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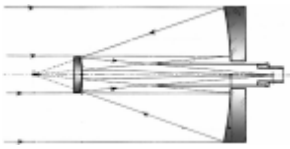
PETERBOROUGH ASTRONOMICAL ASSOCIATION

THE REFLECTOR



Volume 4, Issue 7 September 2005

Editorial

As we look up at the night sky this fall, we will have one less person to share the hobby with. Sadly, Frank Hancock passed away on August 1. As you may know, Frank was the prime mover in the creation of this club. In 1970, he joined up with a couple of high school students named Dave Duffus and Mike Junkin to lay the foundations for the Peterborough Astronomical Association. He really cared for the club and remained active as long as he could.

He was active in the hobby from an early age. Inspired by tales about Comet Halley's return in 1910, Frank claimed to have seen every naked eye comet since 1930. Clearly these ice balls from space were one of his favorite objects.

Frank was ever helpful and always a great guy talk to. For anyone who never knew Frank, you missed an opportunity to meet a very special person. He touched the lives of many people, all of whom were enriched and warmed by his presence. I know that I am glad for having known him.

Frank was also an active amateur radio operator (VE3HFJ). In the 'ham' world when someone passes away, they are referred to as a "silent key" (as in telegraph key). In astronomy I am unaware of a similar saying, so to quote Virgil: *Sic itur ad astra*—thus you shall go to the stars!

Clear Skies,

Charles W. Baetsen
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Frank Hancock seen here (far right) with the PAA gang viewing the 1994 annular eclipse, passed away in August. Frank was a founding member of the PAA and will be missed by all who knew him.

Meeting Notes

June 10, 2005:

The night's meeting began with the introduction of Joanne and Bob Stockton, two new members whom we are delighted to welcome aboard. Joanne is the astronomer of the two while Bob enjoys photography and birding. Our thanks and a big PAA welcome to the Stocktons.

John Crossen opened the business portion of the meeting with the presentation of a box of brand new astronomy books for the PAA library. This is just one of three new boxes of books thanks to donations from Dean Shewring, Rick Stankiewicz, and Denis Gauthier, along with Mark and Susan Coady. Our book count has now reached

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Dean Shewring delivered a brief, but fascinating talk on the Planetarium programs in Montreal. Dean was a founding member of the club and rejoined us last year after an extended absence.

the point (225) where we have some duplicates and are able to offer them up to members for their private libraries or pass them on to the York Simcoe Astronomy Club.

Dean Shewring popped a surprise presentation on us that revolved around the current state of planetariums in the province and across Canada. It's not all good news, but neither is it bad.

On the positive side there are reports of a movement to generate funding for a new planetarium in Toronto. In fact they have a website and Peter McMahon has been talking to some of the people who will be involved in the project once it gets started. The website is: *www.geocities.com/torontoplanetarium/definition.html* Have a look and sign the guest book. It is very exciting.

The Roberta Bondar Planetarium at Seneca College in Toronto is still alive, though it is currently under renovation. My last encounter with the planetarium was about ten years ago. At the time it was in decline and the only people available to operate it were two unpaid volunteers from the math and biology departments. Still, something must be going right for the school/government to be remodeling it. No laser shows – PLEASE!

The highlight of Dean's talk was the Montreal Planetarium which has a regular show schedule and is functioning quite nicely. One of Dean's friends helps develop the shows and present them. The planetarium is tied in with the educational system and prepares children's shows as well as adult education programs. Both Dean and Joanne Stockton agreed that being aligned with the school system is essential to the survival of any planetarium.

All of this led to a brief discussion of the need to do a little repair work on the PAA/BHO planetarium. It seems we have a few uninvited 'super nova' appearing in the dome. And part of the entrance way is exiting. John Crossen and the "PAA North" contingent will look after this work shortly at the Buckhorn Community Centre.

John also announced that the annual PAA Star-B-Q would be held on July 9th at Buckhorn Observatory. Jim Kendrick is current penciled in as the guest speaker. This will be a star party, with the emphasis on party. More news, soon.

Mark and Susan Coady informed us that they had heard nothing new with regard to our light pollution meeting with Peterborough City Council. We are still waiting. However, it was noted that another fully shielded streetlight has appeared on Lansdowne Street. Perhaps there is a secret replacement program already in effect!

The meeting concluded with a procession up Armour Hill where we were greeted by a cheering throng of clouds. After about ten minutes of swatting mosquitoes and admiring the various light domes around the city, we fled the scene and the June 10th meeting concluded.

June 22, 2005:

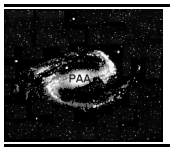
Dave Duffus opened the night's meeting with a run down on the pricing and accommodation costs for the Stellefane Star Party in August. If you're interested in going, just type in Stellafane on your Google site and you'll receive more information on the surrounding area, costs, and accommodations. Stellefane is the ultimate star party and it's history goes back many decades. From about 20 dedicated amateurs it has grown to an average attendance of about 3,000 each year.

Dave also mentioned the need for volunteers for sky tours for the scouts on August 27th near Apsley. The night sky up that way is close to pristine, so those who make the trek should have an enjoyable night.

Dean Shewring brought along a new addition for the PAA video library and programs from the Montreal Planetarium. Thanks Dean "Walking With the Astronauts" sounds very interesting. And because it's a BBC production, you know it's going to be good.

