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

The RASC-PG meets next at 7:30 pm Wednesday September 24th at The Observatory

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the PeGASus is published monthly by the Royal Astronomical Society Canada Prince George Centre

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



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Contributions to the newsletter are welcome.

Deadline for the next issue

october 17

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you can renew your membership at www.rasc.ca/princegeorge

Editorial By Brian battersby

Message from the President

As fall approaches another fiscal year of the Prince George Centre is about to end and a new one begin. The past year has seen some dramatic improvements to our facility with literally thousands of man-hours worth of time spent on public outreach, building projects, and the day-to-day operations of the society. With this is mind I would like to formally thank the hard working trio that spearheaded the construction drive over the summer, spending day after day working hard to improve the facility that we all enjoy. So here is a tip of the hat to Glen Harris, Maurice Sluka and Gil Self. There were others involved but without these three in particular the building projects that the executive envisioned would not have been completed.

I would also like to thank all of the many other members who donated their time, and often their money, throughout the year to ensure that the Centre operated in as professional and smooth a manner as possible.

October also marks the most important meeting of the year in the Prince George Centre, the Annual General Meeting. At this meeting we will elect a new executive to guide us through the coming year. This year is even more important than most as, I believe, it will mark the last season that many of the current executive will run for office. It is therefore extremely important that we get a few new, dedicated members to join the ranks of the executive this year to "learn the ropes" to ensure a smooth transition in the key positions of our Centre in October 2004. This change over is natural and necessary for the long-term health of the Centre as with new people come new ideas and fresh enthusiasm. So please if you can, make the commitment this year and become a memberat-large. This position has no official duties other than to get in there and help out so it is the ideal way to get up to speed on the inner workings of the Centre.

I look forward to another fantastic season with the Royal Astronomical Society of Canada Prince George Centre and hope to see many of you at our various functions this year.

Brian Battersby, President, RASC: Prince George Centre.

(please see page 12, Issue 122 September 2002 for a complete listing of executive positions)

Coming Events

Next meeting September 24th 7:30pm at the observatory Next exec meeting October 15 at Gils office Baldy Hughes Observing Session: 6:00 pm Blady Huges—Sept. 27, 2003 October meeting and AGM October 29 at the observatory Friday evenings: Open House night (rain or shine) Saturday evenings: Members night (weather permitting)

The Night Sky for October 2003

by Bob Nelson, PhD

Hi Folks,

As I am writing this, I have just packed for our exciting trip to Italy. I thought that you might be interested in our itinerary: On Sept 15, my wife and I will fly (will have flown) from PG to Milan, spend a day there, travel to Lake Como where we'll rent car #1, travel through the Dolomites, meet astronomer friend Sergio in Castelrotto (near Bolzano), hike the famous Siusi Meadows, stay with Sergio for more hiking, travel to Venice where we'll give up car #1, do Venice (2 full days), travel to the 5 ports on the west coast for a full day there, travel to Florence (2 full days), rent car #2, travel to Siena and travel through Tuscany, on to Naples giving up car #2, stay in Sorrento (2 full days), visit Pompeii and hike Vesuvius, then on to Rome (3 full days). We'll arrive

back in PG Friday night Oct 17, likely very tired.

It's a dream trip. Hopefully, I'll northern hemisphere, it is low in the south at midnight or so, and is I'll be glad to share with you, if you want.

Needless to say, there will be no astronomy for me for a while! If I do it right, I may be able to sneak in a visit to a museum with some Galileo stuff (between all the art galleries!!).

Anyway, here is what is happening in your skies this month:

MERCURY is a morning object at month's start (rising 1.5 hours before sunrise), and thereafter becomes lost in the glare of the Sun.

VENUS will become an evening object towards the end of the month, when it will set about an hour after the Sun. If you do look at it, all you will see is a 10" blob of magnitude -3.9 in the gibbous stage.

MARS, in Aquarius until December, is still visible in the evening

and a very worthy target (after its very close opposition in August). Regrettably though, for us in the northern hemisphere, it is low in the south at midnight or so, and is therefore somewhat disappointing, compared to what southern hemisphere astronomers will see. In any case, at mid-month it will be in the southeast at sunset and transit at about 10:00 PM. It will be a 19" disk of magnitude -1.8.

