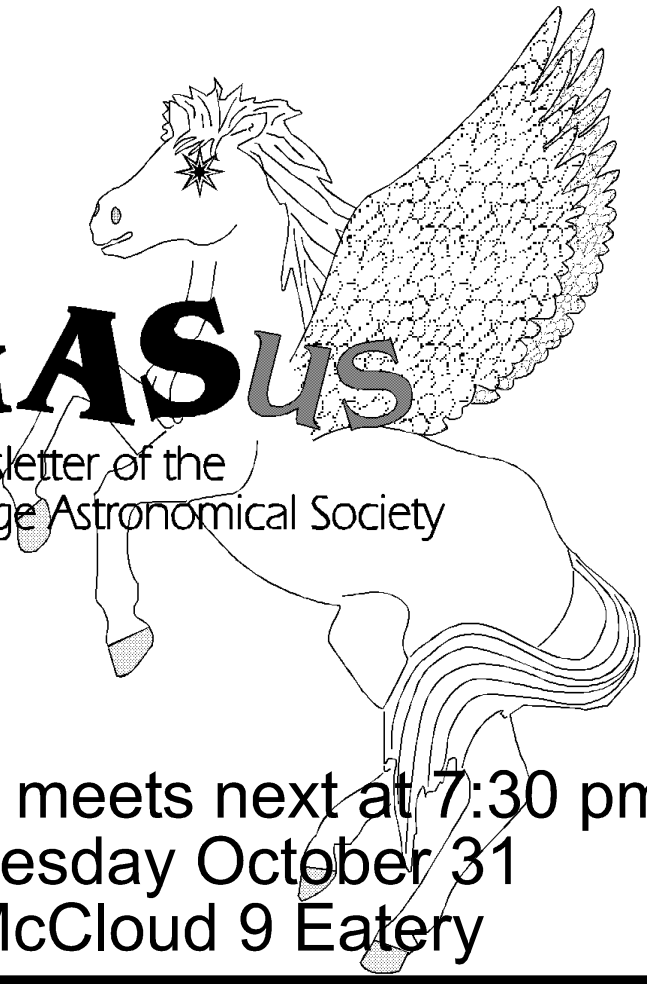
October 2001 ISSUE #115



the PeGASus

Newsletter of the
The Prince George Astronomical Society

The PGAS meets next at 7:30 pm Wednesday October 31 at McCloud 9 Eatery

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the PeGASus
is published
monthly by the
Prince George
Astronomical
Society.

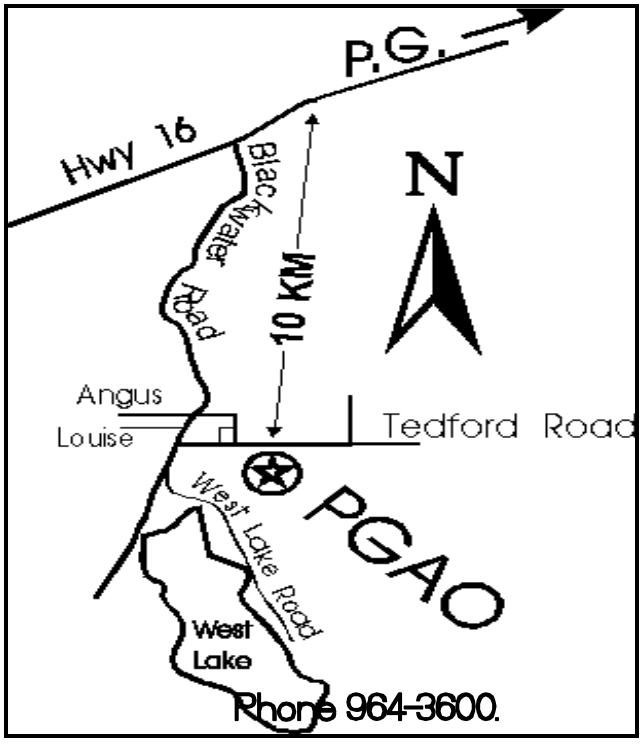
Our pursuits are out of this world.
Our activities are astronomical.
Our aim is the sky.

