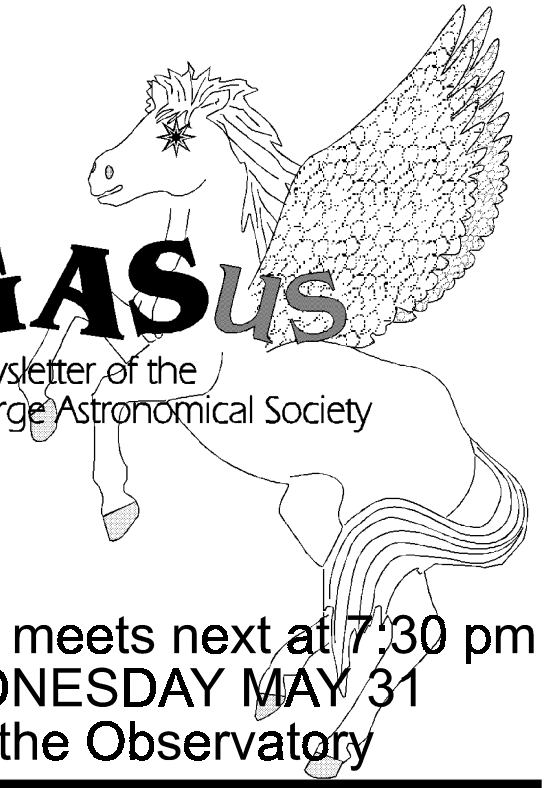
MAY 2000 ISSUE #104

the PeGASus

Newsletter of the
The Prince George Astronomical Society



The pgas meets next at 7:30 pm
WEDNESDAY MAY 31
at the Observatory

INSIDE :

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

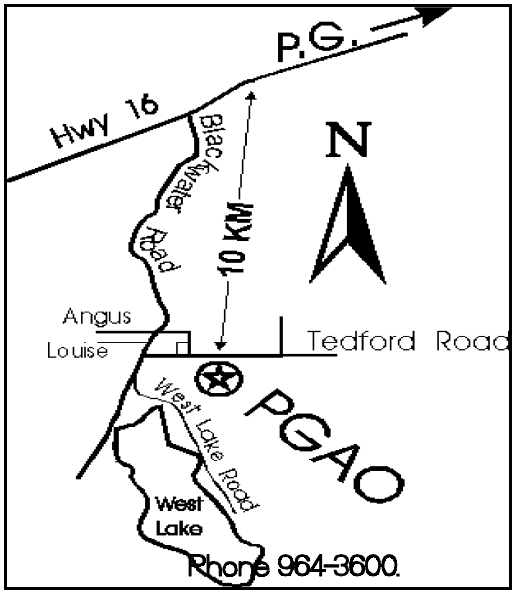
Our pursuits are out of this world.
Our activities are astronomical.
Our aim is the sky.

Contributions to the newsletter are welcome.

Deadline for the next issue is

September 15

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



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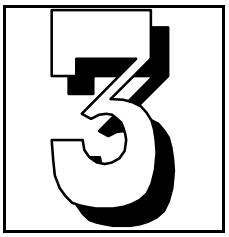


Editorial

by Dr. Bob Nelson
President PGAS

NOTICE OF CONSTITUTIONAL CHANGE

As a requirement to obtaining further Public Gaming Branch grants (which are the society's principal source of income), we need to make thefollowing constitutional change:

MOVE the second paragraph in the bylaws

"The assets of the Society on a winding up are to be transferred to the College of New Caledonia or its successor."

to the main body of the constitution and ADD the following sentence:

"This provision shall be unalterable."

Several points need to be made:

1. No one believes that our society is in any imminent threat of folding; rather, the society has never been stronger and we all hope that the PGAS will be around for many years to come. Nevertheless, like any society (especially one that has been the recipient of PGB funding), we need to have a careful statement re disposal of assets upon dissolution in our constitution.

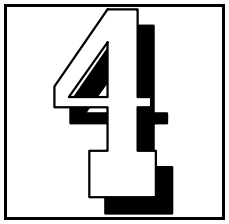
2. The provision re the disposal of assets has been in our constitution since day one; CNC has long been regarded as the only feasible place to leave our assets. As a matter of fact, we had to fight to get a special exemption on this point; other societies cannot leave assets to public institutions.

