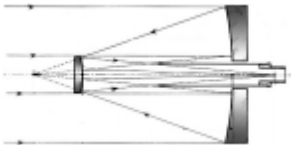
PETERBOROUGH ASTRONOMICAL ASSOCIATION

THE REFLECTOR



Volume 2, Issue 12 December 2003

Editorial

Winter is upon us once more. Hopefully the weather will be clearer this month, than it was last month. With the exception of the November 8th lunar eclipse, there were not too many opportunities to look up and gaze into the heavens. November seems to be a safe time to take that scope apart or work on any projects you may have, as there is little fear of it being clear. If you have a clock driven scope, this is an ideal time to change the grease in the gears, especially if it was made in California! This preventative measure will help ensure that your scope will work even at –30°C! I found that low temperature synthetic grease from Canadian Tire works quite well.

As you may recall, last meeting was the deadline for nominations to the 2004-2005 PAA Council. Several members threw their hats in the ring. These were: Dave Duffus, Rene Bowe, Rick Stankiewicz, Rob Fisher, Charles Baetsen, John Crossen and Colin Cross (provided his wife approves). Thanks to all for stepping up to the call.

As there is clearly less than twelve people on the council, there will not be an "election", unless two or more decide to run for the same position. If you are interested in joining the Council or just helping out the odd time, please make your wishes known. The new Council has the power to appoint additional members to fill any remaining positions and your help would be appreciated by all.

January 1st will mark the beginning of a new membership year. Membership applications will be available at the next meeting, and money will be collected by the treasurer. Membership dues are due on January 9th meeting. Individual memberships are $30.00. If more than one member of your family is interested in astronomy, you might want to consider a Family Membership at $40.00. Student memberships run at $10.00/year. Now that's a bargain! A copy of the membership application will be attached to this month's newsletter.

Charles W. Baetsen
va3ngc@rac.ca

Who says astronomy is just a guy thing – certainly not this group of teens

Summer Memories

Remember last summer? Warm days? Clear nights? Star-filled skies? Well, that's precisely the kind of day we had on Canada Day '03, as PAA members Charles Baetsen, Mike Ricks and John Crossen gathered to promote astronomy at the Buckhorn Canada Day Celebration.

Inside the presentation area displays were set up showcasing the PAA and its recent

Inside This Issue

PAA members Charles Baetsen and Mike Ricks helped John Crossen spend Canada Day showing visitors to Buckhorn's Canada Day celebration.

activities. The Buckhorn Observatory also set up a display of scopes and photographs to help build interest in the facility. But the real fun was outdoors under the sun. Or perhaps I should say, looking at our friendly local star.

That's where Mike and John set up their scopes with solar filters. It was interesting getting people's reaction to looking at the sunspots, and their amazement when we told them that planet Earth would easily fit into those tiny black spots three to four times over. Once people got over their initial anxiety about looking at the sun through a telescope, they opened up and started talking about a wide range of topics from solar power to eclipses and sunspot activity.

This PAA display board and brochures provided Canada Day visitors with a look at what the club does. It's available for future events.

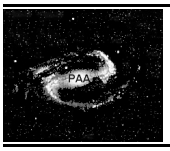
Amazingly, the sky remained clear all day long as we told viewers fascinating tidbits like "it's over 15 million degrees at the Sun's core," and "the surface of the sun is a balmy 6,000 degrees." By day's end we had given a couple hundred people their first close up look at the sun. It was a delight for all and as usual, the public was surprised to discover there was an astronomy club and an observatory in the area. We'll have to do this again next summer – and maybe some more around the Peterborough area.

John Crossen
JohnCstargazer@aol.com

Astronomy in Philately

Did you know that Apollo 8 was launched on December 21, 1968, and was the first manned mission to achieve lunar orbit? The crew of this six-day mission, Frank Borman, James A. Lovell, Jr., and William A. Anders, conducted a complete test of the Command and Service Module (CSM) for the future lunar missions that would eventually land on the lunar surface. The CSM entered lunar orbit on December 24, 1968, and orbited the moon for ten revolutions (20 hours 7 minutes) before returning to the earth and a controlled reentry into the Pacific Ocean on December 27th.

