Orbit

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Roger Hill, Editor

Astronomically, December was about as wasted a month as I can remember! I only got out twice, and the second time, my telescope was telling me that is was –25°C!

I'd built myself a very nice dew shield, made of aluminized bubble wrap, and lined with closed cell black foam, and despite the conditions, my corrector plate stayed mercifully clear. My laptop was another story, though. I have a docking station that I use in my observatory, mainly because it has an actual RS232 serial port in it to control my Canon 10D DSLR. Anyway, it's mostly plastic, but there are some metal parts. The issue was that I could not properly seat the laptop into the docking station. The mouse didn't work, the serial port didn't work, and there was no power going to it. The on/off switch was working, though. Worse, though, was that it would not eject properly, either. I took it inside and let it warm up for about half an hour, and that allowed the laptop to seat properly. At which point, I took it outside again for another couple of hours. At which time, thoroughly frozen (me and everything else BUT the corrector plate), it was time to pack it in.

I was once accused by an Australian amateur or being completely insane for observing at such temperatures. But what are you going to do? -20°C and lower is just a fact of life for observers in Canada. With brutal temperatures, clouds for weeks at a time, and some of the worst light pollution in North America, it makes you wonder why there are any amateur astronomers in southern Ontario at all.

I don't know about you, but I have to get away every now and then. Last year, I went to the Texas Star Party for the first time. If you attended the September meeting, you saw some of the poor weather Les and I had to deal with, but you may also have got the merest hint of the grandeur of a truly dark sky. Such skies are rare. There are some good skies in southern Ontario. In fact, there are some very good skies. In and around the Bancroft area, near a spot called Nirvana by those who have been there, a former member of the Hamilton Centre has a cottage and an observatory. He's 15 miles from Nirvana, and the skies are very good indeed. I've been to Manitoulin Island several times, and I got a chance to go to Gordon's Park last August, and conditions there were even better than near Nirvana.

I can't wait until August for the Manitoulin Star Party, or the summer observing session, so the first weekend in May will find me back at Gordon's Park. The ferry opens that weekend, as does the park, and I hope to catch it between those two nasty seasons in the north—Winter and Black fly. If you're interested in joining me, let me know...a couple of people have already done so when I mentioned the idea to them.

Then again, I haven't given up completely the idea of somehow getting back to Texas this year. Hardly surprising, considering the skies look like this!

In other news, it was partially clear on December 23rd, and Scott Barrie took our cover picture of the Moon and Mars. Scott used a hand held Nikon P5100 point and shoot camera through a 32 Plossl on his Pronto.

Steve Barnes is back from Chile, and will be giving the January talk. There aren't many places on earth that have better skies than those found in Chile, and I, for one, can hardly wait to see what one of the country's premier astrophotographers has come back with.

Colin Haig had a few spare minutes between work, offspring and wife, and sent in some tales of upgrading his LX200.

Paul Brandon has been busy, too, visiting the K-W Centre, producing a list of upcoming events, a new map showing the location of the Observatory (and thoughtfully including the locations of the nearest Tim Horton's, and The Royal Coachman in Waterdown), as well as some information on Earth Hour to be held at the end of March. Thanks, Paul!

Earth Hour – Saturday March 29, 2008 8:00-9:00PM

If you can, reserve this date on your calendar.

On March 31, 2007, 2.3 million residents of Sydney, Australia turned off the "non-essential" lights. The effect was a 10.2% drop in power consumption, eliminating 25 tonnes of carbon dioxide production.

On Saturday March 29, 2008, Toronto will join a group of cities around the world in holding an Earth Hour, http://www.earthhour.org/. The other cities include Copenhagen, Chicago, Auckland, Tel Aviv, and Manila.

I'm hoping you take this opportunity to write your local government to get them to join in this initiative. I have written Hazel McCallion about Mississauga's involvement in this process.

Further, we should take this opportunity to do public outreach on this evening.

I hope to see you out on the evening of March 29th.

Paul

Sources:
Gorrie, Peter, Saturday (Toronto) Star "Starry Night, circa 2007" December 15th, 2007
http://www.thestar.com/article/285432
Hume, Christopher Saturday (Toronto) Star "A Chance for Darkness to Bring a Little Light into Our Lives Again." December 15th, 2007

Editors Note:
I've written to the Town of Milton about this, and have so far received no reply. Perhaps the Region of Halton should be contacted.
RH

What you've missed!

