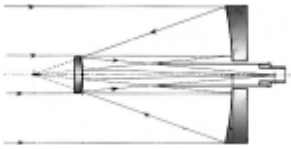
PETERBOROUGH ASTRONOMICAL ASSOCIATION

THE REFLECTOR



Volume 2, Issue 3 January 2003

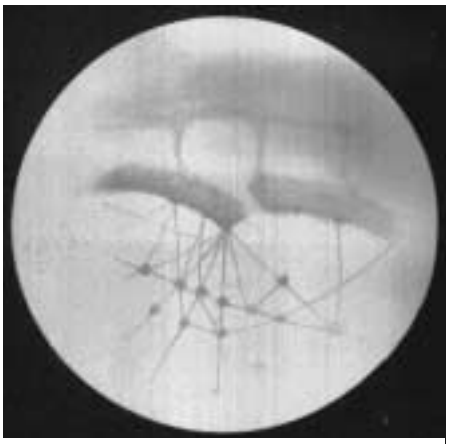
Editorial

This year should be a stellar year (no pun intended) for astronomical events. The planets will be putting on a spectacular series of shows this year.

The first of these occurs on the night of January 4-5 when **Saturn will transit** across the **Crab Nebula** (M1) in Taurus. It will be in the middle of its transit around 6:00 PM EST. Unfortunately, Saturn's brightness will most likely hide the nebula, but you never know – so take a look! In addition to this rare event, Saturn is also at its most favorable position in 30 years. The rings are tipped fully toward us and the planet is the closest that it gets during its 30 orbit. This will provide an optimum opportunity to view the rings.

On May 7, a **transit of Mercury** will occur. It will reach maximum at 7:52 UT (3:52 AM EDT). In this part of the world, the last part of the transit will be visible after sunrise and will end at 10:27 UT (6:27 AM EDT). *As an aside, be sure to mark you calendars **next year**, as the first of a pair of transits of Venus this century, will occur on 08 June 2004 during sunrise. This would be a good time to plan a vacation somewhere east of here (e.g., Atlantic Canada or Europe) to get the maximum effect as the transit ends at 7:05 EDT around here. If you miss that one, you have one more chance in your lifetime to see a transit of Venus in 2012.*

Mars will be the "star" attraction of the year. At this year's opposition on Aug. 27th, it will only be some 55.8 million-km away. At that time, the planet will attain an apparent diameter of 25.1" and mag. -2.9. It will be closer to Earth than it was in the 1924 when Percival Lowell looked at it and saw the "canals" that he thought were evidence of life on the red planet. In fact it will be the **closest that Mars has come to Earth** in about 73,000 years. At this distance, even small telescopes should be able to show you the Martian polar caps and dark surface markings on the planet's reddish surface. Be sure to take this opportunity to study the red planet this summer, as the next favorable opposition will not occur for 16 years.



Mars as Percival Lowell saw it when it was at opposition in 1924.

The moon will also be putting on a show, as there will be **two total lunar eclipses** this year. The first one occurs on the night of May 15-16. It is the first total lunar eclipse visible from this part of the world for the first time since January 2000. The moon will enter the umbra at 2:02 UT (10:02 PM EDT) and will be at greatest eclipse at 3:40 UT (11:40 PM EDT). The umbral phase will end at 5:17 UT (1:17 AM EDT). The second lunar eclipse will also be visible in North America and occurs on the night of November 8-9. The moon will enter the umbra at 23:32 UT (6:02 PM EST) and will be at greatest eclipse at 1:18 UT (8:18 PM EST). The umbral phase will end at 3:04 UT (10:04 PM EDT).

This month we may also be treated to a relatively bright comet—**Comet Kudo-Fujikawa.** This comet is currently visible in the morning sky in Hercules near Vega (see *www.skytelescope.com* for chart). It could brighten to magnitude 2 or 3 before it disappears in the sun's glare in the last half of the month. I looked for it on the morning of January 7th, but was unsuccessful. Perhaps this is another Kahoutek! We'll see!

Clear Skies!

