Orbit

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Roger Hill, Editor

I had a very pleasant November. Did some astronomy, although not as much as I'd like, took some vacation time, and started dreaming about my next astronomy adventure.

Last month, I talked a little about re-doing my observatory roof, and that I'd taken my 12" SCT to the observatory. With my work schedule, other commitments and the lack of clear nights, and it was well into November before I had a chance to use it again. I must admit, the concrete pier is, in many ways, a big improvement over the old wooden one: for one thing, it has no trouble holding the big scope, wedge, guide scopes, cameras, balancing weights, etc! My old pier had been built with a telescope in mind that weighed in at less than 50 pounds, and with visual use in mind. Like so much that has changed in astronomy, it now has to hold around 150 pounds, and the tolerances are much finer with astrophotography now much more prevalent.

So this was the first time I'd put it all back in the observatory using the new pier, new roof and new park position. One of the good things about the new park position is that the autoguider can stay installed on the scope. One of the bad things is that with the finder scope attached, the GPS antenna can see less of the sky that is desirable. It's much better when it's tipped on it's side, and there's nothing in the way of it seeing the satellites. Still, can't have everything.

After getting polar aligned again, using the iterative method (see Orbit, October 2008, page 6), re-balanced, and everything working smoothly, I had a very pleasant evening. The seeing was actually pretty good, and I spent a little time watching Jupiter. It still looks strange with a belt essentially missing, but there's no doubt that in a good scope, on a nice night, that looking at Jupiter can be a thoroughly enjoyable experience.

One of the other things I've done recently was to fix the hand controller. The Autostar II hand controller has seen a lot of use over the last few years, and the keys were not as responsive as one might wish for. A couple of years ago, Colin Haig had the thing apart, and it worked quite well for a while. But the message boards relating to all things LX200GPS were full of reports that this type of fix is temporary. There is a permanent one, though, with involves a four step process, and replaces the carbon impregnated contacts on the back of the rubber membrane with much more conductive silver.

Last month I was visiting Sayal in Mississauga for a null modem cable and saw the rubber keypad repair kit. A quick glance at the instructions and I knew that this was something that I could do. If I took my time, and waited for everything to dry, it would take 2-4 hours, so yesterday afternoon, finding myself with a couple of spare hours, I started the job. Basically, it involves cleaning the carbon-impregnated silicon, preparing the surface to accept a sealant, sealing the surface and then applying a silver based paint. All went well until it was time to re-assemble the controller (it was going to be clear last night), when I read that you're supposed to leave it for 24 hours, not 2-4 hours! Ouch! So, I left it for four hours anyway, and then checked it over. The silver paint was quite hard, and had adhered to the sealant (crazy glue!) with no apparent problems. I put the hand pad back together and then took it outside to test it. It worked perfectly, taking a light touch for most keys. Taking it apart today revealed that there has been no transfer of silver from the back of the membrane to the circuit board. Phew!! Still...maybe Santa will bring me that wireless LX200GPS hand controller I've had my eye on for a while!

While I was floating around the Caribbean earlier this month, I picked up a new lens in St. Thomas in the US Virgin Islands. While my wife was happily trying to shut down every jewellery store by purchasing their entire stock, I found a camera store that had a nice assortment of zoom lenses. They also had a couple of primes, too, but they were well out of my league. Actually, most of the lenses were out of my league. Still, they had a Canon 75 to 300mm zoom there for $150 (normally $250), that was most intriguing. I use a Sigma zoom lens, 18 to 125 as my normal every day lens. It is actually very good for astronomy, too, being nice, sharp, and does not suffer from chromatic aberration.

As much as I could, I tested the lens in the store, and it appeared to be nice and contrasty, quite sharp, and the autofocus appeared to be very good, too. I couldn't leave it there. I haven't had a chance to give it a good test, yet, but even if it turns out to be lousy for astronomy, it'll still be useful for general picture taking. I have an old 300mm F/4 Pentax thread lens that is quite good. The addition of the Astronomik UHC filter should rid it of the touch of chromatic aberration it suffers from.

As far as the Centre goes, you should know that our membership is increasing, and with more people on the Board this year, we're looking forward to doing some good things. The first one on the agenda is finishing off the repairs to the 16" RC. We had Paul Mortfield out at the site while I was down south, and he performed an exacting collimation on the 'scope. According to one report that I got, it is performing exquisitely visually. There is a tiny bit of tweaking still to do, but it needs a star test for it.

We're going to look at a make-over, or possibly a complete re-vamping of the Centres web site.

Our sidewalk astronomy will be getting a boost, as well, with a partnership that is well on it's way to being finalized.

We're also looking at holding one meeting at the David Dunlap Observatory...in the early spring of 2011. This could be your chance to have a look through a 1.88 meter Cassegrain with a 33 meter focal length!

After our November meeting, and the interest in it, we are going to (if you'll excuse the term) focus on astrophotography a bit more. At the moment, we're not sure if we want to do a full blown series of lessons, or if there will be a meeting once a month at the Observatory, with a topic of discussion. The latter would be similar to the Discussion Groups that were held in the Hamilton Centre many years ago. Starting off with things like tripod mounted images, then moving on to piggy-back work with regular and telephoto lenses, and later going into the use of autoguiders, prime focus, etc. would seem to be the most logical way to go.

