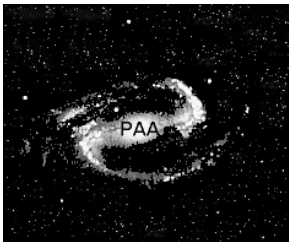
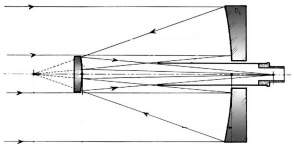


PETERBOROUGH ASTRONOMICAL ASSOCIATION

THE REFLECTOR



Volume 1, Issue 1 November 2001

Editorial

This is the first publication of the PAA Newsletter in many years. Hopefully it will be the beginning of a new trend. With that thought in mind, I am looking for articles for next month's newsletter. Anything related to astronomy will do, such as observing techniques, experiences, upcoming events - celestial or social, reviews on astronomy books, or equipment, interesting projects, astro-photo's you've taken or whatever you fancy. It doesn't have to be a Pulitzer Prize winning piece - it doesn't even have to be very large. It could even be something you found on the net that would be relevant to the club. If you have any old articles from previous newletters that would be fine as well. My intention is to try and have a 1 or 2 pager (or more if I get enough articles) to help the club "come together" and hopefully entice those members who haven't been to meetings lately to come on out again.

It looks like, judging from this month's submissions, that we have a lot of talent out there. Thanks to all those who submitted articles for this month's newsletter on such short notice.

Clear Skies,

Charles Baetsen
va3ngc@rac.ca

M31—The Andromeda Galaxy

An Adventure in Aperture

An adventure can start with an email. So when I read an email from Charles (Baetsen) inviting me to go to an observing session in Perth, I was curious. The Perth area had to have a lot darker skies than in my suburban surroundings of Whitby. When he mentioned that it was Rob Dick's cottage and he had his own observatory with a 24" scope, I was hooked! Rob is a former Spar engineer who is nice enough to have an "open house" twice a year.

So as the day approached, we kept an eye on the weather to see if the skies would be clear. The weather was iffy but we left anyway and were in the Perth area on the Saturday afternoon. We had a couple of hours before the traditional supper get-together in town, so we took a tour of the grounds and observatory. As I took a nervous look to the sky, I started to get an idea that there was something else that I was just starting to see besides clouds. As we walked up to the observatory

Rob Dick's Observatory near Perth, ON

Inside This Issue

which is nestled on a 30 acre field and were greeted by a carpet of fallen leaves, I started to realize that maybe looking through a 24" scope was not the only reason I came. And as I met more and more people both from the Ottawa RASC and the Hamilton HAA, I realized that if I didn't get a look through the big "light bucket", it wouldn't be such a loss as the friendly people we met more than made up for the bad weather.

19 of us showed up for supper and soon everyone was talking about subjects from shipwrecks to Star Trek (Packleds - "We look for things that make us go") to practical jokes (putting a ring on a chicken bone and burying it where you're aunt can find it with her metal detector). You guessed it; there were some real characters there! After a 3-hour dinner marathon we headed out from the downtown area to the outlying countryside and the dark skies.

As we parked the cars and our eyes found their "see legs" (forgive the bad pun) we were treated to a view of the Milky Way, however, after about 1/2 hour the sky was clouded over and stayed like this for the rest of the night. Although I didn't get a look through the 24" scope, I did see Saturn through a Questar, which impressed me very much. About 10:00 P.M. a slide show was given inside the observatory living area by the resident astronomer, Glenn LeDrew. This show lasted well over an hour and the pictures proved to be breath taking. This alone was worth the trip! Also Glenn's knowledge of the sky was very impressive.

I went to Perth because it was an opportunity to look through a large telescope, the next time I go it will be an opportunity to speak with the friendly amateur astronomers I met there.

Will Juodvalkis
william.juodvalkis@opg.com

24 inches of Pure Viewing Delight

Astronomy in Peterborough

It may surprise you to know that amateur astronomy was alive and well in Peterborough at the beginning of the last century. In 1907, the newly arrived Dr. Daniel B. Marsh, decided to start up an amateur astronomy club in the area. The Peterborough Centre of the RASC (Royal Astronomical Society of Canada) was created and was the 2nd RASC centre to be formed, the Ottawa Centre being the first. (Toronto was not considered a "Centre" at the time). Amazingly enough this new club started off with 47 members! Not bad especially when you consider the population of Peterborough at the time.