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Inside This Issue

Meet PAA Member Rene Bowe

What did it take to get PAA member Rene Bowe interested in astronomy? Just a job transfer, about a year living in a college boarding house (the imagination soars) and a trip to Dunlap Observatory. Here's how those events conspired to produce the dapper fellow with the gray and yellow telescope who we often see at club outings.

The year is 1950 and a 22-year-old Rene Bowe finds himself transferred from the dim and distant realms of Antigonish , NS (Charles Baetsen's birth place) to the glowing core of the Canadian galaxy - Toronto.

At the time, Rene worked for a bank. Such institutions have never been renowned for their generosity to employees just entering the profession, so Rene found a boarding house to be suitable – and affordable – housing. It was in this environment, surrounded by U of T students that Rene first took an interest in astronomy.

It seems that some of the students made a sojourn to Dunlap Observatory and invited Rene along. At that point he became fascinated with both the astronomical and the mirror grinding aspects of the hobby. There was only one drawback. Grinding a telescope mirror required an absolutely pristine environment. A boarding house filled with college boys didn't even come close.

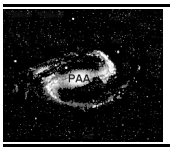
In late 1950 Rene uprooted himself and moved to Peterborough where he took a job with Raybestos. Rene worked with them until about 12 years ago when Raybestos decided to close their Canadian plant and move their production facilities to Mexico. At that point, Rene was asked to move back to Toronto to help Raybestos wind down their Canadian operations. That option didn't appeal to Rene, so he became a consultant for Raybestos during that period, then retired.

Rene Bowe with his hand crafted scope. Rene and wife Lee have been Peterborough residents for over 50 years.

After a few years as a gentleman of leisure Rene's yen for a telescope once again rose to the surface. So he started reading some books on the subject – and he joined the PAA. During one of the club's meetings Rene mentioned that he would like to build his own telescope. But he still wasn't too keen on grinding the mirror. Dave Duffus told Rene that he knew where there was a good 8-inch mirror up for sale. The events surrounding the sale of the mirror were somewhat sad, but the eventual outcome had a 98% reflective silver lining.

The mirror was originally ground by Mr. Sydney Barry. Unfortunately in recent years he had become ill with Alzheimer's Disease and his wife was selling his equipment. Rene still remembers Mr. Barry approaching him just as he was leaving with the mirror and handing him photograph . On it were the mirror's focal ratio and the dates 1952-53. It seems Mr. Barry made the mirror shortly after Rene was first visited Dunlap Observatory.

Rene bought the mirror and did some more reading. Next he put his home workshop to good use building the optical tube and rocker box for the scope. Rene began work on the scope in January of 2000 and completed the project three months later in April.



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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So next time we're out and you have a look through this beautiful little scope, don't forget to compliment Rene on his workmanship. And maybe, just maybe you'll also remember to tip your toque to Mr. Barry. It could be he's up there looking right back at you.

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Astronomy In The Strangest Places

Most people who are interested in astronomy are all too aware of the related items that exist out there. Whether it is the Van Gogh painting of the "Starry Night" or the "Galaxy" Movie Theatre in downtown Peterborough, you will notice astronomical references you can relate to in many different places.

Recently, I saw another example of just what I am talking about. My wife is quite the seamstress and she has many things related to her talents in the house. I was surprised to see a quilt pattern calendar recently that had a sample of a star pattern. It was quite neat and it is not hard to see how they got the name for this one.

Variable Star Quilt

The title of the piece was actually, "Variable Stars and Crazy Blocks Quilt, c.1890". Four embroidered crazy quit squares are enclosed within a field of blocks containing clusters of "variable stars". This was created using thousands of tiny individual pieces of silk. It was described as glistening and sparkling with kaleidoscopic energy!

Wow, makes one want to pick up a needle and thread. The more a stare at this calendar, the more it dazzles. You can see for yourself that the star pattern is a typical one used in quilting. What makes this sample "variable", is the different colours of fabric used to create each star. I don't think any two are the same (just like the stars in the universe).

It just goes to show that you can expect to find astronomy in the strangest places!

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There's A Ring Around The Milky Way!

