

# POLARIS



Royal Astronomical Society of Canada  
London Centre Newsletter  
December 2008

## Magical Night

Rick Saunders

There are some times in everyone's life that stay with them and stand proud of all of the background noise of our day-to-day existence. These might be milestones such as births, marriages and deaths; or might just be the recollection of a happy time that can be lifted out of our memory when needed. Through my pursuit of astronomy I've collected many happy memories of many good times, but only one that can bring me to that 'happy place' we all seek whenever it comes to mind.

It was this time of year in 2006, as a matter of fact it was Christmas Eve. My wife and eldest son were in Toronto and my youngest son was at work. We were planning to make the trip into the city the next day to get together and enjoy a traditional Christmas dinner but that night I was at loose ends in an empty house. The forecast was iffy but I decided to pack up my kit and drive out to the dark site.

Broken clouds covered the sky as I drove out of London and thinking to myself that the night might be a wash I detoured to St. Thomas to see if Jon G. might be home. He was, but had to go to work later that night so after a short visit, I left St. Thomas heading west; the clouds were breaking up.

Traffic was understandably light on the trip out to Fingal and the number of vehicles around the well-lit rural households along the way bespoke of family get-togethers and celebrations. Coloured lights strung up on the houses along the Fingal Line provided festive oases in the inky blackness of the December night.

The dark site was deserted as I had expected it to be. Looking at the sky I could see the last shreds of cloud moving off to the east. Orion stood tall looking over the observing pad. I set up my HEQ5, clamped my Nighthawk II into the carrier and connected my camera; then I stepped away to setup my lawn chair and let things cool down.

It was very quiet out on the pad and I sat for about a half an hour just watching the winter sky wheeling overhead as I thought about a target for the night; Orion beckoned saying 'Look at my sword. Is it not splendid?'. I turned the telescope on the Orion Nebula, focused and

opened the shutter.

For company I turned on the radio of my car and started sweeping through the FM band looking for something to listen to. I didn't want popular music as the night was too peaceful for anything loud and news wasn't in keeping with the situation, but there had to be something. As I was turning the tuning knob through an area of static a station came through with some soft Christmas music so I stopped. It turned out to be National Public Radio from the US, though where in the US I couldn't tell. 'Michigan' I thought, 'or perhaps Erie'. I left the radio tuned there even though there was a bit of static and the signal was fading in and out a bit. I settled in my chair.

After some minutes of carols an announcer came on. 'For the enjoyment of all on this festive night NPR is proud to bring you Charles Dicken's 'A Christmas Carol' in it's entirety...'. I don't remember who the narrator was, or where the reading came from but it was perfect, as if the gods looked down on a lonely observer in the dark and held out a cup of finest Gin punch.

The mount tracked noiselessly while the greatest glory of creation dimly lit the cold, dark concrete pad. Periodically I would reach over to start another exposure with Dicken's timeless Christmas prose bathing my soul in such warmth that I lost all track of time and environment.

Somewhere during the night I switched targets to the Crab Nebula, but I couldn't say exactly when. After a while I turned off the camera and the mount and just sat there listening and watching. When the reader got finished with the 'jolly olds' at the end of the tale I just packed up and headed home from one of the most magical times in my half century. The images came out alright too.

Another Christmas is now upon us with the world embroiled in several crises. In these uncertain times I wish all the best to all of you and your's; and, to quote the immortal words of Tiny Tim;

'God bless us... everyone!'

## Moon Phases



December 27 2008



January 2 2009



January 9 2009



January 16 2009

### Letter from the Editor

December 2008

#### Buying gear from the States

I admit it. I am an internet shopping junkie. Whether it is London Kijiji or Astrobuysell or Astromart, I just can't help myself! Every day I find myself going to each of those sites to see what is new to buy. Why just today I purchased a 16mm type 5 Nagler eyepiece from a fellow in the states. (yes you can blame the weather on me for the next week or so...that is astro-vooodoo but I digress) There is one important thing to think about when buying from the states and that is shipping. I found out the hard way that the 'normal' shipping companies cost a fortune to bring stuff across the border. The duty and handling charges are outrageous. I now use the US Postal Service if possible. They have minimal charges for crossing the border and are quick enough. Now bring on the clear skies!

