

# POLARIS



Royal Astronomical Society of Canada  
London Centre Newsletter  
May 2007

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## The Kids Book of the Night Sky

By Ann Love, Jane Drake and Heather Collins

A Book Review

by Bridget Whelan

This book is good because it said how to do many things with the sun and other things in the sky. There are some jokes in there as well. I learned a lot so far. Did you know that particles from the sun sometimes reach earth, or in the daytime the sun is not the only star in the sky? Now some jokes to end this paragraph.

Are there ticks on the moon?  
Of course, Luna-ticks!

Where do astronauts park their spaceship?  
At the parking meteor!

Always use a flashlight with red material on it because it helps you see better in the night. If you don't it will look very dark outside when its just dark. In the book it tells how to keep track of what you find in the sky. Here is how:

You will need a spiral-bound notebook, a pencil, string and a ruler. Tie a piece of string around the end of the pencil and secure it to the notebook's spiral binding. Use the ruler to divide the pages into columns. Label the columns "Date", "Time", "Place", "Aids" (telescope, binoculars, naked eye) and "Sightings". If you have a regular viewing spot note a landmark, such as the sky above a tree. Track the movements of the stars by recording what is visible in the sky in that spot each night you skywatch. If you see something you can't identify, sketch it in your book and look it up later.

(Bridget is a budding amateur astronomer. She is in grade three and is 9 years old.)





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## Star Night: Beachville Public School, April 26th, 2007

By Robert Duff

Peter Jedicke gave a well-received digital slide presentation in the gymnasium of Beachville Public School to about 35 students and parents on the evening of Thursday, April 26th. Jeff and Tracy Harrison had originally

organized a star night but heavy rain led to its cancellation. Peter and Dianne Jedicke, Jeff Harrison and Bob Duff took part in the event. Jeff brought his 20.3cm Dobsonian telescope to demonstrate to the group.

Moon Phases	
	May 16 2007 19:27
	May 23 2007 21:03
	June 1 2007 1:04
	June 8 2007 11:43

**Letter From the Editor**  
**Erratum**  
**Patrick Whelan**

First I must admit that mistakes can and do happen. Last issue I didn't give credit to Robert Duff for his article on past member Grant Carscallen. I am sorry for the error Robert.

**London Centre Executive**

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 Dave McCarter

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 Patrick Whelan

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 Robert Duff

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 Joe O'Neil

## LONDON RASC MONTHLY MEETINGS

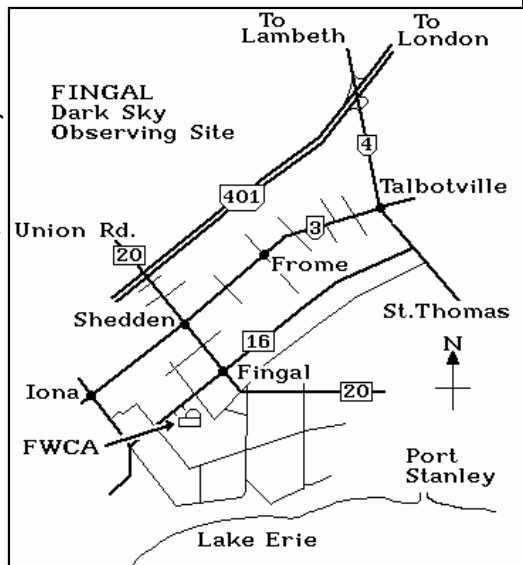
The London RASC group meets at Fanshawe college in London Ontario, September through July on the third Friday of the month at 19:00. They meet in room B1073.

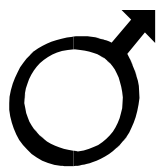
Everyone interested in astronomy is invited to attend and enjoy our guest speaker, member activity and observing reports, announcements of new discoveries and upcoming events, telescopes and telescope accessories show and tell, and other fun activities. Have a look at our future and past activities on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

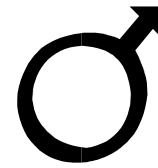
The London RASC webpage can be found at:  
**[www.rasc.ca/London](http://www.rasc.ca/London)**

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





# Mars: God of War



Patrick Whelan

## Mythology

Mars (Ares to the Greeks) was the Roman god of war. He was the son of Juno and either Jupiter or a magical flower. At first he was the god of fertility and vegetation and protector of cattle. His major festival was the Quinquartus, five days of celebrations during the spring equinox, in both his and Minerva's honor. As the Roman empire began to expand (by war) he was associated with war and the Greek god Ares. Ares had twins with the goddess Aphrodite: Phobos (panic) and Deimos (fear). Mars was also believed to be the father of Romulus and Remus, the founders of Rome. The name survives to this day as references to things military, such as martial arts or martial law.