Sometimes you get more than you bargained for. That's precisely what happened to Heidi Jo Newberg of Rensselaer Polytechnic Institute and Brian Yanny of the Fermi National Accelerator Laboratory. The two discovered a 120,000 light year-wide ring of stars surrounding the Milky Way while working on the Sloan Digital Sky Survey, a project to plot the position and brightness of 100 million celestial objects.

The ring of stars appears to be the remains of a smaller galaxy, which the Milky Way collided with about ten billion years ago. The evidence of such events can be seen in what are called "irregular galaxies". In these instances it is clear that the galaxies have been pulled out of shape by a massive gravitational influence. Anyone who has seen M51 and its companion galaxy interacting has seen this incredible force in action. In the recent discovery, it appears that the Milky Way ripped apart the smaller galaxy and scattered its stars into a faint surrounding ring. The end result is a donut-shaped ring of stars with the Milky Way at the centre.

Newberg and Yanny presented their discovery Monday, January 6th at the national meeting of the American Astronomical Society. Yanny said that the ring has 100 million to a half billion stars circling the Milky Way in an orbital period of tens of thousands of years. Newberg said the stars in the ring show that they are moving "in a very similar fashion to way that planets orbit the sun." Other evidence shows clearly, she said, "that we are seeing pieces of another galaxy coming in and being ripped apart and incorporated by our galaxy."

Studies have shown that Milky Way has interacted with other smaller galaxies in the past. A structure called the Sagittarius tidal stream, which circles the Milky Way at an angle, is thought to be the remains of a small galaxy. Astronomers have recently found evidence that the Milky Way is beginning the process of cannibalizing the Magellanic Cloud, a nearby galaxy expected to fall into the Milky Way in a few billion years.

It would appear that even the spacious confines of the universe are too crowded for some galaxies.

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The Sky This Month

MERCURY:

Mercury will be visible in the morning sky in the last half of this month.

VENUS:

Venus is now climbing high in the morning sky. This is an excellent time to catch it if you can wake up before the sun.

MARS:

Mars will be visible this month in the early morning hours, not too far from Venus.

JUPITER:

Jupiter will be in Cancer and appears as the brightest object visible in the evening hours.

SATURN:

Saturn will be visible near the Taurus-Gemini boundary, not far away from the Crab Nebula (M1). The rings are well oriented for viewing the Cassini Division

URANUS & NEPTUNE:

Uranus and Neptune are not visible this month

PLUTO:

Pluto will not be visible this month.

METEOR SHOWERS:

Quadrans Muralis (shown above Bootes' head) as depicted in *Urania's Mirror*

Quadrantids: This meteor shower peaks on **January 3-4**. The radiant is located in Bootes. The shower takes it name from the obsolete constellation *Quadrans Muralis* "The Mural Quadrant", that was located between Bootes and Hercules.

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

Astronomy in Philately

In the March 2002 issue of the PAA Newsletter (Vol. 1, No. 5) I did an article on Canada's first space related stamp issue. This was the Alouette II, Canada's first research satellite and was issued on January 5, 1966.

It would be 19 years later before Canada would have anything else space related to celebrate. On March 15, 1985 was issued the "Canadians in Space" stamp. It shows an astronaut and control panel orbiting above the earth. This was issued to honour Canadian achievements in space and particularly Dr. Marc Garneau, the first Canadian astronaut.

Dr. Marc Garneau actually was the first Canadian in space on Space Shuttle flight STS-41G (Oct 5-13, 1984). The fact that Dr. Garneau made it on a stamp within 5 months is pretty good for a Canadian. We tend to take years to honour people or events on stamps. However, we are a far cry from propaganda type countries like the USSR, who during the heat of the "space race", produced stamps to commemorate achievements and cosmonauts, within a month of something notable happening.

True to form though, the astronaut pictured on our stamp issue is not discernable as a real person, even though this clearly has to represent Dr. Marc Garneau. You might think this strange, but it is Canada Post's policy to not put the face of any "living" person on the their stamps except the Queen herself. So, you have to be dead to grace a Canadian stamp. Too bad Marc!