And speaking of astrophotography and the 16", there are several people who would like to get something like the Moonlite focuser, which would allow software running on the Observatory computer to automate the process of focusing with Canon cameras.

The conversion of the 17.5" scope to a Dobsonian type of mounting is proceeding. We don't have an expected timeline, as the team who are doing the conversion also hold down day jobs and their spouses would like to see them occasionally, too!

There are other initiatives that are a bit more advanced from the "Blue Sky" phase, and not all of them will ever come to fruition, whether through a lack of funds, manpower, or the lack of a "champion", but some of them are very exciting.

Finally, let me just say "Thanks" to Andy Blanchard, who stepped forward last month to do a meeting on Astrophotography. For those who were disappointed that there weren't very many of Andy's images in his talk, check out the front cover this month. It's a lovely image of Omega Centauri. Andy recently learned a new technique that stopped the stars in the middle from being massively over-exposed, and now it's resolved right to the core, and is a good representation of what this incredible object looks like through a large scope.

Clear skies, one and all,

Roger Hill
Orbit editor and President.

Mists of Mew Lake: A Star Party Initiation by Mike Ducak

Nightfall over Algonquin Park. As the sky deepens to dark velvety blue the brightest constellations emerge. The air is crisp and cool as I make the short walk to the Mew Lake beach, where early in the evening I had gone down to set up my big black reflecting telescope, an Orion XT8 Classic. At least it had seemed a big scope to me before this trip, but when I first arrived at the beach just before sunset I had to stop and feast my eyes on the dozens of telescopes already waiting there, some hidden under shrouds, most far bigger than mine. All sorts of scopes: long-focus refractors, short-focus reflectors, computerized SCTs, and several gigantic Dobsonians, including one eight-foot-tall behemoth requiring a ladder to view through.

For veterans of such events this is perhaps nothing to get excited about but it's my first star party and up to now the biggest scope I've used is my own. As the sun sank into the treetops I selected a flat patch of grass near the water and set up my reflector. I had also brought my new Sky-watcher observing chair and my new eyepiece case, a shiny silver toolbox lined with foam. I felt very well-prepared until I realized I had forgotten my finderscope.

Leaving the comfort of my campfire, I arrive at the lake and go past the line of trees to where the grassy beach opens up. It is quite dark now but the beach is dotted with red lights and green laser beams slash through the air, crisscrossing as they trace the outlines of constellations and point out naked-eye clusters and galaxies. Another first for me: I have never seen these lasers in action and I smile as I take it all in. Respectfully quiet, excited chatter floats from the darkness and I pick my way carefully across the grass, trying not to think of the goose droppings I'm stepping in, to where my telescope is nearly invisible in the blackness. I say hello to my neighbour and he comes over and introduces himself. He's a friendly young Romanian named Ciprian, from the Toronto RASC like many of the others at Mew Lake this weekend. After becoming acquainted we marvel at the brightening Milky Way arching over our heads, then spend some time picking off familiar objects. I live in the suburbs and Ciprian is from Toronto so even before full dark galaxies like M31 and M51 exhibit startling detail. We switch to his 10-inch Sky-watcher reflector and the images are brighter still.

It is not yet 9:00 yet our telescopes are already glazed with cold dew. My Telrad is quickly becoming useless and Ciprian's finderscope has completely fogged up; he goes to dry it off with the heating vents in his car. A fog is rolling in from the lake, mingling with the smoke from camp fires. The water is glassy and there is little breeze. I wonder what other campers must think, those who didn't hear about the star party, about all the green laser beams piercing the dark glittering sky.

Someone cries out "ISS!" and we all look around until we see the bright point of light moving over the southern horizon, appearing to quicken until it is gliding over our heads, almost as brilliant as Venus was in the early evening. I've never seen the International Space Station before. I entertain trying to view it through my telescope but it is moving too fast.

Now Ciprian is back and we decide to roam around and look through some bigger telescopes. We see some splendid galaxies and nebulae through a 12-inch Meade Lightbridge with a noisy fan. I try my hand, with quick success, finding M13 by slewing with the arrow keys of an 11-inch Celestron CPC, my first encounter with a computerized scope. We observe a faint nebulous patch in Cygnus called IC 5068 through a 14-inch Portaball. Everywhere we go people are friendly. Curious campers wander around in the dark, many viewing deep-sky wonders for the first time. I can hardly keep the smile off my face.

At last we make our way to the back corner near the trees where the monstrous 20-inch Obsession awaits. Unable to get the attention of the owner, I dare to commandeer the giant telescope for my own purposes, marvelling at its smooth effortless motion as I guide it by hand. In seconds I have it centred on the Great Andromeda Galaxy, which I had already viewed several time tonight but not like this. Now I can see the prominent dust lanes running lengthwise along the bright galactic disc. Neighbouring galaxy M110, usually faint and indistinct in my Orion, is as bright and vivid as any galaxy I've seen. "I've gotta get me one of these," I say to no one in particular. Someone laughs behind me. I turn from the eyepiece, a big-barrelled Nagler Type 2, and I see that a crowd has formed around me, anxious for a look through this telescope that resembles artillery more than anything else. Since there appears to be no objection from the owner, whom I still haven't met, I oblige them. Several times a variation of this conversation plays out:

"Wow, that's an amazing telescope."

