

# POLARIS



Royal Astronomical Society of Canada  
London Centre Newsletter  
April 2009

## Telescopes By Design Patrick Whelan

**There are three basic types of telescopes.**  
**Refractor (lenses)**  
**Reflector (mirrors)**  
**Catadioptric (mirrors with correcting lenses)**

Refractors are what most people think of when they are asked about telescopes. This was the first type of telescope that was made. Galileo made refractors famous (~1609) when he modified it to have a convex objective lens and a concave eyepiece and then turned his to the sky and became the first astronomer.

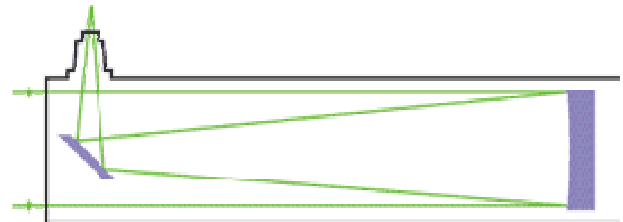
The very first refractor had one lens at the front of tube and an eyepiece at the other end. This gave a very small field of view (the circle of light your eye sees when



looking through it) and also gave a lot of chromatic aberration. Chromatic aberration means that all the colours of light are not focused to a single point and when you look through a primitive refractor you will see purple (or other colours) fringing around bright objects. A huge modification to the refractor was called the achromatic refractor. It uses two pieces of glass: crown glass in the front and flint glass right behind it. This was invented by Chester Moore Hall around 1730. The design immediately became popular and the two joined objective lenses were referred to as a doublet. Over the course of the years, many doublets were created and were known by such names as Littrow, Fraunhofer, and Clark after their inventors. A newer improvement to the refractor is the apochromatic refractor. This uses an exotic glass in the front (often fluorite) or three pieces of glass in the front to virtually eliminate chromatic aberration. Fluorite is expensive and so are apo's! For people who love to view through refractors, the apo is the 'holy grail' of telescopes.

Refractors can only be made so large since the glass will begin to sag under its own weight. In 1897, the refractor reached its maximum practical limit in a research telescope with the construction of the Yerkes Observatory's' 40 inch (101.6 cm) refractor. Dollar per inch refractors are the most expensive type of telescope.

The next type of telescope is the reflector, and the most common of which was named after the famous scientist Sir Isaac Newton. The first Newtonian Telescope appeared in about the year 1668. Isaac Newton was the first person to realize that a small diagonal secondary mirror was needed at the front of the telescope to reflect the light out the side of the telescope for viewing. Newton



was a master at forming and polishing the spherical mirror. It would be many years until he was able to look through a telescope created by someone else and then realize his were the best! Newton ground his own mirrors out of a custom composition of highly reflective speculum metal, using Newton's rings to judge the quality of the optics for his telescopes. (Newton's rings are an interference pattern caused by the reflection of light from a spherical surface and a nearby flat surface) Newtonian reflectors can be made very large since the glass mirror is supported underneath by the mirror cell. Other reflecting telescopes have been invented. Before Newton invented his telescope, Marin Mersenne in 1636 proposed a telescope consisting a paraboloidal primary mirror and a paraboloidal secondary mirror bouncing the image through

*(Continued on page 4)*

## Moon Phases



April 25 2009



May 1 2009



May 9 2009



May 17 2009

### Quick Galileo Facts

February 18, 1564: Galileo born in the Tuscan city of Pisa  
 1581: Galileo at University of Pisa pursues degree in medicine  
 1589: Galileo is lecturer in mathematics at University of Pisa  
 1589-1592: Galileo reportedly makes his famous velocity experiment at the Tower of Pisa  
 1609: News of the invention of the telescope reaches Italy; Galileo develops his own device in August.  
 1609: Galileo makes his first observations using his telescope, discovers uneven surface of the moon  
 January 1610: Galileo discovers four moons orbiting Jupiter  
 March 1615: Papal commission issues edict against Copernican theory; Galileo ordered to cease his support of heliocentricity  
 May 10, 1633: After third interrogation; Galileo begs for mercy  
 December 1633: Galileo is allowed to return to the village of Arcetri, outside Florence, where he lives under house arrest  
 1637: Galileo's eyesight begins to fail.  
 January 8, 1642: Death of Galileo