Contributions to the newsletter are welcome.

Deadline for the next issue is

November 16

Send correspondence to
The PGAS
3330 - 22nd Avenue
Prince George, BC, V2N 1P8
or
gil-pg@home.com



P.G.A.S.
Executive, 2001/2002

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Editorial

by Gil Self

We really must not lose sight of the fact that open house and tours are now contributing a significant portion of our monthly expenses. Back in the days of frontier observing the only way to warm up was to go out and start your car and run it for a while.

Now we have the luxury of sitting in a nice warm room operating an excellent computer and perhaps answering the phone " Prince George Observatory". And what an improvement to have a nice clean "indoor" washroom, you no longer have to — well enough said about that. But these luxuries cost us, about $250 a month. Our public program's have been quite successful helping with these expenses.

In the closing days of the 2001 public observing season we lets all take a moment to thank the fine people who have given their time. Here are the names in no particular order.

Gerhard Bierman ; Doug Wayland ; Brian Battersby ;
Rob Frith ; Bob Nelson ; Steve Senger ; Glen Harris ;
Kane Sanders ; Peter & Judy Wyper.

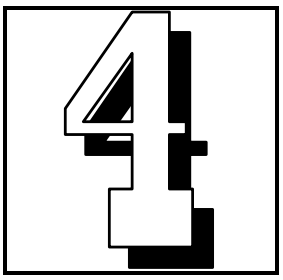
This group has hosted 13 open houses and about twenty tours this season.

If you would like to participate in the "Hosts" program, we would welcome your help. The quickest way to get involved is to volunteer for one of the tours as a helper. There will always be at least one other host in attendance. Some of our members have than set up a tour with a group they are involved with outside the PGAS and we will supply someone to help you. These tours are a lot of fun and they give you a chance to share your knowledge with an interested enthusiastic audience. Brian Battersby always knows when the next tour is.

At one time tours and Friday night open house, were something we did to share our facility with the community. It is still that, but now it is also an important funding source. I kind of like the new modern facility that we enjoy ,as I think we all do. But to keep it operating we need to add on about five or six new hosts. If you are interested please contact anyone on the executive.

Clear Skies

Gil



Coming Events

If you are involved with any astronomical or otherwise scientific activity on behalf of the PGAS, please list the activity here.

PGAS Meets next October 31
7:30 pm at McCloud 9 Eatery

The Night Sky for November 2001
by Bob Nelson, PhD
Hi Folks,

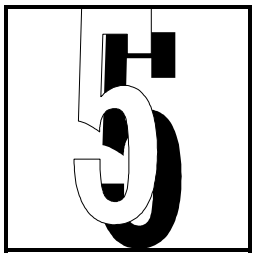
At time of writing (mid October), my wife Lois and I have had a wonderful fall here in Victoria. The two of us live near Beacon Hill Park (great for walks) and I go to the university every week day to work. So far I have re-reduced all of my backyard CCD data from this year (there were flaws) and have been struggling to reduce the data I got from the Dominion Astrophysical Observatory in August. The basic reductions are fine , but actually deriving radial velocities is tougher.

The term ‘radial velocity', or ‘RV' means the velocity of the object along the line of sight from the observer. Radial velocities are obtained by taking spectra and measuring any shift in wavelength due to the Doppler effect. (One commonly notices the Doppler effect as the pitch from an approaching car is higher in frequency than normal, and later, lower than normal when the car is moving away.) With spectra, a redshift (lower frequency) means that the object is moving away from the observer, and of course, blueshift means towards. With simple objects, like a single star, or two detached (separated) stars in a binary orbit, one just measures the wavelength shifts and that's that. I am trying a much more difficult problem – deriving RVs from contact binaries.