## London Centre Executive

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Find the Polaris newsletters on the internet at: [www.patusratus.ca/Polaris](http://www.patusratus.ca/Polaris)

## LONDON RASC MONTHLY MEETINGS

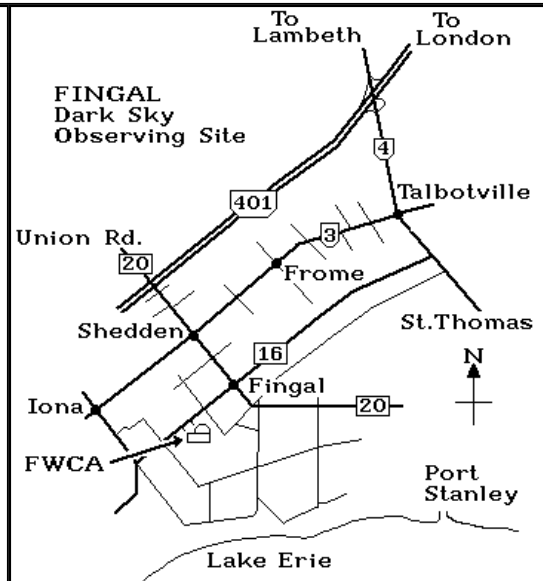
The London RASC group meets at Fanshawe college in London Ontario, September through July on the third Friday of the month at 19:00. They meet in room B1073.

Everyone interested in astronomy is invited to attend and enjoy our guest speaker, member activity and observing reports, announcements of new discoveries and upcoming events, telescopes and telescope accessories show and tell, and other fun activities. Have a look at our future and past activities on our website to see what we are doing.

Parking is free on Friday evenings, and there is plenty of room in the east parking lot off Oxford St. and parking spaces on the south side of B building. Enter the college by B building doors near Oxford Street, just west of the bus stop. College signs at key hallway locations will help you find us. The London RASC webpage can be found at:

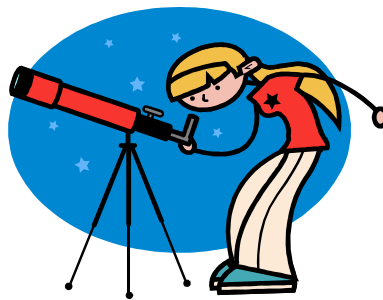
[www.rasc.ca/London](http://www.rasc.ca/London)

They have a preferred observing site at Fingal Wildlife Management area.



## Sky Events for December 2008 and January 2009

December 21 Winter Solstice  
 December 25 Antares 0.1° S of Moon  
 December 27 Venus 1.5° S of Neptune  
 December 29 Mercury 0.7° S of Moon  
 December 29 Jupiter 0.6° N of Moon  
 December 31 Mercury 1.3° S of Jupiter  
 January 03 Quadrantid meteor peak  
 January 04 Mercury greatest elongation E  
 January 14 Venus greatest elongation E



**Jupiter sets during twilight at the end of the month**  
**Saturn is in Leo and rises around midnight**  
**Uranus is in Aquarius all year and sets around midnight**  
**Venus is the evening star and dominates the evening sky**  
**Mars is hiding behind the sun**

### R.A.S.C. London Centre Library Books of the Month December 2008 By Robert Duff

In order to make our library collection available to members, I bring three books to our general monthly meetings. These "Books of the Month" are available for loan, to be returned at the following monthly meeting.

The books for December 2008 are as follows:

The Backyard Astronomer's Guide, by Terence Dickinson & Alan Dyer. Revised Edition. c2002.

NightWatch: a Practical Guide to Viewing the Universe, by Terence Dickinson. Third Edition, Revised and Expanded for Use Through 2010. 1998 (2003 printing).

Kepler's Witch: an Astronomer's Discovery of Cosmic Order Amid Religious War, Political Intrigue, and the Heresy Trial of His Mother, by James A. Connor. c2004.

For a complete listing of our library collection please see our RASC London Centre Web site at:  
<http://www.astro.uwo.ca/~rasc/>

If there is a particular book or video you wish to borrow, please feel free to contact me by telephone at (519) 439-7504 or by e-mail at [rduff@sympatico.ca](mailto:rduff@sympatico.ca)



## Sky and Telescope Subscriptions

Sky & Telescope subscriptions are available at a discounted rate through the London Centre. The cost is \$39.95USD instead of the normal \$49.95USD subscription rate. Please see Bill Gardner for details.