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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

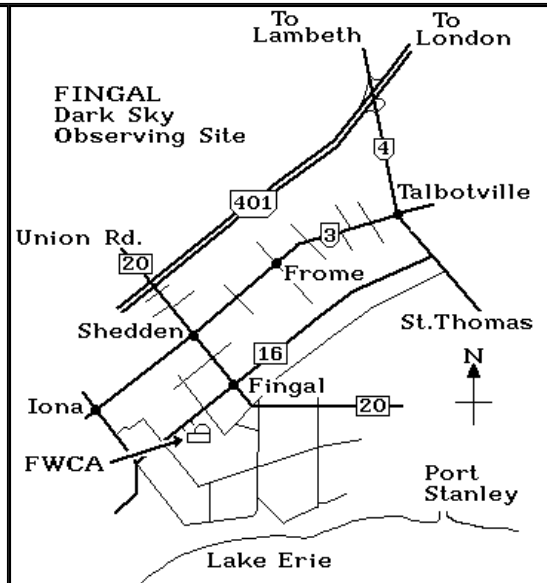
The London RASC group meets at Fanshawe college in London Ontario, September through July on the third Friday of the month at 19:00. They meet in room B1073.

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:

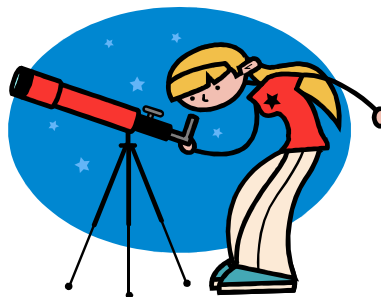
[www.rasc.ca/London](http://www.rasc.ca/London)

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



## Sky Events for March and April 2009

March 20 Equinox  
 March 22 Jupiter 1.5° S of Moon  
 March 30 Moon 0.6° N of Pleiades (M45)  
 April 4 Moon 1.7° S of Beehive (M44)  
 April 13 Antares 0.4° S of Moon  
 April 13 Double shadow transit on Jupiter  
 April 19 Jupiter 2.0 ° S of Moon



**Jupiter is a morning planet**

**Saturn is in Leo and transits around 9:30. The rings are only inclined 3.8°**

**Venus is brilliant at dawn**

**Mars is in Pisces**

### R.A.S.C. London Centre Library

#### Books of the Month March 2009

*By Robert Duff*

Bob Duff can't make it to the meeting this month, so there are no new books.

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 March 2009 are as follows:

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.

Pale Blue Dot: a Vision of the Human Future in Space, by Carl Sagan. c1994.

365 Starry Nights: an Introduction to Astronomy for Every Night of the Year, text and illustrations by Chet Raymo. c1982.

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

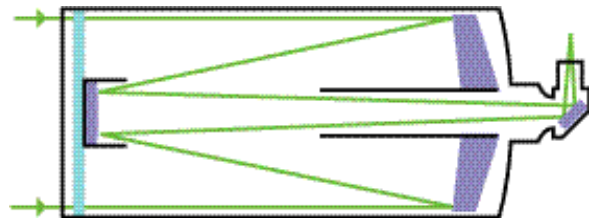
Sky & Telescope subscriptions are available at a discounted rate through the London Centre. The cost is \$39.95USD instead of the normal \$49.95USD subscription rate. Please see Bill Gardner for details.