John Crossen presented two new DVD's – Winged Migration and Amazon to the PAA video library. He also brought along book box #9 which was filled with books new to the library. We're up to 225 now.

July 1 and the Canada Day presentation at Buckhorn Community Centre was first on the list of topics to be discussed. John Cameron and Mike Ricks added their names to the list of volunteers who will help out with the day-long show. Their names join those of Mark and Susan Coady as well as Brett Hardy and John



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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An eager group of Canada Day guests await their turn in the PAA/BHO Planetarium. John Crossen and new PAA member Marina Bedard spelled each other doing star shows in the Planetarium.

Crossen as the PAA public outreach group. Any other volunteers would be welcomed.

The annual PAA Star-b-q was next up. Also known as the *Hawg Wrassle*, it will be on July 9th of this year. Buckhorn Observatory will be the location. If the weather is clear, guests are welcome to come up on the 8th and camp over for the weekend. More details on this as the date draws near.

Also on the agenda was the July 14th star party that the PCMA holds as part of its summer activities. The PAA planetarium will be there, and it would be great if we could muster up a couple of telescopes for the public observing session that night.

Colin Cross took us through a Messier and NGC trip through the constellation Aquila or the Eagle. Our thanks to Colin for his efforts and the time spent researching his presentation.

Mark and Susan Coady presented their home-brewed DVD on light pollution and brought us up to date with the latest events at Peterborough City Council. Can you say "zip"! He also had a number of letters to the Mayor of Peterborough on hand which club members who are also Peterborough residents could sign. Paul Brown, Rene Bowe, Richard Matthews, and Boyd Wood took pen in hand and did just that.

John Crossen then led the group through a Messier tour of the constellations Scorpius and Sagittarius. Using Starry Night software, we were able to see the constellations and then zoom in for a look at the Messier objects within them. This goes hand-in-hand with the beginning of the PAA Summer Star Stampede, a program to help beginners learn their way around the night sky. If you didn't get one of the handouts, e-mail me and I'll send one along. My thanks to Dean Shewring for planting the seeds of the idea.

The meeting ended just after 10:15 with conversations continuing into the night in the parking lot. The winner of the 50/50 draw was Dean Shewring (beginners luck). Treasurer Rene Bowe reports that we now have $856.00 in the club account. Anybody wanna party?

July , 2005:

'Twas a dark and stormy night., but a hearty group of PAA members showed up at the Orientation Centre for the Friday night meeting. John Crossen opened the meeting by introducing the group to a new box of library books (#10) and a new DVD on the solar system from Starry Night/InoVision.

Dave Duffus announced that yet another batch of astronomy books would be coming within the next couple of weeks, and that we might have to have an auction of some duplicate books. Dave also mentioned that enthusiasm for the Stellafane trip had hit a new low as gas prices hit a new high. Shame on you Mr. Shell.

Mark and Susan Coady brought along two pairs of binoculars and a tripod which they had picked up in a yard sale. John Crossen bought a pair of Bushell 8x40 binoculars for $5.00 and Linda Shepherd walked off with a nice little camera tripod for $2.29. Linda also won the 50/50 draw which she generously

PAA President John Crossen was just one of the club members who delivered presentations to the club during the summer months. Here he explains the differences between eyepiece designs and their virtues.

returned to the club. Auction proceeds also went to the club, thank you Mark and Susan.

The Summer Star Stampede was next on the agenda. New Members Dean Shewring and Linda Shepherd having begun their Messier check list moving through Sagittarius and Scorpius. Additional score cards were passed out to members who had missed getting them at the previous meeting. John Crossen and Dean Shewring are tied for the lead with six check marks each. Come on you guys can do better than that on a cloudy night!

For the benefit of our newest members, John Crossen made a presentation on eyepieces. Beginning with the dreaded 0.96" Huygens (a.k.a. trashscope) design, John took the members through generations of design improvements involving Ramsdens, Kellners, Erfles and Konigs right up to the modern 1.25-inch and 2-inch wide field designs that amateurs enjoy today. We've come a long way. Then again, so have prices. Still a good Plossl can be had for about $50.00. And it's light years ahead of the old Huygens design in its field of view and crisp, sharp images with little colour shift.

Mark and Susan brought the crew up to date with the light pollution battle. Still no progress in Peterborough, but a door has opened in Smith-Ennismore Township and we'll be passing through it soon.

Rob Fisher announced that the PAA would have a two-week display at the Peterborough Central Library. Thanks for arranging that Rob. We always like to expose ourselves-and it's a real membership builder.

John Crossen announced that he will be doing an astronomy talk in Lindsay on July 13 and that the PAA/BHO planetarium will be at the Summer Star Party on Armour Hill on July 14. We also need some scopes for the public viewing session that evening.

The night closed with the announcement that our next meeting would feature a talk from Peter McMahon of the Discovery Channel. Peter is a science journalist who works closely with Ivan Semeniuk. Peter will have just returned from the NASA Shuttle Launch in Florida and will address the group on space travel in the next century. It will be quite a talk and no one will want to miss it. That will be July 22nd at the Orientation Centre.

July 22, 2005

Friday night's meeting was very well attended, and well it should have been as Peter McMahon's talk was absolutely superb. A rough head count tallied up 50 guests and members for the meeting. Plus we had the pleasure of welcoming Fred and Pat Smallman to our membership list.