In November, Cathy McWatters brought her traveling science show to Hamilton. She organized the assembled masses, putting four or five people to a table, and we built cloud chambers, looking for evidence of cosmic rays.

(left) Cathy, explaining the theory behind cosmic rays and their showers of decay products.

(right) Cathy shows the audience the steps to follow to build a cloud chamber.

Cathy looking for the tell-tale little streaks of atomic particles.

A number of people did manage to see the trails in their cloud chambers.

Cathy brought some containers, black paper, optical grade isopropyl alcohol, and dry ice. The container sat on a bed of dry ice, and if conditions were just right, a cloud would form. Lighting this cloud with a flashlight allowed you to see the occasional sub-atomic particle zipping through.

It was a unique evening, and thoroughly enjoyed by all who attended. Thanks, Cathy!

In December, Mel Blake of the David Dunlap Observatory (DDO) dropped by to talk to us about Binary Stars. Mel's talk was very informative, and left us in doubt about his passion for his subject. He had a wonderful ability to simplify his subject matter and will no doubt be an outstanding Planetarium/Observatory Director at the University of Northern Alabama. The change of occupation was caused by the issues surrounding the attempt by the University of Toronto to sell the land that the DDO sits on in Richmond Hill.

Many in the audience asked Mel a number of questions, and I came to the realization that, although the loss of the DDO to the southern Ontario astronomical is quite significant, the money raised from it will allow the University to participate in projects like the Thirty Meter Telescope. This, in turn, will allow the University to attract, and keep, some of the finest minds in astronomy today and in the future.

Kevin Hobbs showed one of his latest acquisitions, an iOptron SmartStar Cube © Alt-Az mount. This is a GoTo type of mount, comes with a stainless steel tripod, and has a 5000 object database. Further, it can be attached to a computer. Kevin reported that the mount seemed to do the job it was designed for, and as a mount for your "Grab and Go" telescope to throw in the back of the car and take to the cottage with the family, it seemed just about ideal. Particularly considering the price—just $199 US. There is an equatorial version of the product that should allow (at least) wide field astrophotography.

Astro Bloopers *Culled from sci.astro.amateur (Author Unknown)*

It's now after Christmas, and many of us may have received some wonderful high-tech astro-goodies. You may have read the instruction manual, and if you did, you may have seen a number of phrases. What follows is a list of the more common terms manufacturers use to describe their products, and what they really mean!

ALL NEW - The power supply, connectors, and software are not compatible with previous versions. Even the screw threads are different.
ADVANCED DESIGN - Salespeople don't understand it.
BREAKTHROUGH - It nearly worked on the first try.
DESIGN SIMPLICITY - It was developed on a shoestring budget.
EXCLUSIVE - We're the only ones who have the directions telling how to use it.
FIELD TESTED - The manufacturer has no way to test it.
FOOLPROOF OPERATION - It's unrepairable, short of sending it back to the factory (which can't fix it either).
FUTURISTIC - It only runs with the help of a next-generation computer, which isn't available yet.
HIGH ACCURACY - The screw threads match the threads of the holes they're supposed to mate with.
IT'S HERE AT LAST - We've released a 26-week project in 48 weeks.
MAINTENANCE FREE - see Foolproof Operation.
MEETS OR EXCEEDS OPTICAL STANDARDS - We haven't the foggiest idea about the total wavefront accuracy.
NEW - It comes in a different color than the first version.
PERFORMANCE PROVEN - It worked through beta test.
QUALITY STANDARDS - It works most of the time.
REVOLUTIONARY - Everything that's supposed to go round and round actually goes round and round.
SATISFACTION GUARANTEED - We'll send you another manual if this one fails to work.
STOCK ITEM - We shipped it once before and we can do it again, probably.
UNMATCHED - No one else wants to copy our design.
UNPRECEDENTED PERFORMANCE - May mean two different things:

1. Actually worked the first time right out of the box.
2. Nothing before ever ran so erratically.

YEARS OF DEVELOPMENT - We finally got one to work.

Map to the Observatory, from Google Map by Paul Brandon.

Please note the thoughtful addition of several local Tim Horton's, and a delightful Waterdown restaurant!