As I have described before, contact binaries are stars that are so close that they actually touch, forming a dumbbell-shaped object along the surface of which energy is transferred. The rotational periods vary from about 0.25 days (6 hours) to about a day. Although typical RVs are around 200 km/s, they are hard to determine because the light comes from all the rotating figure, and the lines are overlapping and blended.

I did, however, run into a recent paper by two researchers from the University of Toronto who have used the very same equipment that I used on the same type of stars. I have asked for help and have every reason to believe that they will come through.

I have (had, by the time you read this) another observing session Oct 25-31. I'll let you know how I did!



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

PLANETARY ROUNDUP:

MERCURY, in Virgo until the 11th, in Libra until the 25th, and in Scorpius at month's end, is a morning object in November. At the start of the month, according to the Observer's Handbook, it is the best morning apparition of the year when it rises some 1.5 hours before the Sun. At mid-month, it rises about an hour before the Sun, and by the end of the month, it will be lost in the glare of the Sun. Throughout the first couple of weeks, it will be a 5" disk or magnitude -0.8 or so.

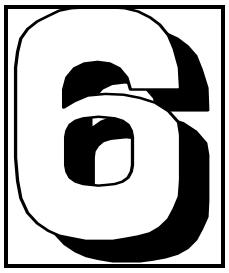
VENUS is a morning object all month. At mid-month, it rises about 1.5 hours before the Sun and is 10" disk (blob) of magnitude -3.9. At the end of October and into the first week of November, Mercury and Venus lie within 1 degree of each other. However - again according to the Observer's Handbook - this is not a true conjunction since they never coincide in RA (right ascension). However, you can enjoy the sight anyway. Early risers - what about a picture?

MARS, in Capricornus all month, sets at mid-month at about 10:00 PM (PST), over 4.5 hours after the Sun. However, it's only a 8" disk or magnitude 0.2 and it will be fading as Earth races away from it in its orbit.

JUPITER, in Gemini for the rest of the year, rises at mid-month some three hours after the Sun (specifically at 19:07 on the 15th if you must know) and should be a fine disk of size 44" and magnitude -2.5. It will get better over time as Earth catches up to it in its orbit. Another yummy target in small and large telescopes alike.

SATURN, in Taurus all year, rises about an hour after sunset and will be visible all night after that. It's a 20" disk of magnitude -0.3. A more difficult object (it's much smaller in angular size), it's very worthwhile. Owing to the very fine features (like the Cassini Division and the much finer Enke Division), you need steady air and for the planet to be as high in the sky as possible. Again, unlike Jupiter, where all observers see only four moons, Saturn has a nice selection of moons, ranging from the very visible Titan (at magnitude 8.4) to the very challenging Phoebe (at magnitude 16.5). The latter should show up in CCD images provided that the satellite is furthest from the planet, and the light from the planet does not obscure the much more feeble object (I don't know how easy it is - I haven't tried!).

URANUS, in Capricornus all year, sets at mid-month at about 11 PM, PST. It should easily be visible in binoculars (if you know where to look), or certainly with any small telescope (and especially our fine 24"). As usual, it's a 3.6" disk at about magnitude 5.7.



NEPTUNE, in Capricornus all year, sets at mid-month at the same time as Mars does. As usual, it's a 2.3" disk at about magnitude 8.0.

PLUTO, in Ophiuchus all year, sets at mid-month a couple of hours after the Sun. As usual, it's a 0.1" disk at magnitude 13.8

CONSTELLATIONS to look for in November (at 9:00 PM, PST) are Sculptor, Western Cetus, Pisces and Andromeda.

Sculptor (Scl, "The Sculptor's Tools"), another southern constellation at the limit of our visibility here in Prince George lies out of the Milky Way. It contains a few faint galaxies, a faint globular, NGC 288 and, near the latter, the south galactic pole which, at declination 27.5 degrees south, is just visible from Prince George. It also contains NGC 253, a spiral galaxy which Burnham says is the most easily observed spiral after M31.

