PETERBOROUGH ASTRONOMICAL ASSOCIATION

THE REFLECTOR

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An Eclipse to Remember

Photo: Rick Stankiewicz

The Moon entering totality during the lunar eclipse of February 20, 2008. Saturn is the point on the left and Regulus the point in the upper right.

For me the most recent total lunar eclipse of February 20th, 2008 will be one that I will remember for a longtime to come. It was unique in many ways, at least from my perspective. It was the last of three such events in less than a year, but the other two paled in comparison to this last one from our location in North America, as the other two eclipses favoured an east or west coast location. From Peterborough to Thunder Bay (where I was), the skies were clear and crisp and the moon could not have been situated any better (high in the southern sky). The public knew about this event in advance and many got right into it too. I heard of people sitting in lawn chairs in their neighbourhoods to watch this event unfold.

I was outside in –24 degrees Celsius for the full four-hour event and it was just like ice fishing! I was dressed for the occasion and I was so pumped and focused for the event that I never even had time to sit down. It helps to be dressed properly for such an occasion, but when you are focused on trying to image the event with a camera, run a telescope and give guided tours with tripod mounted binoculars, it keeps you busy. A couple coffees from my friends didn't hurt either though (Thanks, Dave and Al).

What topped off this event for me was not only the opportunity to share this event with members of the public, but also there was the unique chance alignment of a planet (Saturn) and a major star (Regulus, the alpha star of the constellation of Leo the lion fame) during totality. The attached image shows the event as it unfolded for me from my location in northern Ontario.

I hope you were able to witness this event from wherever you were and that it was a memorable experience too. I also hope your memory is good too, because the next chance we get for a view of a total lunar eclipse is not until December 20th, 2010.

Bringing you the cold facts. Your frozen reporter,

Rick Stankiewicz
President, PAA

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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President's Message

Now that our new membership year is in full swing it is time to remind those of you that need to renew, to do so and for those of you who would like to join us for the first time, we are always looking for and welcoming new members. Check out our website for details and if you are reading this monthly newsletter, you know one of the reasons to join and support this association.

Our annual Astronomy Day event (May 10th) is starting to unfold too and with it comes our only fundraiser of the year, to support our public outreach and light pollution abatement programs. So if you have not done so already, get your tickets for the raffle. Either buy them or sell them, it really doesn't matter which. There are only 1,150 to be had, so get yours soon. Everyone you sell is an opportunity to promote our hobby and association.

With the successful completion of the latest total lunar eclipse (February 20th), I am glad to report that the PAA helped make a difference. From those members who braved the cold and worked with the public on Armour Hill, to those that dealt with the media locally to publicize the event, I think it is safe to say it was a success. I know we cannot take all the credit, but I know we made a difference. I heard stories of people in their neighbourhoods sitting out in the street in lawn chairs to witness this celestial event. Thank you to all of you who supported our efforts in anyway toward the education of the public about the wonders of our universe.

Keep looking up,

Rick Stankiewicz, President PAA

Editorial

February was an exciting month for observing the night sky despite the clouds and snow. Lots and lots of snow. Fortunately, the main event, the total lunar eclipse on the 20th turned out to be spectacular, despite the –15°C temperature. The Peterborough Astronomical Association was represented on Armour Hill that night. Thank-you Boyd for holding the fort while the rest of us showed up eventually. Our president, Rick Stankiewicz has a report of the eclipse from Thunder Bay on the front page. Also from that same trip Rick has written an article about "glories" an example of strange atmospheric optics.

John Crossen continues his constellation series,. This month he describes for us the major features of Canis Major, the Great Dog. He also contributes a story on the 169 natural satellites officially known in the solar system. As our instruments achieve higher preicision astromomers keep discovering more moons.

Star party in the middle of winter. It's a breeze if you head out to Florida as John Galle did. He brings us his report of the Orange Blossom Star Party.