This new club soon acquired its fair share of telescopes. Dr. Marsh himself possessed a 13 cm (5") refractor with Brashear optics. This scope is still in use by the Hamilton Centre of the RASC (which also was founded by Dr. Marsh) and is installed in their observatory in Waterdown. In addition to the use of scopes, members were often treated to guest speakers from Toronto and other areas in Southern Ontario that one could reach by train. When no speakers were available meetings consisted of lanternslides and discussions.

Membership in the fledgling organization varied over the years, but in 1913 (the year they claimed to be the best ever) they had 44 members. Unfortunately this was about to change. Dr. Marsh had to leave the area to take up duties in another part of the province, and the First World War also took its toll on the membership. The Peterborough Centre of the RASC disappeared in 1917 along with several other RASC centres. It remains to this day, one of two centres that were never revived after the war, the other one being the Guelph Centre. Fortunately today we have the current club so that those with an interest in astronomy can share their interest with others in the region.

Charles Baetsen
va3ngc@rac.ca

Sometimes You Get More Than You Give

Of all the guests we've had at Buckhorn Observatory, none has been more surprising or inspiring than the lady who visited us a couple of weeks ago.

I began the night by explaining how the telescope works. Then I dimmed the red light on the observatory wall to preserve everyone's night vision. As the first couple approached the telescope I noticed that the lady was grasping her husband's arm and was a bit unsure of her footing in the dark. As he guided her into the observing chair she mentioned that she was legally blind.

At that point I wondered what would happen. After all, many sighted people - especially small children - have difficulty seeing through the telescope's eyepiece the first time they try.

To my amazement, she had no difficulty at all spotting the key stars in the Lagoon Nebula. Even some detail in the globular star cluster M22 was visible to her.

As the night progressed my amazement grew. She could just make out the Dumbbell Nebula - the glowing remains of a dead star. When we switched to the giant binoculars she could readily see six of the seven main stars in the Pleiades.

As we talked, she explained that while glaucoma prevented her from seeing objects at a distance, she could see some things close up.

That was the answer! Looking through the telescope, she was less than an inch from the images in the eyepiece. Plus the telescope's 14-inch aperture made those images bright enough that she could make out a surprising amount of detail.

We capped the night off with a look at the Andromeda Galaxy. At a distance of 2.2 million light years, it was the furthest object we viewed that night. Sure enough, my guest could make out the glowing mass of stars at the galaxy's core.

It's always rewarding for me to show people the night sky. But to give a legally blind person their first view of objects that are light years distant… well, that's almost as awe-inspiring as the universe itself.

John Crossen
Buckhorn Observatory
johncstargazer@aol.com

Off the Beaten Path

This is the first of a series of articles exploring some of the lesser known deep-sky objects visible each month. Many of these objects are visible in small to medium scopes, but are often thought to be "challenge objects".

Like spring, fall is primarily a season for galaxy observation. Fall skies contain various galaxy clusters such as the Fornax and Sculptor groups. Galaxies, by far, are the dominant deep sky objects in both the NGC and Messier catalogs. Keeping in mind that most other types of deep sky objects that can be seen in amateur telescopes are not extra-galactic in nature, this is quite remarkable.

M33 - Located in Triangulum, it is one of the few galaxies visible to the naked eye, from a dark site. It is known as the "Pinwheel Galaxy". Normally a binocular object, M33 contains many other NGC objects within it. NGC 604 is the brightest of these H-II regions, located on the NE side of M33. This is clearly visible in an 8" scope under ideal conditions.

M33 in Triangulum

NGC 7785 - This is an 11.6 magnitude elliptical galaxy located 1 degree S-SW of ω-Psc. This is one of the brightest galaxies in this area, appearing as an irregularly round object with a bright core.

NGC 925 - At magnitude 10.1, this object appears as a halo of nebulosity around a bright core. NGC 925 is located 2 degrees SE of γ-Tri.

NGC 772 - Located in Triangulum, this 10th magnitude E3 galaxy also has bright H-II regions that are visible with larger scopes.

NGC 752 - This is a sparse open cluster located about 7 degrees south of Gamma-And. It forms a twisted X in the finder scope.