"Thanks, but it's not mine."

"Oh, so whose is it?"

"I have no idea. Probably that guy's."

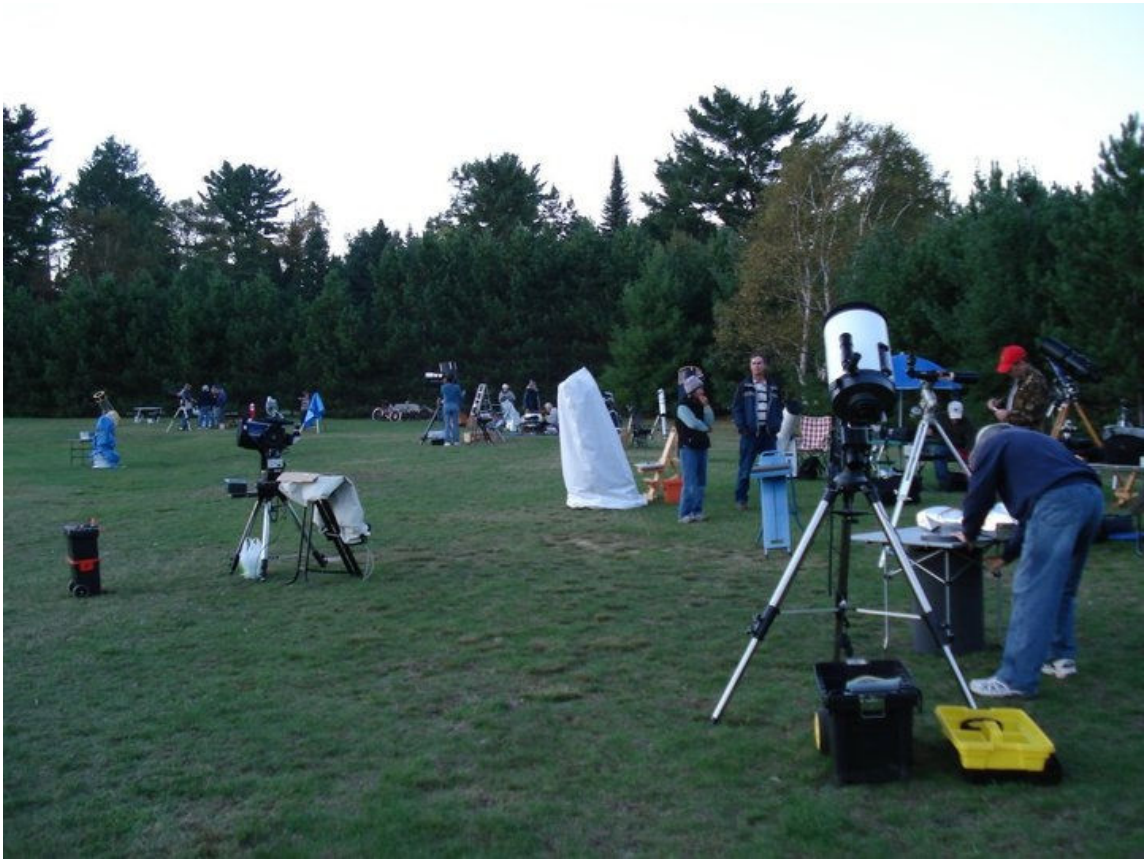
"You mean you just walked up and sort of took it over?"

"Pretty much."

Eventually someone from the owner's party comes over wanting to point the big scope at Jupiter, which shines bright and low over the trees to the east. It is a good thing because we do so in time to catch its great moon Ganymede transiting the face of the gas giant, a pale dot on the striped planet's forehead. Near the edge Ganymede's shadow is a stark black circle. The image is not so good—Jupiter is too low in the sky for a real view—but it is always impressive to catch a shadow transit unexpectedly. Later, through a different scope, we will watch Ganymede appear as a little bump, like a pimple sprouted on the edge of the planet, before detaching itself and continuing to drift along its orbit.

By midnight the dew has claimed many casualties. My chair is too wet to consider sitting on, and any eyepiece I drop into the focuser fogs up as soon as I put my eye to it. Those with dew heaters can continue to enjoy the fine clear night as the temperature falls toward its expected low of 4 degrees Celsius, but for me and many others it is the end of our astronomical adventure. My voice is hoarse from nonstop talking and exclaiming and explaining. I lug my gear along the dark gravel road back to my site. The fire is out but in the yurt it is warm from the electric heater and when I try to sleep I can't because I've had too much fun and my mind is busy trying to replay those good experiences.

