PeGASus
Newsletter of the
Royal Astronomical Society of Canada
Prince George Centre

November 2006

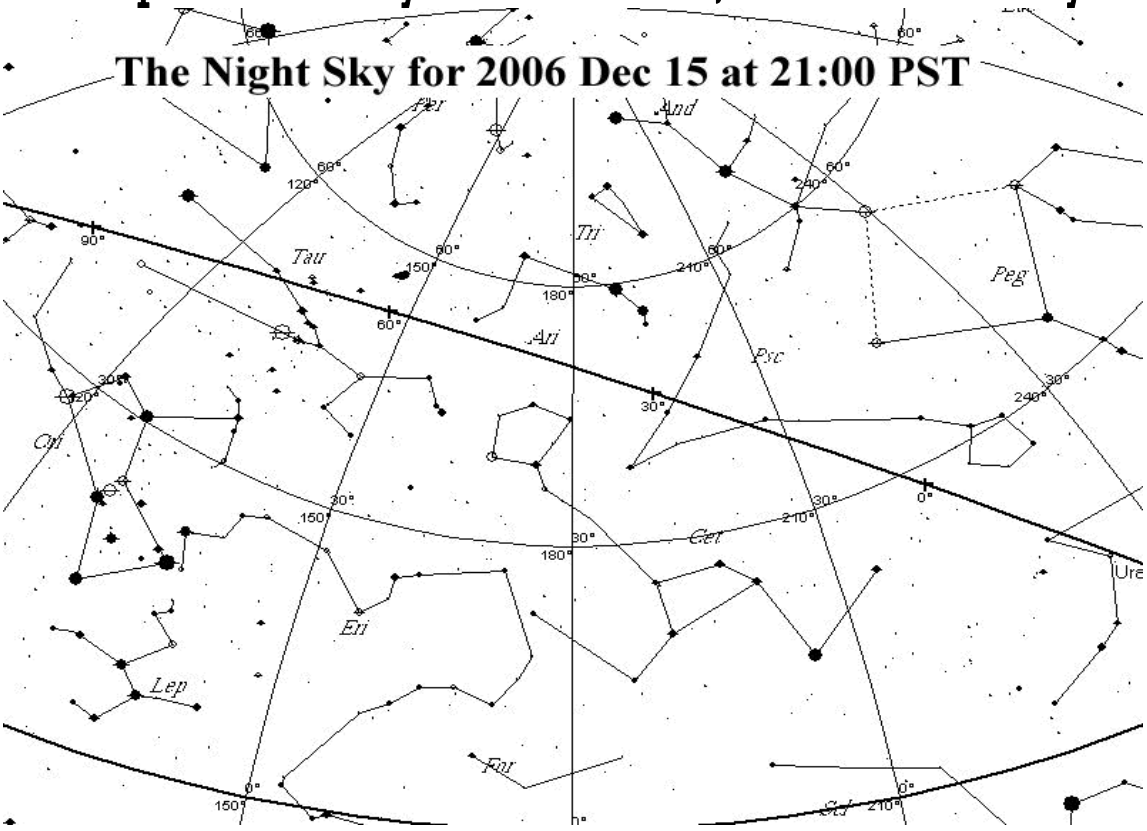
Our pursuits are out of this world.
Our activities are astronomical.
Our aim is the sky.