Mark and Susan Coady brought along their petition to the Peterborough Mayor and counsel members as part of the club's crusade against light pollution and energy waste. They picked up a few new signatures and the letters will go off to city counsel in the coming week. Thanks Mark and Susan for your efforts.

John Crossen opened the meeting with the announcement that an updated club library list was available via an e-mail which he had just sent out. John also brought along some spare print-outs for those stone-age hold-outs still existing in the world of snailmail. John then introduced Scott Gilbert, President of the York Simcoe Amateur Astronomers who along with some other members joined us for the night. By the way, Scott and some members of the South Simcoe Astronomy Club are putting on the 13th annual Huronia Star Party this coming September 8th to 11th. If you'd like to attend, contact Scott at: Scott.Gilbert@investorsgroup.com

Rob Fisher announced that the PAA display was up and running in the Peterborough Library and that we could expect an immediate spike in membership. Well, we can all dream. Thanks for taking the time to set up the display, Rob. Every little bit helps.

Speaking of new members, we can thank recent new members Joanne and Bob Stockton for bringing their friends Pat and Fred Smallman along and encouraging them to become club members. Welcome aboard Pat and Fred!

Award-winning Discovery Channel science journalist Peter McMahon took us behind the scenes for the shuttle Discovery launch. Well, sort-of-launch. Unfortunately they had to scrub the launch while Peter was in Florida, but he did return with many fascinating tales.

Science journalist and guest speaker, Peter McMahon took us on a tour of our solar system as tourists in the 21st century. After being introduced to a variety of potential spacecraft, we were off into the wild blue yonder via digital projector and an amazing array of photographs from Peter's extensive archives.

Our travel agenda included an exploratory venture on the hot surface of Venus as well as bit of mountain climbing and spelunking on marvelous Mars. We also did a bit of rock collecting on our Moon, plus a ski trip to Pluto, deep sea diving on Europa, and surfing the Methane oceans of Saturn's Moon Titan. As part of his talk Peter also took us inside Kennedy Space Center, and his luxurious (chuckle) headquarters where

he stayed during his wait for last week's aborted shuttle launch. Eat your hearts out Natasha Stillwell and Jay Ingram.

Peter then graciously answered a host of questions from the assembled group and we closed the meeting with quick stargaze in the parking lot outside.

Fran Goschl took command of the PAA 6-inch loaner scope after the meeting was over. Now Fran has no excuses for not completing her Star Stampede form for Scorpius and Sagittarius. Or was she planning on observing something else?

Our thanks go out to Peter McMahon and his family for joining us. This was one of our best meetings and we look forward to more like it.

Our next meeting will be on August 5th and will include an observing session on Armour Hill.

Aug 5, 2005

About 15 members and guests gathered at the Zoo and shortly after 8:00 p.m. we convened to a re-cap of what had happened in the last two weeks. All were welcomed in the usual PAA fashion and the one "guest" was Matthew Rapus of Cavan. He stayed for the whole meeting and the following observing session. It looks like we might have another new member in the works. Welcome Matthew!

Our president had another "heart wobble", but is doing better and is under doctor's orders "not be at two places at once". This is code for "slow down".

Founding club member Frank Hancock passed away on Monday the 1st and funeral was on the 3rd. Several members were in attendance. The club sent flowers too. The Frank Hancock Memorial Astronomy Award is still being pursued, more details to come later this year.

Successful Shuttle launch and ISS docking. There have been some making solar transits of the pair in the last few weeks too. Check out the Astronomy Picture of the Day (APOD) and the NASA SpaceWeather.com for images. It looks like extra sunspots, but they only last 1.1 seconds! Check *www.Heavens-Above.com* for future chances to see the ISS over Peterborough in the next week. Mark Coady has been providing this information too.

Colin Cross delivered his usual (and superlative) constellation-of-the-month talk and then was joined by Susan Coady as they double checked on an illusive NGC object.

Another Planet in Our Solar System? A possible 10th planet (beyond Pluto) has been announced. Still officially referred to as "2003 UB313", it is larger than Pluto, but it remains well past Pluto at 97 AU (Pluto is 40 AU). Check out the constellation "Cetus" if you are interested in trying to see it, but it will be a "whale of a task", as it is currently only visible as a 19th magnitude object.

A Planet With 3 Suns! The announcement of Jupiter-sized planet HD 188753 (in Cygnus), is changing some of the current theories of planet formation. Apparently, this planet is circling 3 stars, not one like we are. The more we learn, the more we don't know?

Perseid Meteor Shower Warning! This next week will see one of the best meteor showers of the year (possibly). With only a quarter moon in the first part of the night, the best viewing will be after 2:00 a.m. on the 12th (right up until dawn). It is going to be a tough day to get up for on Friday (if you are still working). Plans have not been confirmed yet with the Ptbo Centennial Museum for anything special, but we will have to stay tuned for updates in this regard. Normally, the best place to be on "Shower Night", is any place dark with a clear view of the night sky. We did see some meteors at Armour Hill after the meeting, but more of that later.

Cottage Assoc. Outreach - I think there is still an outstanding request for an intro to astronomy for a cottage association at Hall's Lake (between Minden and Dorset on Hwy#62). They are looking for a speaker and few scopes on the night of the 20th. Are there any volunteers? We need to finalize details in the next week to prepare.