## **Exploring the Stars Cronyn Observatory November 18th—December 11th, 2008**

### **7th Brownies November 18th** By Robert Duff

It was cloudy and lightly snowing when I arrived at the Cronyn Observatory for an evening of Exploring the Stars around 6:30 p.m. on Tuesday, November 18th. I brought the RASC London Centre's photographic display, which I had created for the 2008 General Assembly, and set it up on the table near the east wall of the lecture room.

Graduate student Ryan Marciniak began his presentation with the International Year of Astronomy (IYA) 2009 trailer, before 11 members of the 67th Brownies, including 9 children and 2 adults. Ryan next got into his main presentation, "Earth and Moon," discussing eclipses, tides and craters on the Earth and the Moon. This was followed by an activity called the "Crater Experiment." Dave McCarter arrived around 7:04 p.m. and we listened and added commentary to the presentation.

For the "Crater Experiment" Ryan took everybody outside the front door of the Observatory. Children dropped three progressively larger stones into a rectangular aluminum pan, which had a thin layer of flour on the bottom, overlaid with another thin layer of chocolate powder. The stones created realistic craters with white debris aprons of flour on the surface layer of dark chocolate powder.

We then went upstairs where Ryan showed them the big 25.4cm refractor telescope without opening the dome because it was snowing. Everybody was gone by 8:00 p.m. after what was an interesting evening for the Brownies. I took the RASC London Centre's photographic display, created for 2008 General Assembly, home with me.

### **82nd Sparks November 19th** By Robert Duff

Lightly falling snow ruled out any stargazing for the 82nd Sparks at the Cronyn Observatory on Wednesday evening, November 19th. I arrived around 6:40 p.m., bringing the RASC London Centre's photographic display, which I had created for the 2008 General Assembly, and set it up on the table near the east wall of the lecture room.

Graduate student Amanda Papadimos began her presentation, "Earth / Moon System," before a group of 17 visitors from the 82nd Sparks, including 10 children and 7 leaders and other adults. Another adult arrived sometime later, around 7:35 p.m., bringing the total number of visitors to 18. Amanda answered many questions after her presentation and then took everybody up into the dome to show them the big 25.4cm refractor. We did not open the dome because it was snowing. Afterwards she brought the group downstairs for a session on stars and constellations using the "Starry Night" sky charting software.

Some of the Spark's were impressed by the RASC London Centre's GA 2008 display and two of the leaders

took London Centre brochures to give to school principals. I wrote my name, e-mail address and phone number on the brochures so that they could contact me about organizing school star nights.

The Sparks were gone by 8:00 p.m. and we left the Observatory after Amanda had locked everything up. I took the RASC London Centre's photographic display, created for 2008 General Assembly, home with me.

### **3rd Guides November 26th** By Robert Duff

It was cloudy when the 3rd Guides arrived at the Cronyn Observatory on Wednesday, November 26th, for an evening of Exploring the Stars. I was there by around 6:35 p.m., bringing the RASC London Centre's 2008 General Assembly photographic display and setting it up on the table near the east wall of the lecture room. Dave McCarter also arrived around 6:50 p.m.

Graduate student Amanda Papadimos made her digital slide presentation to the group of 28 visitors, including 23 children and 5 adults. The agenda included the presentations "Constellations" and "Our Solar System." Dave and I set up the RASC London Centre's 25.4cm Dobsonian with the Observatory's 17mm Nagler eyepiece on the roof patio, directing the telescope towards the construction crane to the south.

When Amanda brought the group upstairs she showed them the Observatory's big refractor but did not open the dome. On the roof patio the group viewed the top of the construction crane through the Dobsonian telescope, which Dave illuminated with his green laser pointer, much to the delight of the visitors.

Returning downstairs to the lecture room, Amanda gave the group a constellation tour using the sky charting software "Starry Night." This was followed by a digital slide presentation of "Earth & Moon."

The group was gone by 8:15 p.m. after what had been an interesting evening learning about astronomy, despite the clouds. I took the RASC London Centre's photographic display, created for 2008 General Assembly, home with me.

### **119th Sparks November 27th** By Robert Duff

It was cloudy when the 119th Sparks arrived at the Cronyn Observatory on Thursday, November 27th, for an evening of Exploring the Stars. John Rousom was there when I arrived around 6:35 p.m. I brought the RASC London Centre's 2008 General Assembly photographic display and set it up on the table near the east wall of the lecture room.