Hamilton Observing Sites
Observing site in Hamilton and area.
2 views - Public
Created on Oct 18 - Updated Oct 20
By pbrandon
Rate this map - Write a comment

Hamilton Centre Observatory
576 Concession 7E, Flamborough, ON

Tim Hortons, Waterdown
255 Dundas St E Waterdown, ON L0R, Ca

The Royal Coachman
1 Main St N Waterdown, ON L0R, Canada

Dundas Street, Tim Hortons
530 Dundas St E Waterdown, ON L0R, Ca

Tim Hortons, Brant Street
2201 Brant St Burlington, ON L7P, Canada

Tim Hortons, Guelph Line
2400 Guelph Line Burlington, ON L7P, Car

Digi*Focus and Declination Knob Upgrade kit

Every once in a while I find a simple idea that works really well, and I thought I'd share these two LX200GPS / LX90 scope upgrades with you. They are fairly simple, and worked as advertised. The Digi*Focus is a focuser knob upgrade and position counter, which is a bit fussy to set up, and the Declination Knob is very simple and well worth the money.

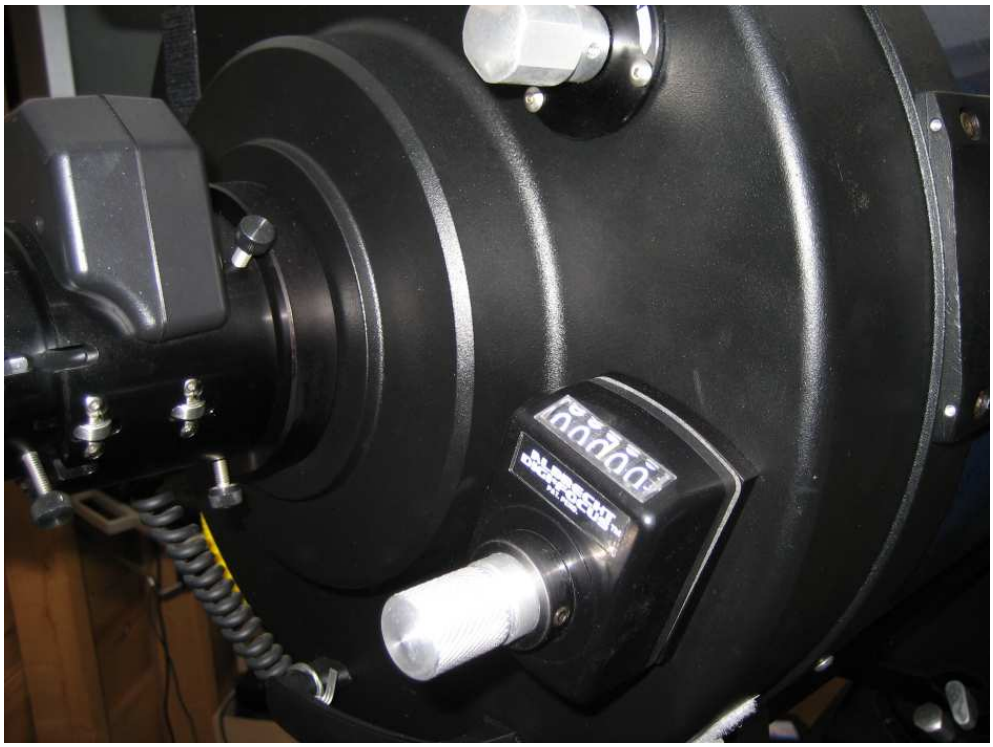
Digi*Focus

As I like to do imaging with CCD or Digital Camera (DSLR), I'm often having to spend 15-45 minutes trying to get it all set up and focused again. I found a clever scope upgrade by Peter Albrecht that consists of a focus knob bearing kit and a clever mechanical counter that looks a lot like the odometer telling you the mileage on your car.

With the Digi*Focus kit, you remove the existing focus knob and plastic shim washers, and replace them with a super smooth set of roller bearings and a new knob, and then slide a mechanical counter over the whole thing, which attaches to a new mounting plate. (The "digi.jpg" picture shows the finished results, you can clearly read the counter, and see the new knurled knob poking through the end).

The beauty is that there are no permanent modifications to the scope, no holes to drill, and the only dirty party is getting grease on and off the parts and your fingers. A pair of painter's latex gloves quickly solves that.