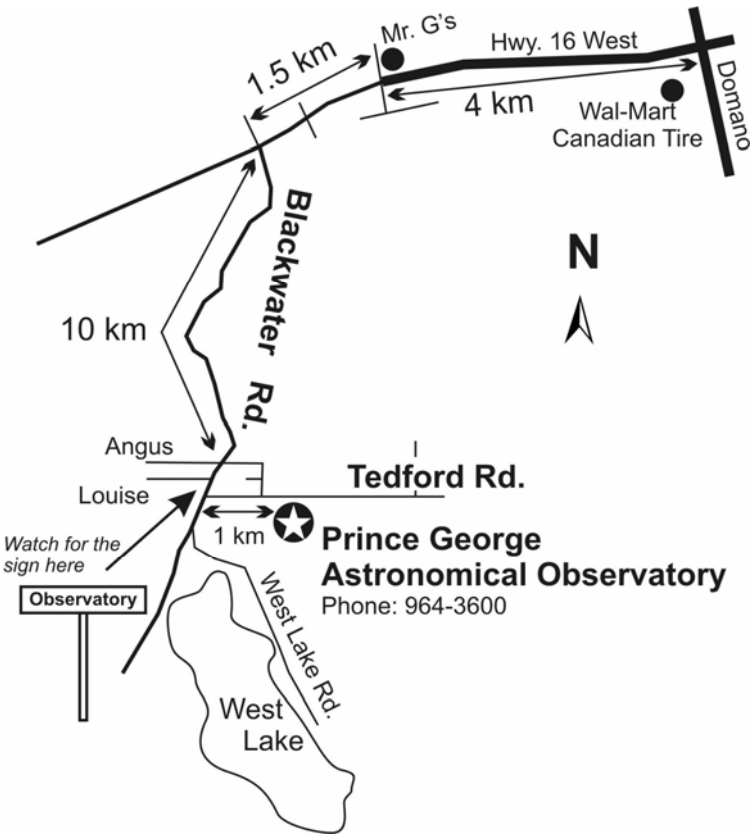
In Issue # 155

the PeGASus
is published monthly by the
Royal Astronomical Society Canada
Prince George Centre
www.rasc.ca/princegeorge

The RASC-PG meets next,

7:30pm Wednesday November 29th, at The Observatory





Contributions to the newsletter are welcome.

Deadline for the next issue is

January 12 2007

PeGASus Editor

Gil Self selfpg@telus,net

Send correspondence to

Prince George RASC
7365 Tedford Road
Prince George B.C.
V2N 6S2 phone:964-3600

RASCPG
Executive, 2006/2007

President
Gil Self
964-7279
selfpg@telus.net

Vice President
Maurice Sluka
563-3337
msluka@telus.net

Secretary
Glen Harris
562-4488
g_harris@telus.net

Treasurer
Bob Nelson
563-6928
bob.nelson@shaw.ca

National Council Rep
Alan Whitman

Members at Large
Jim Arnold
Fae Mooney
Hugh Kennedy
Jim Toews
Doug Wayland
Blair Stunder

Past President
Brian Battersby

General Meeting 7:30 pm November 29
At The Observatory
Pot Luck Christmas Dinner
December 4th at 6:00pm

Regularly scheduled Open House and Members nights
Every Friday and Saturday evening in November

Editorial

WHAT'S OUT THERE / Who's Out There?

By Fae Collins Mooney

For this post-election issue I asked our executive members for the coming year a few questions. You may discover that you share many things in common with them.

Gil Self, President: Gil's membership in the PGAS/RASC began about 15 years ago. His interest in astronomy was kindled as a youngster, watching the Perseids. Today, it is the science, and the technology that he considers his favourite aspect of astronomy. I asked Gil how membership has assisted him in his personal astronomical pursuits. "It has certainly given me access to equipment and material I would not have had on my own," he relates, "but even more than that is simply the like minded people. The members are our best asset, people that share a similar interest and share their knowledge so freely."

When asked about a Lamplighter Moment, Gil says they are "many and varied, but most have been when doing tours, members of the public that suddenly understand some small detail or realize the size of it all, or young folks, every once in a while you see one catch the bug."

Gil's hopes for the centre this coming year are to "just keep doing what we do so well." And that is a lot!

Maurice Sluka, Vice President: Maurice has been a member of the PGAS/RASC since 2001, but his interest in astronomy extends back about 30 years. Visual planetary viewing, the science and technology of observing, and space exploration, he says, are his favourite aspects of astronomy. Being a member of the society has provided opportunities for Maurice to learn "from other more experienced members" and he enjoys "the camaraderie of like minded people". As we get to know each other and become "more familiar with each other's interests and goals," he observes, "with that greater understanding we can combine interests and work toward common goals within the society."

I asked him to share a Lamplighter Moment with us: "Viewing the dark night skies while walking at night in Vanderhoof during the 1970s, swimming with stars."

His hopes for the centre this coming year include "more visual viewing with other members and learning more about finding my way around the night sky." Also: "Helping to improve the operation of the observatory, to decrease workload on members and increasing access to the night sky for the membership and the general public." Maurice brings up one other important subject with his desire to "continue our efforts to reduce light pollution near the observatory and the Prince George area."

Glen Harris, Secretary: Glen, a member for 5 years, says his interest in astronomy spans 4 decades. "At the moment," he says, his favourite aspect of astronomy is "studying the moon in pursuit of the Isabel Williamson Lunar Certificate." On the benefits of membership he agrees with Maurice: "Learning from others." Another favourite for Glen is "helping to fulfill part of the club's commitment of outreach to the public, I also enjoy relating constellation legends while giving tours of the night sky with the laser pointer."

A Lamplighter Moment for Glen has been "pointing out constellations in the night sky to my young children many years ago." But there have been other moments as well: "Observing the change in crater definition over several hours of lunar observing. Seeing for the first time sun spots and solar prominences. Saturn!"

Hopes for the centre this coming year: "Armchair Astronomy and our ongoing NOVA courses bring many new members into the club. We need to find a way to keep them as members."