3. The requirement that the dissolution clause be in the main body and include a non-alterable provision is a standard requirement to which all charities have to adhere. We are no exception in this regard and simply have to comply.

4. This motion to amend will be placed on the table and voted on at the May meeting. Please consider this note in PeGASus proper notice of the motion.

5. I would hope that this will simply be a routine change that we will quickly vote on and move on to other matters. However, since it's a constitutional change, we had to give due notice. By all means, though, if you have any concerns, please bring them up at the May meeting or contact any member of the executive privately beforehand.

Cheers,
Bob



Coming Events

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

The PGAS.
meets next May 31, 7:30pm at the observatory

The Night Sky for June 2000

by Bob Nelson, PhD
Hi Folks,

Well, as I write this (mid-May), spring has finally arrived, the lawns are looking really green and we are having lovely, pleasant weather in Prince George. Astronomically speaking, though and ahead of us, June is one of our most difficult months. Thanks to daylight-savings time (boo, hiss), the sky stays light until very late; at solstice, you start observing at midnight and have only two hours until it starts getting light again! Even then, the northern horizon is very bright throughout the night and the sky is never truly dark (the technical term is "astronomical twilight"). However, if you don't have to get up early the next day, observing can be very pleasant.

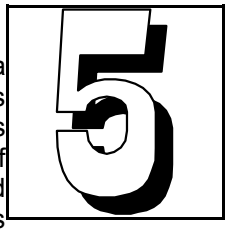
Here is what is happening in the sky next month:

PLANET ROUNDUP
MERCURY is an evening object in June. Owing to the fact that the ecliptic is parallel to the celestial equator at that point, it is neither a favourable or an unfavourable apparition. [Just go for it, gang!!!] Mercury reaches greatest eastern elongation on the 9th when it is some 24 degrees away from the Sun.

VENUS is lost in the glare of the Sun all month. It reaches superior conjunction on June 11. [Superior conjunction means that it is lined up with the Sun, but on the other side of it.]

MARS, in Taurus, until June 16 when it passes into Gemini, is lost in the glare of the Sun all month (it reaches conjunction July 1).

JUPITER, in Taurus for the rest of the year, is a morning object in June (and on until November). On the first, it rises about 40 minutes ahead of the Sun; by month's end, this has grown to over two hours. On the 15th, it's a 34" disk at magnitude -2.0. [This is close to the smallest and dimmest it can get because Jupiter is close to the farthest it can get from Earth. Its distance from Earth varies from about 4.0 to 6.0 astronomical units, its angular size varies from 33 to 49" and its brightness varies from -2.0 to -2.9 visual magnitudes.]



SATURN, in Taurus for the rest of the year, is, like Jupiter, a morning object for the next few months. On the first, it rises about 30 minutes ahead of the Sun; by month's end, this has grown to over two hours. On the 15th, it's a 17" disk of magnitude 0.2. Like Jupiter, this is close to the smallest and dimmest it can get. However, since Saturn is about twice as far away from the Sun, the variation in these two quantities is much smaller.

URANUS, in Capricornus all year, is a late-night object in June. On the first, it rises at about 1:30 AM; at the end of the month, it rises at 12:30 AM. On the 15th, it's a 4" disk of magnitude 5.7 (and these numbers do not vary a lot).

NEPTUNE, in Capricornus all year, is, like Uranus, a late night object in June. On the first, it rises at about 1 AM; at the end of the month, at about 11 PM. As usual, it's a 2.3" disk at about magnitude 8.0.

PLUTO, in Ophiuchus all year, is visible all night long (what there is of it) in June. At the beginning of the month, it transits (i.e., is due south on the meridian) near 1 AM, at the time of maximum darkness. Maybe we should try for a CCD image this year! As usual, it's a 0.1" disk at magnitude 13.8 and you need a good finder chart (or Guide 7) to distinguish it from all the dim stars out there. [Actually, I see from Guide 7, that for the first two weeks in June, it is quite close to the 8th magnitude star SAO 160083; on June 8, it is only 1.5 arcminutes away, well within the field of view of the main scope. There's no excuse now folks, nowhere to hide ... Ahem.]
It's curious, isn't it, that adjacent planets in the list are paired up in their behaviour this month -- Venus and Mars, Jupiter and Saturn, Uranus and Neptune; each is close to its partner in the sky and rises (or not) at about the same time. It's just a coincidence, of course; similarly, the world did not come to an end at the planetary lineup May 9th (or whenever it was supposed to happen) - - notice that all the doomsayers are keeping a low profile after yet another failure of their crackpot "science".