March 29 is Earth Hour. Sponsored by the World Wildlife Fund, this event aims to recreate last year's Sydney, Australia Earth Hour in which the citizens of Sydney turned off non-essential lighting for one hour. The event this year is global, happening from 8–9pm. Unfortunately, in North America we will be on Daylight Savings Time as of March 9. This will occur between the end of civil twilight and the end of nautical twilight with the sky still very bright and only 1st magnitude stars just barely visible. At any rate, amateur astronomers should still support its aims and Christopher Hume's essay makes a good argument why we need to encourage such events.

The International Astronomical Union has declared 2009 International Year of Astronomy. I would encourage the membership to seriously get involved in helping to organize some events to promote astronomy to the general public. Stay tuned to further developments at upcoming PAA meetings.

Phillip Chee

Moon Phases

New Moon	12:14pm	March 7
First Quarter	6:46 am	March 14
Full Moon	2:40 pm	March 21
Last Quarter	4:47 pm	March 29

Welcome to Doggy Heaven

Canis Major and Minor

Canis Major is the big dog. It is also home to the brightest star in winter's sky. Known as Sirius or "the dog star", Sirius is eye candy for those willing to brave the chilly nights.

To find Canis Major you can use the three stars of Orion's belt as a guide. Just follow them down and to the left. The first bright star you come to will be Sirius. I call it the dog-tag star because to me it is the tag on the collar around the dog's neck.

Stars don't come any brighter in the Northern Hemisphere than Sirius. It shines at magnitude –1.4 and is just 8.6 light years distant. That's so close that light only takes 8.6 years to reach Earth. In other words, if you were to go out tonight and look up at Sirius, you'd be seeing the light that left the star in the midsummer of 1999. Of course light travels at 300,000 kilometers per second, so 1 light year is equal to 10 trillion kilometers. In kilometers that's over 80 trillion kilometers. In cosmic terms, that's right next door.

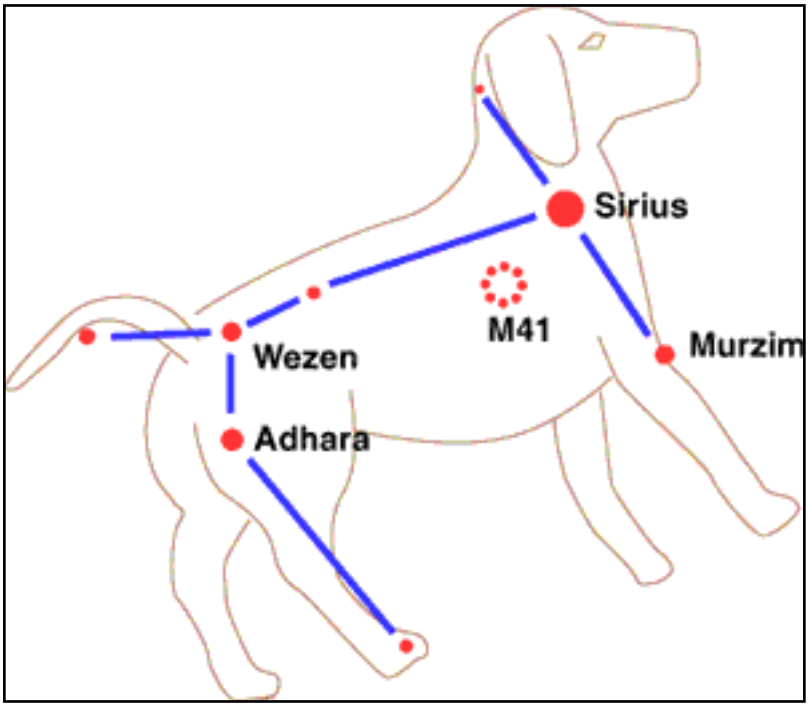
Radio and television waves also travel at the same speed as light, so an Earth broadcast of one of Britney Spears' early hits would just be reaching anyone on a planet orbiting Sirius. That being the case we Earthlings apologize for what's headed their way.

As a matter of fact, Sirius does have an orbital companion. It's a white dwarf star which goes by the unimaginative name of Sirius B. This little gaffer is only visible using a special shield on a telescope to block out Sirius' glare.