Bob Nelson, Treasurer: Bob is a founding member of the Prince George Astronomical Society; his membership spans 27 years, but his interest in astronomy, he declares, has been "off and on for 50 years." These days Bob enjoys CCD imaging, and the study and analysis of eclipsing binary stars. In answer to how membership has assisted him in personal astronomical pursuits he replies that he has "derived a great amount of personal satisfaction in starting the society/ observatory project 27 years ago and seeing the observatory become the success that it is. On the scientific side," he relates, "I started seriously taking data from eclipsing binaries using the 24" telescope in 1999-2001 - that got me started doing science (I mostly use my backyard robotic telescope and the DAO in Victoria now). I also took some photos of the comets 1995-96 at the observatory. I hope to use the upgraded telescope in the future both for scientific work and for astrophotography. I have also enjoyed the social aspects of this club and working with some fine people."

Asked about a Lamplighter Moment, Bob's response is "locating and estimating the brightnesses of AAVSO Mira-type stars for the AAVSO, starting in 1978 (first night: using a Celestron-8 on the roof of the College!), locating Vesta using the 24" telescope some 15 years ago, taking data with my robotic telescope in my back yard, taking spectra at the DAO and reducing the data, doing analyses and publishing papers."

There is always lots to be done at the observatory. Bob's hopes for the coming year include finishing "the telescope and dome upgrades, to put the Society on a sound financial footing, and to see our outreach continue on strongly."

There they are, our senior executive members. In the next issue the six Members at Large will be profiled, and our National Council Representative. My thanks to all members of the executive for taking the time to answer my questions, and for sharing their passionate interest in some of the many aspects of astronomy.

Fae

The Night Sky for December 2006

by Bob Nelson, PhD

Hi Folks,

Well, here it is another month – how time flies! It is getting colder, the nights are cloudier and our fall season is drawing to a close. (But that does not prevent us from having what appears to be a record season, in terms of booked tours!) Our little society is thriving, and there is much that we can anticipate. We have telescope and dome upgrades (slated to start in the week after Christmas), a new grant application (and with it the prospect a host of new expenditures), new outreach programs, and our annual Christmas party, December 4. Get the latest updates at our next meeting!

Anyway, if you can find any clear breaks, here's what is happening in the sky this month: [Note: All times are on the 24-hour clock, PST.]

MERCURY is a morning object all month. At mid-month, it rises about an hour before our favourite life-giving star. Then, it's a 5" disk of magnitude -0.6 some 6° above the south-southeast horizon. The 2006 Observer's Handbook informs us that it is the "best morning apparition of the year for northern observers". Also, on the 10th, it will be only 0.1° north of Jupiter. **The Observer's Handbook tells us that this is the closest conjunction of three naked-eye planets from 1980 to 2050, when all three will fit within a 1 degree diameter circle (Dec 10).** It's all for the early risers. sigh!

VENUS, an evening object, sets about 40 minutes after the Sun. It's a 10" gibbous blob of magnitude -3.9. Since Venus moves faster in its orbit than the Earth, that means it is moving east (left) relative to the Sun. The views will get better and better as the weeks roll by! (Venus will reach greatest eastern elongation sometime in June of next year.)

MARS, in Libra until December 7, when it passes into Scorpius, (until Dec 17, when it passes into Ophiuchus – where it will be until Jan 11, when it passes into Sagittarius) is a morning object, rising at mid-month about an hour before old sol. It reaches conjunction with Mercury on Dec 9 and Jupiter on Dec 12.

JUPITER, in Libra until December 5, when it passes into Scorpius (until Dec 28, when it passes into Ophiuchus), is a morning object, rising at mid-month about 2 hours before sunrise. Note that at sunrise, the three planets will lie approximately in an arc Sun-Mercury-Mars-Jupiter with the Moon away to the SSW. It could be a nice sight, with all three planets within 1 degree of one another.

SATURN, in Leo until 2009 (Sept), is an evening object, rising at mid-month at about 21:00 (PST). It is stationary on Dec 6 and stands about 55° above the E-NE horizon at the beginning of morning twilight. It's a 19" disk of magnitude 0.2. Very nice.

URANUS, in Aquarius until 2009 (March), is an evening object, setting at mid-month at about at about 22:47 (PST). As usual, it's a 3.6" disk at about magnitude 5.7.

NEPTUNE, in Capricornus until 2010 (March), is an evening object, setting at mid-month about 4 ½ hours after sunset. As usual, it's a 2.3" disk at about magnitude 8.0.

Winter Solstice (Summer Solstice south of the equator) occurs on December 21 at 16:22. It's first day of winter in P.G. (So we are told.)