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a hole in the primary, solving the problem of viewing the image. James Gregory invented a telescope that would correct spherical aberration as well as the chromatic aberration seen in refractors. The design he came up with bears his name: the "Gregorian telescope". Unfortunately he was not skillful enough to build a working example. Another form of reflecting telescope is the Cassegrain reflector. It was devised in 1672 by Laurent Cassegrain. The telescope had a parabolic main mirror and a small convex hyperbolic secondary mirror placed near the prime focus to reflect light through a central hole in the main mirror. The first giant reflecting telescope was William Herschel's great reflector with a mirror of 49 inches (124 cm) and a focal length of 40 ft (12 m) built in 1789! In 1845 Lord Rosse created the 72 inch (183 cm) Newtonian reflector called the "Leviathan of Parsonstown" with which he discovered the spiral form of the galaxies. These mirrors were still made with speculum, which was an alloy of tin and copper. It didn't last very long and needed constant cleaning which changed the mirror and then it needed refiguring. In 1857, Léon Foucault introduced a process of depositing a layer of silver on glass telescope mirrors. This was much for reflective than speculum and when it needed to be changed, the silver coating was removed and then reapplied without changing the mirror. The biggest reflectors in the world in the early 1900's were the 200 inch (508 cm) Hale at Mount Palomar (1948) and then the 238 inch (605 cm) Large Altazimuth Telescope in Russia seventeen years later. There are many larger mirror telescopes today. The Gran Telescopio Canarias has a segmented main mirror that is 10.4 meters in diameter! The Keck observatory has twin 10 meter segmented mirrors! The largest telescope without segmented mirrors is the Large Binocular Telescope. It uses two 8.408 meter (331-inch), F/1.142 primary mirrors to provide a collecting area equivalent to an 11.8 meter (465-inch) circular aperture. By having both the primary mirrors on the same mounting, the telescope will be able to achieve the image sharpness of a 22.8 meter aperture. Boy that is big! Each mirror weighs 16 metric tonnes! A very popular type of Newtonian telescope is the Dobsonian. It was named after John Dobson who invented the mount. Dobson's telescopes featured a simplified mechanical design that was easy to manufacture from readily available components to create a large, portable, low-cost telescope. The Dall Kirkham telescope was invented in 1928. It uses a concave elliptical primary mirror and a convex spherical secondary. Another type of reflecting telescope is the Ritchey Chretien or RC for short. RC telescopes use a hyperbolic primary and a hyperbolic secondary mirror to eliminate coma, thus providing a large flat field of view. They are great for photography but still expensive for the amateur. Almost every professional reflector telescope in the world is of the Ritchey-Chrétien design. It was invented by George Willis Ritchey and Henri Chrétien in the early 1910s.

The last type of telescope is the Catadioptric. These use both curved mirrors and lenses to create a telescope. The lenses are used to 'fine tune' the performance of the mirrors. The most popular Catadioptric is the Schmidt-Cassegrain.

This design uses a spherical primary mirror and a Schmidt corrector plate to correct for spherical aberration. It also uses a convex secondary mirror. Spherical surfaces are easier to make than parabolic or hyperbolic so this design is less expensive to make. They have been very popular in amateur astronomy for years and most manufacturers make a number of them. There are some Schmidt-Cassegrains that do not use spherical mirrors but they are in the minority. Another Catadioptric telescope is the Maksutov-Cassegrain. It uses a front corrector lens that when looked at from the front is very concave. The main mirror and the corrector are usually spherical making it economical to manufacture. The secondary mirror is usually a silvered dot on the inside of the front corrector. They are normally longer focal lengths than the Schmidt-Cassegrains and have a smaller secondary so they have better performance at high magnifications. The



Maksutov-Cassegrain design has been used extensively in military, industrial, and aerospace applications. Since all of the optical elements can be permanently fixed in alignment and the tube assembly can be environmentally sealed the design is extremely rugged. Another Catadioptric is the Maksutov-Newtonian. It is similar to the Newtonian reflector with the addition of the Maksutov corrector to the front of the telescope. They can be short focal length telescopes (as opposed to Maksutov-Cassegrains) and have a small secondary so they have good contrast and are still capable of high magnifications. Still another type of Catadioptric telescope is the Schmidt-Newtonian. It is similar to the Maksutov-Newtonian but it uses the fairly flat Schmidt corrector plate while keeping the main mirror spherical. These telescopes usually have very short focal lengths and excel in wide views of the sky with minimal spherical aberration and coma. They are not very good at high magnification.

There are other telescopes out there. There are rotating pools of mercury that are used as telescopes for example. There are folded refractors and off-axis Newtonian telescopes and many others. A quick search on the internet will yield some amazing designs!



Just to let you know, the Hubble telescope is a Ritchey-Chrétien telescope.