The next day is warm but cloudy and when I go to the beach I can't help but feel saddened by the sight of empty goose-eaten grass, only three scopes remaining now. I waited with such anticipation for this weekend and it has come and gone in a flash, but I made the most of it and for the next week while at work I think fondly of that clear cool night in Algonquin and the sights I saw and the people I met, and already I'm looking ahead to next year, and trying to devise a way to convince my wife that I need a 20-inch telescope. Such are the dangers of star parties.



Dark Jupiter May Haunt Edge of Solar System By Lisa Grossman

A century of comet data suggests a dark, Jupiter-sized object is lurking at the solar system's outer edge and hurling chunks of ice and dust toward Earth. "We've accumulated 10 years' more data, double the comets we viewed to test this hypothesis," said planetary scientist John Matese of the University of Louisiana at Lafayette. "Only now should we be able to falsify or verify that you could have a Jupiter-mass object out there."

In 1999, Matese and colleague Daniel Whitmire suggested the sun has a hidden companion that boots icy bodies from the Oort Cloud, a spherical haze of comets at the solar system's fringes, into the inner solar system where we can see them. In a new analysis of observations dating back to 1898, Matese and Whitmire confirm their original idea: About 20 percent of the comets visible from Earth were sent by a dark, distant planet.

This idea was a reaction to an earlier notion that a dim brown-dwarf or red-dwarf star, ominously dubbed Nemesis, has pummelled the Earth with deadly comet showers every 30 million years or so. Later research suggested that mass extinctions on Earth don't line up with the Nemesis predictions, so many astronomers now think that object doesn't exist. "But we began to ask, what kind of an object could you hope to infer from the present data that we are seeing?" Matese said. "What could possibly tickle [comets'] orbits and make them come very close to the sun so we could see them?"

Rather than a malevolent death star, a smaller and more benign companion called Tyche (Nemesis' good sister in Greek mythology) could send comets streaming from the Oort Cloud toward Earth.

The cosmic snowballs that form the hearts of comets generally hang out in the Oort Cloud until their orbits are nudged by some outside force. This push could come from one of three things, Matese said. The constant gravitational pull of the Milky Way's disk can drag comets out of their icy homes and into the inner solar system. A passing star can shake comets loose from the Oort Cloud as it zips by. Or a large companion like Nemesis or Tyche can pull comets out of their comfort zones.

Computational models show that comets in each of these scenarios, when their apparent origins are mapped in space, make a characteristic pattern in the sky. "We looked at the patterns and asked, 'Is there additional evidence of a pattern that might be associated with a passing star or with a bound object?'" Matese said.

After examining the orbits of more than 100 comets in the Minor Planet Center database, the researchers concluded that 80 percent of comets born in the Oort Cloud were pushed out by the galaxy's gravity. The remaining 20 percent, however, needed a nudge from a distant object about 1.4 times the mass of Jupiter. "Something smaller than Jovian mass wouldn't be strong enough to do the deed," Matese said. "Something more massive, like a brown dwarf, would give a much stronger signal than the 20 percent we assert."

There's one problem, however. The pattern only works for comets that come from the spherical outer Oort Cloud, which extends from about 0.3 to 0.8 light-years from the sun. Comets from the flatter, more doughnut-shaped inner Oort Cloud don't create the same distinctive pattern. "That's troubling," Matese said. "It requires an entirely new dynamical explanation for how inner Oort Cloud comets are made observable."

That the same weird pattern from 1999 is still there today "definitely makes it a stronger case than past papers," said planetary scientist Nathan Kaib of the Canadian Institute for Theoretical Astrophysics, who was not involved in the new work. But he would still like to see more data. I think this whole issue will be resolved in the next five to 10 years, because there's surveys coming on line … that will dwarf the comet sample we have today," he said. "Whether these types of asymmetries in the directions that comets are coming from actually do exist or not will definitely be hammered out by those surveys."

We may not have to wait that long, Matese said. An object like Tyche could be seen directly by WISE, NASA's infrared space telescope. "We anticipate that this WISE is going to falsify or verify our conjecture," he said. "We just have to be patient."

Polar Alignment

There are few procedures that need to be done so frequently that are as filled with trepidation and mystery as polar alignment. We recently had to polar align the 16", and although I wasn't there that night, the procedure was successful...or so I'm told!

People with GOTO mounts can get very close indeed, by simply GOing to a star like Pollux, SYNCHing on it, Going to Polaris, and then adjusting the mount to take away half the error. Repeat as necessary until you are happy. I normally do this until both stars are placed in the centre of a high power eyepiece. I have used a CCD camera (Meade DSI) to place both stars in the centre of the screen, which produces a finer tolerance.

There are other methods, though. Some will get you close, and then you use a different method to get extremely close. Using a Polar borescope in a German Equatorial, for instance, and then doing a drift alignment.

I recently found out about two other methods for alignment that are really modifications of the Drift Alignment technique. I haven't tried either of them out yet, but I may do if we get a few nights of clear weather, where I feel I have the time, rather than trying to get photons to fall on the CMOS chip of my Canon XSi.