Western Cetus (Cet, "The Sea Monster"), contains a number of galaxies, including M77 which is a bright and compact spiral galaxy, contains three distinct sets of spiral arms and lies about 60 million light years distant. According to Burnham, this and NGC 4594 in Virgo (The "Sombrero") were the first two systems in which very large redshifts were discovered, leading to the discovery of the expanding universe.

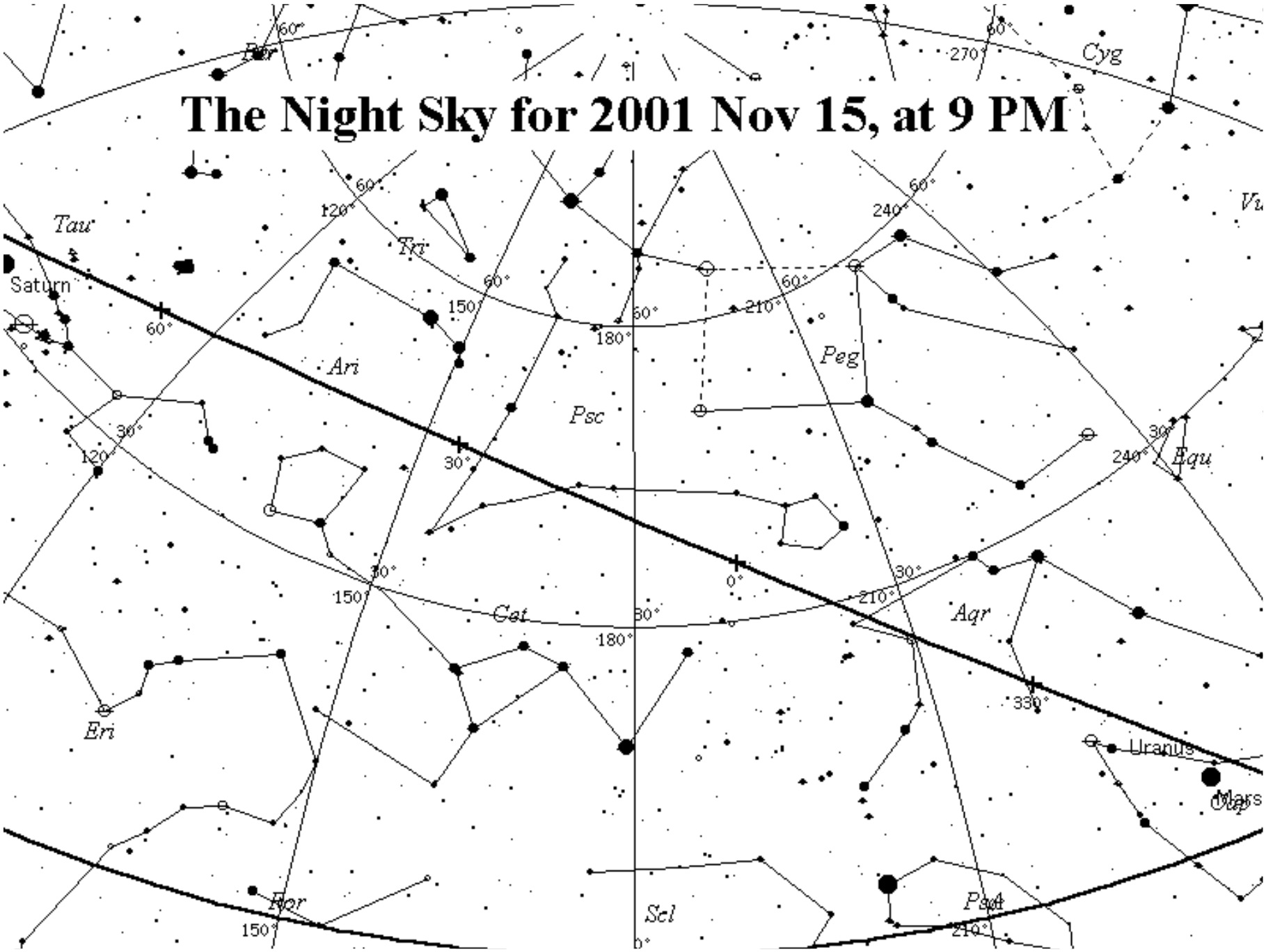
Pisces (Psc, "The Fishes"), lies on the Zodiac. It contains M74, mentioned last year and, according to Burnham, one of the faintest and most elusive of the Messier objects requiring a dark sky and suitable eyepiece. Who-all's seen it? Pisces also contains, according to Norton's 2000.0 Star Atlas, the galaxies NGC 487 and 524.