## **100 Hours of Astronomy, RASC London Centre, April 2nd—5th, 2009**

**By Robert Duff**

### **100 Hours of Astronomy at Chapters Bookstore (North), April 2nd and 4th, 2009**

#### **Chapters North, April 2nd**

John Kulcycki reported in his April 3rd e-mail, “100 hours at Chapters North Last night,” that Gary Hinks, Peter Jedicke and he had a good time Thursday evening, April 2nd. There were about 50 people looking through Gary’s 80mm and John’s 90mm refractors. One group was there having seen the poster(s). John had distributed posters to the Masonville Public Library and four elementary schools. They started at 7:30 p.m. and packed up after 9:00 p.m. as some rain started to fall.

#### **Chapters North, April 4th**

Peter Jedicke reported an excellent evening at Chapter’s North (86 Fanshawe Park Road East). RASC London Centre members were kept busy with 4 telescopes and some 130 Galileo Moment cards were handed out. Patrick Whelan and his daughter Bridget brought their Bushnell Ball-Scope and showed people the Moon. Patrick reported that a member of the RASC Hamilton Centre, and Western student, brought her 20.3cm Dobsonian.

John Kulcycki, who brought his 90mm refractor, reported that there was another flurry of activity after Peter left and they ran out of GM cards. They packed up at 10:30 p.m. and overall there were 150 people. Many people were unaware that there was an astronomy club in London. Add this to the 50 people who showed up Thursday and John suggested this was a good argument for another Chapters star night in September.

### **100 Hours of Astronomy at Chapters Bookstore (South), April 4th, 2009**

We had a really successful 100 Hours of Astronomy star night at Chapters Bookstore (South), 1037 Wellington Road, London, Saturday evening, April 4th, 7:30—10:00 p.m.

In all, 6 RASC London Centre members, and 2 non-members including Eric’s son Ben, turned out with 8 telescopes. Eric Clinton was there with his 130mm Astrophysics Starfire refractor, accompanied by his daughter and son Ben, who brought their 127mm Celestron Schmidt-Cassegrain. Others members included Jeff Harrison, with his 101mm Maksutov, Bill Gardner with his 101mm refractor, Steve Imrie with his 20.3cm Dobsonian, Mike Hanes with his 12 ½-inch (32cm) home-built Dobsonian, myself with my 20.3cm Dobsonian and a non-member, Simon Goveia, with his 20.3cm Dobsonian.

We set up on the grassy and somewhat muddy strip along Wellington Road. I spoke briefly with the manager inside the Chapters Bookstore and looked at the astronomy books display set up by the staff for the occasion. A store staff member also came out to see us and I gave him 20

RASC London Centre brochures to put with the display.

We had an estimated 50 to 60 people look through our telescopes. Eric, Bill and I handed out Galileo Moment cards. We showed them the Moon, Saturn and at least one member showed them the Orion Nebula (M42) despite the glare from the parking lot lights.

Members reported their impressions in e-mail messages (April 5th) on our RASC London Centre List serve. Mike Hanes reported that the Moon (which was gibbous) was in perfect phase for viewing. Bill Gardner mentioned a grade-6 girl currently learning about astronomy in school being absolutely enthralled by views of the Moon and Saturn. He also reported observing a meteor breaking up, roughly between the Moon and Saturn.

We packed up around 10:00 p.m. and some of us, Mike, Bill, Jeff, Simon and myself went to Tim Horton’s, just south Hwy 401, for refreshments and discussion.

Many thanks go to all the astronomers associated with the RASC London Centre who turned out to make this splendid and enjoyable 100 Hours of Astronomy event possible.

### **100 Hours of Astronomy at the London Regional Children’s Museum, April 3rd, 2009**

Dave McCarter reported in his April 4th e-mail (Subject: 100 Hours – Children’s Museum) on the RASC London Centre list serve that while nasty weather put a stop to observing, they set up a data projector and laptop computer in the Festival Room on third floor—a one-time venue for London Centre meetings. Simon Goveia was there with his 90mm Maksutov telescope and Dave had his 80mm refractor. They were also assisted by Anne Wen of the Space Society of London (SSoL). Dave presented a sky tour with the software, “Stellarium,” zooming in on the Moon and Saturn and showing several constellations. Illuminating the constellation art provoked “ahs” and “ohs” among the audience of 10 adults and 20 children. They were informed of the Kid’s Activities Saturday afternoon and observing in the evening at the Cronyn Observatory.