As Program Coordinator and doctoral student Alyssa Gilbert began her presentation, "Constellations," John and I went up into the Observatory dome and made ready the big 25.4cm refractor, placing the 52mm Erfle eye-

*(Continued on page 5)*

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piece in the diagonal. We also set up the RASC London Centre's 25.4cm Dobsonian telescope, with the Observatory's 17mm Nagler eyepiece, on the roof patio, directing it towards the construction crane to the south.

When Alyssa brought the group upstairs she showed them the Observatory's big refractor, rotating it on its equatorial mount using the ropes attached to each end of the telescope. She then opened the dome and demonstrated how it could be moved by electric motor by turning a lever. However, they did not look through the big telescope. Instead, the group came out on the roof patio where they viewed the top of the construction crane through the Dobsonian.

It was an enjoyable evening for the 119th Sparks, who numbered 37 visitors in all, including 24 children and 13 adults. Alyssa did one more activity with the group downstairs in the lecture room, which she called "connecting the dots." They were gone by 8:00 p.m. I took the RASC London Centre's photographic display, created for 2008 General Assembly, home with me.

### **Open House November 29th**

By Robert Duff

In addition to the Exploring the Stars events during the week for which groups need to register, there are also Open Houses on the last Saturday of each month from October to April, with the exception of December. These events are free and open to the public. The Saturday evening Open House, November 29th, was a pleasant surprise with clear skies after a week of cloudy nights.

I arrived at the Cronyn Observatory around 7:00 p.m., bringing the RASC London Centre's 2008 General Assembly photographic display and setting it up on the table near the east wall of the lecture room. I also laid out several RASC London Centre brochures. Graduate students Alyssa Moldovan, Amanda Papadimos and Ryan Marciniak were there along with 13 visitors. Two more people arrived later to bring the evening's total of visitors to 15.

I went with Ryan up into the dome to make ready the telescopes, while Amanda Papadimos began her presentation, "Our Solar System." In the dome Ryan made ready the big 25.4cm refractor telescope, placing the 32mm Erfle eyepiece (137X) in the diagonal. We also set up the RASC London Centre's 25.4cm Dobsonian telescope on the roof patio. I placed the Observatory's 17mm Nagler eyepiece (67X) in the focuser of the Dobsonian and eventually found the Andromeda Galaxy (M31), with its satellite galaxy, M32, to the left. M31 was high overhead and a little to the east of the meridian in the early evening sky. The spectacular conjunction of Venus and Jupiter was too low in the southwestern sky to be visible from the Cronyn Observatory because of nearby buildings.

We went down to watch the rest of Amanda's presentation, which emphasized the many small objects of the solar system, including meteors, comets, asteroids and Kuiper Belt objects.

In the dome, Ryan directed the big refractor towards Capella, while I showed the visitors the Andromeda Galaxy in

the Dobsonian. I also showed them the Pleiades star cluster (M45) and the star Aldebaran in the Dobsonian. Ryan showed the visitors Aldebaran in the big refractor, which appeared very bright.

The visitors were gone by 8:30 p.m. after a chilly but enjoyable evening of stargazing. I took the RASC London Centre's photographic display, created for 2008 General Assembly, home with me.

### **1st Bryanston Sparks & Brownies December 2nd**

By Robert Duff

It was cloudy when I arrived at the Cronyn Observatory on Tuesday, December 2nd, around 6:30 p.m., bringing the RASC London Centre's 2008 General Assembly photographic display and setting it up on the table near the east wall of the lecture room. Members of the 1st Bryanston Sparks & Brownies were there, initially totalling some 44 adults and children. The number eventually totalled some 50 visitors, including 29 children and 21 adults, as more people arrived.

Graduate student Ryan Marciniak began his presentation with the International Year of Astronomy (IYA) 2009 trailer. Ryan followed this with the presentation, "Constellations" and the activity, "Earth, Moon & Sun."

I went up into the dome, setting up the RASC London Centre's 25.4cm Dobsonian on the roof patio and making ready the big 25.4cm refractor in the dome. I placed the Observatory's 17mm Nagler eyepiece in the Dobsonian and directed it towards the top of a coniferous tree to the east. I placed the 52mm Erfle eyepiece in the diagonal of the big refractor but kept the dome closed. I went down to watch Ryan make his presentation. Dave McCarter arrived around 6:50 p.m.

Dave and I went upstairs and opened the dome, directing the big refractor towards the lights on the communications tower far to the south. We then went downstairs again to watch the rest of Ryan's presentation.