On May 5, 1969 the United States Post Office issued a postage stamp in honour of the above U.S. achievement in space. They chose a design for the stamp that depicts the first ever view of Earth from the moon. It was taken on Christmas Eve and reminds you of a typical view of a waxing moon rising about 5 degrees above the horizon. In this case, the lunar surface is in the foreground and it is the Earth that is in the distance (almost 400,000 km away), looking like a half lit globe, as the sun's light strikes it from above. This is truly one of the most au inspiring images from space, at least until the Hubble Space Telescope started send-



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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ing images to us. It was images such as this that changed our perspective about our place in the solar system and ultimately in the universe.

The Apollo 8 stamp issued on May 5, 1969 was the first stamp to show the Earth from the moon.

The stamp also includes a poignant quote from the Bible (Genesis), *"In the beginning…"*. This was how the crew started their Christmas Eve broadcast to Earth as they orbited the moon. They took turns reading from the first book of Genesis and ended by saying, *"And from the crew of Apollo 8, we close with good night, good luck, a Merry Christmas, and God bless all of you - all of you on the good Earth."* It makes you stop and think about what you are actually looking at on this stamp. Our lives have been changed forever.

Have a happy and save holiday season,

Your Astronomical Philatelist
Rick Stankiewicz
stankiewiczr@nexicom.net

"Please be informed there is a Santa Claus." - Jim Lovell Apollo 8

The Sky This Month

MERCURY:

Mercury will be visible in the evening sky in the first half of this month.

VENUS:

Venus is visible in the evening sky after sunset.

MARS:

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

JUPITER:

Jupiter will be in Leo and appears above the horizon after midnight

SATURN:

Saturn is visible this month after sunset, located in Gemini. Saturn will be at opposition on December 30th.

URANUS & NEPTUNE:

Uranus and Neptune are not visible at this time.

PLUTO:

Pluto is not visible at this time.

METEOR SHOWERS:

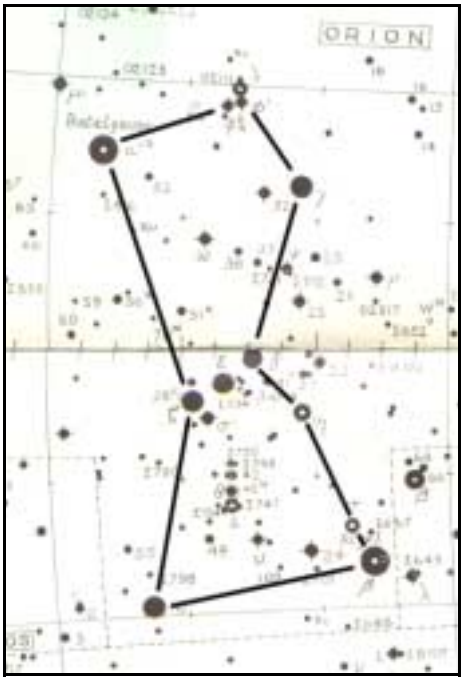
Geminids: Peak on December 13. This is a fantastic shower that is often overlooked because it occurs when the weather is very cold. It actually outperforms the more famous Perseid shower in August.

There are several minor meteor showers this month. For details on these see *http://comets.amsmeteors.org/meteors/calendar.html.*

If That's Orion, This Must Be Winter

The sight of mighty Orion high in the sky is a sure guarantee to Canadian astronomers that there's snow under foot and they'd better tug their toques down tight. Instantly recognizable by almost everyone, thanks to the three stars that mark Orion's belt, the constellation takes up nearly 20 degrees of sky and is home to a number of deep sky treasures .