### **100 Hours of Astronomy at the Cronyn Observatory, April 4th –5th, 2009**

Graduate students and RASC London Centre members had a clear and busy night at the Cronyn Observatory on Saturday, April 4th. Stuart Happy brought his 20.3cm Dobsonian telescope and reported that Mike Roffey had set up the London Centre’s 25.4cm Dobsonian along with his 102mm Celestron Go-To refractor. In all there were 4 amateur telescopes set up. Dave McCarter set up his 80mm refractor. Dave eventually counted 59 people, including one person who said they had been at Chapters North and heard about the event at the Cronyn. A mother and child, who had been at the 100 Hours of Astronomy event at the London Regional Children’s Museum, the previous (Friday) evening, came to view Saturn through a telescope. Dave said that the big 25.4cm refractor in the dome did not disappoint and

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many children got back in line several times.

The students held a Space Society of London (SSoL) cake-cutting at 9:00 p.m. and there was a short talk about the IYA2009 Opening Ceremonies in Paris. Everybody then went back upstairs to continue observing. Dave counted 59 people at the Cronyn Saturday night.

Dave McCarter reported that while it was cloudy on Sunday, April 5th, graduate student Amanda Papadimos did make a digital slide presentation and gave a tour of the Cronyn Observatory dome to three university students, which was well received.

### **100 Hours of Astronomy at Fingal, April 4th, 2009**

Members reported their impressions in e-mail messages (April 5th) on our RASC London Centre List serve. Craig Levine reported that he and Pete Raine, Cheri McCracken and Marc Stevens had 6 or 7 telescopes set up at Fingal Wildlife Management Area on Saturday evening, April 4th. In all, 12 people showed up early in the evening, including a new member of two weeks and another lapsed member. However, Cheri McCracken reported that two more people showed up after Craig left, bringing the total to 14, and Marc Stevens, who remained with Pete Raine until near dawn, put the final total at 16.

Craig showed the visitors view of the Moon, Saturn and the Orion Nebula (M42) through his 13.1-inch (33cm) Dobsonian. The UHC filter really brought out the detail in the Orion Nebula [ M42] and wowed the observers, reported Craig.

Pete Raine reported that he and Marc Stevens had a mini-Messier run, with M13 and M92 looking "really nice right overhead" and had their first look at M57 for the year. They also did some deep-sky digital imaging of the Sagittarius / Scorpius Milky Way region and Pete made some exposures of the Lagoon Nebula (M8) in his 60mm refractor and the Moon earlier in the evening.

### **Exploring the Stars, Cronyn Observatory March 17th—April 9th, 2009**

**By Robert Duff**

Please note that I attended most of these Exploring the Stars events and brought the RASC London Centre's 2008 General Assembly photographic display as well as copies of the book, "Mary Lou's New Telescope," "Star Finder" planispheres and extra Galileo Moment (GM) cards with me.

#### **Exploring the Stars IYA Open House,, March 17th**

Cloudy skies with some hazy transparency greeted some 50 visitors to the Cronyn Observatory for the Exploring the Stars IYA Open House, Tuesday, March 17th from 19h—22h. I brought the RASC London Centre's 2008 General Assembly photographic display. Graduate student Ryan Marciniak made a digital slide presentation, "Star Formation & Evolution." Clouds and sky haze made viewing Venus and the 19:39h ISS pass impossible and Dave McCarter and I settled for showing hazy views of the star Sirius through the 25.4cm dome refractor and Sirius, Capella and Procyon through the 25.4cm Dobsonian. Graduate stu-

dent Emily McCullough brought a group of 11 students for a tour of the dome and Dave removed the dust covers on the Schmidt camera and Cassegrain telescope (both riding piggyback on the big refractor) for a first time view (for us) inside these instruments! Ryan distributed Galileo Moment cards and the Open House ended around 9:00 p.m.