PAA Summer Star Stampede Reminder! Time is running out. The list of 3 constellations and 21 Messier objects are to be completed by month's

end. So, get off your astro butts and focus on the heavens above to join the fun.

Member Colin Cross gave us another star tour through Sagittarius and Scorpius. Most of what Colin covered was very helpful in tackling this month's stampede. I for one got "pumped" and vowed to finish up.

Then Mark Coady (with the help of some club techies) fired up the DVD on the Origins of the Earth. This was just part one of a NOVA production that covered the first few hundred million years of Earth's existence.

Then came the observing session at Armour Hill. I lost track of how many members came out to observe (it was dark), but to our surprise, there were people at the Hill waiting when we got there. Stan Pope came with his "new" scope, plus there were two 10-inch scopes (Colin and someone else too). So with my little 3.5" MAK, there were four scopes. A members of the public (5) showed up too. The night was pretty good for the Hill. There was the usual light pollution, but Sagittarius and Scorpius were quite high in the southern sky and the clouds stayed away, as did the bugs, thanks to a light breeze. This was as close to ideal as it gets for summer observing. Dew was not even an issue until closer to 11:30. Thanks to Colin and his scope, I was able to wrap-up all but two of my Stampede list (which I went home to do under darker skies after midnight).

Aug 25, 2005:

Tonight's meeting brought us a handsome repayment for John Crossen's talk to the Kingston Chapter of the RASC. Handsome in the form of information, entertainment, and professional demeanor and, what the heck, Doug Angle is a pleasant enough fellow to boot.

Doug was kind enough to join us for dinner prior to the meeting, and we thoroughly enjoyed chatting with him at *Hot Belly Mamma's*. Well, in between fried chicken and jambolia washed down

RASC Kingston Chapter member Doug Angle came to us via the speaker swap program. Doug is an avid observer and a skilled optical craftsman. He and many other members of the chapter took on the task of building a 24-inch Newtonian telescope on a Dobsonian mount. And they did it from absolute scratch.

with a swig or two of Old Stone Ale.

John Crossen opened the meeting by announcing two new contributions to our ever-growing library, introducing some new members along with our guest speaker for the night.

From there on Mr. Angle took us on an hour's journey from what started as an 80 kg blank mirror to a finished 24-inch Newtonian telescope, complete with hand-crafted optics, rocker box, side bearings, truss mounts, secondary cage and wheelbarrow handles to lug it all around. Hogging the mirror out alone took something like 70 hours. Polishing it took even longer. Sand casting the bearings and truss mounts from scratch was also an interesting challenge. But months, and months, and months later – the telescope stood completed.

The talk was amply punctuated with humorous sidebars, and very nicely illustrated with all the pictures that most of us remember we should have taken while the job was in progress instead of completed.

The project was a group effort that helped pull the membership together with a sense of purpose – and when you have 140 members, that's a lot of pulling. While a core group of experienced telescope builders and crafts people did much of the work, even those who shouted encouragement from the sidelines were appreciated.

The talk wound down with a lengthy question and answer period, always a good measure of a well-received talk. Prior to adjourning the meeting, the group drifted up to ask individual questions of Mr. Angle and to sift through the boxes of books and DVD's from the club library.

Now it's the PAA who owe the Kingston group a guest speaker. Anyone keen on volunteering?

John Crossen & Rick Stankiewicz

Frank Hancock
1925-2002

I first met Frank through my father. He and Frank had worked at the old Ovaltine plant at Park and Lansdowne. I remember my father telling me how Frank would take him up to the roof on midnights and show him around the sky.

In the late sixties a few people got together to discuss an astronomy club, Frank was the person responsible for getting us together. He was also the only adult at the beginning, the rest of us were just in high school. Our first official meeting as the Peterborough Astronomical Association took place on April 19, 1970.

Over the first few years we gathered more high school students and a few adults. Frank didn't want a position of

authority in the group and I was lucky enough to be chosen president at the time. He and I were very busy those first formative years.

Frank had some property on the centre line of Smith, which we used for star gazing and meteor watches. He also kept active bee hives there and more than once some of us got on their bad side and could prove it.

We used to hold public star nights at Nichol's Oval. We would start with slides and movies and when it got dark out came the scopes. Frank supplied the necessary power by way of a gas generator that was towed behind a car. This was quite the thing for us kids at the time.

Frank was always willing to help with whatever endeavour we had in the works, including a trip to Rimouski Quebec to watch a solar eclipse, trips to the Dunlap observatory, and our bus trips to the Planetarium in Toronto.

I left Peterborough in the early seventies and didn't return till 1980. I found the group still in existence and Frank still a member. Since then Frank, I and Mike Junkin were the only founding members left. Mike has moved on to other things and recently we have Dean Shewring returning to the group.

Frank will be missed by many, especially those of us who knew him for so long.

Dave Duffus
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The Sky This Month

MERCURY

Mercury is not easily visible this month.

VENUS

Venus is visible after sunset. It will remain an evening object for the rest of the year.

MARS

The red planet will be an evening object this month. It can be found between Aries. Mars will be at opposition in early November, but is already quite bright now.

JUPITER

Jupiter is in the glare of the sun and is not visible at this time.