NGC 752 in Andromeda

NCG 869 & 884 - The famous double cluster in Perseus. Don't forget to look at this pair of jewels in the northern sky. It is particularly beautiful in a wide field eyepiece, like a Naglar.

So if you are tired of the same old objects and don't know what to look at next, be adventurous and go off the beaten path!

Charles Baetsen
va3ngc@rac.ca

The Sky This Month

VENUS and MERCURY:

Venus and Mercury start the month paired close together low in the dawn. Venus is very bright in the eastern morning sky, at most 1/3 the way up at 5 am.

MARS:

Mars is visible in the south in the constellation Capricornus after dusk, but has faded to become a mildly interesting object.

JUPITER:

Jupiter will be in Gemini this year and appears far brighter than any star, including Sirius in the evening sky. In telescopes you should be able to see its cloud belts and bright zones. Jupiter's four largest moons (Io, Europa, Ganymede, and Callisto) do their usual dance around the planet and can be watched with even a small telescope (or even binoculars, if you know what to look for). Take a look for them on **November 3rd** at 1:21 am and **November 10th** at 3:57 am as 2 moons will be casting shadows on Jupiter.

SATURN:

Saturn is in the constellation Taurus in the eastern evening sky. It should look impressive throughout November and December, outshining Capella and nearby Aldebaran. The size of the planet and the tilt of its rings are nearly at their maximum, so spend some time with a telescope studying and sketching it.

On **November 30th**, the full moon will occult Saturn at 7:51:09 pm EST. It will re-appear again at 8:42:28 pm.

URANUS & NEPTUNE:

Uranus and Neptune are visible in telescopes this month in the constellation Capricornus. You will need detailed maps to find these objects. Check out Sky and Telescope's web site at *www.skypub.com* for details or use any planetarium software to print maps of the region.

The Leonids as seen in 1833

LEONID SHOWER (STORM?):

The Leonid meteors shower will peak on the morning of **November 18.** I've heard a rumour that the rates could be in the thousands per hour sometime before dawn (~10:00 UT) so be sure to watch during the predawn hours just in case.

Astronomers Close In On When It All Began

According to an article by Terence Dickinson in the Toronto Star, Sept. 30/01, "… astronomers have for the first time, narrowed the uncertainty in the age of the universe to within 500 million years. ...four different experiments detecting cosmic microwave background ripples indicate a 68% chance that the universe is between 13.5 billion and 14.5 billion years old. The new estimate of 14 billion years was achieved by mapping the cosmic

RASC Calendars and Handbooks

RASC Calendars and Handbooks can be ordered through the club. Prices are as follows:

Calendars $13.00 ea. (We need at least an order of 5 to get it at this price)

Handbooks: $15.00 (We need at least 5 orders to get it at this price)

Last day for Orders is November 16 !!

microwave background, which is a primordial glow from the big bang that permeates space. Subtle temperature ripples in this background carry clues about how the big bang shaped the universe and how long the process took – thus revealing the universe's age. The crucial detail is the size of the ripples. As the ripples expand with the expansion of the universe, they preserve this record of cosmic growth."

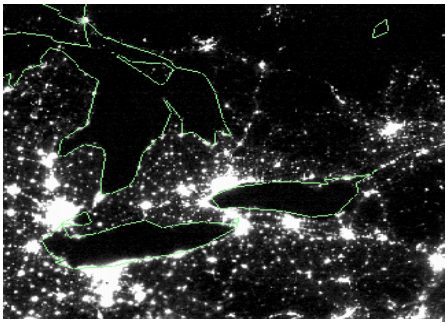
Submitted by
Lyn Jackson
jackson_lyn@hotmail.com

Losing Our Stars?

Have you ever stepped out of your house, looked up into the clear night sky and wondered why you can see only a handful of stars? Depending on where you live, you may only be able to see a few dozen stars when you look up. Consider yourself lucky if you can see hundreds of stars and blessed if you experience the thousands of stars that should be visible from a truly dark sky location. Unfortunately, this experience is all too common in our communities or any other populated area in the world these days. The reason for much of the stars "disappearing act" is due to a phenomenon called, Light Pollution. Yes, it affects almost all astronomers, amateur and professional alike, around the world.