## Planet Facts

Mass (kg) 6.42 x 10<sup>23</sup>  
 Diameter (km) 6787  
 Mean density (kg/m<sup>3</sup>) 3940  
 Escape velocity (m/s) 5000  
 Average distance from Sun 1.524 AU (227,936,640 km)  
 Rotation period (length of day in Earth days) 1.026  
 Revolution period (length of year in Earth days) 686.98  
 Obliquity (tilt of axis degrees) 25  
 Orbit inclination (degrees) 1.85  
 Orbit eccentricity (deviation from circular) 0.093  
 Maximum surface temperature (K) 310  
 Minimum surface temperature (K) 150  
 Visual geometric albedo (reflectivity) 0.15  
 Highest point on surface Olympus Mons (about 24 km above surrounding lava plains)  
 Atmospheric components 95% carbon dioxide, 3% nitrogen, 1.6% argon  
 Surface materials basaltic rock and altered materials

## Spacecraft to Mars

The first missions to Mars were fly-bys. Mariner was launched on Nov 4, 1964 but did not reach Mars. Mariner 4 was launched Nov 28, 1964

and flew by Mars July 14, 1965. It took the first closeup photos of Mars which showed a cratered terrain and what seemed to be frost in the chilly Martian evenings. Mariner 6 and 7 were launched in 1969 (February 24 and March 27). They flew over the equator and the poles and analyzed the Martian soil and atmosphere. Their approach pictures showed, once and for all, that there were no canals on Mars as was thought in the 1800's.

The next missions were orbiters. Mariner 8 failed during launch in 1971 but Mariner 9 was launched the same year and went into orbit around Mars. It compiled a global mosaic of high quality photographs revealing a very different Mars than what was expected. It had giant volcanoes and a grand canyon that stretched 4,800 kilometers across. It mapped 100% of the surface. There were quite a few missions that failed in their bid to reach Mars. This has plagued not only NASA but other countries as well.

After Mariner 9, NASA sent Viking 1 and 2. The Viking 1 lander touched on Mars on July 20, 1976 and the Viking 2 lander touched down on September 3, 1976. The both carried a myriad of scientific instruments and also carried out 3 biological experiments designed to search for signs of life. They continued to relay data back to earth until 1982.

The latest missions to Mars are probably the most famous. In June and July 2003 Spirit and Opportunity launched toward Mars. They arrived in January 2004 on opposite sides of the planet. They are sophisticated robots that have trekked kilometers across Mars with identical science instruments on board. They have taken over 100,000 high-res photos of the Martian terrain as well as microscopic images of rocks and the soil. They have continued to perform science on Mars all this time! They had an initial 'warranty' of 90 days, and after close to 3 years they are still operational. For updates on what they are doing RIGHT NOW go to: <http://marsrovers.nasa.gov/mission/status.html>.

## Sky Events for May and June 2007

May 20, Venus 1.7° S of the Moon  
May 21, Moon 1.4 N° of the Beehive (M44)  
May 22, Saturn 0.8°S of Moon (occultation for NW Canada)  
May 23, Regulus 0.7°S of Moon (occultation for NE tip of Canada)  
May 28, Spica 1.4 N of the Moon  
June 1, Antares 0.4°N of Moon  
June 5, Jupiter at opposition  
June 9, Double shadow transit on Jupiter  
June 13, Venus 0.6 N° of the Beehive (M44)  
June 13, Moon 0.9 N of the Pleiades (M45)  
June 16, Double shadow transit on Jupiter



Venus can be seen as a bright object in the southwest sky in the evening. Venus will be the evening "star" in the spring of 2007.

**Saturn shines at magnitude 0.4 in Leo and sets 1 hour after midnight.**

**Jupiter is now the most prominent planet and rises in mid evening. The moons are fascinating to observe.**

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

### Books of the Month

*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 May 2007 are as follows:

Burnham's Celestial Handbook: an Observer's Guide to the Universe Beyond the Solar System, by Robert Burnham. Revised and Enlarged Edition. c1978.

Volume Three, Pavo—Vulpecula.

Webb Society Deep-Sky Observer's Handbook, compiled by the Webb Society; edited by Kenneth Glyn Jones. 1979-1990.

Volume 4, Galaxies.