JUPITER, in Leo until 2004, is a morning object all month, rising at mid-month some 4 hours before sunrise. It's a 32" disk of magnitude -1.8.

SATURN, in Orion until November, rises at mid-month about 4 hours after sunset and will be low in the eastern sky at times most of us observe. For best results, wait a few months (unless, of course you are an early riser). It's a 19" disk of magnitude 0.1.

URANUS, in Aquarius until 2009, is very very low in the ESE at sunset. It transits (crosses the meridian to the south) at about 9:40 PM

(PST), so it should be a good target, visible in binoculars if you know where to look and, under favourable conditions, visible even by the naked eye. There are several moons that can be viewed – consult one of the excellent planetarium programs on one of the computers at the observatory. As usual, it's a 3.6 disk of magnitude 5.7.

NEPTUNE, in Capricornus until 2010, is low in the southeast at sunset. Since it sets at about 1 AM (PDT), now would be a good time to look for it. As usual, it's a 2.3 disk at about magnitude 8.0.

PLUTO, in Ophiuchus until December, is low in the south at sunset. It sets over 3 hours after sunset, and should be visible if you care to look for it with the big scope. As usual, it's a 0.1d disk at magnitude 13.8

CONSTELLATIONS to look for in October (at 9:00 PM, PDT) are Pisces Austrinus, Capricornus, Aquarius, Delphinus, Vulpecula, Equuleus, and Pegasus.

Pisces Austrinus (PsA, The Southern Fish), visible only on the extreme southern horizon here in Prince George and lying as it does off the Milky Way, contains only a few galaxies and no star clusters or nebulae. It does contain the wellknown star Formalhaut (Alpha PsA ' Al Rischa, The Cord), the 18th brightest star in the night sky. It is a fine binary star, discovered by William Herschel in 1779. The galaxies visible are NGC 7172 and 7154 but these are very, very close to the horizon when on the meridian and represent challenge objects from here.

Capricornus (Cap, The Sea Goat), lies on the Zodiac but lies out of the Milky Way (to the northwest of PsA) and contains only M30, a fine globular cluster. Of the brighter stars, Delta and Epsilon are both variable stars. Delta is an eclipsing binary of the Algol type (fully detached, with flat regions in the light curve between eclipses): its period of 1.023 days makes it hard to study. Epsilon is a variable of the Gamma Cassiopeia variety. These are young stars that are rapid rotators; in fact, they are rotating so fast that the stars gravity is only just strong enough to retain the stellar material. With instabilities, material gets ejected every once in a while, resulting in irregular light variations and emission lines in the spectra.

Aquarius (Aqr, The Water Bearer), to the north of Cap, lies on the Zodiac and contains a number of variable stars but no deep sky objects (!) -- at least as listed in Norton's Star Atlas.

Delphinus (Del, The Porpoise), to the northwest of Aqr, is another boring little constellation, containing only two globulars, NGGs 6394 and 7006.

Vulpecula (Vul, The Fox), in the Milky Way just to the south of Cygnus (and the last constellation in the book), contains M27, the fa-



mous Dumbbell Nebula (disc'd by Messier in 1764 and lying close to 900 light years from us) -- it's a wonderful object worthy of close observation or CCD photography (just wait till we have colour filters available).

Equuleus (Equ, The Little Horse), a tiny constellation (the second smallest in the sky, after Crux) and contains NO deep sky objects at all. Delta Equulei, however, is a close visual binary. It was discovered by Otto Struve in 1852; it was for many years at period 5.7 years, the shortest known for any visible binary. According to Burnham, the system has made 19 revolutions in the last 112 years. It is, however (as you might expect) a difficult close binary, never separated by more than 0.35 arcseconds.

Pegasus (Peg, The Winged Horse The Great Square and our mascot), also lies off the Milky Way. It contains a few faint galaxies, an open cluster, and M15, a fine globular.