Summer Solstice occurs on June 20th at 6:48 PM, PDT.

CONSTELLATIONS to look for in June (at 12 midnight, PDT) are Corona Borealis, Hercules, Libra, Serpens Caput, Ophiuchus, Scorpius, and Serpens Cauda. Note that the two Serpens constellations are not contiguous.

Corona Berenices ("Bernice's Hair") contains the rich globular cluster M53, numerous galaxies: M64, M85, M88, M98, M99, M100 (the largest spiral in the Virgo-Coma clusters of galaxies), NGC 4565 (famous edge-on spiral), NGC 4889, as well as the Coma Star Cluster, visible to the naked eye, lying some 250 light years distant. Busy!!

Hercules ("The Son of Zeus") contains, of course, the famous Hercules (globular) cluster M13, one of the three finest globulars in the sky. Hercules also includes M92, another globular lying some 35,000 light years distant, discovered by Bode in 1777 and Messier, independently in 1781.

Libra ("The Balance") contains no Messier objects. It does, however, lie far from the Milky Way and contains many galaxies NGC 5xxx plus the globular cluster NGC 5897, a large and loosely- structured cluster.

Serpens Caput and Serpens Cauda ("The Serpent"). Caput, the western half, lies off the Milky Way and contains the spectacular globular M5 (the fifth brightest, after Omega Centauri, 47 Tuc, M22 in Sgr and M13 in Her) lying some 26,000 light years from us. It's one of the oldest objects around, dated at 13 billion years and must have formed very early in the history of the universe.

Cauda, the eastern half, lies essentially on the Milky Way but is not part of the luminous band owing to the large amount of intervening dust. It contains M16, the famous "Eagle Nebula" (with its EGGs). M16 lies some 8000 light years away in the great Sagittarius arm of the Galaxy.

Ophiuchus ("The Holder of the Serpent" -- and separating the two halves) contains numerous globular clusters -- Messiers 9, 10, 12, 14, 19, 62 and 107 -- too many to discuss! The southern part of the constellation lies in the rich portion of the Milky Way (see below).

Scorpius ("The Scorpion") contains numerous globular clusters: M80, about 4 degrees northwest of Antares (Alpha Scorpii), M4, just one degree west of Antares, M62, about 7 degrees southeast of Antares, and M6, near the tail of the beast (which will be very low in our northern skies) plus other NGC globulars.

Clear skies,
-Bob

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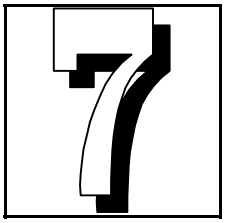
NEW BOOKS AT THE PUBLIC LIBRARY.