Andromeda (And, "The Princess of Ethiopia"), is familiar to most of us; it contains the "Great Andromeda Galaxy" M31 along with its satellite ellipticals, M32 and NGC 205 (a.k.a. M110 -- but not really on Messier's list). According to Burnham (and the references therein), M31 has been known at least as far back as 905 AD; it was known as "The Little Cloud" and appeared on star charts long before the discovery of the telescope in 1609. Simon Marius is usually credited with the first telescopic observation in 1611 or 1612. Early observers thought the "nebula" consisted of glowing gases but long photographic exposures early in this century revealed it to be a vast star system. Edwin Hubble, observing Cepheid variables with the 100" Mt Wilson telescope, established the distance as around 90,000 light years, well out of this galaxy. Later, corrected calculations in 1953 extended the distance out to 2.2 million light years. We now know that M31, along with M33 and our galaxy, are the three largest members of the "Local Group", gravitationally bound and holding numerous smaller galaxies, including the Large and Small Megallanic Clouds. Needless to say, M31 has been the subject of many studies by professionals using the largest telescopes and is also a fine object for amateur study and photography.

Cheers,
Bob Nelson

I did not get any text with this picture of an hours old new moon But it was just too nice to leave out. For details contact Jon Bowen < nate@netbistro.com > Nice picture!

The Night Sky for 2001 Nov 15, at 9 PM



Sky map courtesy Dr. Bob Nelson

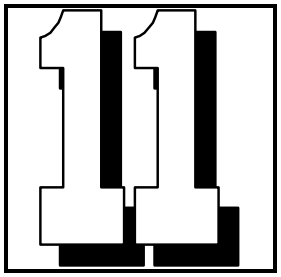
10

WE HAVE A FENCE around the new parking area at the north end of the building

What do you do with used helicopter blades?

Now we know.!

Nice work , thanks to Doug, Gerhard, Kane, Glen and Brian.



October 17, 2001 Executive Meeting Minutes
(condensed and abridged) full text available on request
ROYAL ASTRONOMICAL SOCIETY OF CANADA
Prince George Centre P.G.A.S.

. Correspondence

From the National Observing Committee of the RASC- Information about the 'Explore the Universe' Observing Certificate Program. A discussion followed regarding the implementation of a similar program within the club, with club certificates issued for various observing achievements. .
Mark Kaye of the RASC will be doing a presentation for the club and interested members of the public in February 2001
Fae Mooney has volunteered to write astronomy-related articles for the newspaper. PeGASus editor to co-ordinate and include other club members who wish to participate.
Motion: To set up a Messier (or NGC) Marathon night to be held in the spring of 2002.
A discussion centered on a certification process for using various pieces of equipment at the observatory.
.
The 24" scope needs to be re-balanced. A work detail has been scheduled for November 4, 2001. This date will provide time to mention this activity at the general meeting.

Regular maintenance needs to be scheduled on the 24" scope. A tentative date of June 17, 2002 was put forward. Maintenance would include balancing, mirror cleaning, drive lubrication, etc.

The existing Messier Observation Sheet on the hall wall needs to be replaced.
ACTION ITEM: Glen to build a spreadsheet capable of documenting existing data and providing space for additional observers.