Clear Skies, Bob Nelson

Thank-you Bob for thinking to prepare this amid what I am sure where busy days in preparation for your trip. It wouldn't be PeGASus without "The Night Sky" Gil



Executive Meeting Minutes

(summary) September 10, 2003

Chairperson: Brian Battersby Recording Secretary: Glen Harris

Executives Present: Glen, Gil, Brian Members Present: Maurice, Wayne

Meeting Called to Order at 7:37 p.m.

1. Previous Meeting Minutes No minutes were circulated

2. Treasurer's Report Revenue: \$23331.86 Net Income: \$18498.67

None

3. Correspondence

4. General Business

The first grant of \$7500 has been spent. Purchased items included:

\$3966.88 Projector, laptop, video card and CDROM for the classroom computer.

\$3500.00 Allocated to covering operating expenses for the next several months.

\$33.12 Balance

The second grant of \$8400 was allocated/spent as follows:

Property and Safety Improvements which include extending the sidewalk, installing a locking gate, establishing 4 telescope piers c/w AC power and communication cabling, upgrading the viewing area surface, improving the parking lot surface, and adding additional exterior lighting.

Allocated: \$6000

Spent: \$4252.46

Unpaid bills: \$450 approximately

Outstanding work: Exterior lighting

Main Scope Upgrade

\$400 of allocated funds has not yet been spent.

Unallocated Funds

\$2000 was unallocated at the time the grant was received.

The light barrier will not be constructed. Blocking the parking lot with vehicles at the front of the building has proven effective in preserving night vision in the viewing area. A sign stating that no white light is permitted beyond the blocking cars will be mounted on a sandwich board.

the existing grassed area will be augmented with an application of seed.

The existing aluminum ladder will be replaced with a 6' wooden ladder.

Based on the marked advance and the decreasing cost of imaging technology, Bob's ST9 CCD camera will not be purchased. Plans are being formulated to mount the orange 8" SCT to the main scope, and equip it with technology that will allow live images to be projected on the classroom wall.

A 100mw laser pointer will be purchased. Safety protocols will be established.

Implementing live image projection and the purchase of the laser pointer will enhance public viewing and fall in line with the mandate of public service, instruction, and education.

Unused funds from the \$6000 allocation, the remaining \$33.12 from the first grant, and a portion of the unallocated \$2000 will be used to purchase the aforementioned items.



Wayne Saunders shows once again that web cams are the way of the future





These two images are from Jim Towes, and like the rest of the images on this page they are digital.









These two images from Evan Williams, both on Fuji Superia 1600 film (amazing film) The Milky way shot was on his double arm drive





Mars from Shuswap Lake. From Dan Hicks



<u>A Martian Summer</u>

Al Whitman, has been a long time supporter of the PGAS. He is a contributor to several national publications. Al is one of the most knowledgeable "amateur astronomer" you could meet. This summer was quite interesting and I thought you might enjoy some of his e-mail observing diaries. Gil

August 8, 2003

This morning, August 8th between 0235 and 0351 PDT, Seeing was Very Good here in Penticton, British Columbia at latitude 49 degrees North and the most interesting face of 23.6" Mars was presented. While the view might not compare with what could be seen from Florida or Australia, I was pleased with the detail seen considering Mars' low altitude of 27 degrees at culmination here.

My 8-inch f/6 Newtonian is as well-collimated as I can make it. At 244x (5mm Radian eyepiece) and a number 21 Orange filter the more prominent dark markings radiated in four directions from central Iapygia: Syrtis Major (narrower than at previous apparitions and strongly resembling India) pointed north; Mare Tyrrhenum pointed west; Mare Serpentis-Noachis-Hellespontus extended southeastwards all the way up to the South Polar Cap; and Sinus Sabaeus pointed east.

Moments of fine seeing provided glimpses of a darker band on the eastern edge of Syrtis Major and, farther to the west, the little northward-pointing bump of Syrtis Minor. And occasionally Mare Hadriaticum, the low contrast dark band on the western border of Hellas which completes the encirclement of that huge impact basin, was revealed. Mare Hadriaticum also extended up to the South Polar Cap (SPC).