Dr. Marc Garneau received his doctorate in electrical engineering and

Canadians in Space Stamp

after his involvement with the Canadian military, not only was the first Canadian in space, but also went on to do two more space flights. He is a veteran of Shuttle flights, STS-77 (May 1996) and STS-97 (Dec 2000). He has logged 677 hours in space! In February, 2001, he was appointed the Executive Vice President of the Canadian Space Agency.

Your Astronomical Philatelist
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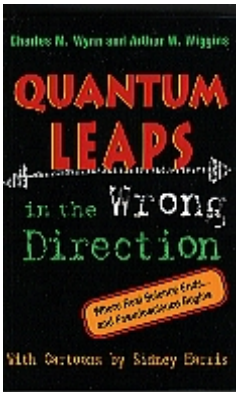
There's a Universe in My Christmas Stocking!

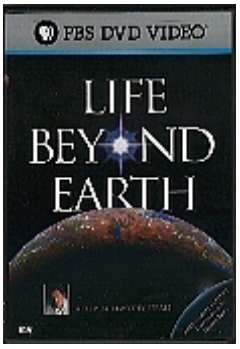
I must have done a pretty good job of fooling Saint Nick, as nobody could be good enough to warrant the bundle of astro-goodies I found in my stocking on Christmas morning. It was nothing short of an embarrassment of riches.

My booty included DVDs of *"Life Beyond Earth"* with Timothy Ferris, The complete BBC series *"Walking With Dinosaurs"* and *"Stephen Hawking's Universe"*. On the literary front came *"Starlight Nights"* by Leslie Peltier and



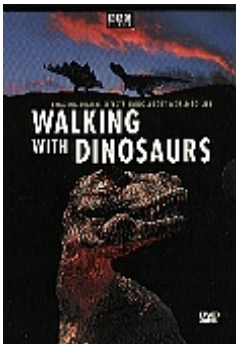
"Quantum Leaps in the Wrong Direction" by Wynn and Wiggins. I also received *"Mysteries of Deep Space"* on videotape along with a two video astronomy education video series from The Standard Deviants. Here's a quick overview on just some of the material that I have had a chance to view and/or read to date:

While not as detailed and intricate as Carl Sagan's *"Cosmos"*, *"Life Beyond Earth"* is one of the finest films of its type. And, purely by virtue of its more recent production, it also makes good use of more up-to-date discoveries. Written and narrated by noted astronomer Timothy Ferris, the film comes up some very plausible arguments that we are not alone in the universe.



"Life Beyond Earth" was filmed in two parts. The first investigates the origins of life on Earth and traces the search for life on other worlds. The second part delves into current strategies being used to communicate with other possible worlds. And both portions are filled with imaginative examples and demonstrations that communicate Ferris' points with precision and impact. The film also utilizes the very latest in computer animation, the most recent scientific discoveries, and a superb musical score to rocket the viewer along an enjoyable, educational and very exciting journey.

Available in both DVD and videotape formats; this film should be on every amateur astronomer's library. And if it's not, put it on your wish list.



While I had already seen much of *"Walking With Dinosaurs"* on The Discovery Channel, I had not viewed it in its entirety in one setting. And with a total of six episodes, it was a long setting, indeed. Long, and very enjoyable! I'll spare you all the superlatives and simply say that the series is fantastic. And almost as enjoyable is the second DVD in the package that takes you behind the scenes to reveal the secrets of how the series was filmed. Usually this takes the magic away, but the production of *"Walking With Dinosaurs"* was magic in itself.

The series was also followed up by *"Walking With Prehistoric Beasts"*, a series that traces the evolution of mammals in the years following the demise of the Dinosaurs. Yes, I got that one, too. But that's an article for another issue of *The Reflector*.

With so much visual excitement generated by the above-mentioned film series, a simple book has a difficult time keeping pace. And that was the case, with *"Quantum Leaps in the Wrong Direction"*. This book falls somewhere in between *"Bad Astronomy"* and Carl Sagan's *"Demon Filled World"*. The writing isn't quite as entertaining as that in *"Bad Astronomy"* and at the same time it's nowhere near as detailed or foreboding as *"Demon Filled World"*.