Of the seven stars that comprise the basic body of the constellation, the best known is Betelgeuse. At magnitude 0.4, it is one of the brighter stars of the winter sky. Betelgeuse is classified as a Red supergiant. It would take our sun 1,000 times over to fill Betelgeuse's mammoth interior. Betelgeuse is also a very old star and sometime soon (in the next million or so years) it is expected to go supernova. In Arabic Betelgeuse means



Orion—The Hunter is easily recognizable in the Winter Sky.

armpit of the mighty one. So whether it goes supernova or not, you probably wouldn't want to stand near to it.

Three bright stars define Orion's other limbs. Bellatrix marks Orion's left arm, while Rigel and Saiph are the kneecaps. But Orion's best-known feature hangs from his distinctive belt. There, shining in the handle of his sword is the gem of the winter sky - the Orion Nebula. Easily visible to the naked eye, the Orion Nebula (M42) shines at a distance of 1,400 kilometers from Earth.

The Horsehead and the Flame nebulae

M42 is known as an emission nebula, meaning that the huge clouds of dust and gas that comprise the nebula are illuminated by interaction with the newborn stars that lie within it. Most obvious of those is the grouping of four known as The Trapezium. The Hubble Telescope has explored this region extensively and has photographed proto-stars (stars in the forming stage) with proto-planets orbiting around them. This is convincing proof that our own solar system formed in the same way.

Orion is also home to the famous Horse Head dark nebula and the lesser-known, but beautiful flame nebula. Those who photograph the constellation will also capture Barnnard's Loop, a long string of nebulosity that bracket's the constellation's eastern edge. It was first seen by one of modern astronomy's great observers, E.E. Barnnard.

Orion was born in ancient Greek mythology and is accompanied in his hunt by two dogs. Canis Major (the big dog) is quite obvious with Sirius, the brightest star (magnitude -1.4), as its eye. Much dimmer Procyon designates Orion's second canine companion, Canis Minor.

It is said that Orion met his demise thanks to a bite from Scorpius the scorpion. And, so that they would never meet again, the gods cast Orion into the winter sky and Scorpio into the summer night. Mythology also states that Orion has an eye for pretty women, which is why he is continually chasing the Seven Sisters of the Pleiades across the sky.

Whether you enjoy Orion for the many adventurous tales that have been attributed to him, for the sheer beauty he brings to the winter sky, or the many deep-sky treats that call this famous constellation home, Orion means snow and frosty cold, crisp, clear winter nights for observing.

John Crossen
JohnCstargazer@aol.com

Meet PAA Member: Jim Webster

Jim Webster has had an interest in astronomy since childhood. But it was the 1986 visit of Halley's comet that really fired Jim's enthusiasm for the hobby. A few years after that, Terence Dickinson's *Nightwatch* first came out and Jim began to learn the night sky. Armed with Dickinson's book and a trusty 4.5 inch reflector, Jim even began taking some piggy-backed astrophotographs. The arrival of Comet Hale-Bopp in 1997 gave him yet another excellent astrophoto target, and Jim was hooked for good.

I first met Jim when he and his family dropped by the observatory one day, to check it out. During our discussion he mentioned that he wanted to upgrade from his 4.5-inch reflector to an 8-inch SCT and was intent on building a backyard observatory. That's a lot of distance to travel in a short time. But Jim is doing just fine so far.

Jim Webster is new to the PAA, but his interest in astronomy began in childhood.

To date he has laid out his observatory plans, purchased a Meade LX90, and has built a permanent pier – all while continuing to shoot the night sky.

This spring after the ground thaws, Jim will put the pier up and begin work on the observatory. He says his new computerized telescope is so remarkable that even his wife was impressed. And she, along with their 3- and 6-year-old sons were very excited to see the moon with its craters as well at the Andromeda Galaxy and, of course, Mars this summer.

Jim has had a bit of help along the way, and that's one of the reasons he joined the PAA. The club library's books on building your own observatory offered some suggestions. Charles Baetsen gave Jim the benefit of his own experience with small observatories and put him in touch with someone to help weld up a

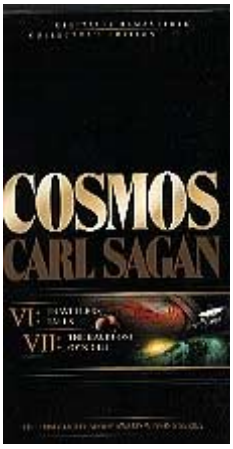
pier. John Crossen supplied Jim with an old steel pipe that used to support a TV satellite dish.