The dark band of Mare Australe, what used to be called a 'melt band' before we knew better, was prominent around the SPC. After reading Bill Ferris' report about the SPC: "The western edge of the cap appears duskier to the eve, almost as if much of the ice layer has sublimated", I was also able to detect this with an 80A Blue filter and also unfiltered. The western part of the cap was not quite as brilliant as the rest of the white cap and had a fuzzy edge in comparison to the hard sharp boundary of the rest of the cap. Thanks, Bill! This all suggests that something interesting is happening there, but unfortunately I don't expect to see what from this latitude.

The North Polar Hood was back with the 80A Blue filter and also

in the unfiltered view, but it is not nearly as prominent as it was in mid-July. The 80A (but not the yellow-green filter this time) revealed a subtle limb haze on the NE through SE limb. A good night of viewing!

We have had clear nights here for five weeks now with the exception of perhaps two partlycloudy nights (although a few nights have been smokey from forest fires) and nothing has fallen from the sky since mid-June (except ash and burned needles on two days in mid-July).

Seeing has been above average many nights in the past five weeks and this has allowed me to see all of the major dark features in Mars' southern hemisphere through one revolution of its visable face (as seen from this longitude near 3AM PDT). The finest details seen were:

On July 11th I eventually noticed a triangular point sticking northwards from Mare Cimmerium at about Martian longitude 225 degrees. (Looking at the charts I see two prongs plotted there, but (Continued on page 12))



(Continued from page 11) I just saw them coalesced as one triangular point.)

On July 28th I detected little Juventae Fons protruding northeastwards from Aurorae Sinus (or perhaps the unresolved combined image of Juventae Fons and the next prong to its west).

On August 4th, for less than a second, the Mare Serpentis-Noachis-Hellespontus area looked as complex and mottled as it does on Daniel Troiani's ALPO chart on page 112 of the July issue of Sky&Telescope.

Mars is already too darn low from here, but it is now heading rapidly south as it retrogrades and by mid-September it will only be at 24 degrees altitude when it culminates here at latitude 49 degrees North. So I expect that I have already had my best views of Mars this year and am grateful for this long spell which frequently had above-average seeing.

Now I am going to clean the mirrors on my 16-inch, re-collimate it, and try for Deimos and Phobos.

Best,

Alan Whitman

August 31,2003

Here is an observation of the Eye of Mars made early on August

26th with Jack Newton's 16-inch Meade LX200 SCT at 339x (mv new and dustfree 12mm Radian evepiece) with a 23A (light red) filter: South Polar Cap bright (but none of the serrated edges being seen visually from lower latitudes); dark Solis Lacus was the second-most obvious feature; and I had glimmers of little elongated Tithonius Lacus (first time that I've seen this feature). As Mars rose higher, the broad curved band of the large but lowercontrast Aurorae Sinus-Mare Ervthraeum-Aonius Sinus became visible. Also a streak in the far northern hemisphere, perhaps Mare Boreum although Boreum seems like it should be too far north to see with the north pole tipped 19 degrees away from us --I'll call that streak a mystery.

Eventually, the western tip of Mare Sirenum edged into view near 1 AM with the rotation of Mars. Between the tip of Mare Sirenum and Solis Lacus I saw an elongated north-south, low contrast, narrow dark feature, ALPO Mars Coordinator Daniel Troiani's chart (published in both the Jul/03 Sky&Tel p.112 and the 2003 RASC Observer's Handbook) seems to best represent what I'm seeing on Mars this year, but at the location of my elongated feature his chart shows only two small round dots, one of which is labelled Phoenicis Lacus on the S&T version of the chart. Well, the face of Mars is constantly changing and it is neat to see something that is NOT plotted on the charts from earlier oppositions in the form that I saw it.

This new elongated feature (which I'll call Phoenicis Lacus) plus Aonius Sinus, Mare Erythraeum, Aurorae Sinus, and Tithonius Lacus almost encircled the prominent dark spot of Solis Lacus. Solis Lacus was separated from the encircling dark albedo features by a donut of bright orange desert: the Eye of Mars! [The plotted isthmus which sometimes connects Solis Lacus to Mare Erythraeum has not been visible to me this year.]