CONSTELLATIONS to look for in December (at 21:00) are Fornax, Eastern Cetus, Western Eridanus, Aries, Triangulum and Western Perseus. This month, the description is all new.

Fornax (For, "The Furnace"), is another southern constellation with a number of faint galaxies. One of these, NGC 1201, a 1.5 x 1.0' galaxy at magnitude 11.8 – is surely a challenge object. A Google search reveals that there was a supernova of magnitude 12.5 there in 2003 Sept 9 (we must have been asleep at the time). At the southeast corner of the constellation lies the Fornax cluster of galaxies, but it is at the very limit of what we can see in Prince George. This is something to keep in mind if you take a portable telescope to Hawai'i, the southern US or someplace further south.

Eastern Cetus (Cet, "The Sea Monster"). In eastern Cetus, we see Omicron Ceti, or Mira ("The Wonderful"). Mira was the first of the long period variables discovered; maybe I'll discuss it next year again. Six or seven degrees northeast of Mira lies M77, a bright and compact spiral galaxy of 10th magnitude, also a topic for next year. Burnham's Celestial Handbook tells us that Gamma Ceti, 5 degrees west of Gamma Cet, is a nice yellow-blue double, separated by 2.7" (which should be easy for us to split). [The stars are A: 3.6 mag, Sp. A2 V; B: mag 6.2, Sp. dF3 – d stands for dwarf).] The distance to the pair is about 70 light years and the projected separation is about 60 astronomical units. However, the position angle has changed only 3° in the last century; that gives the system a period of several thousand years!! Wow! Talk about long-term studies!! Maybe every century, some unselfish astronomer could do his or her duty with measurements, and way in the future someone will get a publication out of it! Will the world as we know it still exist? No one knows. That is one of the fascinating aspects of astronomy, IMHO.

Western Eridanus (Eri, "The River"). is a large constellation out of the Milky Way; the southern part (which we cannot see from Prince George) zigzags its way south to -60 degrees where the bright star Achernar (Alpha Eri) resides. I talked about the triple star system Omicron 2 Eridani, so I won't do so this year. NGC 1232, which lies at 3h 08m, -20° 46' (visible in PG) is a fine multi-armed giant spiral which lies face-on to us. It was featured on *Astronomy Picture of the Day* (available at antwrp.gsfc.nasa.gov/apod) on 2001 May 22 and 1998 Sept 30. [Many of us have APOD as our home page for our favourite internet browser.] A Google search reveals that NGC 1232 is about 100 million light years away.

Aries (Ari, "The Ram"), is the first entry in the Zodiac and is a northern constellation out of the Milky Way. Burnham's tells us that this little constellation contains two galaxies of interest – the "coarse" spiral NGC 972 (3.2' x 1.6', mag 12.2) and the irregular system NGC 1156. A Google search for the former gave me a fine technical article in the Astronomical Journal for 1998. Apparently the galaxy has a peculiar shape and a complex dust distribution. There is a massive star formation going on there (of around 2.5 solar masses per year in the central part) - -hence the detailed study. The distance is about 22 MPc = 71 million light years. The Wikipedia on-line Encyclopedia has an entry for NGC 1156. We are told that it is a dwarf irregular galaxy which contains zones of contra-rotating gas thought to be the result of tidal interactions with another gas-rich galaxy sometime in the past. [NOTE: Wikipedia, available at en.wikipedia.org, contains a fine page on astronomy – just click on 'science', then 'astronomy'. There you'll find an article of the month, a picture of the week, 'In the News', 'Did You Know?', and much more.]

Triangulum (Tri, "The Triangle"), is a small constellation just south of Andromeda and contains the famous galaxy M33 ("The Pinwheel"), discovered by Messier in August 1964. I described it last year, so I

won't do so here. Another object of interest in this tiny constellation is the fine double star Iota Tri (I oughtta try – ouch!). This attractive double –- first observed by W. Hershel in 1781 -- consists of a strong yellow primary (G% III, giant star) and a pale blue secondary (F6 V, main sequence) 1.4 magnitudes fainter. It turns out that both components are double-lined spectroscopic binaries (the kind I observe in Victoria). The first has a period of 14.732 days, and the second, 2.236 days. Unfortunately, each orbital inclination is unknown (and never is, unless you have additional data). The computed distance is about 300 light years