Says Jim, "astronomy is a really fun hobby and a great break from the day's work." He is quite thankful for all the help that he has had from the club, and we're equally pleased to have him as a new member. Welcome to the PAA, Jim.

John Crossen
JohnCstargazer@aol.com

New Books/Videos on the PAA Library Shelf

The PAA Library has added a number of new books, computer softwear, and videos lately. Our thanks go out to Don McDonald, Diane Patterson, Al Day, and Frank Hancock and for their generous donations over the past months. Here's a quick rundown on what's new in the last few weeks:



VIDEO:

It was over 20 years ago when astronomy legend Carl Sagan thrilled the world with his renowned television series ***Cosmos***. Those of you who have seen it will still find much that's new in this thirteen chapter videotape series that has been updated with the latest from the Hubble Telescope and the latest cosmological data.

Walking With Dinosaurs is yet another BBC triumph of film technology and documentary excellence. These dinosaurs are so real the technical effects are nothing short of astounding. And the expertise of the writers, researchers and technical consultants is beyond reproach. The entire series is on one tape, so be prepared for six hours of non-stop amazement.

Allosaurus was created as a follow up to the BBC's *Walking With Dinosaurs* and is every bit as good in both technical effects and content. If you loved the first series, this one won't let you down.

Walking With Prehistoric Beasts continues the high level of technical and educational excellence set by its predecessors. All the creatures in this series are mammals – like you never saw before. You'll meet horses as small as dogs. And you'll look up to dogs that are bigger than today's horses. It's an hour-and-a-half visit to planet Earth during an ancient age when bigger was definitely better

Stephen Hawking's Universe will be challenging viewing for the novice, but Hawking's remarkable ability to get an abstract concept across will more than satisfy most viewers. The series is broken into three parts that are available separately.

SOFTWARE:

Starry Night Pro set the standards when it came to computer astronomy. Their renditions of the night sky are superb. You can zoom in on all the Messier objects and more for a close up look. You can move backwards and forwards in time to view the sky as it was thousands of years ago, or will be into the distant future. Plus, you can view the sky from your backyard or from another planet or star. This is a valuable tool for planning an observing run or just for entertaining yourself on a cloudy night. Also available are ***Redshift*** and ***Desktop Universe*** demonstration discs.

BOOKS:

Astro -gearheads will find everything they need to build their own scopes, drive motors, barndoor trackers and more thanks to the addition of books like***, Gearheads, World of Timing Belts*** and ***The Master Index for Components Library***. You may giggle now, but when you see what these nifty bits and pieces can build, what can I say – nerds rule!

If you enjoyed the Timothy Ferris video series called ***Life beyond Earth***, you're sure to like his book by the same title. It is filled with excellent visuals and enlightening quotes from a gathering today's greatest astronomers, astrophysicists, and astronomy educators. And it is all held together with Ferris' abundant knowledge and wit.

Exploring the Sky by Day provides a fascinating look at some of the interesting things that take place in the daytime sky. Written by Terence Dickinson, the book provides readers with easy-to-understand examples of weather fronts, cloud types and atmospheric phenomenon such as sun dogs and sun pillars. It's an easy read and you'll be surprised at what's happening overhead if you take the time to look.

Apollo is a beautiful coffee table book that features the painting of astronaut Allen Bean. It also delivers the inside stories of what took place on the Apollo 12 flight when Bean, Pete Conrad and Dick Gordon became the second group of humans to visit our nearest celestial neighbour. Bean and Conrad were the two selected to actually walk on the Moon and conduct the scientific experiments. And the excitement and drama of that lunar landing are captured in Bean's remarkable paintings. This is one book that's as good to look at is it is to read.