When the group came upstairs Ryan showed the children and adults views of the communications tower through the big refractor. Groups of 5 children accompanied by adults came out to view the top of the coniferous tree through the Dobsonian.

The group had a good time and were gone by 8:25 p.m. I took the RASC London Centre's photographic display, created for 2008 General Assembly, home with me.

### **IMPACT December 3rd**

By Robert Duff

It was cloudy with a light rain falling when I arrived at the Cronyn Observatory on Wednesday, December 3rd, around 7:00 p.m., bringing the RASC London Centre's 2008 General Assembly photographic display and setting it up on the table near the east wall of the lecture room. In front of the display I laid out the RASC London Centre Library's copy of Terence Dickinson's NightWatch (1998, 2003 printing) along with my copy of the magazine SkyNews (November/

*(Continued on page 6)*

*(Continued from page 5)*

December 2008) and some RASC London Centre brochures.

Graduate student Amanda Papadimos was there to make the evenings presentations. There were 6 visitors, including 5 youth and one adult from a church group called IMPACT. One more young person arrived at 7:34 p.m. bringing the total to 7 visitors, including 6 young people and one adult.

I went up into the dome with the leader of the IMPACT group and with his help hauled out the RASC London Centre's Dobsonian telescope from the storage room. We set it up in the southeast corner of the dome floor and I placed the Observatory's 17mm Nagler eyepiece in the focuser. Since it was raining Amanda had elected not to open the dome and to simply show people the big 25.4cm refractor. I thought to also show them the Dobsonian.

Amanda began her presentation with the International Year of Astronomy (IYA) 2009 trailer. She followed this with the presentation, "Constellations" and then the sky charting software, "Starry Night."

After these presentations Amanda took the group up into the dome and showed them the big refractor, placing the 52mm Erfle eyepiece in the diagonal to explain its use in observing. I showed the visitors the Dobsonian and explained the difference between a reflector and refractor telescope.

I gave the IMPACT group leader a RASC London Centre brochure as he expressed an interest in having a star night at a farm sometime in the spring. The group had a good time and were gone by 8:25 p.m. I took the RASC London Centre's photographic display, created for 2008 General Assembly, home with me.

### **Culture Committee, UWO December 4th**

By Robert Duff

It was cloudy when I arrived at the Cronyn Observatory on Thursday, December 4th, around 6:35 p.m., bringing the RASC London Centre's 2008 General Assembly photographic display and setting it up on the table near the east wall of the lecture room. I also laid out some RASC London Centre brochures in front of the display.

There were 23 members, including adults and children, from the Culture Committee of the University of Western Ontario, seated in the lecture room beneath the Observatory dome. Since more people were expected, Program Coordinator and doctoral student Alyssa Gilbert began with a digital presentation of the short movie, "Powers of Ten." Two more people arrived at 6:53 p.m. bringing the total number of people in the group to 25. Alyssa began her main presentation, "Constellations" and this was followed by a sky tour using the software, "Starry Night."

I went up into the dome and made ready the 25.4cm refractor, installing the 52mm Erfle eyepiece in the telescope's diagonal. Since it was lightly snowing outside I set up the RASC London Centre's Dobsonian telescope in the southeast corner of the dome, placing the Observatory's 17mm Nagler eyepiece in the focuser.

We brought the group up into the dome where Alyssa showed them the 25.4cm refractor. I then showed them the 25.4cm Dobsonian and, since it had stopped snowing, we set it up outside on the roof patio. I invited the visitors to look through the Dobsonian telescope at the top of a coniferous tree to the east of the Observatory.

The group had a good time and were gone by 8:00 p.m. We closed down and left the Observatory. I took the RASC London Centre's photographic display, created for 2008 General Assembly, home with me.

### **31st A Scouts December 9th**

By Robert Duff

It was overcast and lightly raining when I arrived at the Alumni Hall parking lot beside the Cronyn Observatory around 5:50 p.m., on Tuesday, December 9th. Members of the 31st A Scouts were already there with their leaders and we waited inside the entrance of the Engineering Building. In all there were 20 members of the 31st A Scouts, including 15 young people and 5 adults. Graduate student Ryan Marciniak arrived in a few minutes with dry ice and other materials for the evening's activity—making a comet!