Western Perseus (Per, "The hero that saved Andromeda"), is a northern constellation (appearing overhead at times), is in the Milky Way and contains many wonderful objects familiar to many of us. One object is Beta Persei or Algol, the most famous of the eclipsing binaries and the Double Cluster, that I talked about last year. Perseus is also the home of the "California Nebula", NGC 1499, that lies just north of Xi Per, one of the southern stars in the western leg. I can find no data on this striking nebula, other than it shines in the light of Hydrogen alpha (red) light, and is thus an excitation nebula (it fluoresces in the light of a nearby hot star). Just south of the XI Per lies Zeta Per, a B1 supergiant of magnitude 2.88. Since this star is relatively dim (for its luminosity of 6300 solar units), that tells us that it lies at great distance – and indeed it does: 1000 light years. Zeta Per is also the brightest member of the "II Per" association, an expanding group of bright O and B stars that seem to be moving outward at a velocity of 12 km/s from their common centre. Extrapolating backward tells us that the association is only about a million years old (a baby in cosmic terms!); therefore astronomers are using this association to test theories about stellar formation.

Cheers,
Bob Nelson

Questions for the GREAT COSMIC ENTITY*:

Q: O Great Cosmic Entity, please explain the term "nova".

A: Dear child of the galaxy, "nova" is a Latin word that in English means "new". When a star suddenly brightens in the sky we call it a nova, or new star ("stella nova" in Latin). The star, of course, is not new but only appears to be from our Earthly perspective because prior to its brightening it was either very dim or not visible to us.

"NOVA", however, stands for "New Observers to Visual Astronomy", and is located at The Observatory. This program is an introductory course in observational astronomy, available to all who are interested in expanding their understanding of the cosmos. Courses begin on the evening of October 21st. Contact (insert contact name) for more information.

Q: O Great Cosmic Entity, I request an answer to this question: Do binary stars both spin in the same direction, like twin propellers on an airplane, or do they rotate in opposite directions like mixers on a Mixmaster? Please sign me Spinny.

*The Great Cosmic Entity is the membership of the RASC PG Centre. Anyone may ask or attempt to answer questions addressed to the GCE.

A Plumb Closet

At the end of the main hallway opposite the main entrance is at first appearance a storage closet. Upon closer inspection plumbing appears as well as a second closet or as the building plans would label it Dark Room. Well the Observatory was built in 1992 and the class room containing this area in 1993. So how did this room become obsolete before the walls even received a coat of paint?

Well in 1969, George Smith and Willard Boyle invented the first CCD's or Charge Coupled Devices at Bell Labs. A CCD is an electronic memory that can be charged by light. CCD's can hold a charge corresponding to variable shades of light, which makes them useful as imaging devices for cameras, scanners, and fax machines.

Were not in the closet yet, in the early 1990's Intel's NOR-based flash memory and the CF based interface for portable media storage was first specified and placed in a standardized enclosure by SanDisk. The newer high capacity cards utilize NAND-based flash memory. All flash memory is electrically identical to the PCMCAI-ATA interface. It has now grown to include such names as; MiniCard, SSDFC SmartMedia), MicroDrives and current USB Jump drives.

The last and greatest piece of the puzzle is the digital camera. Both Digital cameras and video camera use CCD's, hence the CCD's being placed at the top of the list. We'll dispense with the video history side of this, to close to TV and stick to the digital photo. During the 1960 NASA converted from using analog to digital signals with their space probes to map the surface of the moon (sending digital images back to earth). Texas Instruments patented a electronic camera that was film-less in 1972. In 1981 Sony released the Mavica electronic still camera. Images were recorded to mini disc that was then put into a video reader that could be connected to a TV or color printer. It was a video freeze-frame camera rather than a true digital camera. Since the mid-1970s, Kodak has invented several solid-state image sensors that "converted light to digital pictures" for professional and home consumer use. In 1986, Kodak scientists invented the world's first mega pixel sensor, capable of recording 1.4 million pixels that could produce a 5x7-inch digital photo-quality print. In 1987, Kodak released seven products for recording, storing, manipulating, transmitting and printing electronic still video images. In 1990, Kodak developed the Photo CD system and proposed "the first worldwide standard for defining color in the digital environment of computers and computer peripherals." In 1991, Kodak released the first professional digital camera system (DCS). It was a Nikon F-3 camera equipped by Kodak with a 1.3 mega pixel sensor. The first digital cameras for the consumer-level market that worked with a home computer via a serial cable were the Apple QuickTake 100 camera (1994), the Kodak DC40 camera (early 1995), the Casio QV-11 (with LCD monitor, late 1995), and Sony's Cyber-Shot Digital Still Camera (1996).

So there you have it, new technologies merge and a room becomes obsolete before it's finished.