SATURN

Saturn rises in the early morning and can be seen just before dawn.

URANUS

Uranus is located in Aquarius and will be visible throughout most of the night.

NEPTUNE

Neptune is located near ι-Cap and will be visible throughout the night. A finder chart like that published in S&T or the RASC Observer's Handbook is required to locate this faint bluish planet.

PLUTO

Pluto is located in Serpens Cauda near the star ξ-Ser. You will need a finder chart like those published in Sky & Telescope to find it.

METEOR SHOWERS:

There are no major meteor showers this month, however there are also several minor meteor showers. For details, see *http://comets.amsmeteors.org/meteors/calendar.html*.

The Best Backyard Astronomy Begins as Summer Ends

There isn't a better time to share the beauty of the night sky with your family than on a warm September night. The Milky Way arcs gracefully overhead from the southern to the northern horizon. Above you the Summer Triangle is still suspended from the starry ceiling like a celestial

M45—The Pleiades or the Seven Sisters. You know that fall has arrived when you can see this beautiful asterism coming up over the horizon. In a reasonably sized telescope can reveal the nebulosity.

chandelier. And Queen Cassiopeia, a large W-shaped constellation, rises in the northeast majestically seated on her throne of stars. You don't need a telescope to see all this. Even a pair of binoculars can slow you down. You already have everything you need for beginning astronomy – your eyes.

How do you connect the star-dots and turn a summer night teaming with anonymous stars into a stellar tapestry of friendly, familiar critters? A trip to the bookstore and an evening in your back yard are an ideal start. Pick up one of the astronomy books mentioned in this article, read up, then wait until dark and head out to do a little stargazing.

A large open area that is free of trees and bright lights is an ideal stargazing location. Look straight overhead in the early evening and you'll spot three bright stars arranged in a triangle shape that takes up most of the sky overhead. This is the famous Summer Triangle. If you're in the country, you can see that the Milky Way cuts straight through the Summer Triangle. But even city dwellers should be able to make out the three bright stars that form the Summer Triangle.

A trip to the outskirts of town or the cottage may be required to fully appreciate the beauty of the pristine night sky. But even a trek up Armour Hill in Peterborough can elevate you above some of the city light pollution. The Summer Triangle is summer's crow. But with the arrival of September, the crown slips ever so slightly toward the west as

The Andromeda Galaxy (M31), hovers right on the edge of naked-eye visibility. With a pair of binoculars the giant disk of stars jumps out of the dark sky instantly.

the nights lengthen.

Autumn also brings with it the giant Andromeda Galaxy. Located in the constellation Andromeda, the galaxy hovers right on the edge of naked-eye visibility. And with a pair of binoculars the giant disk of stars jumps out of the dark sky instantly.

Also putting in their first appearance of the year are the seven sisters. Also known as the Pleiades, this large naked-eye star cluster is an impressive sight in binoculars and is actually too large for telescopes.

Yet another delightful spray of stars is the double cluster located midway between Cassiopeia and Perseus. This "two-for-the-price-of-one" target is also an easy sight naked eye. And with binoculars the two clusters become quite distinct. A telescope at low power releases a stellar double-whammy.

Backyard astronomy is a great family hobby that is as easy to enjoy as looking up. And because the stars change with the seasons, there's always something new to learn. It can also be an inexpensive way to bring the family together and share the wonder and magic of a starry night sky. There's no need for a telescope. Even binoculars are optional. So take advantage of the warm weather on a cloudless, bug-free September evening. Discover the autumn constellations together – tonight.

John Crossen
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Urban Myth Debunked

By now you have likely heard of the Internet hoax that Mars was have been larger than a full Moon on the night this past August 27th The following is what I submitted to the "Earth Science Picture of the Day" website (*http://epod.usra.edu/*) and they posted it on August 26th, as a warning to the unsuspecting public;

"There is an "urban myth" circulating at present that on August 27th, the planet Mars will be the closer to Earth than it has been in almost 60,000 years, and that it'll be 24.1 arc seconds in diameter and thus appear larger than the full Moon in the night sky. The above image of Mars was taken (through a telescope) two years ago on July 17, 2003, when Mars was only 5 weeks away from truly being closest to Earth than it had been in almost 60,000 years. At this time, it was an object about 20 arc seconds in size. Note the Moon's limb in the foreground and also the polar ice cap on Mars. Do you really think that the Red Planet could grow to be larger in the sky that a full Moon? Not possible! It was pretty remarkable back in 2003, but a telescope was still required to appreciate its proximity to us. It could be that there's some confusion with the "urban myth" circulating now and the event from two years ago. Mars will not reach a larger size than 25.14 arc sec. until August 28, 2287. On October 29th this year (2005), it'll be 20.2 arc sec.-- it won't be any closer to us than this (or appear any larger) until October, 2020. On August 27th this year Mars will only reach about 14 arc sec. in size. Nonetheless, look for Mars in the morning sky, (about an hour before sunrise) -- it's always worth a peek."

Mar is back, but not quite as big as it was in 2003 despite the rumours going around on the net.

The attached image was what accompanied the article, but a better view can be obtained by linking to the actual article.

Beware the Internet hoaxer. It is easy to get taken for a ride on the Internet. This is a powerful tool in anyone's hands.

Keep looking up!