John Crossen
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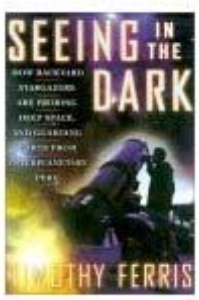
Book Review:



Seeing in the Dark, by Timothy Ferris, published by Simon & Schuster 2002 , 400 pp. (~27.65 Cdn)

As we explore the universe, occasionally we encounter an author who describes his fellow travels so vividly, we frequently share his experiences as he covers the gamut of our hobby. Such a writer is Timothy Ferris in his book "Seeing in The Dark".

From his own experiences as a lifelong stargazer, he picks some key observing moments, especially his impoverished childhood in Florida and his home built observatory in California wine country. The revolution sweeping through astronomy is well documented with interviews of notable amateurs and professionals, addressing many questions we might like to pose ourselves. He weaves his strands of prose in a poetic and non-technical manner to include what's out there, from our solar system to the furthest galaxies visible.

"If you have seen plasma arches rising off the edge of the Sun, yellow dust storms raging on Mars, angry red Io emerging from the shadow of Jupiter, the golden rings of Saturn, the green dot of Uranus and the blue dot of Neptune, the glittering star fields of Sagittarius and the delicate tendrils connecting interacting galaxies, have watched auroras and meteors writing silent signatures in the sky – if, in short, you have seen not only this world but something of the other worlds, too – well then, you have lived."

There may still be a few copies for sale at Half Price Books in Peterborough Square, a real hardcover bargain at $9.95 compared to $39.50 list. Highly recommended.

Reviewed by Robert Fisher
management@multimediate.com

Promoting Astronomy, The PAA and the BHO

Astronomy isn't just practiced under the stars. Over the last couple of months it also took to the stage and the classroom. It all started with a slide presentation to the Professional Engineers of Ontario on November 8th at Sir Sanford Flemming College in Peterborough. PAA member John Crossen took the group on a tour of the universe via his slide show.

One thing just leads to another, and sure enough, one of the attendees at the Engineer's Symposium was a grade 9 science teacher from Peterborough's Holy Cross Secondary School. A week later the "Crossen Slide Show" was pressed into service with three science classes gathering for the presentations and question periods afterwards. Ah, but that was just the beginning.

On November 18th a group of Cubs from Innismore descended upon Buckhorn Observatory. Unfortunately, it was cloudy that night. So they were given a lesson in telescopes and telescope optical systems, then marched into the Crossens' basement for – what else – the ever-popular slide show. On Friday of the same week, the First Apsley Cubs/Scouts also visited BHO for a night under the stars. Amazingly, it remained clear all night, so the slide show remained under wraps.

On December 2nd, John loaded up the van with astro-gear and headed off to Lakefield College School for an observing session with Diane Rogers' grade 9 science class. Clear skies prevailed and about 20 students gathered around the school's new 8-inch dob and John's scope and binoculars to view the Moon, Mars, the Pleiades and the Andromeda galaxy. Despite the gibbous Moon, everyone got a good view – including a look at one of Andromeda's companion galaxies, M32.

PAA member Rick Stankiewicz has also done a number of presentations to students, and thought that it might be interesting for some of Mr. Bigg's grade 9 group to visit Buckhorn Observatory. So, on December 4th Rick and a small, but enthusiastic group gathered at BHO. The gibbous Moon provided some interesting detail at about 300x and everyone enjoyed a close-up view of crater Clavius and a lunar tour that included a couple of the Apollo Mission landing sights. The group also tried Mars, but the thickening clouds and the planet's growing distance from Earth provided a disappointing view. However, undaunted by the clouds, the group settled down to enjoy John's slide show. By night's end, everyone had enjoyed a lot of constellations and Messier objects – and maybe learned a thing or two.

It seems the PAA web site caught the attention of another grade 9 instructor

One last look before we head inside for the slide show.

A pair of giant binoculars from BHO gave Lakefield students a close up view of the Pleiades

from Thomas A. Stewart Public School in Peterborough. She put out a call for anyone in the club who would speak to her class, as they would be studying astronomy this term. At the time of this writing the presentation is two days off. Just time enough for the bulb in the slide projector to cool down a bit.