You simply set the knob to the far end of travel (takes like 20 turns) and set the Digi*Focus to zero with a set screw. Then next time you want to focus with some set of gear, dial it up to the count you need. It makes focusing very repeatable. For example, I've got settings for (a) eyepiece+diagonal, (b) webcam, (c) DSLR, (d) webcam with f3.3 focal reducer. I'll soon have a chart with all the combinations. So if I add a Barlow in there, I will write that down to. So it makes results reproducible. I simply look up my chart, dial in the new focus number, and stack on the imaging gear. This saves a ton of time.
Although this is not the least expensive accessory I've bought, its a huge time saver. I then use the electric micro focuser for super-fine tuning. I can get fairly good focus in under a minute, as much time as it takes to look up last time's number, and to spin the knob.



Although I highly recommend this upgrade, but have to point out it won't fit all the scopes out there. For example, the Meade 7" Mak has a fan vent for cooling the mirror that would be in the way.
The other challenge is getting the pressure of the washers and bearings just right, to eliminate mirror backlash and not have a rough feel. This took a couple tries, but the detailed instructions explain it well.

Declination Knob

Another little innovation is Pete's declination knob kit, a very simple upgrade for owners of LX200GPS and LX90 scopes. It makes locking down the declination axis easy and reliable, and best of all, it prevents the threads in the aluminum from getting stripped as the factor knob is too short.
(If you look at the picture below left, you will see only about 3 threads are engaged.)

That factory plastic knob with the short threaded screw on the declination axis clamps the clutch plate so the scope locks in place. The factory knob was one of the big disappointments compared to the previous generation LX200 (non-GPS) variety scopes which had a nicely designed clutch with a heavy metal knob.
The main problem with the factory clutch setup is the scope will slip in declination if you get some weight on it, like a camera or guide scope, and so you may need to crank it down. Unfortunately, the original plastic knob holds a 10-24 screw that is simply too short - it strips the aluminum hole threads as it only engages about 1/8". Pete's simple improvement puts a large heavy duty aluminum knob on there with about 1/2" of thread - which is really what is needed.

(The picture below right shows the new, hefty knob in place. Looks great!)

It is a very simple upgrade that only required 5 minutes to unscrew the existing knob and screw in the new one. And it works great! With our Canadian dollar being so high, and no brokerage for USPS to send to Canada Post, its a good deal!
The declination knob fits the 7inch through 12inch LX90 & LX200GPS scopes, but not other models.
Check out Pete's web site at: www.petealbrecht.com for more info.
I highly recommend these two upgrades. I wish I'd known about them sooner.

Software of the Month

Which doesn't mean it's good, just noteworthy.

This month, a quick look at DSLR Focus.

I've run out of time this month for this feature, so I hope you don't mind a review of DSLR Focus from Australian amateur Paul Medford. I use DSLR Focus myself, and while I'm not as gung-ho as Paul is about it, I find it to be very useful software. DSLR Focus does have it's drawbacks, though. The biggest one is that there is NO support. Despite what the web site (http://www.dslrfocus.com/home.html) states, it can take a considerable amount of time before you get added to the members-only Yahoo! Group.

Straight up version 3.3.14 of DSLRFOCUS loaded on my WinXP laptop smoothly. The camera was found and connected, the only tense moment was waiting with fingers crossed for the new USB device from BackyardAstronomy to be found and connected. Green across the board!

Any time a developer puts a "green for go" icon into software they are telling the world that the software is simple to use, hey, this one is simple enough to use in the dark!

DSLRFOCUS is an essential tool when considering a Canon DSLR (some features can be used with non Canon DSLR's although this review relates only to the software as it is used with the canon 300D). What happens after first use is where things get interesting, what appeared on paper to be essential rapidly became indispensable after using the software a few times. I genuinely don't know how people do it without this software or something similar. I imagine most who buy the software initially do so to achieve quick focus, the original release of this software was not much more than a focusing tool. My how times change, after use you quickly forget how tough focusing can be (without the software) and treat the process of focusing as a minor part of the set up for the evening. The real benefit of the software is then available:

- Centring and framing your image,
- Automating your imaging for the evening, choosing how many images you want to take and where you want them stored,
- Selecting exposure times and ISO values,
- A handy review facility that allows you to check the progress (or show off to the crowd),
- A simple exposure calculator,
- Telescope linkage and some basic GOTO functionality.
- Eclipse mode for automating image sequences using very short exposures during lunar and solar eclipses

There is a very active Yahoo user group that has developed over time providing an enormous amount of support to newbie's and experienced users alike, many of its members are easily recognized names from the gallery sections of the major Astronomy magazines around the World. You have a question regarding the software or frankly anything relating to imaging with a DSLR and you will get a response.