Rick Stankiewicz
stankiewiczr@nexicom.net

Coming Soon - The Real Mars Close Approach

Here we go again with yet another close approach of Mars. The really close approach was in August of 2003. That's when the red planet and Earth were separated by only 55,758,006 km. Unfortunately, Mars never rose higher than about 30 degrees above the southern horizon for those of us in Ontario. So, while Mars was the closest it had ever been in 100,000 years, Canadian astronomers were stuck with observing the red planet when it was fairly close to the horizon. That's not an optimal situation because the closer to the horizon an object is, the more of Earth's turbulent atmosphere you have to look through. So despite Mars being right next door (the correct term is "at opposition"), the Martian surface detail was often blurred.

Not so this for this opposition. This year Mars will be twice as high in our night sky – about 60 degrees above the horizon. So even though we'll be about 25% further away than in 2003, the viewing for astronomers should be much

better. As far as our separation goes for or 2005, we'll be about 68,800,000 km from the red planet. That moment happens on the night of October 28-29. But Mars will make an excellent telescopic target for the month prior to and the month after opposition. So if it's cloudy on the 29th, don't worry, you'll have plenty more opportunities to observe Mars while it is still close to us. Plus there will be another good opposition in 2018.

Now that the two Martian rovers as well as the orbits, Mars Express and Mars Global Orbiter have found substantial evidence that Mars was once a watery planet, our interest in the planet is bound to increase. In fact, one theory holds that the essence of life on Earth could have been brought here in material blasted loose from Mars' surface by a meteor impact. That would mean that we're all Martians. It is possible. After all, microbes that we accidentally transported to the Moon survived for some time on the lunar surface, and made the return trip – all in fine form.

So why would anyone want to look at Mars through a telescope when we've got robots putting across the planet's surface and satellites orbiting it? Well, sometimes a telescope acts as a spaceship and transports me there. It's all in my head, but imagining that I'm there is half the fun for me.

Until our next encounter, keep the lights down and the stars up.

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Both rovers, Spirit and Opportunity are still roving around the Martian landscape.

Dark Matter:
Part. 1 - Discovering The Unknown

In the late 1960's, Vera Rubin, an American astronomer, started mapping the speeds of stars at different distances from the center of a huge spiral galaxy. She noticed something that defied accepted wisdom. Stars that spin around the center of galaxies were supposed to behave in the same way that planets orbit a star, but they didn't.

Let's take our solar system, for example. The sun is at the center with the planets orbiting it. Because our sun is the dominant gravity in our solar system, the outer planets move much more slowly than the planets that are closer to the sun. So, people expected to find these similarities in galaxies.

Rubin found that this was not the case with the stars in a spiral galaxy she was studying. As she mapped the speed of stars from the inside to the outer parts of the galaxy, she found that they were all going the same speed. Rubin then asked the question that had baffled scientists ever since: If all the stars in a galaxy move at the same speed regardless of their distance from the center, then the center couldn't be the only source of gravity effecting them. Something else would have to be exerting a powerful force. What could this "something" be?

In theory, between 10 billion and 20 billion years ago the universe was created in a powerful explosion called the Big Bang. Excessive energy was released from the explosion, and soon after, the first particles of matter formed and organized themselves into atoms. From there, clouds of gases and dust gathered and created billions of stars, which then assembled into many galaxies. Everyone used to think that was the whole story. But now it is known that there was another form of matter created in the Big Bang and sent out into the universe as well. Vera Rubin gave this other matter the name "Dark matter" because we cannot see

Vera Rubin used this spectrograph, one of the first to have electronic imaging tubes rather than photographic film to focus on particular parts of galaxies to determine how they rotate. Her findings led her to conclude that galaxies contained large amounts of dark matter.

it. It is believed that this matter is not even made up of atoms! Even though dark matter is invisible, it can still be detected by its gravitational effects. It turns out there is a lot of dark matter out there!

Rubin inferred that almost 90% of the mass in a spiral galaxy had to be dark matter. Now, scientists believe that galaxies are not just made of stars and dust, but are really large clouds of this dark matter. In fact, up to 99% of the universe could very well be made up of dark matter!

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Astronomy by the Numbers

Beginners often find terms for measuring astronomical distances confusing. At first take, an astronomical unit could be something that's astronomically big. And at age 60 I sure wish the Light Year came from the same people who invented reduced calorie deserts. I'd be 18 again!

Like many things originated to simplify a situation, at first they seem to confuse

things even more. Then the penny drops and a light goes on in your head. Ah ha! So let's see if I can flip a few switches "on" out there.

Contrary to what its name may seem to imply, the astronomical unit (or AU) is smallest unit of astronomical distance measurement. This measurement was designed to give you an instant reference point as to how other planets compare to Earth in their distance from the sun. Earth's mean distance from the sun is 149, 600,000 kilometers. Astronomers call it 1 AU. Pluto is 39 and a half times further from the Sun than Earth is. So we say Pluto is 39.5 AU from the Sun. That's easier than remembering 5,900,000,000 kilometers. Plus it gives you a mental relationship between Earth's distance from the Sun and that of Pluto.