There was a discussion regarding the placement of the C8 telescope c/w camera onto the main scope once funding was available for the purchase of the camera.

The orange scope is thrashed and in dire need of repair. No decision was made on how to accomplish this.

Distribution of the general meeting minutes to out of town members was discussed.
ACTION ITEM: Glen to mail the minutes only to out of town members who don't have email addresses.

SPELLBOUND: The Friendly Stars

"*But if by chance we come to know by name one bright star, it immediately separates itself from all the others and becomes an individual."* - Martha Evans Martin

Have you ever felt that way about a star? Is there one particular bright beauty, glittering in the heavens, that you look for eagerly when you step outside on a clear, dark night? I do.

To me, there is something comforting about being able to look up and see a familiar "face" shining in the crowd, right where you expect to find it: "Hello, old friend. It's good to see you again..."

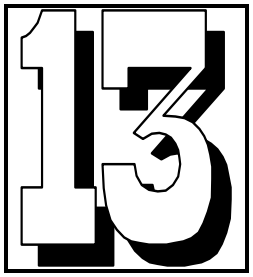
Wait! I'm not the only one who has felt this way. There is a fine old book, written almost a hundred years ago, with the affectionate title, The Friendly Stars. It was written by Martha Evans Martin, who had a very personal relationship with her stars:

"One knows the more conspicuous stars by name and at a glance," she wrote, "and is able to greet them as pleasant acquaintances when they return year after year in the due seasons, or each evening as they pass over their prescribed paths serene and stately, or dancing and twinkling, according to their several habits." The language seems dated a century later, but the affection expressed is as easy to interpret today as it was to understand way back then.

It is never enough for me to simply glance up at this pleasant acquaintance of mine. I might sigh audibly, and declare silently: "How radiant you are tonight, old friend, flashing all the colours of the rainbow." Yes, I know, I am personifying a mere object. I am a hopeless romantic, an unabashed sentimentalist.
I admit it.

But I take some comfort in knowing that at least one other person down through the ages has felt as I do: "More than any other natural objects, the stars, as they appear to us in the skies, seem to me to have individuality," Ms Martin confessed.

Over the years, I have come to know this pleasant acquaintance of mine very well, and many others besides. And they never fail to excite me, stir in me an inexplicable yearning, or fire my imagination, whether I am out under that vast black canopy reaching out to grasp infinity, or snug inside in a darkened room gazing through a window.



"One has a fine sense of companionship with the stars when he has secured this kind of acquaintance with them," wrote Ms Martin, "when on looking out of the window at any hour of the night he can see a familiar face twinkling at him as if in friendly recognition of the fact that he must know it is due at that hour and is expecting to see it." The stars - her companions - are the same stars that, on a clear dark night in this 21st century, twinkle and beckon me outside to say hello "in friendly recognition".

Why is this important? "If we enlarge our acquaintance in the skies, the whole aspect of the heavens is changed, and, instead of a brilliant assembly of impersonal points of light, we see a host of individuals," was Ms Martin's response in her book.

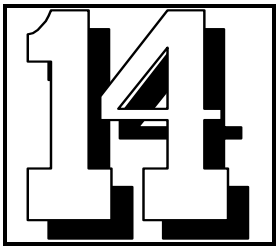
"And this satisfaction we may secure without troubling about meridians and ecliptics, or right ascension and declination, or any other of the scientific trappings of the stars... The only thing one needs to do in order to have such an acquaintance with the stars is to look for them." Which means, if we are blessed with a clear, dark sky (and no light pollution), even the poorest among us can be rich in celestial acquaintances.

But if we don't look up, we miss something extraordinary. And we soon forget an important point: "Intimate knowledge of the stars really preceded the science of astronomy," Ms Martin reminded her early 20th century readers. "The stars were better known even to people at large before there was any such science than they are known now." And how much better known are they to us today, one hundred years later? We, inhabitants of the "information age", are surely without excuse. Yet to many of us they have become little more than curiosities, if they are considered at all.