I immediately went upstairs with the keys and set up the RASC London Centre's 2008 General Assembly photographic display on the table near the north wall of the Observatory dome. I then placed the 52mm Erfle eyepiece in the diagonal of the refractor and removed the dust cover from the 25.4cm objective lens. I also hauled out the RASC London Centre's Dobsonian telescope and set it up in the southeast corner of the dome, placing the Observatory's 17mm Nagler eyepiece in the focuser.

Ryan began his presentation with the short movie, "Powers of Ten," and then proceeded immediately to the "Kitchen Comet" activity. This was done on the table, which we had pulled away from the east wall enough for Ryan and the Scouts to stand around it. This involved mixing dry ice, water, dirt and molasses (to simulate hydrocarbons) in a Styrofoam container and then packing the mixture into a "snowball." Clouds of water vapour billowed out of the container as Ryan mixed the freezing cold ingredients with gloved hands. We discussed the nature of comets as "dirty snowballs" subliming gas and dust to form a coma and tail as they neared the Sun.

The comet making activity was followed by the digital slide presentation, "Constellations." Dave McCarter arrived around 6:45 p.m. and we helped answer questions about the constellations.

Bringing the group upstairs Ryan gave them a tour of the big 25.4cm refractor but we kept the dome closed because of the rainy outdoor conditions. Dave gave a somewhat detailed talk about the RASC London Centre's activities, using the 2008 General Assembly photographic display, including the advanced deep-sky astrophotography done by some of our members.

The evening, which had started shortly after 6:00 p.m., was over by 8:00 p.m. We advised the Scout leaders

*(Continued on page 7)*

*(Continued from page 6)*

of the Cronyn Observatory's Saturday evening Open Houses during the summer and that the RASC London Centre did star nights at campgrounds.

We closed down the Observatory and I took the RASC London Centre's photographic display, created for 2008 General Assembly, home with me.

### **St. Thomas Aquinas High School December 11th**

By Robert Duff

It was cloudy when I arrived at the Cronyn Observatory on Thursday, December 11th, around 6:35 p.m., bringing the RASC London Centre's 2008 General Assembly photographic display and setting it up on the table near the east wall of the lecture room. It was the last Exploring the Stars event for 2008. Program Coordinator and doctoral student Alyssa Gilbert was beginning her first digital slide presentation, "Mars," before a group of 15 visitors from St. Thomas Aquinas High School, including 11 grade-9 students and 4 adults. This was followed by another presentation, "Telescopes."

I went up into the dome and made ready the big 25.4cm refractor, placing the 52mm Erfle eyepiece (84X) in the diagonal. I also set up the RASC London Centre's 25.4cm Dobsonian on the roof patio, placing the Observatory's 17mm Nagler eyepiece (67X) in the focuser. Bringing the group upstairs, Alyssa talked about the big refractor and explained how the two clocks on the wall showed standard and sidereal time. We then opened the dome and showed the group glimpses of the nearly full Moon through occasionally thinning clouds. I also showed them the Moon through the 25.4cm Dobsonian on the roof patio. It looked bright and silvery at 67X in the Dobsonian when the clouds really thinned. The teacher asked the students to identify features on the Moon, which they had apparently studied previously. She asked me to verify certain features and I identified several maria and the crater Tycho.

We closed the observatory around 9:00 p.m. after what had been an interesting evening for the students, teacher and accompanying parents. I took the RASC London Centre's photographic display, created for 2008 General Assembly, home with me.

## **Of People and Photons and Polarization**

Mark Ingram

Hey peoploids,

It is not simply that visible light is beautiful, nor even that the sky is filled with it; for me, what is appealing about sight is that it comprises an extremely narrow portion of a huge spectrum of frequencies. That is, there is no essential difference between the colour red and a radio wave, or, for that matter, a cancer-causing gamma ray.

My ideal telescope would involve an electromagnetic tuner, so that I could adjust the frequencies of either extreme so as to make them visible light. Then I would have a visible telescope, a radio telescope, and a gamma ray telescope. Oh, what a universe I would see!

For example, which one is brighter in gamma rays, the sun or the moon? Answer next month.

Still, the gamut of light contains one more secret; photons of the same frequency/wavelength can differ from each other in something called polarization.

What I did not know until yesterday however is

that, like some animals (hummingbirds) and insects (bees), human eyes are sensitive to polarization! In fact, it is possible to train one's own eyes to detect differences in the polarization of the incident light. There is a chemical in the rods and cones of the eye that reacts differently to photon spin.