Basic drift alignment:

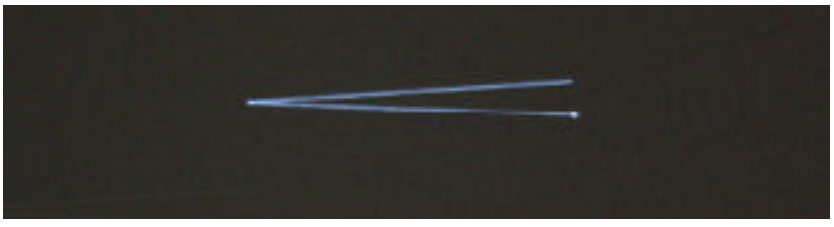
With drift alignment you position the telescope close to the Meridian and at 0° declination. You then watch to see if the star is drifting North or South and adjust the Azimuth (east-west) knobs to stop the drift.

Once you're happy, point the telescope at a star as near to the Eastern horizon as you can. Repeat the process, but this time move the mount in Altitude to stop the drift.

CCD Drift method:

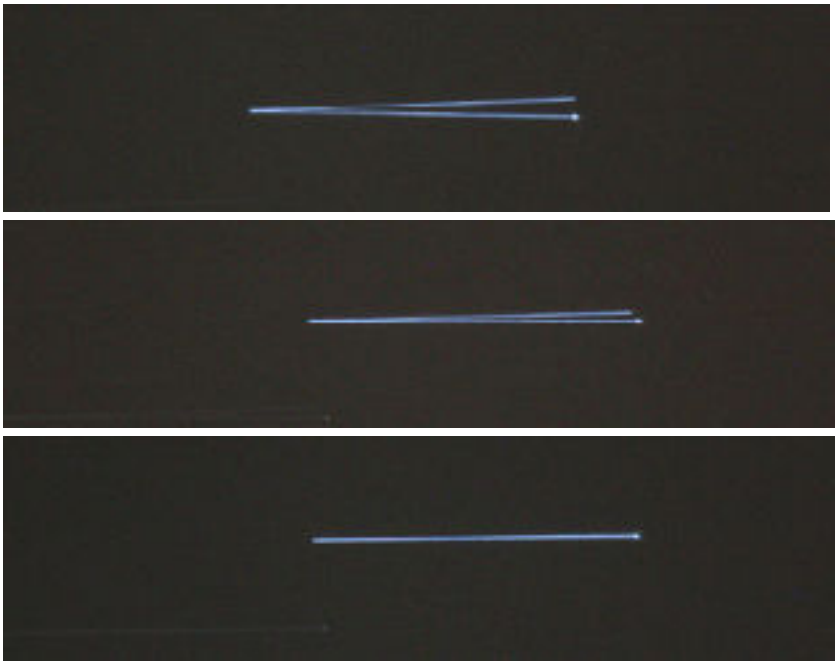
The first of the modified drift methods that I heard about is the CCD drift method. Steve Barnes showed this one to Les and I a couple of years ago, and I forgot about it until I saw it again on a web site.

1.Set your telescope to point due south and at 0 degrees DEC.
2.Find a semi-bright star. A 6th magnitude star works perfectly, but a dimmer star can be used.
3.Insert your CCD or DSLR camera into the eyepiece holder or attach via the t-adapter.
4.Focus the star for the CCD or DSLR.
5.Once focused, move the star to the right hand side of the camera sensor.
6.Set your telescope to its lowest drive speed. Typically a guide rate mode.
7.Set your camera software to take an exposure of 125 seconds. The first 5 seconds is used to create a point of reference on the image.
8.As soon as the first five seconds have elapsed, then press the W on the telescope keypad to cause the star to move to the opposite side of the sensor.
9.For the first minute continue to move the telescope West. As soon as the first minute has elapsed, immediately reverse the telescope direction.
10.When the second minute has finished, stop moving the telescope.
11.After the image has downloaded, you should have something that looks similar to the image below.



This is an initial image taken. What you see is the angle of deviation. What we are trying to do is to make the < a solid line. In order to correct this, we have to make some adjustments to the azimuth on the telescope mount. Notice that the initial star point is lower than where the exposure finished. This tells us that the telescope if pointing too far West. So to fix this, make a correction to the azimuth control to move the telescope East. So to fix this, make a correction to the azimuth control to move the telescope East.

Now, follow the same steps again. When the image has downloaded, it should show that the angle of deviation has decreased. Repeat the process until both lines appear to be superimposed:



Once you have the azimuth fixed, you have to fix the altitude. To do this you simply move the telescope to a star along the Eastern horizon and at 0 degrees Dec.

The only difference this time is that you adjust the altitude instead of the azimuth. The process is identical with the proviso that you adjust the altitude of the mount. If done correctly, you will have a very accurately aligned telescope.

Now that you are done with the altitude adjustment go back and double check your azimuth alignment. If everything checks out ok, then you are finished.

Polar alignment using the PHD Autoguiding software.