As you would expect, it covers the usual suspects – UFOs, astrology, numerology, the paranormal and more other "-ologies" than I ever dreamed existed. Central to the book is the scientific method and how it can be used to "evaluate" some of the modern pseudo sciences currently in fashion.

"Quantum Leaps in the Wrong Direction" is a good read, and the accompanying cartoons by Sidney Harris help keep things moving along with a smile. Personally, I still like *"Bad Astronomy"* better, but maybe that's just because I read it first. Either one is sure to annoy Madame Zaza and her psychic readings. And that's just fine by me.

Next issue, I'll give you a quick review of the other stocking stuffers that came my way this Christmas. But you know what? With gifts like these, it really is more blessed to receive.

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Off the Beaten Path

This month, the winter Milky Way and Orion dominates the night sky. The Milky Way, as you probably already know, contains many hidden treasures. Here are just a few that you can try the next time you are out.

NGC 1788 – Located in Orion, this is a bright reflection nebula that should be easy to view from a dark location.

NGC 1788

NGC 2371 – "Double lobed Planetary". Located in Gemini, above ι-Gem. This 13th magnitude object in Gemini appears as a pair of teardrop shaped lobes and is sometimes called the "Peanut Nebula". Detecting this nebula is a challenge. The southwest lobe is the brighter of the two and the most likely to be visible in small scopes.

NGC 2024—"The Flaming Tree"

NGC 2024 – "The Flaming Tree Nebula" located north of ζ-Ori. This object is easily seen in a 6" or larger scope from a dark sky. It is often confused for the Horsehead Nebula located south of ζ-Ori. It looks like a flame (or a burning bush) with several dark lanes over it.

PK205 +14.1—"The Medusa Nebula"

PK205 +14.1 – The "Medusa Nebula". This is a large planetary nebula lying around south of Gemini near Canis Minor. It is one of the largest planetary nebulae in night sky. According to the Observer's Handbook, this is very impressive in a large scope using an O-III filter.

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Gemini – The Product Of Interspecies Sex?

Legend has it that the twins Castor and Pollux were hatched from an egg borne by Leda after the god Zeus who had disguised himself as a swan seduced her. This could take us somewhere we don't want to go, so let's not dig deeper. At any rate, it's a good thing their sister, Helen of Troy, didn't have a taste for omelets. Then again, they probably had to endure life, hearing jokes about being "sunny side up and/or scrambled."

The legend surrounding the two stars goes back into prehistory, and the two brothers are often confused with Romulus and Remus, the founders of ancient Rome. Indeed, the two are depicted on coins wearing half an eggshell.

The twins are also associated with a meteorological phenomenon known as Saint Elmo's fire and are thought of by some as the patrons of sailors. The latter reason being their association with Jason when he set out on the ship Argo in search of the Golden Fleece. Accordingly, Castor and Pollux calmed the sea during a terrible storm.

In China the two stars are associated with the yin and yang, the two forces of nature. They have also been said to represent the Roman numeral II and the twin gods of Sparta.

From an astronomical point of view, Gemini offers a number of interesting targets. When viewed through a telescope, the star Castor appears as a double star. Actually it's part of a six star system. Pollux, however, is the brightest star of the two.

Most popular with amateur astronomers is the open cluster M35 near Castor's toes. This cluster consists of about 120 stars at a distance of 2,700 light years. The cluster covers an area of 40'. At 5th magnitude, it is quite bright and easily seen in binoculars. Through a 6- to 8-inch telescope at about 100x, M35 becomes one of winter's more spectacular star clusters.

Faint, nearby clusters also include IC 2157, NGC 2158 and NGC 2129. There are also some faint nebulae in the constellation – NGC 2392 at 8th magnitude, and IC 444, a faint, diffuse nebulosity. During the last half of 2003, the planet Saturn will drift from Turaus into the constellation boundaries of Gemini. Those who rejoice in the search for star cities will find little joy as the constellation is void of easily seen galaxies.

Gemini is relatively easy to spot, thanks to its two bright stars, Castor and Pollux. Look to the east/southeast about 8:00 p. m. At that time it should be well above the horizon and located just below Auriga.