Star Ware: the Amateur Astronomer's Ultimate Guide to Choosing, Buying, and Using Telescopes and Accessories, by Philip S. Harrington. c1994.

For a complete listing of our library collection please see our RASC London Centre Web site at:

<http://www.astro.uwo.ca/~rasc/>

Simply scroll down the Web page and click on library of astronomy books under the section, Benefits of Membership, or go directly to the Library Web page at: <http://www.astro.uwo.ca/~rasc/Library.html>

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.

## THE FERMI PARADOX

by Richard L. Gibbens

Excerpted from *Fine Lines II* Copyright 1998

Dr. Anne Sawyer, astronaut and would-be exobiologist, was in even a more dejected mood as she walked without strain in the lower Martian gravity to take her seat in the Conference Room with the other scientists at the base camp they had established six terrestrial months before. Dr. William Cosgrove, the chief robotics engineer, was the chairperson for this historic meeting. In all, there were 29 men and women at the Port Lowell Base and all except the safety engineer were present within this room.

"I will start off this meeting," said Dr. Cosgrove, "by congratulating everyone present for the hard and diligent work you have all done. I feel with you and the folks back on faraway Earth, the overwhelming sense of disappointment over the negative results of our searches here, and also those sent back by our robot probes elsewhere in the solar system. I will now turn this meeting over to Anne who wrote the report about the Martian explorations of the search for micro-organisms on this planet."

Anne Sawyer, a tall woman in her mid-30's, crossed the floor and shook hands with Cosgrove and then began to deliver her address to the other scientists present.

"This is the end of an era, beginning with Percival Lowell onward to scientists who up until the late 1950's believed that vegetation probably in the form of lichen grew on Mars, resulting in the colour changes seen by Earth-bound telescopes. We now know that not only are there no Martian princesses, but not even endogenous micro-organisms on Mars at any time in its history. It would appear that the discipline that I specialised in is without subject matter."

For an hour and twenty minutes Sawyer explained the painstaking searches of her crews in boring into the surface where there was in some cases water under pressure. She said that they did not find any signs of alien biological organisms where they should have existed if life had ever evolved on the Red Planet when it had thicker atmosphere and running water on its surface.

She explained how helium balloons floating in the thin Martian atmosphere had detected no micro-organisms, despite the sophistication of the instruments on board. Then Anne reiterated the negative findings of the probes that went into the atmospheres of Jupiter and Saturn and the oceans of Europa. She told how robot exploration of Titan, the sixth and largest moon of Saturn, had turned up no presence or history of life. Finally, she ended her delivery by explaining that since Project Pegasus had begun a serious radio search in 2015 C. E. of millions of galaxies over billions of radio frequencies, not one signal was received from extra-terrestrial intelligence. Sawyer said that many people believe or were beginning to do so, that we have the answer to the question that Enrico Fermi posed in the early 1950's.

When the question and answer period began, Jason Stewart, an expert on bio-chemistry, asked, "Anne, is it not too soon to rule out one-celled organisms existing either on Mars or on any of the other bodies of the solar system? Af-

ter all, we have only examined a tiny fraction of Mars and only the other bodies with robots. Surely in some caves or caverns or deeper under-ground we might detect alien life."

"I doubt that very much," said Dr. Sawyer, because if the Viking Lander which landed on this planet back in 1976 had instead set down in the Gobi Desert it would have detected life processes right away. In fact, terrestrial balloons with instruments have been discovering microscopic organisms in the upper atmosphere of Earth for decades. And the technology of biological detection has now reached a point where it is now quantum levels beyond 20th. Century techniques."

"I tend to support Anne's dismal reasoning," said Dr. Mary Carver, a software designer, because the fact that a planet such as Jupiter is loaded with organic chemicals, it does not follow that living self-replicating molecules will eventually develop. Sir Fred Hoyle once calculated with a colleague that the chance that life will emerge in an environment that has all the favourable conditions is only one out of ten to the power of 40,000. In fact, Earth could be the only planet in the visible universe that has life on it."

"That is a terrifying thought," interjected Gordon Anderson, the space lander pilot. "If not only intelligence but life itself is absent from our universe except for Earth, it seems to imply that existence is meaningless and we are Cosmic orphans. This state of affairs seems to be the reversal of the Copernican Revolution. There was a 20th. Century physicist who wrote that the more the universe seems comprehensible, the more it seems pointless."