Just south of Sirius is a star cluster known as M41. The M stands for Messier or more correctly, Charles Messier. He's the French fellow who first charted the 109 objects that make up today's Messier catalogue of celestial objects. M41 is visible in binoculars and becomes a tantalizing patch of stars in a small telescope. It's also 2,500 light years distant. So anyone out there will have 2,491.4 Britney-free years yet to come.

Far to the left of Canis Major, on the opposite side of Orion and just below Gemini is Canis Minor. I guess the little dog got lost and fell behind Orion on his hunt.

Canis Minor is about as brief as constellations get – just two stars. The brightest is named Procyon which shines at magnitude



Canis Major Big dog and bright star. That's Canis Major and Sirius, the Northern Hemisphere's brightest star. Canis Major has a constellation near it called Puppis. Thanks to its name, Puppis is frequently confused with Canis Minor or the little dog. In reality, Puppis represents the stern or poop deck of an ancient ship-like constellation named Argo. I'll leave you to your own imaginative devices as to any relationship between puppis, puppies and poop deck.

0.4. Like Sirius, Procyon also has a white dwarf star for a companion. The white dwarf's mass is about 65% that of the Sun. It takes the little shrimp about 40 years to orbit Procyon.

Procyon is also relatively close by celestial standards. Its distance is 11.4 light years. That means anyone on a planet orbiting Procyon would still have plenty of great Seinfeld episodes to catch up on. Being such a small constellation, there are no Messier objects within the geographical bounds of Canis Minor.

John (johnstargazer@xplornet.com) belongs to the Canadian Science Writers' Association and owns BHO (www.buckhornobservatory.com)

A Glory for Glories Sake

A "glory" is the name given to an unusual atmospheric phenomenon in which a circular rainbow affect can sometimes is seen at a point directly opposite the sun. This rainbow effect is typically reflected off clouds or fog. The glory, however, can show many rings when the cloud is made of uniform water droplets. It is most common to see a shadow in the centre of the glory. This is typically your own shadow, although you may not immediately recognize it as such. Shadows also converge on this "antisolar point" opposite the sun and so this is why your shadow or that of the aircraft you might be traveling in for example usually accompanies the glory. The most common situations in which to see such an atmospheric effect are either high in the mountains or from an aircraft.

This phenomenon is produced by light backscattered (a combination of diffraction, reflection, and refraction) towards its source (in this case the sun), by a cloud of uniformly sized water droplets The glory will normally have brighter central rings of colour but not nearly as bright as the corona that you may actually see around the sun or moon aureole under certain cloud conditions. A glory's rings are delicatel, with blue on the inside changing through greens to red and purple outside. The ring intensities fall off much more slowly than those of the corona and sometimes three or even four rings are visible. In some cases (as in the image attached) this multi-ringed glory may surround the shadow. The coloured rings may fluctuate wildly in size.

Glories are always directly opposite the sun, centered at the antisolar point and therefore will appear below the horizon from your perspective. For this reason, look downward when searching for a sign of a glory. Look for them whenever mist or cloud is beneath you and the sun is shining above your position.

Unless you happen to frequent a lot of mountain peaks under the right conditions, the best way to increase your frequency of seeing the interesting atmospheric effect called a "glory", is as a frequent flyer. With a little bit of planning on your part and a bit of luck on the atmospheres part, your odds can be pretty good that you may see a glory on your next flight from "A" to "B". Here are some tips that I have found to have worked for me over the years.

- Consider the direction of your flight path from "A" to "B" and the angle of the sun in relation to this path.
- Book a window seat on what you figure will be on the opposite side of the plane than the sun. Get a seat assignment that is well forward or well back of the plane, to avoid the dreaded "wing obstruction".
- Flights around either side of mid-day are best, for the sun will be at an angle that will potentially cast a shadow of the plane within view of your window seat.
- Have your camera at the ready and keep watching the clouds below and off to the side of the plane. If you see the shadow of the plane, you should detect the rainbow around it, under the right conditions.
- Start taking pictures and good luck.