I have had several opportunities to use the software over recent weeks and have lain out below the software's role in a recent imaging session.

Having set up and Polar aligned the scope I GOTO a reasonably bright Star very near the object I intend to image.

I connect the camera to the scope and fire up DSLRFocus. Before I use it I look through the camera window at the bright star and rough focus the star to a point. As many reading this will know this is still miles away from good focus and reinforces the need for a solution like DSLRFocus. At this point I connect the camera to the software and select the focus option. I then press the space bar and seconds later I have a full size image. The software has a neat grid feature that allows me to quickly find the centre of the image and I place my curser on a fairly bright star. Immediately the image is minimized and I have now have access to a series of graphs Including Full width half maximum and a sub frame of the selected star (Figure 1).

If I have a digital focuser I can auto focus, in my case I am using a Meade electronic focuser and I am able to make minute adjustments whilst sitting at the laptop. After an adjustment I simply press the space bar again and another sub frame of the same star quickly downloads. Using a combination of the graph, the FWHM numbers and the image itself I can achieve good focus in a matter of a few minutes. Ok ready to go.

I now slew the short distance to my object of choice for the evening, in this case 47 Tucanae (NGC104). The reason I focus nearby is to avoid mirror flop on my Cassegrain potentially requiring a refocus.

My GOTO is good so I am confident that the object will be on the chip. I simply change the exposure time from around 4 seconds (for focusing) to 30 seconds and after this image has downloaded I can view the image in a frame and more importantly place a cross hair on it. Now I can move the scope or the camera to achieve the image I want. When the object is centred I can change to the long exposure mode that switches the 300D into bulb mode. I select 40 exposures and an exposure time of 30 seconds. As the camera is in bulb mode I can choose any imaging time I want. The 300D starts to show some noise after 3 to 4 minutes so for that reason and the fact that I am not auto guiding I tend to go with shorter time frames and stack my images. I choose where I want the images to be saved, in this case I have a large card in the camera so to speed up the process I save the images to the camera, lastly I select ISO800. I like to have an idea of how it is progressing so at the risk of annoying my neighbours I also switch on the voice countdown feature. The software gives me the ability to allow time between exposures and also if available on the camera mirror lock. For this session I allow 10 seconds between each image to stabilize the camera mirror. I press start and step back. After the first image I can select the review option and have a look at the image thumbnail, which will give me an idea of how I am going. There are also automating functions that would allow me to program a more detailed imaging session.

The results for the evening are great and would be very hard for me to achieve without the software. I have a lot of Astronomy software; DSLRFocus is amongst the most vital.

Review by Paul Medcraft

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Website: http://www.hamiltonrasc.ca/

Observatory Phone: (905) 689-0266

E-Mails:
General Inquiries: hamiltonrasc@hamiltonrasc.ca
President: president@hamiltonrasc.ca
Secretary: secretary@hamiltonrasc.ca
Treasurer: treasurer@hamiltonrasc.ca
Orbit Editor: orbit@hamiltonrasc.ca
Web master: webmaster@hamiltonrasc.ca

Location: 576 Concession 7 East, Flamborough ON

Mailing Address:
Hamilton Centre, RASC
Box 1223 Waterdown, Ontario
L0R 2H0

Finally, one last thing from Paul Brandon:

Hi Roger,

I'm hope you have been swamped with material, especially related to Comet Holmes.

I have never seen a more beautiful sight on a PSP (Playstation Portable)! Chris Wilkinson has shown several of us his picture
(attached) on his PSP.

It is a 30 second exposure with a Canon Rebel XT mounted on his 127mm Maksutov taken Nov 10/07.

Oscar, Chris and I visited David Gilbank last Friday and Chris was showing us his picture. Coincidentally, David was out earlier in the evening sketching Comet Holmes and the comparison is amazing. David has done a series of sketches of Comet Holmes, but doesn't want to release them until they are "right." He still has to add some colour.

Thanks, Chris...nice picture of a truly unforgettable comet. I'm looking forward to seeing David Gilbank's sketches.