#### **Exploring the Stars IYA Open House, March 18th**

The sky was cloudy with some hazy transparency for the Exploring the Stars IYA Open House at the Cronyn Observatory on Wednesday, March 18th. Graduate student Amanda Papadimos began her presentation with the IYA trailer and followed it with "Comets & Asteroids." There were 32 adults and children present and 4 more people arrived at the end of the evening for a total of 36 visitors. People viewed communications tower in south London through the big 25.4cm refractor in the dome and the top of a coniferous tree in the Dobsonian. Thinning of the hazy clouds allowed people to view the stars Sirius, Capella, Procyon and Castor. A gave one lady with her family from Toronto two copies of the book, "Mary Lou's New Telescope" (including one for her Brownie group), two "Star Finder" planispheres and four GM cards. A family of four arrived late and, after a brief tour by Amanda of the refractor in the dome, I gave them a copy of "Mary Lou's New Telescope" and pamphlet, "Become a Sidewalk Astronomer," as well as three GM cards.

#### **Exploring the Stars IYA Open House, March 19th**

Clouds, snow flurries and then clear sky greeted 18 visitors to the Cronyn Observatory for an Exploring the Stars IYA Open House on Thursday, March 19th. Following a digital slide presentation of "Life in the Universe," by graduate student Alyssa Gilbert, visitors enjoyed views of Venus, located by Dave McCarter in the big 25.4cm refractor, low in the western twilight sky. It appeared as a thin crescent at 84X in the 52mm Erfle eyepiece. As we waited for the sky to darken Dave gave an informal talk on Galileo and telescopes. With the darkening sky I located Saturn in the 25.4cm Dobsonian, using the 17mm Nagler eyepiece (67X) and then the 6mm Orthoscopic eyepiece (190.5X). Dave also showed people Saturn in the big refractor with the 16mm eyepiece (274X). The Orion Nebula (M42) also made a fine sight in the 25.4cm Dobsonian, using the 17mm Nagler eyepiece (67X). I also tried using the Observatory's 2-inch Orion Light Pollution Filter, which noticeably enhanced the contrast of the Orion Nebula. Everybody had a good time and GM cards were distributed to the visitors.

#### **62nd Pathfinders, Tuesday, March 24th**

Cloudy skies ruled out observing for the 62nd Pathfinders (6 children and 3 adults) on Tuesday, March 24th. After showing the IYA trailer, graduate student Ryan Marciniak made the digital slide presentation, "Scales & Patterns," followed by the video "Powers of Ten." Dave McCarter arrived around 7:15 p.m. We showed the group

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the communications tower in south London through the 25.4cm refractor in the dome, using the 52mm Erfle eyepiece (84X). Ryan made a second digital slide presentation, "Life in the Universe," and this was followed by a sky tour with the software, "Starry Night." We distributed and assembled the "Star Finder" planispheres and also gave out Galileo Moment cards.

### **Space Society of London (SSoL), March 25th**

Clouds and rain greeted fellow RASC London Centre member Mike Roffey and me at the Cronyn Observatory for Exploring the Stars, Tuesday, March 25th, 19h. Graduate student Amanda Papadimos made the digital slide presentation, "Comets & Asteroids" before a group of 7 members of the Space Society of London (SSoL). We showed off the Observatory's big 25.4cm refractor as well as the RASC London Centre's Dobsonian inside the dome because of the rain outside. It was an interesting evening with some discussion.

### **Sparks, Thursday, March 26th**

Following a showing of the IYA 2009 trailer, graduate student Alyssa Gilbert presented the activity, "Earth Moon System," before a group of 16 visitors, including 12 Sparks (children ages, 4-5) and 4 adults. Since it was still cloudy we showed them the communications tower in south London through the 25.4cm refractor in the dome, using the 52mm Erfle eyepiece (84X). They also viewed a coniferous treetop to the east through the RASC London Centre's 25.4cm Dobsonian telescope, using the 17mm Nagler eyepiece (67X), set up on the roof patio. Alyssa gave the group a copy of "Mary Lou's New Telescope" and Galileo Moment cards. The sky cleared out later in the evening after the Sparks had left but hopefully some will return on a clear night for some observing at the Cronyn.