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Orange Blossom Star Party

I would imagine that some of you head south to Florida for part of the winter in order to star gaze in relative comfort. A fun event is the Orange Blossom Star Party, held at New Moon time in February or early March, and sponsored by the St. Petersburg Astronomy Club. This year it was the 14th annual occasion, and was held at Alafia State Park, east of Tampa near Brandon.

The entire park is reserved by the Club, which is great as they can restrict traffic and turn off all illumination except for red lights installed in key locations, such as the bathrooms. I have no idea how many attended this year but it must have been about a hundred persons from all over the US, plus three persons from Ontario, including myself.

The event lasts four nights, from Wednesday to the Sunday morning. During the daytime there are various presentations, music jam sessions, a "Bataan Death March" on the park hiking trails, and a hay ride!

Many came in their own RVs plus a lot that were tenting. Meals are provided for an extra cost.

In one respect viewing is really great; there are few large trees in the camping area so you can set up your scope right beside your tent, if you want. Unfortunately, this year the weather was not very good, with most nights being at least partly cloudy, and with a lot of humidity.

The main disadvantage with the site is that there is a fair bit of light pollution, both from cities nearby, primarily Tampa, and also from a couple of potash mines that operate all night. You could still see quite a bit but, for instance, the Milky Way was not visible at all.

Next year the Party will be held at the Withlacoochee River County Park near Dade City. We are guaranteed to see the Milky Way as this is a fairly remote location, but with full facilities just as good as Alafia. Dates are February 25 to March 1, 2009. If interested go to their website at www.StPeteAstronomyClub.org.

See you there!
John Galle

The Sky this Month

Mercury reaches greatest elongation west on the 3rd. Stays within 3° of Venus the whole month. Comes within 1.0° south of Venus for a conjunction on the 23rd at dawn.

Venus continues to be a morning star but its elongation from the sun decreases to 22° on the 15th. Hence it rises during nautical twilight. Occulted by the Moon on the 5th.

Mars is now crossing into Gemini from Taurus. It transits on the 15th near the end of civil twilight.

Jupiter On the 15th it is about 10° high near astronomical twilight. See if you can spot it on the 30th near the last quarter Moon during daytime.

Saturn is in Leo. It remains near Regulus until June. Rings are inclined 9° at mid-month.

Moon reaches greatest declination on the 14th (+28°). On the 12th comes within 1.2° of the Pleiades. Comes within 0.8°N of Regulus and 3°N of Saturn on the 19th.

Zodiacal Light is visible from the 23rd for the next two weeks.

Daylight Savings Time begins on the 9th at 2 am.

Equinox arrives at 1:49am on the 20th.

A chance for darkness to bring

There's light in that thar darkness.

Ontarians discovered this on Aug. 14, 2003, when the power went off shortly after 4 p.m. For the next 12 hours, longer in some places, the province and much of the northeastern U.S. had no electricity.

It was the largest blackout in North American history, affecting more than 50 million people.

And yet, looking back, many Torontonians recall it as a memorable occasion.

As so often seems the case, disaster brought out the best in people; suddenly there they were, normally pugnacious Bay St. lawyers selflessly directing traffic, commuters fixated on getting home were happily giving lifts to co-workers, even strangers, and neighbours who had ignored one another for years were sharing barbecues and chatting on rarely-used front porches.

The blackout brought us together and made us feel better as citizens. For the first time in living memory, stars could be seen in the night sky and a delicious silence settled over the city, and much of the continent.

It was, well, fun. It was special.

Despite the heat and humidity, the blackout became an occasion to reconnect with the basic truths that electricity allows us to ignore – day and night, time and space, distance and proximity.

For a while, we were returned to the conditions in which we evolved, in which our grandparents lived and died. Gravity never seemed so powerful, or the night so dark. However briefly, we felt ourselves part of the larger universe.

Though history will document the incident as one of the great technical failures of the early 21st century, in popular culture it is remembered as an overwhelmingly positive event. If only for a day or two, it forced us out of the mindless pursuit of work and play that constitutes modern existence.

Time slowed and life seemed more intense. Not that we weren't happy when the lights went back on, but the blackout left a legacy that looms large to this day.