Blair Stunder

An Asteroid Occultation

I used my elderly 8-inch f/6 Meade Newtonian for the occultation of TYC 1393-01256-1 by asteroid (88) Thisbe on October 22nd, forecast at 9:56:12 +/1 UT (2:56:12 AM PDT). The target star is magnitude 12.6, but Thisbe is magnitude 13.0, so the combined light of both objects will be about magnitude 12.0. With a barely adequate magnitude drop of only one magnitude it was important that the asteroid nearly disappear when the star was occulted. This meant that the 8-inch or 6-inch scope was the correct aperture for the task, if used at low power so that its limiting magnitude would be near mag 13. My 16-inch would have been too much aperture because the asteroid would have remained bright, even at very low power.

Since the event was so promising [a wide path and a more certain prediction than usual, during full dark, at new moon (a first), with a detectable magnitude drop of 1.0 mag, a relatively long predicted duration of up to 10.3 seconds, and the star at an adequate altitude of 24 degrees in the east on a Sunday morning, with an ideal weather pattern -- an upper ridgeline forecast to be just crossing the Pacific coast] I decided to use my equatorial mount so that I wouldn't be caught repositioning the star at the wrong time as can happen with a Dobsonian. The very accurately polar-aligned mount was in a position from where I wouldn't be able to see the occultation, so I picked up the heavy mount and moved it for the first time in five years (destroying my painstakingly-achieved perfect polar-alignment), wrenching my fragile back in the process. I **thought** that I had repositioned it to a good site when I moved it at 7 PM.

But Steve Preston had advised us that Lambda Gem would pass through the same part of the sky about 90 minutes before the event. This information was a life-saver {Many thanks, Steve] because Lambda Gem was still behind trees 75 minutes before the event. My neurologist had warned me never to lift anything heavy again for the rest of my life, but the equatorial mount had to be moved again if I was to see the asteroid occultation or else I had to make a quick changeover back to the Dob mount (which probably would have run me out of time). Possible paralysis or miss the event. Well, that's a no brainer choice, eh? So I picked up the mount more slowly and carefully this time and moved it about 40 feet west (12 metres for the politically correct).

After starhopping easily to the field, not far from the Beehive Cluster, I tried several powers to choose the one which would make the magnitude 12 target continuously visible without straining but which would allow it to disappear or nearly disappear when the star was occulted and only the magnitude 13 asteroid remained. A nearby magnitude 12.6 star helped me to decide on 64x (a 19mm Panoptic which coincidentally gives a 64' field of view on this scope).

I cannot adequately receive WWV radio time signals here in the Okanagan Valley, so I put four time checks on my tape recording using my watch which was set by the CBC Radio 10 AM time signal from the National Research Council on the mornings before and after the event. Unfortunately, this new digital watch gains about 0.7 sec a day.

I got a sharp disappearance and yelled "OUT" at 9:56:06.2 UT (2:56:06.2 AM PDT). One would hope that the National Research Council time signal comes over land lines to the CBC radio transmitter, but I cannot be sure that it doesn't go by communications satellite. There is a slight reaction time before I reset my watch (probably only 0.1 sec because I know from the time signal tones and the watch just when the beep will occur and can anticipate it.) There is a slight reaction time when I shouted "MARK" on the tape recording (again probably only about 0.1 sec because I am anticipating it). There is a slight reaction time before I started my stopwatch at the time mark when timing my tape (again probably only about 0.1 sec because I am anticipating it and gave myself 10 second and 5 second warnings on the tape). There is a long reaction time of probably as much as 0.5 second when the faint star was occulted since I had to use a power which would make the combined star and asteroid brightness within about 1.3 magnitudes of my limiting magnitude in order to reliably detect a drop of only 1.0 magnitudes. All of these reaction times are cumulative, totalling approximately 0.8 seconds that must be subtracted from the time of disappearance. My watch would have been about 0.5 sec fast at that time and that 0.5 seconds must be subtracted from the time as well. This makes the corrected time of disappearance about 9:56:04.9 UT.

During the occultation the asteroid was very dimly visible most or all of the time. There was a sudden brightening and I yelled "IN" after 7.5 seconds (the three stopwatch timings of the tape recording were 7.54 seconds, 7.54 seconds, and 7.44 seconds). Unfortunately, there was another sudden brightening of a little greater magnitude about a second later. I was not prepared for another brightening and did not yell "IN" again for the tape. However, after a few seconds or so I realized what had happened and did have the presence of mind to say on the tape that the second brightening was no more than a second of time after the first. So I am not dependent on memory for that judgement -- I have the statement on the tape recording made at the time. I am pretty good at judging seconds, so since I said that it was no more than a second, I am confident that it was not two seconds. [This is, of course, where a video recording would have been invaluable, but to be perfectly honest, if I couldn't watch the event through the eyepiece I wouldn't get up in the middle of the night to do this.]