At 607x (6.7mm Meade Ultra-Wide) with the 16-inch SCT only the major albedo features were still visible, but one polar limb of Mars was tinged orange-red and the opposite polar limb was bluish despite using an orange filter -- clear evidence of what refraction is doing to the image of Mars at its low altitude from latitude 49 degrees North, despite the filter.

Mars mag -2.9, diam 25.1", but dec only -15d 37'.

With my own 16-inch I viewed Mars at 229x (using both the orange and light red filters piggybacked simultaneously to dim the glare) around 1AM on the 28th, 29th, and 30th, but could not see either of the small features Tithonius Lacus or Phoenicis Lacus that I saw with Jack Newton's scope. I couldn't see any dusky details in the northern hemisphere either. This despite the seeing being around 1-arc-second on the 30th as the upper ridge passed over as I had forecast. But the 1-

arc-second seeing was determined are now my main quarry if the by splitting a double star up in Aries, not down in southern Aquarius where Mars lurks. As Jim Failes suggests, the 30 square-kilometre Vaseux Lake Fire is probably frying my view of Mars from here while Jack Newton's observatory is well to the south of the fire. Also, Jack's observatory is three stories up where it is above most ground effects, plus being on a mountainside compared to my valleybottom site.

All in all, I have been surprised at how much detail that I have been able to discern on Mars on some nights this opposition with my ancient 8-inch f/6 Meade Newtonian and Jack Newton's 16-inch SCT, despite the planet's low altitude. I have seen all of the major albedo features at previous oppositions, but I'm seeing some finer details this time. (Although of course I am not seeing the very finest details that are currently being observed and sketched in the southern USA and points south. In particular, I have only seen details in the South Polar Cap once while some experienced planetary observers with better seeing than I and, more particularly, who have Mars at a much higher altitude are now observing the SPC break up into several sections.)

Rinsed my 16-inch f/4.5 Meade Newtonian's main and secondary mirrors vesterday and made two unused oculars into occulting bar evepieces -- Deimos and Phobos forest fire smoke would just go away temporarily. [Congratulations to Thomas Kovacs who is the only Canadian who has reported succeeding with Phobos and Deimos so far this opposition from our far too northern latitudes! (And I envy him the five or six degrees latitude that he has on me...]

Best,

Alan

September 2, 2003

Seeing Deimos and Phobos for the first time was a priority for me at this opposition of Mars, but I had not gotten around to doing the necessary preparations until now. I had some doubts that I could see them from latitude 49 degrees North (south of Penticton, British Columbia) because of Mars's low altitude, but you don't know until you try.

I rinsed the main and secondary mirrors of my Meade 16-inch f/4.5 Newtonian, collimated it as perfectly as I can, cleaned my Barlow lens, and cleaned my old Meade Research Grade 7mm Orthoscopic evepiece. Then I put tape over 60 percent of the field lens to make an occulting evepiece. [I had intended to cover 40 percent of the field lens, but the lenses are very tiny on a 7mm orthoscopic and the tape was sticking to both my fingers and

the evepiece barrel as I tried to put it in place -- you get the picture.]



Smoke from two big nearby forest fires of 200 sq km and 30 sq km in area prevented me trying for Deimos and Phobos until tonight when favourable winds cleared most of the smoke. (Although transparency was only Very Good, not the normal Excellent here.)

An upper ridgeline was forecast to pass over the Okanagan Valley tonight, promising fine seeing. [After observing Mars I quite easily resolved 1.4" Epsilon Arietis at 305x (6mm Orthoscopic) so, given the ease of the split, seeing was somewhere around one arc-second at the altitude of Aries. (It certainly wasn't one arc-second seeing at Mars' altitude of only 25 degrees at culmination, though.)]

Tonight (September 2nd) Mars would culminate here at 8 UT while magnitude 11.6 Deimos reached eastern elongation at 9.0 UT and magnitude 10.5 Phobos reached eastern elongation at 9.7 UT. Mars would be starting to sink again by the time that Phobos was well-placed, but I decided to try for "the hurtling moons" as Sky&Tel calls them.