The Light Year (LY) is another baffling term for beginners. For starters, it isn't a measurement of time. Instead it is a measurement of distance. A Light Year is the distance a photon of light would travel in the vacuum of space in one year. Given that light zips along at nearly 300,000 km's, that adds up to quite a distance – ten trillion kilometers to be precise. In one second a beam of light could circle planet Earth's 40- thousand-kilometer equator about 8 times. In just 8.5 minutes it jumps the 149 million kilometers from the Sun to Earth. In one year it would travel beyond all the planets, past a zone called the Kuiper Belt, to a distant area that surrounds our solar system called the Oort Cloud. And in 4.3 years that beam of light could reach the nearest star after our Sun, a star called Proxima Centauri.

Until we meet again, keep the lights down and the stars up shining bright.

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Mean distances from the Sun to the planets in AU:	
Pluto	3.5 AU
Neptune	30.1 AU
Uranus	19.2 AU
Saturn	9.54 AU
Jupiter	5.20 AU
Mars	1.52 AU
Earth	1.00 AU
Venus	0.72 AU
Mercury	0.39 AU

Hazards of a Summer Conjunction

After a long winter of sub-zero temperatures and limited time for comfortable observing, we are all anxious to get out and do some observing in more comfortable weather conditions. Spring is always a prime time to set up and take-in the wonders of the universe. Well, if spring is good, summer should be better right? Not the early part of this past summer it wasn't. As I geared up for the conjunction of Venus, Mercury and Saturn in the western sky around the end of June, I prayed for clear skies. It is not often that we get such a nice grouping of planets in a small area. Even though Saturn was dropping fast in the horizon, Venus and Mercury would end up being close enough to fit into a single eyepiece view of most telescopes, a rare conjunction indeed!

The Mosquito Scope. Welcome to the not-so-nice side of summer. Rick Stankiewicz snapped this shot of his 90mm ETX just before the mosquitoes flew off with it. Next time go for a hefty 10-inch dob, Rick!

June 25th proved to be a clear enough twilight that I was able to grab a few decent images from my backyard. The attached image is a sample of what was visible through the early summer haze. The long triangle formed by these planets is only 1.5 degrees and would easily be hidden by your thumb held at arms length. The "hazard" in all this, was a possible loss of blood. The mosquitoes were bad, to say the least. It was all I could do to get the pictures I did and then get back in the house. Twilight is not only the best time to photograph conjunctions; it is also the best time for pesky insects too.

June 26th was too cloudy to even see Venus, let alone Mercury. The big night was not until June 27th anyway. This was when Venus and Mercury would be close enough to easily fit in an eyepiece view. The evening was hazy, but calm. I took my scope out in the backyard and took a look at the conjunction at 49 power and the planets were well inside the central third of the view. This is less than a tenth of a degree apart. What a treat! But all was not well. The mosquitoes were back with a vengeance! They were all over me. Their buzzing was all I could hear. They were able to find flesh I didn't know I had and I had a bug jacket on and had sprayed with repellent before going out. I was not able to take any images of the conjunction, so you will have to take my word how nice it looked, but I did take a picture of my little bloodsucking friends. The attached image captured no less than 16 mosquitoes that decided to take a break on my scope at one point.

Winter was looking much better at this point. I can dress for the cold, easier than I can avoid the hazards of this summer conjunction season.

Still worth the wait and pain.

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Favourite Mars Myths

Poor old planet Mars. Named after the Roman God of War, the blood-red planet has suffered from personality conflicts throughout its life. On a more positive note, Mars has gotten people thinking and talking about space travel. Many great scientists like Carl Sagan have credited the mysteries of Mars as one of the reasons they entered the field of astronomy. Literary luminaries like Edgar Rice Borrows, Issac Azimov, and H.G. Wells have achieved greatness thanks to the public's fascination with Mars. Mars myths have also stimulated a number of sugar-charged imaginations into believing some far-out hooey. Here are some of the Mars myths that have cropped up in the last 100 years.

Fiction: There are canals on Mars.
Fact: In 1877 an Italian astronomer named Giovanni Schiaparelli thought he saw lines crisscrossing the red planet. He called them "canali." Later American astronomer Percival Lowell picked up on the canali and called them canals. This led Lowell to a lifelong pursuit of theories about intelligent life forms on Mars and assumptions of a planet running out of water. The discovery of the Martian polar ice caps further fueled Lowell's arguments. Fact is, those lines are the human eye's natural tendency to connect the dots made by surface markings. None of the Mars Landers, rovers or the Mars Global Surveyor satellite saw evidence of canals on Mars. There is a growing mountain of evidence that Mars enjoyed a watery past, but there are still no canals.

Fiction: An ancient civilization left a giant face on the Martian surface.
Fact: In 1976 the NASA Viking 1 Orbiter took 52,000 pictures of the Martian surface. Not too amazingly, one of the pictures showed a large mound that appeared to have human facial features. This became the famous 'Face on Mars'. Then again, if you took 52,000 pictures of cloud formations, you'd find one that looks a lot like your aunt Harriet. Mars Global Surveyor also took pictures of the same area at a much higher resolution and showed that the face we thought we saw was really just a pile of rocks when viewed in crisp detail. This bit of hokus-pokus became the basis for another recent film called *Mission to Mars*.