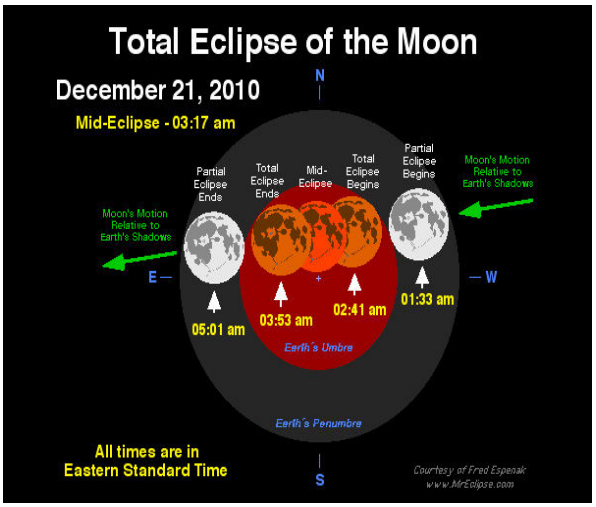
The process begins as all the other drift alignments. To check the Azimuth alignment, chose a star at 0° declination close to the meridian. For Altitude, use a star as close to the Eastern horizon as possible.

1. Turn on the guiding program (PHD) , select the mount and camera and run through your calibration as usual.
2. Start Guiding on the selected star.
3. Turn on the GRAPH and select DX/DY instead of RA/DEC.
4. Turn off the DEC guiding
5. If your mount is perfectly aligned the DY (red line) should track across the graph near the center line. If it drifts up or down you need to make a very small adjustment to the AZIMUTH to compensate for that. You will see the change immediately. No need to wait 5 or 10 minutes for the visual drift.
6. Now set up the elevation.
7. Stop the guiding and look for a star near the eastern horizon.
8. Recalibrate the guiding on the new star.
9. As in step 2, 3, and 4, start guiding and make sure that the DEC guiding is off.
10. Once again if your alignment is on then the DY trace should not drift from the horizontal graph line. If it does, carefully make small adjusts to the ELEVATION screws to compensate. Again you should see an immediate change in the graph.
11. This process is simple enough to allow you to check you polar alignment whenever you feel it necessary. The only requirement is that you get a copy of PHD and have a camera that is supported by the program (there are many).

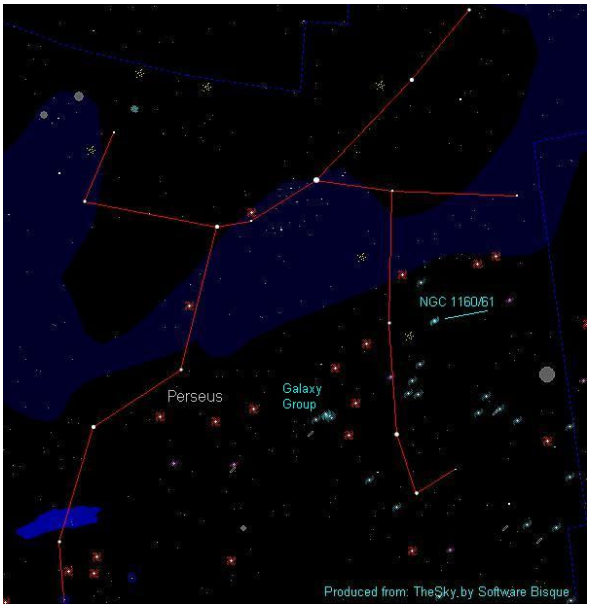
A Long Overdue Eclipse

The last time Canada had a ringside seat to a total lunar eclipse was on February 21, 2008. From my backyard observatory in Ottawa the night was cold and very clear thus leading to a perfect night of observation and photography. A great advantage of a winter eclipse is the Moon's position high on the ecliptic. It was truly a night to treasure in more ways than one.

But now, thirty four months later the drought is finally over. Our natural satellite will again hide in the icy shadows of mother Earth for a three and a half hour show on December 21 – the same date as winter solstice which occurs at 6:38 p.m. Eastern Standard Time. On the east coast of North America the Moon will make first contact with Earth's shadow at 1:32 a.m., mid-eclipse will occur at 3:17 a.m. with the show ending at 5:01 a.m. At fourth contact when the Moon completely leaves our shadow.



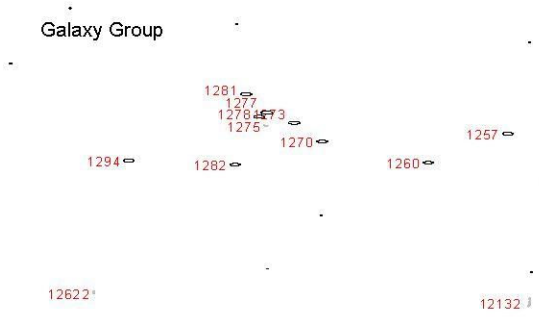
During its path under the veil of totality when the lunar landscape turns a coral orange, use a telescope to see stars disappear on the east side while others reappear on the west side. Depending where you are located in North America, the Moon comes very close to the open cluster NGC 2129. The colour change is a result of sunlight refracting through our atmosphere or if you were on the Moon during totality, you would see Earth's thin atmosphere as a bright orange ring. So get out those cameras and enjoy this celestial show as the next all night total lunar eclipse will take place on April 15, 2014.