Your mission, should you choose to accept it, is to obtain a (relatively sizeable) crystal of calcite, (neither rare nor expensive), and hold it between your eyes and something. You will see two images, one containing only the light that was polarized in one direction and the other only the other.

I dare you to tell me that your eyes can tell the difference! Not because it isn't there, but because the difference is so subtle.

tffn,

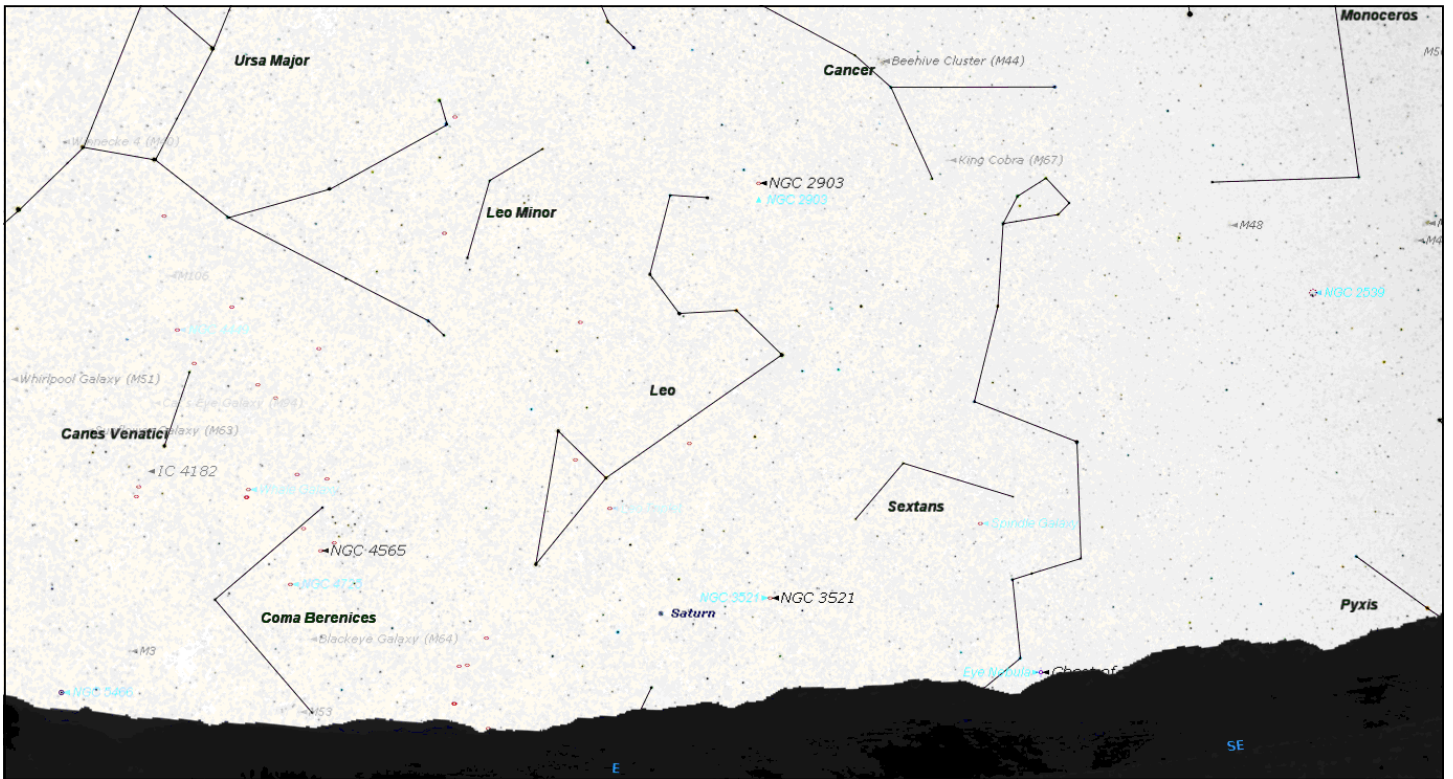
P.S. Next month I explain why photons have a frequency