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Saturn's Rings Sing In 2003

Most of those involved in amateur astronomy are familiar with Saturn's vital statistics. It's a gas giant, like Jupiter, only its twice as far away. And its density is less than that of water, so if you could find a really, really big tub, Saturn would float. Wow, just like your rubber ducky!

Of course, we're all familiar with Saturn's beautiful rings. Indeed, if you had to choose just one thing to show someone why you like astronomy, a view of Saturn and its rings would probably be first on your list. And this year, that view is even more stunning

The reason is because Earth's orbital plane and Saturn's are currently situated so that, from our point of view, Saturn's rings are tilted in our direction to their maximum. As a result they appear brighter and reveal more detail through the telescope. In fact, the entire planet appears brighter to the naked eye because the rings are adding to its total reflective surface. That means Saturn will shine more brightly than nearby stars Castor and Pollux.

A couple months ago (when the weather was more kind to astronomers) I was viewing Saturn at 279 power. The Cassini Division in the rings leapt out

crisp and dark. The angle of the rings was such that I could easily see the planet's shadow on them. And the inner rings snapped into view for a few fleeting seconds if I waited patently. It wasn't a night of perfect seeing. But the view was one of the best I've registered since the amazing night five years ago when the seeing was so good that I could push my old 8-inch to nearly 400 power.

Of course there was also the year when Saturn's rings were displayed nearly edge on to we Earthlings. It just wasn't the same planet. And at one point the rings were all but invisible. Local astro-imager Brian Colville recorded it all with his CCD. The images weren't beautiful, but they were…a well…interesting.

While this year will feature the best display of Saturn's rings, December of 2003 will find the planet at the highest point in the sky in 30 years. At midnight it will be very close to the zenith. And that means we'll be looking through less blurring atmosphere. Hey you astro-snappers, get those CCDs, digital cameras and the trusty old OM1 ready for action.

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Amazing Space

When it comes to cosmic distances and traveling to distant galaxies, we should probably talk in terms of time rather than distance. Let's start with our solar system, and whittle it down to a scale our Earth-bound imaginations can comprehend.

For starters, we'll reduce the sun to the size of a canned pea. That being the case, the Earth becomes a microscopic speck placed about an inch away from old Sol. In fact, the entire inner solar system, out to Mars, will comfortably fit into the palm of your hand. To include the rest of the planets out to Pluto, you'll have to hold your arms out and put your fingertips together to form a bowl. And now the kicker - using that as a very rough scale, the nearest star will still be just over 4 miles away.

Thus far, we've only physically traveled as far as the moon, about an inch on the scale we're talking – and that was a four-day journey. Unmanned craft have reached Jupiter and will soon go as far as Saturn with the Cassini Mission. Those treks have taken up to four years.

The Voyager spacecraft, launched in 1977, are currently traveling at about 50 times the speed of our fasted fighter jet. Yet it has taken them 26 years to pass beyond the bounds of our solar system. And even at that speed, they won't reach the vicinity of the nearest star in the direction they're headed for about another 70,000 years.

Whole species can disappear in 70,000 years. After all, only 25,000 years ago Neanderthal men and women were hunting the mastodons and sabre-toothed cats. Those people and magnificent beasts are gone now. So by the time the Voyager spacecraft reach that distant star, we'll probably have evolved physically to the point that we will look a bit differently than we do now. Then again, if you consider the shortest time a species has existed on Earth, about 51,000 years, we may not even be here to toast the occasion.

What all this comes down to is the fact that traveling to distant stars and galaxies isn't so much a matter of distance, as it is time. So perhaps we'd best abandon our dreams of flitting about the galaxies chatting face to face with alien civilizations and consider a more realistic means of connecting with distant star cities.

That's where our old friend the radio comes in handy, because radio waves travel much faster than we can. In fact they whistle through space at precisely the speed of light – 300,000 kilometers per second. That's faster than we'll ever be able to travel in the foreseeable future. And if Einstein is correct, nothing can travel faster than the speed of light anyhow.

If there are civilizations out there and we can contact them, or they contact us, we can learn a great deal without having to develop technology for traveling in suspended animation. And that's just one of a myriad of problems we would encounter on a journey that will take a lifetime. Plus, who'd want to go in the first place, knowing that everyone you know and love will probably have died by the time you return?