Which brings us to Earth Hour, an event best viewed perhaps as an attempt to take advantage of the spirit of the '03 power outage and connect that experience with the defining issue of our age, global warming.

The idea behind this self-imposed blackout came to international attention last year on March 31 when 2.3 million residents of Sydney, Australia, turned out the lights.

The combined effect was a 10.2 per cent drop in power usage. That means 25 tonnes of carbon dioxide weren't emitted, the equivalent of removing 48,613 cars from the road for an hour.

Next year, Toronto will be one of a handful of cities around the world to hold their own Earth Hour. Others include Copenhagen, Chicago, Auckland, Tel Aviv and Manila. In all these communities, residents will be urged to flick the switch on March 29 between 8 p.m. and 9 p.m.

The results will be good news for the planet by temporarily lowering CO2 emissions; but the real intention is to raise awareness.

Organized by the World Wildlife Fund, the event is aimed at reinforcing the sense that individuals can make a difference. This is easily forgotten in the face of such an overwhelming crisis, one that literally implicates every one of us.

And unlike the official Canadian position fashioned by the Stephen Harper government, it encourages us to act without waiting for others to do so first. Of course, these are token efforts. The drawback to Sydney's Earth Hour, according to the WWF, was the feeling it gave participants that they had done their bit. One

a little light into our lives again

Photo: Phillip Chee (*Fuji Sensia 400 film with a Nikon F3HP SLR*)
The northern sky looking toward Peterborouogh taken in Otonabee-South Monaghan Township. Taken 45 minutes after the end of astronomical twilight, the sky is lit up from the city and casts a star-eating glow .

hour of darkness does not an environmental solution make.

Still, it's a beginning. And getting started is the hardest part, especially, it seems, in Canada. To date we have little to show for all our good intentions.

The Sydney event was described as the first part of a campaign aimed at reducing that city's greenhouse gas emissions by 5 per cent.

And although the focus was the individual, it also emphasized the importance of a community response.

As many experts have pointed out, although environmental legislation must be passed at the federal and regional levels, those laws will have to be implemented locally, i.e. by cities.

Up to now, the city's ability to act has been limited by lack of power. This is doubly true in Canada where municipal councils have relatively little scope and ability to impose such measures.

Even so, it's clear that Toronto could do much more than it has; despite our insistence that we are the greenest city in North America, we are anything but.

And as public transit falls further and further behind demand, automobile use grows and grows. So far, governments at all levels have been remarkably timid in demanding we accept the consequences of our actions.

No doubt it will have to get worse before it gets better; if Earth Hour serves any purpose it will be to remind all of us – participants and non-participants alike – just how much is at stake.

"The Earth," says Al Gore, "has a fever." It needs our help. The planet won't be healed in an evening, but an hour isn't too much to ask for.

Christopher Hume is the Urban Issues Columnist at* The Toronto Star. *Reprinted with kind permission.

Our familiar old Moon is seen here during the recent lunar eclipse of February 20, 2008.
Photo taken by Gord Rife of Schomberg, Ontario.

In the last few years the solar system's moon count has skyrocketed. The tally as of today is 169. Most of the new moons are orbiting the gas giant planets, Jupiter, Saturn, Uranus and Neptune. Just before Pluto got well…Plutoed, two new moons were discovered orbiting it. The reasons for the recent lunar leap are many.

Scientists are delving deeper into the solar system with more sophisticated equipment than ever before. Between The European Space Agency, (ESA), the National Aeronautics and Space Administration (NASA) along with missions from Japan and China, we Earthlings have missions studying the Sun, Mercury, Venus, Mars, Saturn, and the New Horizons mission on its way to Pluto. Toss in the Chinese mission currently orbiting Earth's Moon and the Japanese mission which is now sending back the first high definition images of our Moon and we're a busy bunch. Plus we have Dawn, the mission to study two distant asteroids with origins that date back to the dawn of our solar system.

Glued to planet Earth, but also prime movers in moon discoveries, are a number of scientific teams using large telescopes and highly sensitive imaging techniques to track small objects orbiting the outer planets at great distances. Their contributions have been nearly as extraordinary as the number of moons they have discovered.