By Yvonne Whebell

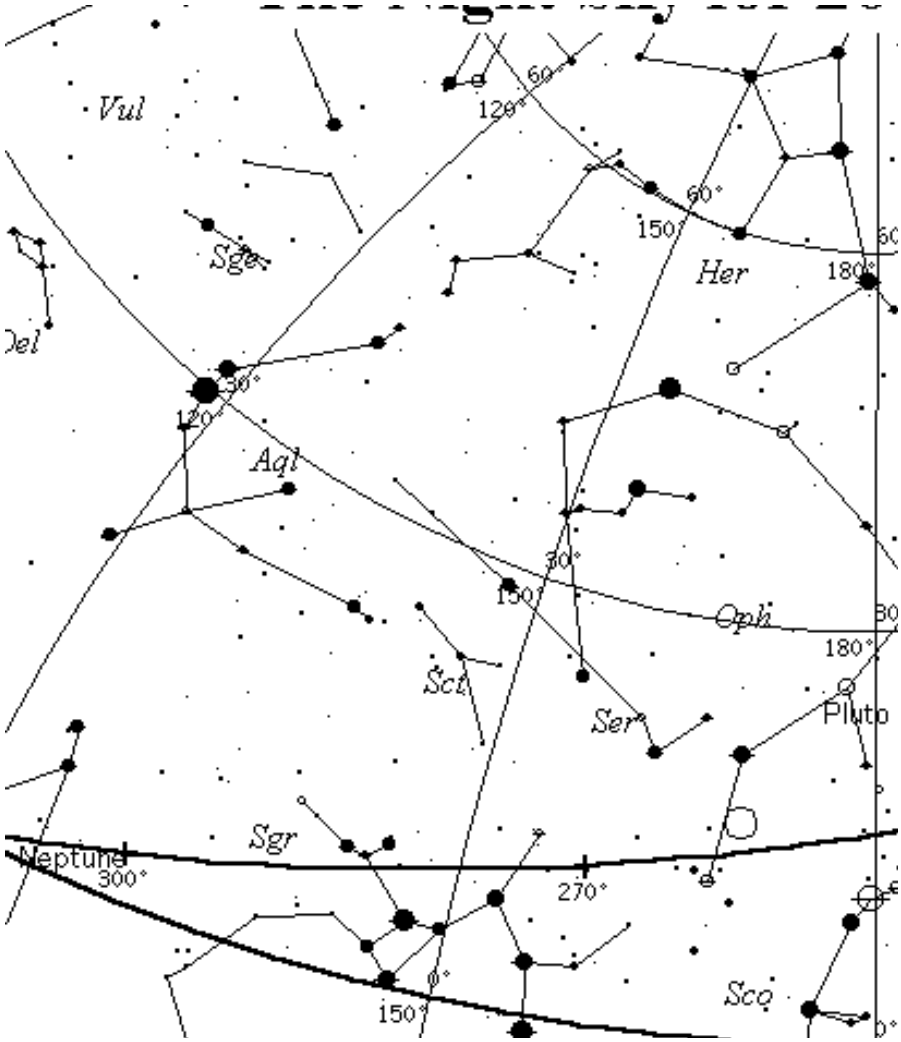
THE CAMBRIDGE PLANETARY HANDBOOK by Michael E. Bakich. Cambridge University Press, 2000.provides the reader with an enormous amount of data about the planets in our solar system and their satellites, and about the people who made discoveries about them. The book contains a lot of tables, from technical observations and calculations such as atmospheric density, solar irradiance, inclination of orbit, future transits, etc. to lists of discoverers and dates of discovery, to a table of names of the planets, sun and moon around the world. The table format is convenient for comparing data. There are also historical timelines, photographs and drawings, and well-written sections on the history of exploration.

Y.W.