It always amazes me how many "closet astronomers" there are. Talks like these help put us in touch with them. And who knows, we might just find a few new members among them.

John Crossen
JohnCstargazer@aol.com

Classifieds

For Sale:

ST4 Autoguider. Never used in 4 years since purchased new – first $400 takes it.

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

Ball mount for astrophotography. $5.00 Good with 35 mm camera and 200mm telephoto, but nothing larger. Fits most scope piggyback mounts.

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

For Sale:

Tektites:

Have your very own Tektite at a very reasonable price! Tektites are glassy pieces of rock that are formed when meteorites or asteroids impact earth. Earthen material is fused together and ejected into space to fall back as, "Tektites". This may be the closest to a space object that you can own? These specimens come from China. For sale, are four nice sized and shaped specimens of the unusual varieties that Tektites are found in. Each one is unique. They are available for $6.00 each. Each specimen comes with a sheet that tells the story of Tektites.

Contact Rick Stankiewicz
Phone (705) 295-6158
E-mail: stankiewiczr@nexicom.net

Only while supplies last!

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
Orono, ON
L0B 1M0

or via e-mail at:
va3ngc@rac.ca

NEXT ISSUE'S DEADLINE IS

Jan 5th, 2004

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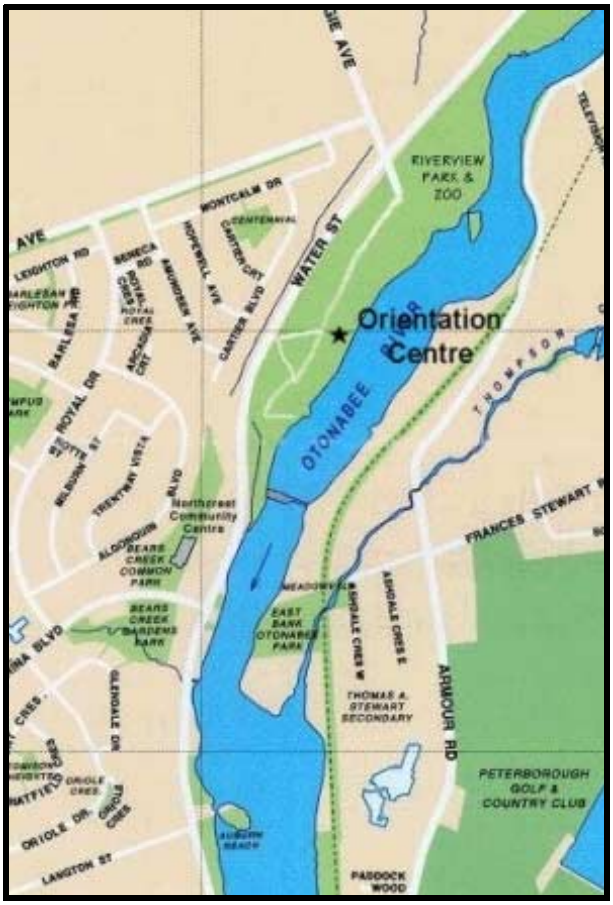
MEETINGS