"But life exists on Earth and has done so for 3800 million years," said Carver. "Not only has life evolved, but intelligence-us. If life such as ours exists anywhere, surely reality is not devoid of meaning. The universe is conscious, thinks, and has purposes through beings such as ourselves."

"What's more," said Sawyer, "if our civilisation survives, we will be able to take terrestrial life including ourselves to all the galaxy starting with the solar system. If we spread life far and wide among the stars of the Cosmos, life will indeed become immortal and the universe will acquire mind as well as matter and energy. A physicist of the last century called this process, 'Greening of the Galaxy'."

Dr. Cosgrove said that on one level it is a lonely message that the Cosmos had given them. But at the same time he told those assembled and the multitudes that in a number of hours would see this meeting on Earth, that since our species is more unique than we could ever have imagined decades ago, it elevates our position in the universe. Most importantly, it makes it imperative that we not only survive ourselves, but respect the planet that is the cradle of our birth and the diversity of the biosphere enveloping our home world.

At that, Dr. Cosgrove ended the meeting and coffee, cakes and other refreshments, started to flow to lift the spirits of the men and women at Port Lowell Base.

## Cronyn Observatory Open House 2007

By Robert Duff

Once again we are invited to help out with the Saturday evening Open House at the Hume Cronyn Observatory on the campus of the University of Western Ontario. These public star nights are held on Saturday evenings from 8:30 p.m. to 11:00 p.m. This year they will be from June 2 to August 25.

We will once again be setting up our telescopes on the front lawn and roof patio of the Cronyn Observatory. Please note that closing time is 11:00 p.m. and we should cooperate with the Observatory Staff.

Astronomers can park their cars temporarily in front of the entrance to the Cronyn Observatory to unload their telescopes. Free parking is available on campus on weekends and this includes the parking lot behind Alumni Hall next to the Observatory and the Springett Parking lot

across Western Road.

I will be circulating a sign up list for the Cronyn Observatory at the April and May RASC London Centre meetings. I hope as many people as possible will sign up for at least one or two Saturday evenings this summer. On overcast and rainy days of course our participation is canceled. I will phone or e-mail you in advance to remind you of the upcoming Saturday night you have signed up for. If you can't make a particular day, just let me know by phone or e-mail.

Even people who don't bring telescopes are welcome to participate by talking to the public about astronomy and the RASC or by helping members who have brought telescopes. Also feel free to just show up, even if you haven't signed up for a particular night.

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## Star Night: Longwoods Conservation Area, Saturday, April 21st, 2007

By Robert Duff

Clear skies greeted RASC London Centre members on Saturday, April 21st after two cancellations of this star night on March 24th and 31st due to bad weather.

Dave McCarter gave an excellent digital slide presentation in the Resource Centre to a group of perhaps a dozen, or more, visitors. It linked life on Earth with space and our place in the solar system. The Moon and the planets Venus and Saturn were highlighted with ground and spacecraft images, with their distances from Earth for the night's observing session.

Observing began after 8:00 p.m. with very good views of a thick crescent Moon, the planet Venus, in slightly gibbous phase, and Saturn. I observed the Moon with my 20.3cm Newtonian Dobsonian at 49X, 174.3X and 348.6X. Steady seeing conditions gave sharp views

even at high magnifications.

One lady asked about the bright star in the southwest, which I identified for her as Sirius and it appeared as a dazzling shimmering sight in the telescope. I also directed the telescope at the Orion Nebula (M42).

In my estimation there were several dozen visitors at the star party, which ended sometime between 10:30 p.m. and 11:00 p.m. Among the RASC London Centre members who took part in this star night were Craig Levine, Peter Gentile, Harold Tutt, Richard Gibbens, Stan Podeszwa, Peter Raine, Rick Saunders, Bob Duff and Dave McCarter. There were also two non-members. We thank everybody who came out to make this a very enjoyable star night at Longwoods Conservation Area.

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## London Public Library Star Night, April 25th, 2007

By Robert Duff

The overcast sky on Wednesday, April 25th, looked very unpromising, when I arrived at the London Public Library Central Branch shortly before 7:30 p.m. Nevertheless I set up my 20.3cm Newtonian / Dobsonian telescope in the Rotary Reading Garden while Dave McCarter gave a digital slide presentation to some 36 visitors in a Children's Library meeting room. Richard Gibbens joined us. We observed the gibbous Moon and the planet Saturn through

momentary clearings in the overcast, as the clouds moved overhead.

People enjoyed the views through the telescope. The London Public Library had promoted this star night with a flyer, Exploring the Galaxy, and library patrons were invited to register for the event.