If you'd like to know more about our very distant cousins, visit Windows to the Universe/Moons in our solar system on Google. You'll find distances, diameters, the moon names and the names of their discoverers. Now let's discover what's up in the April night sky for backyard us neck benders.

Mars is in the southwest and moving towards the western horizon. The distance between Earth and Mars is also increasing so wave bye-bye to the red-faced rascal for another year. Saturn is high up and ready for viewing at dusk. The ringed planet is in the constellation Leo, near the lion's "heart star" Regulus. Saturn is a soft yellow colour to the unaided eye. In a small telescope at about 30X, Saturn's rings are distinct. To really boost the wow factor you'll need about 100X from your telescope to make out surface details in the planet's gaseous atmosphere and the gaps between the rings.

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(I used a Nikon 4500 @ ISO 100, f/7.8, 1/575 sec. & f/5.3, 1/271 sec. respectively to capture these images)

One of the more unique aspects of the images I captured (see attached) is that they were taken during the same Air Canada flight from Toronto to Thunder Bay, Ontario, on 2007, Octobr, 28. I noticed the glory in flight and took several pictures, but as we got ready to touch down on the runway in Thunder Bay, I noticed that the shadow of the De Havilland "Dash 8" aircraft was still visible from my vantage point, so I managed another quick picture, which shows the same planes silhouette, but no glory. The glory was gone, but not so, for me and my shadow.

Rick Stankiewicz, President
Peterborough Astronomical Association

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The dim constellation Cancer the crab resides between Gemini, the twins and Leo. A misty patch near its centre is more visible to many than the dim stars that make up the constellation. This faint glow is a star cluster known to the ancients as Praesepe. To them it was a thin spot in Heaven's floor. When viewed through binoculars it's easy to see how the misty little fellow got its more current name "the beehive."

John Crossen

Class	Name	Moons
Planet	Mercury	0
	Venus	0
	Earth	1
	Mars	2
	Jupiter	63
	Saturn	59
	Uranus	27
	Neptune	13
Dwarf Planet	Eris	1
	Pluto	3
	Ceres	0

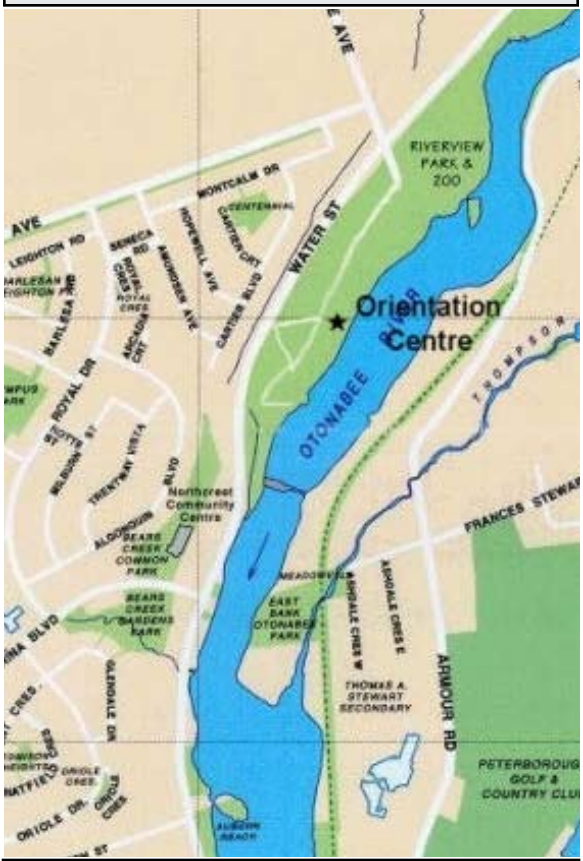
Table 1. Distribution of satellites in the solar system

Articles

Submissions for *The Reflector* must be received by the date listed below. E-mail submissions are preferred (Microsoft Word, OpenDoc, ASCII and most common graphic 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:

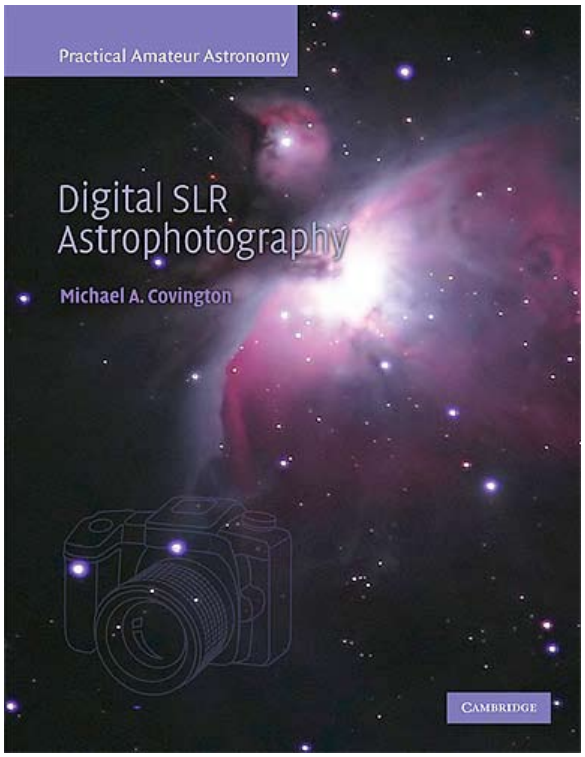
Phillip Chee
445 Park Street North
Peterborough, ON K9H 4R1
phillip.chee@gmail.com

Next submission deadline:
Friday, March 21, 2008



Meetings The Peterborough Astronomical Association meets every first Friday of most months at the **Peterborough Zoo Orientation Centre** (Next to the PUC Water Treatment Plant) at 8:00 p.m.

Book Review



Digital SLR Astrophotography

Author: Michael A. Covington
Publisher: Cambridge University – Cambridge, UK
Year: 2007
Pages: 219
Price: $46.95CAN
ISBN: 0-521700-81-7

When I began my obsession with astrophotography last year I did my research on technique and best practice by browsing the 21st century version of the public library: the Internet. While online resources are useful and free, sometimes it's useful to have a book, which is a wonderful companion outdoors in the shade with a cool drink!

Michael Covington's *Astrophotography for the Amateur* is highly regarded as the standard book for amateur astronomers and photographers who wanted to learn the nuances of photographing the night sky. After reading it last summer I felt more confident with my skills. Yet, I knew film photography was becoming obsolete and longed for an update that tackled digital SLR cameras. *Digital SLR Astrophotography* arrived late last year to answer the call.

While this is not the first book on astrophotography using a digital camera—Robert Reeves's *Introduction to Digital Astrophotography* comes to mind—it focuses on practical knowledge with just enough theory to get you started quickly. The book is divided into three sections. Part one covers the basics necessary to get started and gives a brief introduction to the DSLR revolution, technical issues, camera operations, and some easy projects to get you going. Part two covers in more depth cameras, lenses and telescopes. This is the heart of the book and explains how to couple cameras to telescopes, how focal reduces work, tracking and guiding, and CCD and CMOS sensor performance. There's even a section on power and camera control for when you are out in the field.

The third part presents a practical overview of digital image processing. This last section is critical to getting the most out of your images. Here he describes how various software techniques such as sharpening, brightness and contrast settings are applied to images. While the example software referrd to in the book is MaxDSLR, the skills learned here are easily transferrable to other astronomical image processing sofware. There are a few Photoshop tips to make this section rewarding for those still committed to getting the most out of their camera images. Particularly helpful are excellent explanations of stacking and how to take calibration frames; the latter essential for noise reduction and removing gradients and vignetting.

Digital SLR Astrophotography is an accessible book suitable for novice photographers while being remarkably useful for photographic enthusiasts and amateur astronomers who like taking pretty pictures, too. While you needn't have read his earlier book, Covington's latest is a great companion to the classic, *Astrophotography for the Amateur*.