Fiction: Mars is the planet most like Earth.
Fact: Not quite, but there are similarities. Mars does have the almost the same axial tilt 23.5°, as Earth. So Mars has seasons just like Earth. And Mars has a solid surface. Its temperature can even be Earth-like, though not nearly so warm. But that's where the similarities end. Mars is about half the size of planet Earth and it has less than half of Earth's mass. So you'd weight about 38% as much as you do on Earth. Mar's temperatures can plunge to -65°C. So dress warmly. And be sure to bring your own bottle… bottle of oxygen that is! Mars' atmosphere is 95% carbon dioxide. And its atmospheric pressure is just 1% that of the Earth's. So don't take off that pressurized space suit.

Fiction: There is a gremlin that lives on Mars who destroys space vehicles.
Fact: Even the scientists at NASA should believe this one because over half of the missions sent to Mars are never heard from again. However, technical goofs are the most likely culprits. A miscommunication between Lockheed and NASA resulted in data in imperial units being mixed metric units. The result – boom goes the spacecraft. Then there was the improperly calibrated altimeter that told the parachutes to release because the lander was only a few feet above the Martian surface. Well a few feet – like 130 or more. Boom again. The Russians have fared no better, loosing one of the biggest and best equipped spacecraft ever built shortly after take off, watching helplessly as it plummeted into the ocean. It's over 200 million kilometers to Mars. Radio signals alone take 18 minutes to make the round trip. And much can go wrong along the way. So rather than gremlins let's chalk it up to a much less rare species – human error.

Sci-Fi flicks like *Angry Red Planet, Rocket Ship XM* and *Red Planet Mars* sparked the interest of many pursue a career in the field of astronomy.

Fiction: There actually is breathable air on Mars.
Fact: Want to make a movie on Mars and save the cost of expensive space suits? Tell 'em there's air out there. That's what Lloyd Bridges and Noah Berry Jr. discovered in Rocket Ship XM as they pranced across the Martian Landscape (looked a lot like Arizona) in their leather bomber jackets. But despite what the old science fiction movies show, the oxygen content of the Martian atmosphere is way below what is required by humans. Measurements show the score to be carbon dioxide 99% and oxygen 1%. Sorry, but Val Kilmer just wouldn't have been able to breathe when he took his space helmet off.

Fiction: On August 27th Mars will appear as large as the full moon.
Fact: That's the story that circulated on the Internet. But as you already know, the tiny red dot you see rising in the evening is Mars. The real close pass for this year will be on October 29th. But Mars still won't be as large as the full moon.

For as long as I have been an astronomy buff, I've also been a science fiction fan. Such Hollywood greats as The *Angry Red Planet, Mission to Mars, Rocket Ship XM, Planet of Vampires*, and *The Martian Chronicles* have been the grist of my Saturday night movies since childhood. And like many, I have been lured into the world of astronomy by my interest in and the images sparked by both the fact and fiction surrounding Mars.

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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

Oct 10, 2005

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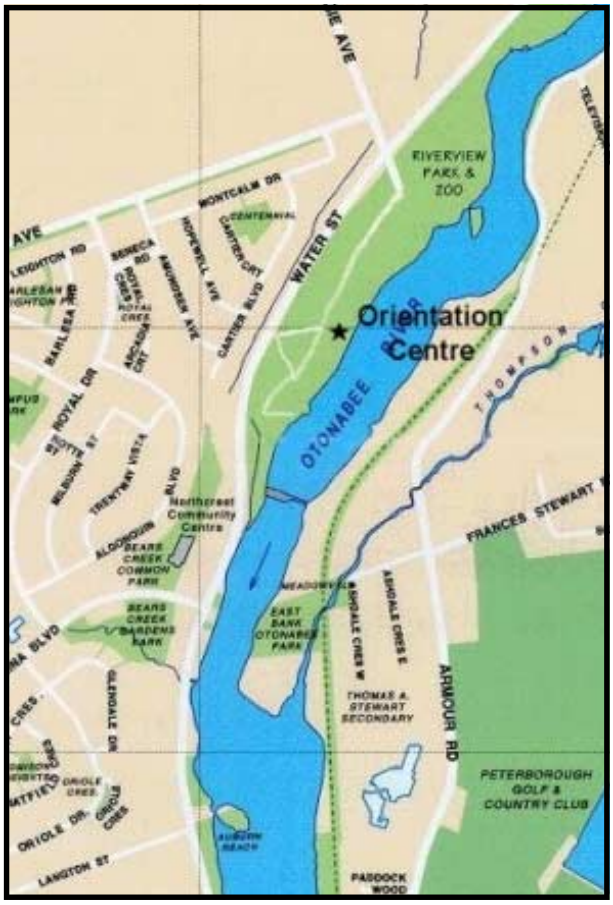
MEETINGS

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



MOON PHASES

New Moon (●)	**September 3, 2005**	**October 3, 2005**
First Quarter (☽)	**September 11, 2005**	**October 10, 2005**
Full Moon (○)	**September 17, 2005**	**October 17, 2005**
Last Quarter (☾)	**September 25, 2005**	**October 24, 2005**

CALENDAR OF EVENTS

September 2, 2005	**PAA "Star-b-que"** – Buckhorn Observatory – Guest Speaker - Jim Kendrick
September 16, 2005	**General Meeting—** Orientation Center at the Riverside Zoo.
September 30, 2005	**General Meeting—** Brett Hardy's Observatory—92 Sunrise Rd.
October 14, 2005	**General Meeting—** Orientation Center at the Riverside Zoo.