### **Exploring the Stars Open House, Saturday, March 28th**

Cloudy skies greeted RASC London Centre member Mike Roffey and me when we arrived at the Cronyn shortly before the Saturday evening Open House, March 28th, at 20h. Graduate student Alyssa Gilbert made the digital slide presentation, "Earth/Moon System" before a group of adults and children, which eventually reached 70—80 visitors. Mike and I made ready the big 25.4cm refractor in the dome and the RASC London Centre 25.4cm Dobsonian on the Observatory's roof patio. Since it was cloudy, we showed people a red light communications in the tower in south London through the big refractor, first using the 52mm (84X) and then the 32mm (137X) Erfle eyepieces. I also showed people a coniferous treetop to the east through the Dobsonian, using the 17mm Nagler eyepiece (67X). Alyssa distributed Galileo Moment cards to the people and we encouraged them to return to the Cronyn again on a clear night.

### **53rd Brownies, Tuesday, March 31st**

Graduate student Ryan Marciniak made the digital slide presentation, "Our Solar System," before a group of 20

visitors from the 53rd Brownies, including 16 children and 4 adults. They asked many questions and this was followed by the activity, "Kitchen Comet," in which Ryan made a comet using dry ice, water, dirt and molasses. Generally cloudy skies ruled out observing and Ryan showed them the big 25.4cm refractor in the dome while I explained the RASC London Centre Dobsonian, also set up inside the dome with the 17mm Nagler eyepiece installed. Ryan distributed Galileo Moment cards and also gave the group a copy of the book, "Mary Lou's New Telescope." The group had an enjoyable evening and I gave one lady a RASC London Centre brochure.

### **1st London Brownies / Guides / Pathfinders, April 1st**

A clear sky greeted 9 visitors (6 children and 3 adults) from the 1st London Brownies / Guides / Pathfinders. Graduate student Amanda Papadimos made the digital slide presentation, "Constellations." Dave McCarter and I were there. We showed the group both the Moon and Saturn through the 25.4cm refractor in the dome and the 25.4cm Dobsonian on the roof patio. We also observed an International Space Station (ISS) pass at 8:05 p.m. and I managed to track it with the Dobsonian. (It appeared as a small flying rectangle.) Amanda helped the group assemble "Star Finder" planispheres and gave out Galileo Moment cards.

### **Exploring the Stars, April 2nd, 2009**

There were no RASC London Centre members present at the Cronyn Observatory for Exploring the Stars on Wednesday, April 2nd. Graduate student Alyssa Gilbert reported in her e-mail, "Exploring the Stars," dated April 3, 2009, that there were 14 visitors from the 67th Sparks (8 children and 6 adults) at the Cronyn for Exploring the Stars on April 2nd, shortly after 6:00 p.m. Because it was likely to rain later, they looked at the Moon in the daytime sky first. She then made a shortened version of the digital slide presentation, "Constellations." This was followed by an Ursa Major "dot-to-dot" exercise and a tour of the night sky using "Starry Night" sky charting software. The group left around 7:30 p.m.

### **1st Strathroy Beavers, April 7th, 2009**

Graduate student Ryan Marciniak made the digital slide presentation, "Our Solar System," before a group of 35 visitors from the 1st Strathroy Beavers, including 23 children and 12 adults, on a cloudy Tuesday evening, April 7th. They asked many questions. Ryan demonstrated the group the big 25.4cm refractor and cautiously opened the dome with due regard for occasional light snow flurries. I demonstrated to the 25.4cm Dobsonian to the group also set up inside the dome. Ryan ended the evening with a tour of the night sky using "Starry Night" sky charting software and distributed Galileo Moment cards. The group left by around 9:00 p.m.

### **St. Thomas Aquinas High School, April 8th, 2009**

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Generally clear skies greeted 17 members of the grade 9 class from St. Thomas Aquinas High School, including 13 students, one child and 3 adults. Graduate student Amanda Papadimos showed them the digital slide presentation, "Mars and Telescopes." Dave McCarter, Stuart Happy and I were there from RASC London Centre. We made ready the big 25.4cm refractor in the dome and the Dobsonian on the roof patio. Amanda brought the group into the dome and explained the big telescope. Using 32mm Erfle eyepiece (137X) Dave showed them the nearly full Moon and Saturn. I showed them the Moon and Saturn in the Dobsonian with the 17mm Nagler eyepiece (67X). Amanda distributed Galileo Moment cards to the group at the end of a successful evening slide presentation followed by observing.