Phillip Chee

PHOTO GALLERY

Top: Rick Stankiewicz is an early riser. Here on the morning of January 31 he took a photo of the near conjunction of Venus and Jupiter.
Bottom: February 23 started the first two-week span (with no moonlight interference) during a two-month period when the Zodiacal light is visible from a dark site after sunset. In the fall the two-month period is in the pre-dawn, hence its other name, the False Dawn. The Zodical light is caused by reflected sunlight from interplanetary dust particles lying along the plane of the solar system. In Phillip Chee's photo the Zodiacal light is here seen as the pyramidal bluish light that extends from the horizon up to the Pleiades.

The best things in astronomy are free

Thanks to computers, the Internet and some very generous people, you don't have to pay a cent for some of the best star charts and software programs available. They're free downloads on the internet and some of these freebies are pushing their big-buck commercial cousins.

To survey all the offerings quickly, visit www.Google.ca. The magic words are "free astronomy programs." Also known as free-ware and shareware, type in free astronomy programs and settle back for a celestial feast of no-charge charts.

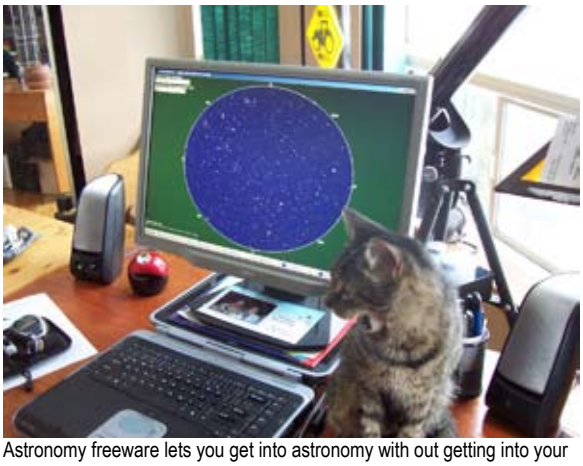
A general astronomy program called Stellarium comes highly recommended by my fellow Peterborough Astronomical Association members. It shows the constellations as they will appear overhead on any given night at your latitude and longitude. Star names, Messier objects like star clusters, nebulae and galaxies, the planets as well as time shifting forward or backward are all part of the program. Stellarium is 5.9 Mb, so if you don't have high-speed Internet service, hit the fridge. You'll have time for a snack.

Less complex, but appropriate for the novice neck-bender is StarFinder, a smaller program that delivers the basics. It'll also download fairly quickly at just 220 kb.

There are hundreds more — Cartes Du Ciel, StarCalc, Spica, Sky Atlas...just keep on scrolling down, read the brief description and choose one that suits your needs and your computer's memory capacity. But planetarium programs are just the beginning.

There are other specialized programs for lunar observing, telescope making, conjunction fans, eclipse chasers, double and variable star observers. In short, there's more available than you can visit in a lifetime.

So before you head outdoors, sit down and Google your way to the stars. Oh, and did I mention Google, Night Sky Observer? It works just like Google Earth, only instead of zooming in on an object you zoom out to see what's up there. You can even view a demonstration video at Night Sky with Google Earth on YouTube. It's a 10Mb program, so make sure your computer has plenty of room on its hard drive. Now, let's shut down the computer and move outside to the real thing. Here's what's up in February's sky.



Astronomy freeware lets you get into astronomy with out getting into your bank account. There are hundreds of programs. Many have printable star charts you can take outside. There's even one called Star Cat.

Orion the hunter continues to dominate the night sky in the southeast at sunset. His hunting dog, Canis Major, will be just above the horizon as the sky darkens. Look for Sirius, the brightest star in the night sky to find Canis Major. Over head Auriga, Gemini, Taurus and Perseus are the key constellations.

Mars is visible as a bright orange ball high in the southeast at sunset and at dawn in the west. Rising in the east in the evening is the planet Saturn. Mercury, Venus and Jupiter are morning targets. Look for Mercury low in the east–southeast, Venus and Jupiter very low in the southeast. Venus will be the brighter of the two.

Until we meet again by the backyard telescope, keep your outdoor lights shielded and pointed down. You'll help preserve the dark Kawartha night sky.

John Crossen