Even with our messages traveling at the speed of light, it still takes a radio signal 4.2 years to reach Proxima Centauri, the nearest star after our Sun. And if you consider the fact that we've been broadcasting radio signals for the last hundred years, we've already alerted any civilization within 100 light years to our existence – and still no reply.

But let's not give up yet. We've really only begun to listen for responses in the past few years. So, as they say on the CB radio, let's keep our ears on.

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Classifieds

For Sale:

8" Dobsonian Telescope for sale. The primary mirror is an 8" f/4.66 mirror with special coatings on it (Cr + Al + SiO). This mirror was made custom for me by Moonward Optics. The f/4.66 mirror gives this telescope a short (portable) size of 37". Also comes with Rigel Quik Finder for easy aiming of the scope. Asking $500.

Contact: Will Juodvalkis
Phone: 905-839-1151 x6767
E-mail: juodvalkis@opg.com

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:
va3ngc@rac.ca

NEXT ISSUE'S DEADLINE IS

Feb. 3rd, 2003

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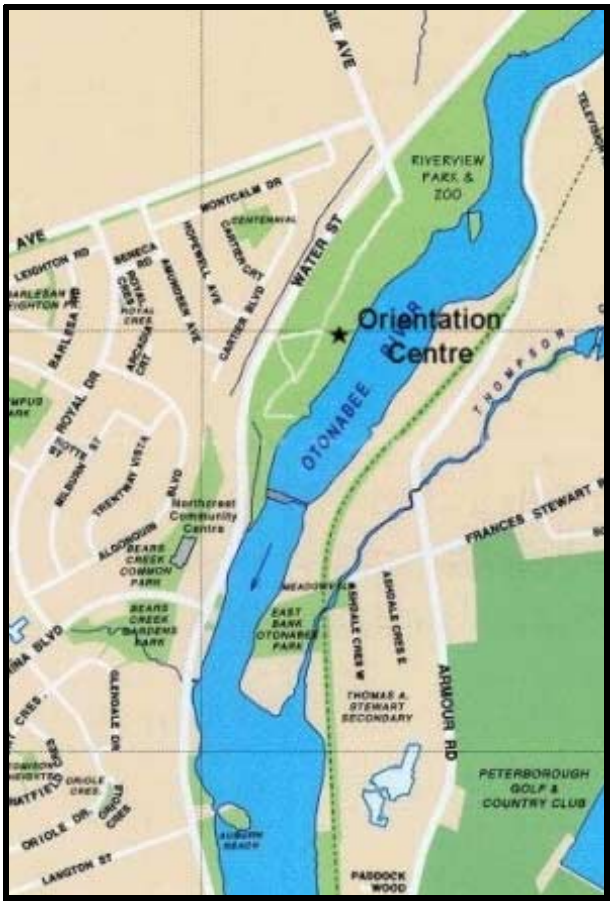
MEETINGS