## **What I Want for Christmas**

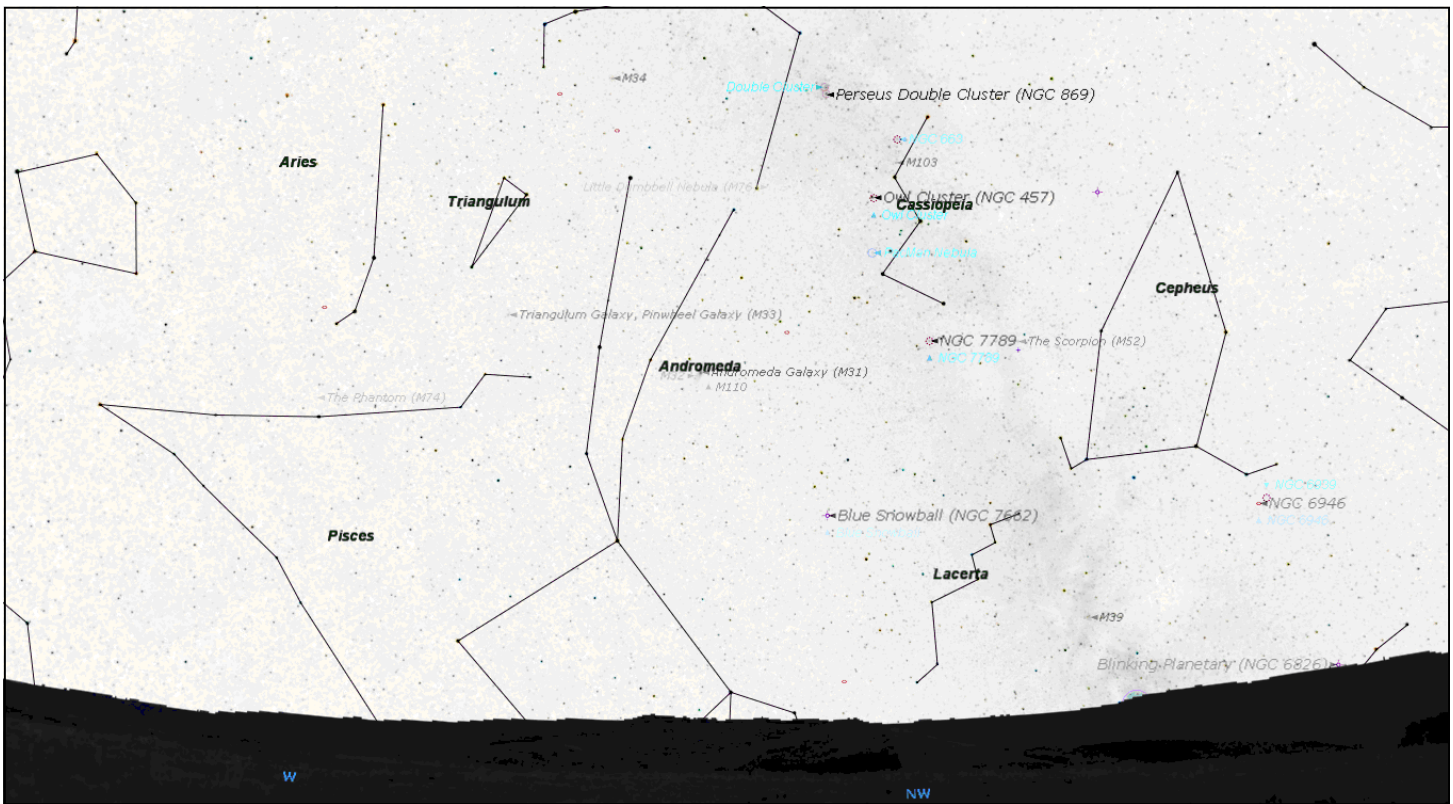
Patrick Whelan

Peace on Earth and goodwill toward all.  
The elimination of wars and armed aggression.  
No more human slaves or the trading of people.  
The elimination of pollution and a global consciousness of the environment.  
The massive production of clean and inexpensive electricity.  
I want the world to stop treating the oceans as a limitless smorgasbord and infinite garbage disposal.  
A really big telescope. Really big.

An observatory in my backyard.  
I want my daughter and all children to be able to grow up without fear and doubt of the future.  
Peace on Earth and goodwill toward all.  
A full set of Naglers and a really big APO.  
I want cars that don't pollute and don't cost a fortune.  
I want clean air everyday, not just a few days a year.  
I want my hair back, all my teeth and I want my back to stop hurting. (yeah okay, I am pushing it with that one)



The view from London on December 31st 1:00am. Saturn is just rising. The Beehive cluster is at top centre.



The view from London looking west on December 31st 1:00am. The Andromeda Galaxy and the Perseus Double cluster.