Recalling the reproach of 19th century American essayist Ralph Waldo Emerson, she warned that even then (and shames us today, by quoting Mr. Emerson), in those days "*of nautical almanacs, 'the man in the street does not know a star in the sky. The solstice he does not observe, the equinox he knows as little; and the whole bright calendar of the year is without a dial in his mind*.'" How sad to ignore and neglect what such a host of friends has to offer.

We need to look up at them, with only the naked eye, and become acquainted with them. It is to our shame if we do not. Ms Martin wrote: "*For all the stars that attract special notice and have individual names were noticed and so named long before the invention of the telescope; and the principal constellations were traced and named by simple shepherds who tended their flocks at night in the open fields and had nothing to aid them but their own eyes and [imagination*]."

There is no doubt that a starry night is beautiful. We gaze up at the twinkling points of light and enjoy the sight. And perhaps we do not care to know more about them in intimate detail. But - "if by chance we come to know by name one bright star, it immediately separates itself from all the others and becomes"...a friend.



November Star Hop in Perseus

Rising out of the east this month comes the legendary figure of Perseus. Perseus was the son of Zeus and the mortal Danae. Danaes father was told by an oracle that Perseus would kill him one day so to prevent this he put the boy and Danae out to sea locked in a trunk. They were rescued by a fisherman and went to live on his island. The king of the island, Polydectes, grew fond of Danae and decided to get rid of Perseus for a while so that he could court her. He commanded Perseus to slay the Gorgons, three sisters so ugly they could turn men to stone with one glance. Using their reflections in his shield to look at them Perseus managed to kill one of the Gorgons, Medusa. When her blood dripped into the sea the winged horse Pegasus sprang up. Riding off on Pegasus Perseus went on to turn Atlas into stone forcing him to forever carry the weight of the world on his shoulders and rescue the Princess Andromeda from the sea monster Cetus. After rescuing Andromeda he married her and had a child, Perses. Later in his life Perseus fulfilled the oracles prophecy by accidentally killing his grandfather with an errant discus throw at a sporting event.