With the 7mm orthoscopic eyepiece (261x) I put Mars behind (Continued on page 14)



and there was Deimos instantly, no challenge at all! Deimos remained easily seen with direct vision for the next 100 minutes. When I added the Barlow lens, yielding 522x, I found that I could even see Deimos the way that the old-timers did in 1877 -- I let Mars drift just outside the field of view and there was Deimos still well inside the tiny 5 arcminute field of view. [Since the tape covered three of the five arcminutes, navigation was not easy!]

Phobos was much tougher, but after focusing carefully on Solis Lacus at 522x I spotted Phobos at 0916 UT, 26 minutes before eastern elongation. I knew exactly where to look because when I placed Mars just behind the edge of the occulting tape, the extreme periodic error in my clockdrive would periodically bring about one-quarter of Mars back into view! Kudos to Meade for wisely placing the vanes of the secondary support so that the diffraction spikes run NE and SE at culmination, nicely avoiding faint planetary satellites. By 0934 UT the orbital motion of Phobos was evident as it moved through the short arc between the two diffraction spikes that were visible. I then tried for Phobos at 261x, but could not see it at that power even though that was a much more appropriate power for viewing albedo features on Mars tonight.

I have now seen 18 planetary satellites: two satellites of Mars, five satellites of Jupiter [tough Himalia was the fifth], seven satellites of Saturn [all seven are easy with a 16-inch], two satellites of Uranus, and one satellite of Neptune [Triton is very easy since Neptune makes little glare]. That occulting eyepiece worked wonders on Deimos and Phobos -- I'll have to try it on the three planetary satellites available to amateurs that I haven't yet seen: Mimas, Umbriel, and Ariel.

Best,

Alan Whitman

Ed : All this amidst one of the worst forest fire seasons in many years, I sent some questions,

Is it getting any "wetter" down there?

Nope, we have only had measurable precipitation twice since mid-June.

Are the fires still just as dangerous?

The two big fires are still active, but they are both burning eastwards across the almost uninhabited plateau now, away from the Okanagan Valley.

Last week both of the houses that we once owned in Kelowna (Hollywood Rd S. and Tamarack Park north of Gallagher's Canyon) before moving to PG were on evacuation order which lasted several days because of the Okanagan Mtn Fire. Meanwhile this house was on evacuation alert because of the Vaseux Lake Fire. All three houses at once! (Plus the place that we rented while building in Tamarack Park.) Interesting times, but Tamarack Park above Hwv 33 is the one that is located in the natural firezone, grassland interspersed with trees on the mountainside. We were never very concerned about this current place: even if fire had come into this subdivision and burned some houses in places beside the ridge or grasslands, I think that it is very unlikely that our house would be threatened. In fact, while we did pack up our papers, photo albums, etc, we were so little concerned that I left for a scheduled week in Osoyoos helping out at Jack Newton's observatory while he was out of the country, talking about Mars on CBS in New York.

We are still officially on one hour evacuation alert, but the risk is now considerably less than driving on any snowy day in PG, in my opinion.

Best,

Alan

A Word From Wayne

Well done. The work bee on covered with builders plastic for those that already own the 10th did a fine job on haven't been out since take a drive and have a look. It will renew your sense of pride in the local group.

I have had a go ahead from the executive to put into operation a one or two station mirror grinding workshop in the lower level of the observatory. It has started. On May 17 I moved a large amount of cardboard box's to under the half floor, resorted stuff and generally did a clean up. I was able to make room for a two station grinding room. There are enough two by fours to frame a room up that will be

to control the dust in the many things out there, if you room. This framing will only observatory. This group get done if there is further interest by the general membership. There are several free mirror blanks there of 6 and 3 inch sizes. How about it are there others Wayne S. interested?

Advise Wayne via E-mail

wsanders@telus.net and CC Brian at Speedee printers copycentre@speedee.ca.

What I am thinking is every secound week, say on Tuesday night from 7.30 till 10 a mirror grinding group get together. The Idea being that we will get more telescopes about and

them they can build for the would start in the fall.

Have a great summer time, great gardens, and better fishing.