So I have a timed 7.5 second duration PLUS another second for a total occultation duration of 8 to possibly 9 seconds. There are two possible explanations for the step reappearance. Either the target star is a very close binary or the first sudden brightening was caused by a sudden steadying of the seeing which would make the asteroid appear brighter. The second explanation will seem more likely to all readers of this account except that the seeing had been good and there had not been any noticeable variation in the target's brightness during the two minutes that I watched it before the occultation.

Seeing was quite good and although not formally established was probably in the 1.0 to 1.3 arc-second range which is typical here as an upper ridgeline approaches (which is the weather pattern which most frequently gives good seeing) although perhaps not quite that good at the event's altitude of 24 degrees. The Clear Sky Clock was also forecasting good seeing. Transparency was excellent when I thought to check it at 5 am: the mag 6.4 star beside Polaris was seen despite my thick glasses and progressive lenses and M33 was no problem with the unaided eye despite its lower altitude at 5am. The morning zodiacal light was brilliant running up through Leo to Saturn.

As asteroid (88) Thisbe pulled away from the target star I went back for a 153x view of the widening pair 26 minutes after the occultation and again two hours afterwards.

This is only my second successfull asteroid occultation in scores of attempts going back 26 years, partly because of bad luck (I save my good luck for central solar eclipses where I am 6 out of 6) and partly (probably mainly) because I don't travel for asteroid occultations. I just observe them from my backyard as they come to me which means that I am outside of the predicted path or near the edge for most of the ones that I monitor.

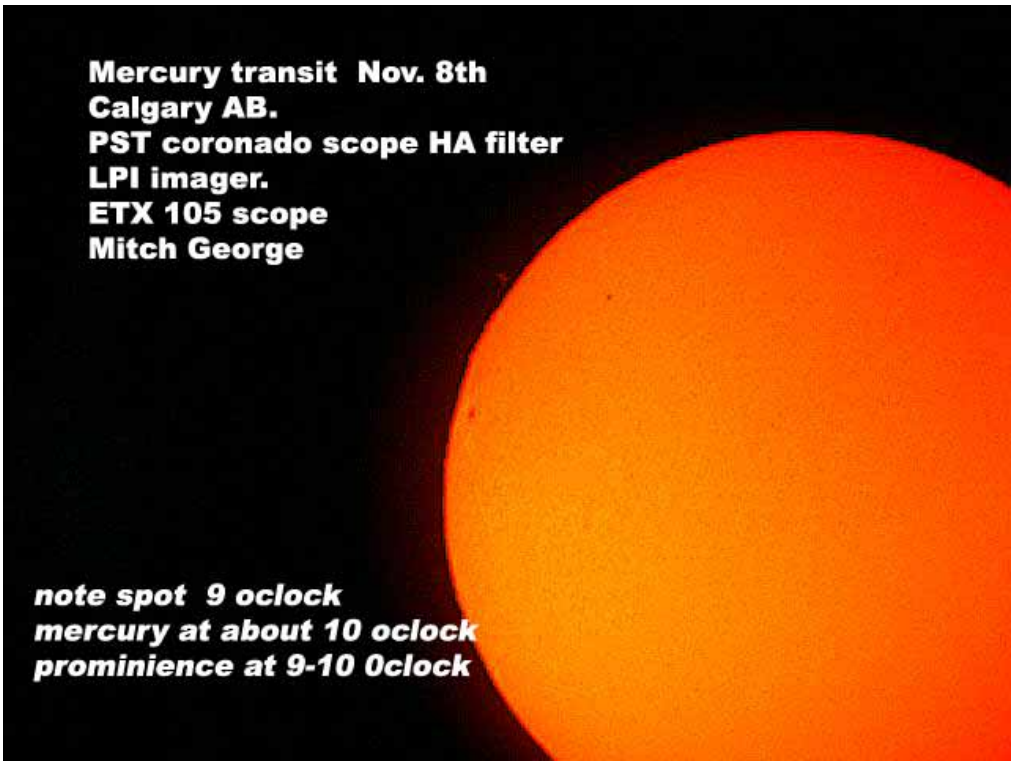
This was a promising event and the path swept right across Canada and Washington State and I thought that we were going to have it well-covered.
Surely I wasn't the only successful viewer ?