With the eclipse spectacle lasting only one night, what do we do for the rest of the month? Well if you look straight up at the zenith on clear nights, you will gaze upon Perseus the hunter. Mythology portrays two hunters in the sky with Orion being the other guy. Within its boundaries, the constellation is home to fine examples of different types of stellar wonders such as the star party favourite – the Double Cluster.

These two separate clusters containing hundred of stars each seem to be close neighbours but they reside 7,300 and 7,700 light years from us. The duo is a naked eye object from light free suburbs. So the next time someone asks how far can you see, point to the double and let them know how far the naked eye can see.

For our astrophotographers, the California Nebula is a fairly easy target to image. Measuring some five full moons placed side to side in the sky, photography is the best way to gaze at this emission nebula. It is listed under two catalogue numbers: NGC 1499 and Sharpless 220. If planetary nebulas are you cup of tea, might I suggest NGC 1514. It possesses a very random design. Its central star is quite visible.



What constellation does not harbour galaxies? There is a galaxy group consisting of NGC 1273/1275/1277/1278/1281 and 1282 with the faintest being about 14th magnitude. Another little pair is NGC 1160 and 1161. Both are 13th magnitude and reside close to 3 arc minutes apart. Astronomers estimate they reside 133 million and 103 million light years from us respectively.

We even have a wonderful variable star. Algol (the Demon star) is an eclipsing binary meaning a smaller companion star is orbiting Algol and thus changing the light curve. With only the naked eye, one can follow two complete cycles in a week. Like clockwork Algol's light dips from magnitude 2.1 to 3.4 every 2.87 days.

And for a change of pace we will even through in one of the best meteor shower of the year. On the night of December 13/14 the Geminids will be in all their glory. This shower has a constant rate of 120 meteors per hour and will peak around 6 a.m. on the east coast. The Geminids is a very slow and graceful shower with meteor speed half that of the Perseids or 35 kilometres per second. Best views are out of town away from stray lights. The show commences after sunset with greater numbers seen when the constellation is high.

From planet watchers, Jupiter's missing belt is slowly returning to view after a long vacation. At 5:45 p.m. eastern on Christmas Day, the king of planets will be sporting two shadows from Io and Europa. With a telescope (maybe from the one found under the Xmas tree) follow the shadow's slow migration across the face of Jupiter. This should take about two hours and fifteen minutes. Consult page 236 of the 2010 Observer's handbook for other transit timings in December.

And finally - speaking about telescopes as gifts, try to stay away from the bargain telescopes sold at department and big box stores. Consult members of your RASC Centre or club on what and where to purchase that special scope. There are many dealers located in Canada.

So as you can see, there is something this month for pretty well every one. Have a Happy and safe Holiday Season.

Until next month, clear skies everyone.

Gary Boyle

PEACE ON EARTH

The Archer is wake!
The Swan is flying!
Gold against blue
An Arrow is lying.
There is hunting in heaven--
Sleep safe till to-morrow.

The Bears are abroad!
The Eagle is screaming!
Gold against blue
Their eyes are gleaming!
Sleep!
Sleep safe till to-morrow.

The Sisters lie
With their arms intertwining;
Gold against blue
Their hair is shining!
The Serpent writhes!
Orion is listening!
Gold against blue
His sword is glistening!
Sleep!
There is hunting in heaven--
Sleep safe till to-morrow.

William Carlos Williams, 1913

CANIS MAJOR

The great Overdog,
That heavenly beast
With a star in one eye,
Gives a leap in the east.

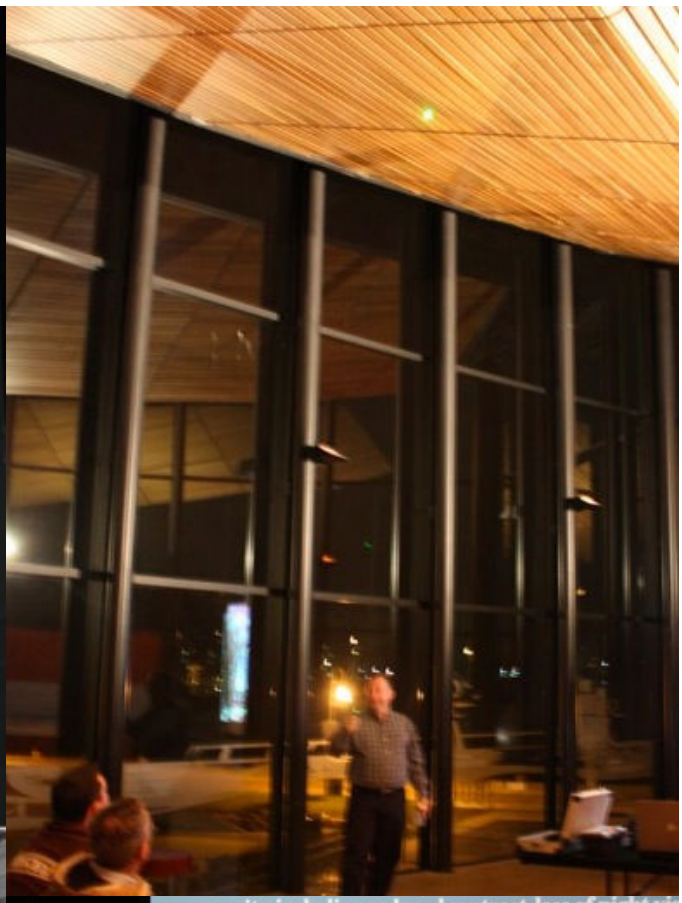
He dances upright
All the way to the west,
And never once drops
On his forefeet to rest.