Light pollution is the unintended or unwanted light, that shines upward or outward from its source. It may come from light fixtures directly or reflections off other objects. The cause is the same in many cases. Light fixtures that are ineffective or inefficient. Often there is more wattage being used for what is intended or needed. It may be a yard light that is turned on for too long or more often then not, a bulb that is brighter than what is needed to do the job, as well as a head on the fixture itself that shines light out and up into the night sky instead of only downward on the intended target.

If the above scenario is combined with a large urban centre, like Peterborough for example, the inevitable effect is a glow in the sky that results from the extraneous light hitting dust and large molecules in the air. This can have the effect of washing out the stars in the night sky in a particular direction, even though you are miles from the offending source of the problem. Any one who has tried to shake the effects of light pollution for a serious look at the night sky knows how far they have had to travel to do so.



Southern Ontario at Night

We are living in an age when children who grow up in cities, may never see the Milky Way. Then there are those of us who wish to study and appreciate it and it is getting increasingly difficult to do so. This is mainly due to light pollution. It is a lot like noise pollution, except in this case it is too much light. It can be distracting and at times blinding.

Is there any thing that can be done about it? You bet! Just like dealing with other forms of pollution, awareness and education are two key elements in reversing the trends in the loss of our night skies. Here are a few tips for doing something about light pollution.

- When choosing outdoor lighting, purchase fixtures that are properly shielded to direct light where you want it, on the targeted area, not out or up. Also, carefully consider how many watts you need to do the job.
- Turn lights off when not needed. Use timers, motion detectors and close drapes or blinds. This approach may save a few birds from becoming disoriented too.
- Educate your neighbours or even your municipal councils about this issue. You will be surprised at how few people are even aware of the problem. By dealing with the problem effectively, there can be a real cost savings. This is what the city of Calgary, Alberta is finding out as it voted this year to reduce the wattage of its streetlights by half in order to save money and the environment.
- If you work in an office building, alert the management of the problem and have unnecessary lights turned off at night.

If you would like to learn more about this issue and how to help do your part to reduce light pollution, visit the International Dark-Sky Association (IDA) at *www.darksky.org* and the Royal Astronomical Society of Canada's (RASC) Light Pollution Abatement Program (LPAP) at *www.rasc.ca/light/home.html*

Turn off a light and switch on a star!

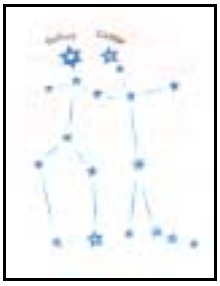
Rick Stankiewicz
stankiewiczr@home.com

For The Absolute Beginner

A great book for beginning astronomers is "THE STARS, a New Way to See Them" by H.A. Rey. It's for people who want to know just enough about the stars to be able to go out at night and find the major constellations. Rey connects the stars in line drawings that show the constellations as shapes that match their names, making it easier to recognize them in the sky, and remember them. You can check it out at the public library first to see if you like it.

Even if you live in the city and there aren't very many stars visible, those few

stars are the brightest ones in the constellations. The two heads of Gemini are the



brightest stars in that constellation and are the only ones in Gemini that are visible to me. They are easy to spot because of their location in relation to the other constellations.

Look for the brightest stars first and figure out what constellations they are in by their location in the sky. Paint some red nail polish over the lens of a small flashlight so you can keep your ability to see in the dark as you study the star charts.

Happy stargazing.

Lyn Jackson
jackson_lyn@hotmail.com

Please submit all articles, thoughts, or ideas to this address:

Charles Baetsen
244 Ridgewood Rd.
Peterborough, ON
K9J 8A3

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

Deadline is
Nov 28th, 2001

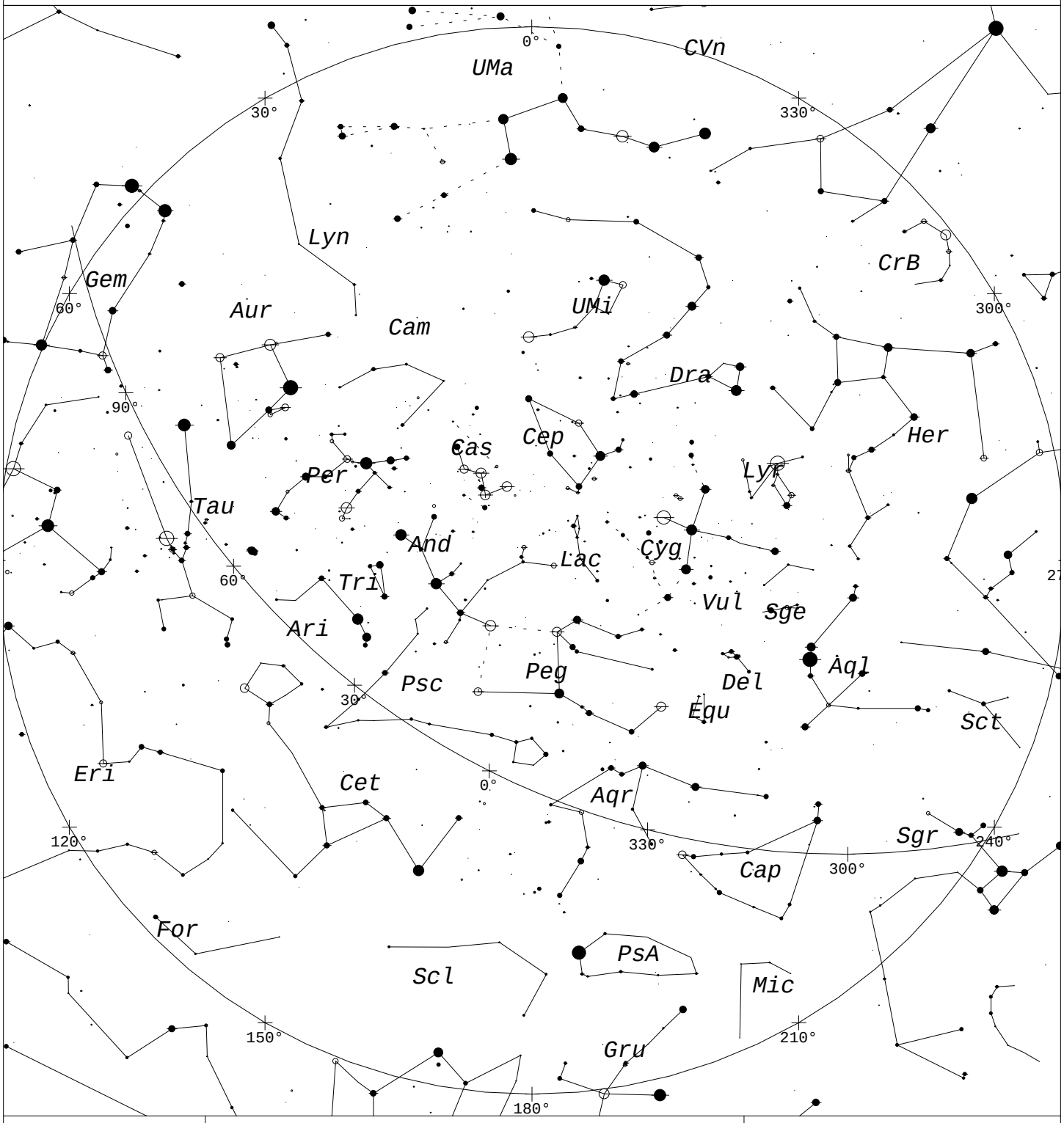
Meetings

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

♦ November 2, 2001	**General Meeting—** Speakers: Jaan and Susan Teng. Meeting will be held at Jaan and Susan's place at 2075 Providence Line.
♦ November 15, 2001	● **New Moon**
♦ November 16, 2001, 7:30 pm	**General Meeting**– Topic to be announced
♦ November 18, 2001	**Leonid Meteor Shower**—Potential for a storm as viewed for North America
♦ November 30, 2001, 7:30 pm	**General Meeting**—Speaker: Rick Stankiewicz, Topic: "Astronomy in Philately"
♦ November 30, 2001	○ **Full Moon**—Saturn will be occulted by the moon at 7:51:09 pm EST
♦ December 14, 2001, 7:30 pm	**General Meeting**– Topic to be announced

November 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-Nov-2001 UTC: 02:00:00 2-Nov-2001 Sidereal Time: 23:28:08

Location: 43° 39' 0" N 79° 22' 48" W RA: 23h28m08s Dec: +43° 38' Field: 180.0° Julian Day: 2452215.5833