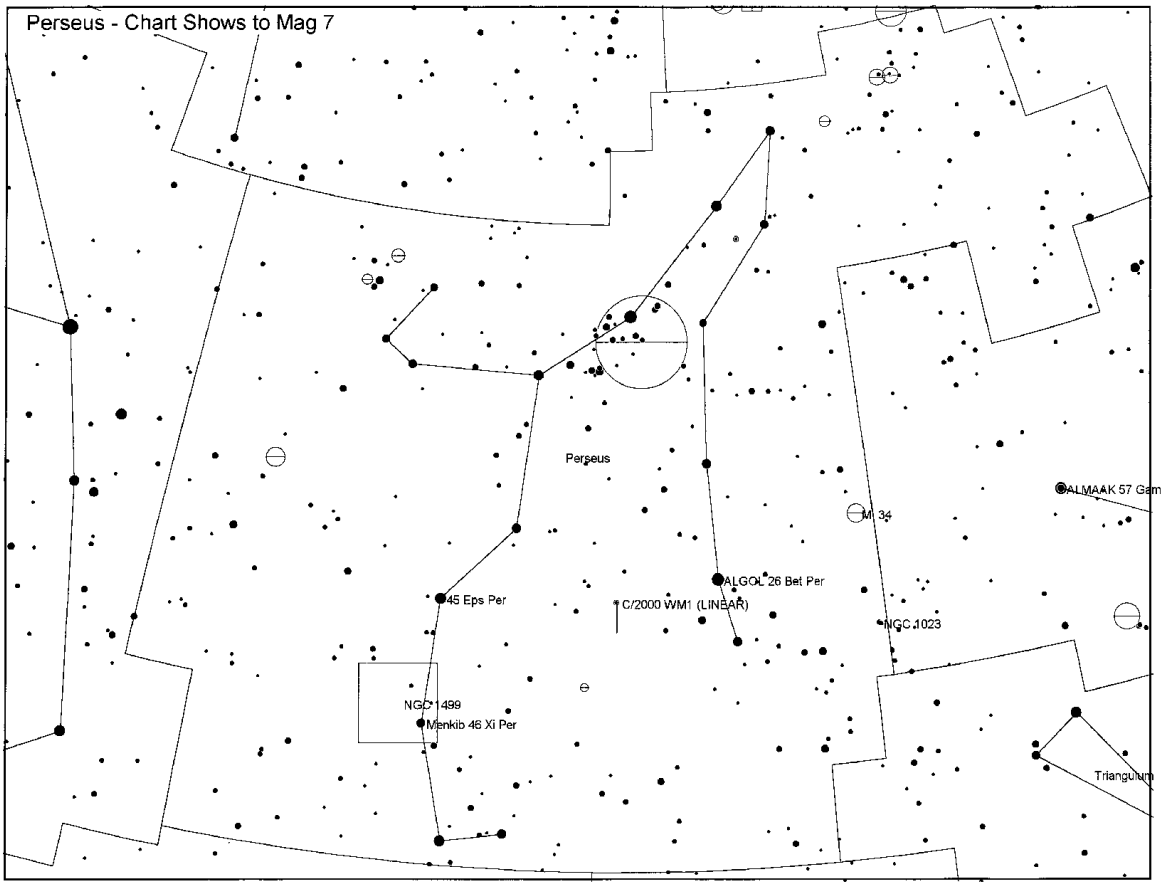
Hop #1: M34 – Open Cluster.
This 5th magnitude open cluster lies about 1,400 ly from Earth. There are about 80 stars contained in a circle of 18' (arc seconds). To locate it start at Beta PER (variable star Algol) and simply pan your binoculars about 5 deg towards Gam AND.

Hop #2: NGC1023 – Galaxy.
NGC 1023 is an elliptical galaxy of about 10 magnitude and measuring 8.1' x 3.4'. To locate it start again at Beta PER and move about 5 deg but this time move south along a line connecting Beta PER to Beta TRI.

Hop #3: NGC1499 – California Nebula.
This sprawling nebula measures 160' x 40'. To view it very dark skies and binoculars are recommended. If a telescope is used a wide field with power less than 50 is recommended. Nebula filters are also a great help. It lies 0.6 deg from Xi PER. (see chart)

Hop #4: C/2000 WM1 (Linear) – Comet.
On the 15th at 9:30 pm local time this comet lies about 3 deg from Beta PER just off a line connecting Beta PER with Eps PER. It's magnitude is predicted to be mag 6.7. At this magnitude it should be visible in binoculars or a wide field telescope as a small fuzzy patch under dark skies.

Good viewing and good luck!
Brian Battersby



PGAS CONTRIBUTORS

The PGAS would like to thank the following individuals, corporations and government agencies who, since 1991, have donated money, goods or services to the construction and operation of the Prince George Astronomical Observatory.

Ministry of Adv. Ed. Training and Tech.	$25,000
BC Science Council	16,000
BC Lotteries	3,900
Helmar Kotsch (Acme Mas.)	1,932
Northwood Pulp and Timber	1,665
Electrical Services Ltd.	1,583
Royal Bank of Canada	1,500
Xerox Canada	1,300
Regional District of Fraser-Fort George	1,000
Prince George Rotary Club	1,000
The Pas Lumber Co	750
Rustad Broth & Co Ltd	750
Canfor Polar Division	744
Bisque Software	500
Canfor Clear Lake	500

The greatest contributors to the construction and operation of the observatory are from PGAS members who have generously contributed their time to this project. The value of their contribution surpasses all external contributions.

The PGAS is a non-profit organization dedicated to the advancement of astronomy and science in general in Prince George and the neighboring northern communities. Donations of money or materials to the society are greatly appreciated and tax deductible.