Best,

Alan Whitman
Whirlpool Observatory, Penticton, British Columbia

Mercury Transit

From: Alan Whitman <whitmans@vip.net>
>Date: Wed, 08 Nov 2006 12:19:26 -0800
>Subject: [rascprincegeorge] Transit of Mercury
>
>My first transit of a planet in half a century of observing! Realistically,
>it is just a very minor partial eclipse (without the mountains and craters
>that the moon shows in silhouette during a partial solar eclipse), but
>Mercury's transit is fun.
>
>Twenty minutes before first contact the transparent blue sky had only a 20
>percent cloud cover, cumulus and cumulus fractus clouds. But the biggest
>group was moving towards the sun. The first clouds began drifting across
>the sun's disk four minutes before first contact and with two minutes to go
>I was briefly clouded out. But, miraculously, I got a nice break with about
>40 seconds to go (still some very thin cloud drifting over).
>
>First contact was due here at 19:12:40 UTC and I spied Mercury's
>indentation in the limb 26 seconds later. I pushed my stopwatch for second
>contact at 19:14:34 and that is just a second late. I didn't see any black
>drop effect, but the sun was just sliding into the tip top of a cedar tree
>at that point and the image was deteriorating. (It was a very narrow top of
>a cedar tree, the only possible problem in the sun's path, and I thought
>that the sun would clear it, or not hit it at a critical time, and I didn't
>want to wreck my polar alignment, and ....)
>
>The big sunspot with an umbra and large penumbra near the following limb
>nicely marked where Mercury would enter the disk about 25 degrees around to
>the south, an exceptionally fortuitous placement for the big spot. Before
>the transit began it was hard to believe that anything could be blacker
>than that umbra, but Mercury's disk is indeed blacker. The umbra looks a
>very deep brownish-black by comparison.
>
>The only other spots were three (two of them a close pair) small ones near
>the preceeding limb. The few spots could not have been better placed to
>mark the Sun's equator and thus allow the observer to figure out where
>Mercury would first appear.
>
>Seeing was rather poor. When it steadied there were faculae around both
>spot groups and very occasionally some granulation visible. I was using my
>80mm ED apo refractor at 75x with a Baader filter. The seeing didn't
>approve of 120x.
>
>Thirty minutes after first contact daytime heating had driven me to
>shirtsleeves and had increased the cumulus extent to 70 percent of the sky.
>
>Alan Whitman
>Penticton, British Columbia



PRINCE GEORGE ASTRONOMICAL SOCIETY
ROYAL ASTRONOMICAL SOCIETY OF CANADA
PRINCE GEORGE CENTRE
7365 Tedford Road
Prince George, BC
V2N 6S2

Executive Meeting Minutes
November 8, 2006

Date: November 8, 2006
Location: Arctic Manufacturing Ltd, 3323 Hart Hwy

Chairperson: Gil Self
Recording Secretary: Glen Harris
Executives Present: Fae, Gil, Maurice, Glen, Jim Arnold, Bob, Blair

Meeting Called to Order at 7:35 p.m.

1. Previous Meeting Minutes
Minutes of October 11, 2006 meeting were circulated.
Motion: Accept the minutes as distributed.
Moved: Maurice Seconded: Jim Arnold Carried

2. Treasurer's Report
Updated year-end figures as of September 30, 2006. A detailed statement is filed with these minutes.
General Account Balance: $5136.36
Gaming Account Balance: $3107
Terasen is prepaid for 7 months, Telus for 12 months, Hydro for 2 years,
Motion: To accept the Treasurer's report as presented.
Moved: Blair Seconded: Fae

3. Correspondence
Income Tax forms

4. Old Business
- Telescope drive upgrade - December 27-29 time frame for the installation of worm and gear. Flip assembly, 4-shooter, all optics and finders to be removed. The 24" mirror will be removed around Dec 15th, stored in the classroom, and cleaned once it reaches room temperature. Blair will fabricate a collar clamp to push against for removing the counterweight. If no HIAB is available, the floor will be supported to handle the weight load.
- The dome drive mechanism already fabricated and stored in the basement will be installed once the dome bearings have been replaced.
- The shutter assembly will be reworked/repaired.
- All exposed gears and worms will be covered to resolve safety concerns.
- YRB will decide when the parking lot will be cleared. The sign needs to be put up and YRB notified of the plowing arrangements.
- Between now and the January 2007 general meeting, craft for presentation a notice of motion to change the by-laws. Rod's input may be required. The changes will be voted on at the February 2007 meeting.
- The water tank level indicator has been installed and calibrated.

5. New Business
- Pro D Day activities at the Observatory have been cancelled due to a lack of manpower.
- Thank you letter to A J Forsyth has been written and signed. It will be sent out once the donation receipt has been provided.
- An additional $16,000 for site improvements has been added to the Gaming proposal. A detailed list is attached to the filed minutes.
- Inventory the existing 24" telescope cabling and remove unused and obsolete cables.
- Paint the 24" scope when conditions are acceptable.

Glen

Meeting adjourned at 9:35 pm