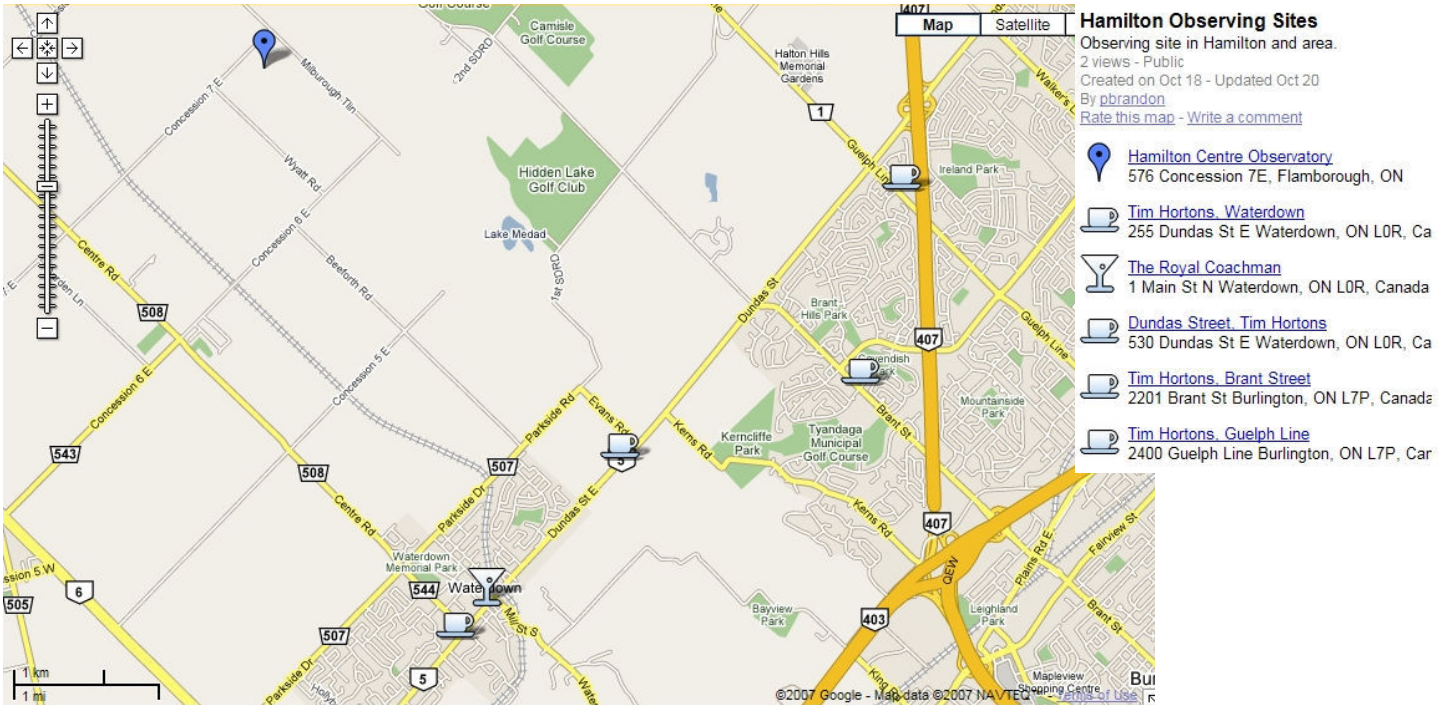
I'm a poor underdog,
But to-night I will bark
With the great Overdog
That romps through the dark.

Robert Frost, 1928

What you missed in November...!

Our November meeting was shaping up to be a bit of a train wreck. The day before, our scheduled speaker came down with a nasty case of the flu. Despite a huge amount of imploring, other local centres couldn't/t come up with a replacement quickly enough. Andy, who'd done some publicity for the meeting, said that he'd had some calls back from people who were coming out specifically for the lesson on astrophotography. He offered to put something together quickly. Colin Haig also had two presentation from the RASC that he gave. One was on the strategic plan for the RASC for the next decade, and another on Green Laser Pointers. We all learned a lot that night, not the least that there is a huge amount of interest in setting up an astrophotography interest group, run out of the observatory.





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What you Missed pictures by Ed Mizzi. Front cover photograph by Andy Blanchard, Mew Lake by Mike Ducak, Lunar Eclipse of February 28, 2008 by Roger Hill