### 29th Scouts, Exploring the Stars, April 9th, 2009

#### Reported by Stuart Happy and written by Robert Duff

Members of the 29th Scouts enjoyed an evening of Exploring the Stars at the Cronyn Observatory on Thursday, April 9th. Graduate student Alyssa Gilbert made the digital slide presentation, "Life in the Universe."

RASC London Centre member Stuart Happy reported in his e-mail, dated April 10th, on our London Centre list serve, that there were 14 people at the Cronyn Observatory, including 9 Scouts, 2 leaders and 2 parents with one daughter. Stuart reported that Alyssa "did a great job" discussing the possibility of extraterrestrial life, such as on Jupiter's moon, Europa, and Saturn's moon, Titan. She may have lost them on the Drake Equation. A little more than half the audience raised their hands when Alyssa took a count at the beginning of the presentation, of those who thought there might be life elsewhere in the universe. However, when Stuart's asked that the count be repeated at the end of the discussion, every hand went up.

Because of clouds Alyssa showed the visitors views of the communications tower to the south through the big 25.4cm refractor. Stuart described the sky as not very cooperative; however, a break in the clouds afforded a view of Saturn through the 25.4cm Dobsonian, using the 17mm Nagler eyepiece (67X). Stuart also used a 12.5mm Plossyl eyepiece (91X) with success. The Moon was too low in the sky and obstructed by clouds to observe. The overall response of the Scouts to the star night was enthusiastic and Alyssa distributed Galileo Moment cards to the group.

### 88th Pathfinders, Exploring the Stars, April 14th, 2009

Graduate student Ryan Marciniak made a digital slide presentation on "Constellations" before a group of 24 visitors from the 88th Pathfinders, including 15 Pathfinders and 9 adults, on Tuesday evening, April 14th. This was followed by a sky tour with "Starry Night" software and another presentation, "Life in the Universe." Stuart Happy and I helped field some of the many questions. Since it was cloudy Ryan showed everybody the big 25.4cm refractor in the dome and Stuart and I hauled out the RASC London Centre's Dobsonian to show them what a reflecting tele-

scope looked like. Ryan distributed Galileo Moment cards to the group at the end of an interesting evening

### Star Night, Wilfrid Jury Public School, March 30th, 2009 By Robert Duff

In his March 30th e-mail, concerning the Wilfrid Jury Star Party, Dave McCarter reported spending a great morning with 20 young children (ages 4—6) at Wilfrid Jury Public School. They were from diverse backgrounds and their favourite planets were Saturn and Pluto. Most wanted to go to the Moon, as long as they were accompanied by their parents, brothers and sisters.

Dave made a PowerPoint presentation and reported that the new projector was "amazingly sharp" and provided "great colour." He also talked about shooting stars and showed them some meteorites.

On the evening of that same day, Monday, March 30th, we had a star night at Wilfrid Jury Public School. Arriving around 6:45 p.m., Dave set up 3 telescopes, including his 25.4cm Dobsonian, 90mm Meade Maksutov, and 80mm refractor. I brought my 20.3cm Dobsonian. In all, we had 4 telescopes. A total of 47 visitors, including adults and children showed up.

The sky was very clear and people enjoyed the views through our telescopes. The near First Quarter Moon was high overhead and looked good at 49X (25mm eyepiece) and 174.3X (7mm Nagler eyepiece) in my 20.3cm Dobsonian. Great view were also obtained at 174.3X (7mm Nagler eyepiece) of Saturn and the Orion Nebula (M42).

We also observed a pass of the International Space Station (ISS) shortly before 9:00 p.m. Coming in from the northwest, the ISS passed overhead and disappeared in the southeast. I managed to track the ISS in my Dobsonian at 174.3X and it appeared as a double rectangle with its two large solar panel arrays.

We distributed Galileo Moment cards at the end of what was a successful evening of stargazing.