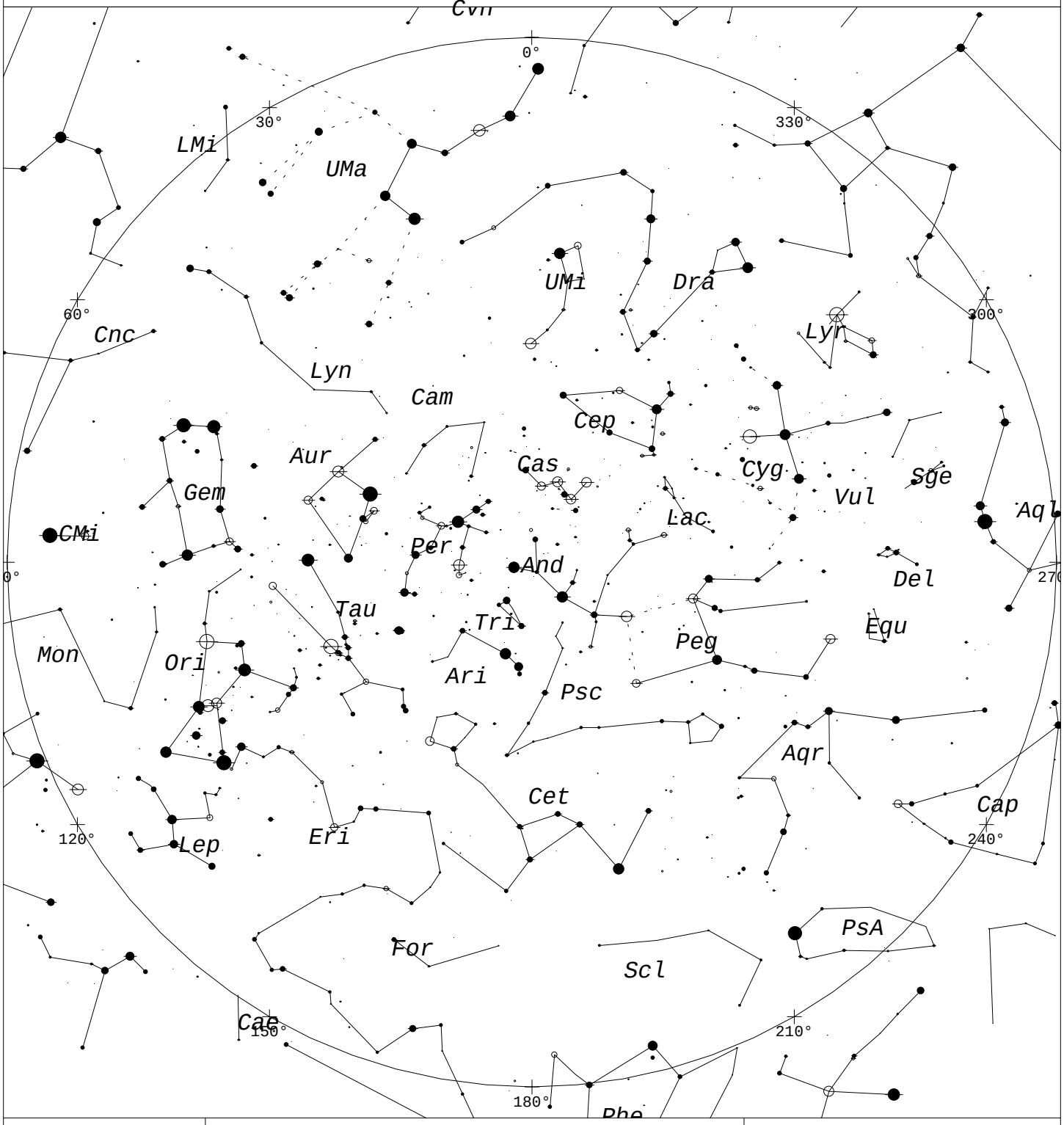
The Peterborough Astronomical Association meets every second Friday at the Peterborough **Zoo Orientation Centre** (Next to the PUC Water Treatment Plant) at **7:30 pm**.



CALENDAR OF EVENTS

December 8, 2003	**Full Moon (○)**
December 12, 2003	**General Meeting** — Topic to be announced
December 16, 2003	**Last Quarter (☾)**
December 23, 2003	**New Moon (●)**
December 26, 2003	**General Meeting** — CANCELLED (Boxing Day)
December 30, 2003	**First Quarter (☽)**
January 9, 2004	**General Meeting** — Topic to be announced

December Skies



STARS

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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-Dec-2002
Location: 43° 39' 0" N 75° 0' 0" W

UTC: 02:00:00 2-Dec-2002
RA: 1h42m59s Dec: +43° 38' Field: 182.0°

Sidereal Time: 01:42:58
Julian Day: 2452610.5833