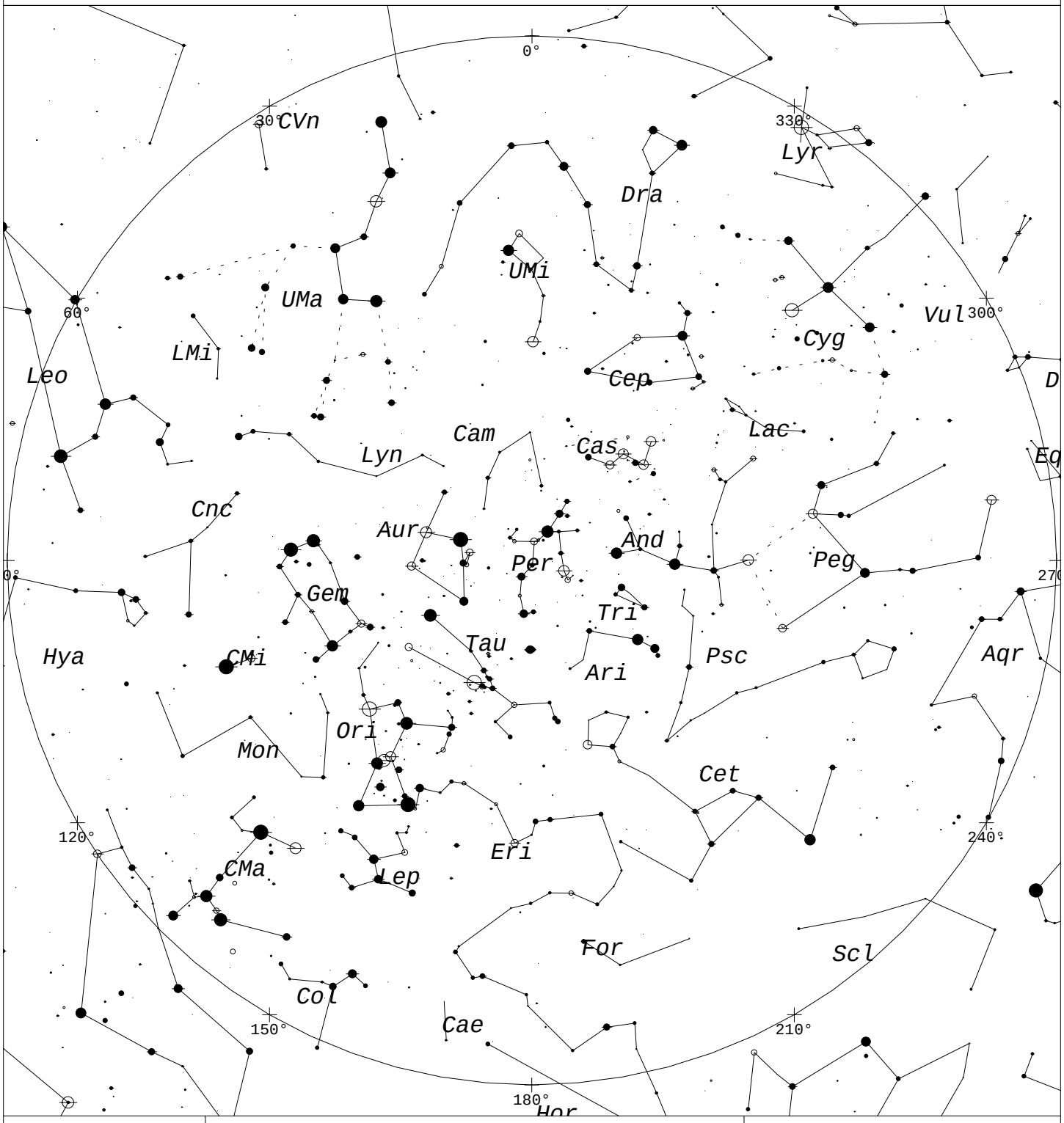
The Peterborough Astronomical Association meets every second Friday at the Peterborough **Zoo Orientation Centre** (Next to the PUC Water Treatment Plant) at **7:30 pm**.



CALENDAR OF EVENTS

January 2, 2003	**New Moon (●)**
January 10, 2003	**General Meeting** — Rene Bowe—Building a 10" Reflector Telescope. Weather permitting we will have an observing session afterward at Armour Hill
January 10, 2003	**First Quarter (◑)**
January 18, 2003	**Full Moon (○)**
January 24, 2003	**General Meeting**—Beginner's Observing Night at Armour Hill (Wx Permitting)
January 25, 2003	**Last Quarter (◐)**
February 7, 2003	**General Meeting**— Topic to be Announced

January Skies



STARS			SYMBOLS		
<1	3.5	Multiple star	Dark nebula	Radio source
1.5	4	Variable star	Globular cluster	X-ray source
2	4.5	Comet	Open cluster	Other object
2.5	>5	Galaxy	Planetary nebula	
3		Bright nebula	Quasar	

Local Time: 21:00:00 1-Jan-2002 UTC: 02:00:00 2-Jan-2002 Sidereal Time: 03:46:09

Location: 43° 39' 0" N 75° 0' 0" W RA: 3h46m10s Dec: +43° 38' Field: 182.0° Julian Day: 2452276.5833