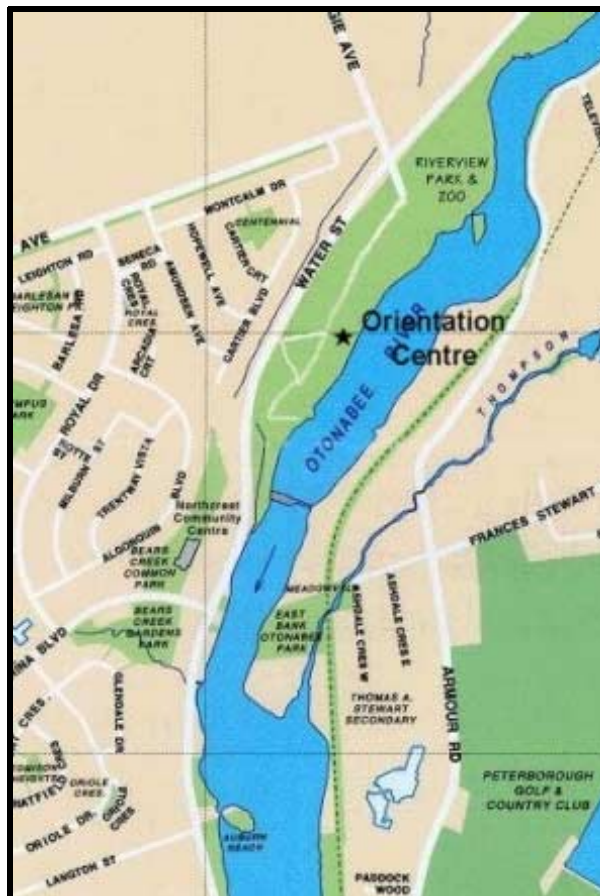
or via e-mail at:
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**NEXT ISSUE'S
DEADLINE IS
Mar 1st, 2004**



MEETINGS

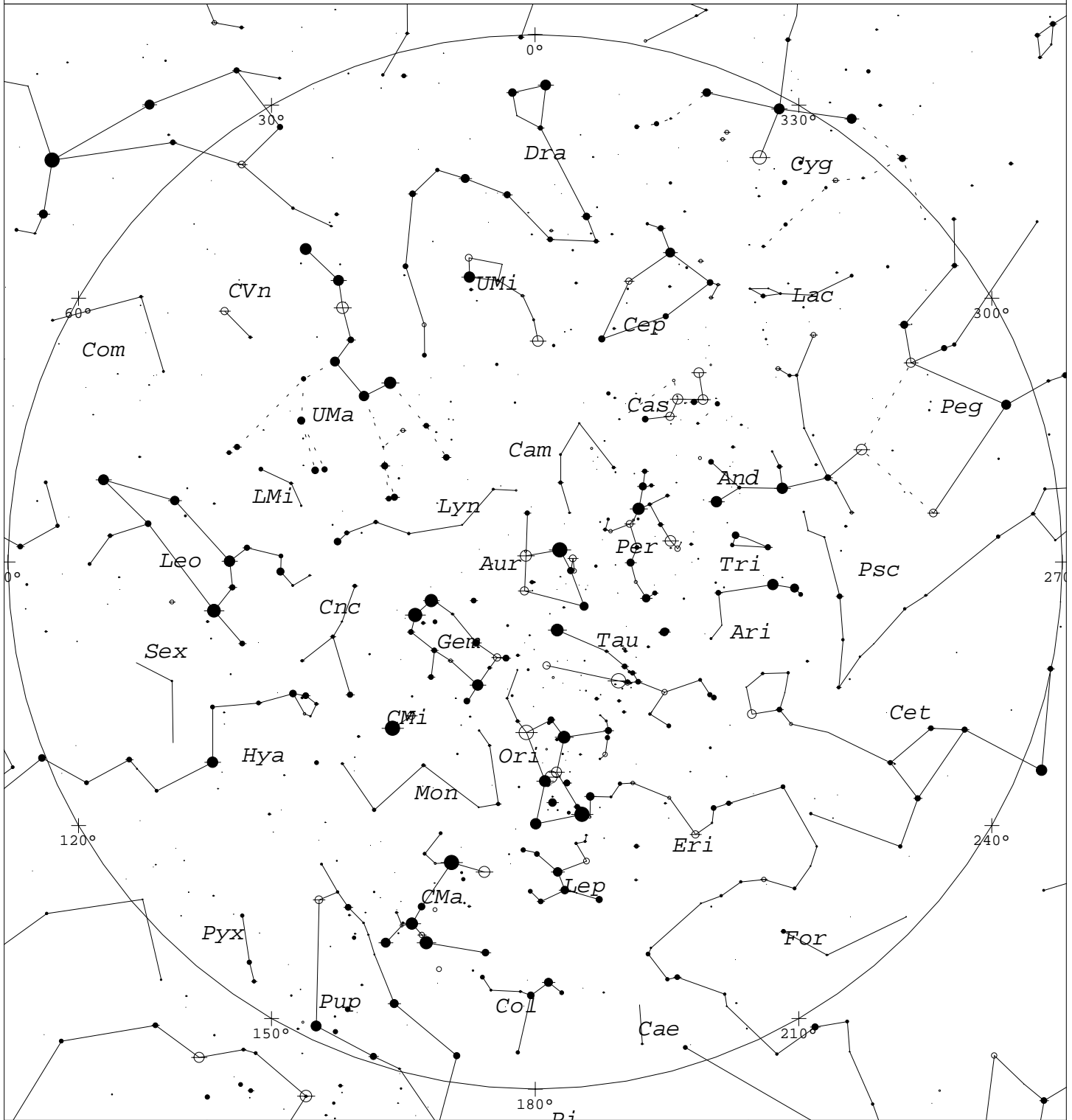
The Peterborough Astronomical Association meets every second Friday at the Peterborough **Zoo Orientation Centre** (Next to the PUC Water Treatment Plant) at **8:00 pm**.



1 CALENDAR OF EVENTS 1

February 6, 2004	Full Moon (○)
February 6, 2004	General Meeting — "Astronomy Goes Public" – with John Crossen
February 13, 2004	Last Quarter (☾)
February 20, 2004	New Moon (●)
February 20, 2004	General Meeting — Observing in the parking lot (weather permitting)
February 27, 2004	First Quarter (☽)
March 5, 2004	General Meeting — "What's New Under The Stars" – with Jim Kendrick

February Skies



STARS

- <1 • 3.5
- 1.5 • 4
- 2 • 4.5
- 2.5 • >5
- 3

SYMBOLS

- | | | |
|-----------------|--------------------|----------------|
| ● Multiple star | ☐ Dark nebula | △ Radio source |
| ○ Variable star | ⊕ Globular cluster | × X-ray source |
| ☄ Comet | ○ Open cluster | ○ Other object |
| ☉ Galaxy | ○ Planetary nebula | |
| ☐ Bright nebula | ○ Quasar | |

Local Time: 21:00:00 1-Feb-2002
 Location: 43° 39' 0" N 75° 0' 0" W

UTC: 02:00:00 2-Feb-2002
 RA: 5h48m23s Dec: +43° 38' Field: 182.0°

Sidereal Time: 05:48:22
 Julian Day: 2452307.5833