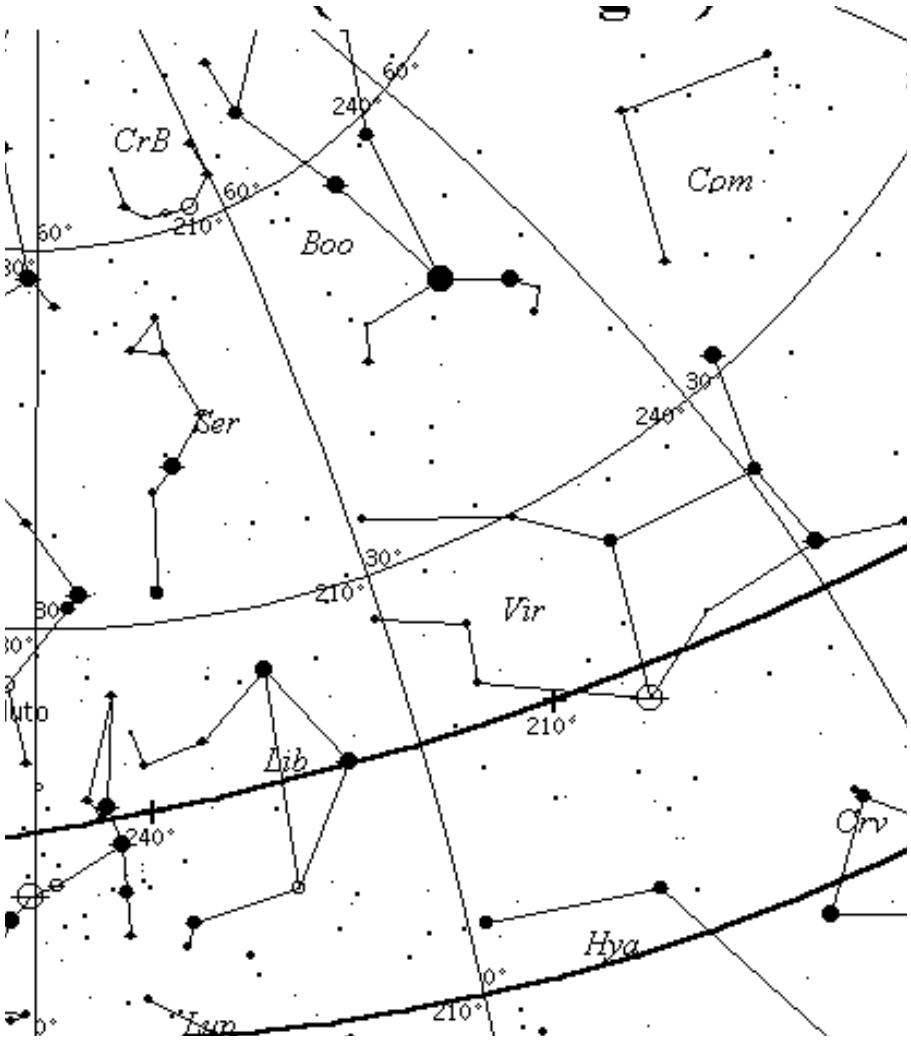
RAO Photo Gallery



Photos omitted from E-mail newsletter
If you would like to see them I will e-mail them to you



Night Sky for June courtesy Dr. Bob Nelson


CrB
Boo
Com
Ser
Vir
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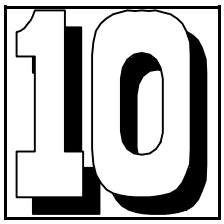
Crv
Hya
Lup
60°
240°
210°
30°
0°



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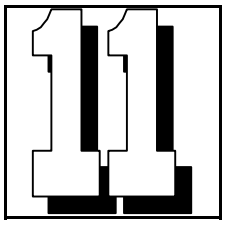


Amateur Telescope Makers

Jon Bowen

Given the shortage of retailers in Prince George offering good, small telescopes for the serious amateur, we would like to propose a the creation of a telescope making workshop.

The idea is two fold. First, all those members of the society who wish to participate will meet and determine which design, or combination of designs, are the best for our needs. Second, the group will be advertised, inviting members of the public to participate for a nominal fee. All participants will supply all their own materials, and it is hoped that people will bring any tools they have, which would be used by the group.

Roughly, we are hoping to have everyone build a ‘scope with the same properties - Six or Eight inch primary, F/6 to F/8, dobsonian mounts. Ideally, the ‘scopes will be fairly lightweight, and disassemble-able for transportation. I would suggest commercially purchased mirrors, preferably from the same manufacturer, with the idea to get the best possible price. All these details will be worked out by the members participating. Once the “plans” are finalized, the cost and design will be advertised in our newspaper ad, inviting the public to join in.

I would suggest that anyone interested in building such a telescope meet at the observatory on Friday, June 2nd at 8 o'clock p.m. In the interim, I recommend that everyone research any designs that they can. I have listed below a number of Web sites (collected by Brian Battersby) on amateur telescope design as a starting point. If we all collect some information, we will hopefully end up with the best possible design. Please give me a call at 962-1046 if you are interested in participating.

http://www.lymax.com/cosmicone/4inchdob/

http://www.geocities.com/CapeCanaveral/Hangar/4274/16inch.html

http://www3.islandtelecom.com/~jpcrombie/index.html

http://members.lcia.com/dave/build.htm

http://members.aol.com/sfsidewalk/dobplans.htm

http://www.slip.net/~lefevre/scope.htm

http://www.atmpage.com/ravne.html

http://tie.jpl.nasa.gov/tie/dobson/index.html

http://member.flakeysol.com/shanklan/ATM1.html

THE QUIZ

Last months Solution:

Hi Gil,
About that darn motor. I keep thinking that there is a trick because 1800 rpm seems too fast if it is turning the telescope one gear sprocket per turn. Sticking with just the motor, it seems like a simple unit conversion problem. The only trick then is to remember that this year is a leap year (I checked my calendar, and February has 29 days)

1800 r/m x 60 m/h x 24 h/d x 366 d/y = 948672000 revolutions.

What is all that worm gear and drive sprocket stuff about?
>
Hi Orla
Yes you are right there was a trick and not a particularly great one. There where several red herrings and the real point was " how many days between Jan 1st and Jan 1st."? I probably could have worded the bit about the motor better, I just needed something to distract from the real question, which would have been too simple. Do you think there is a future for me in writing college exams?
You are the winner.
Gil

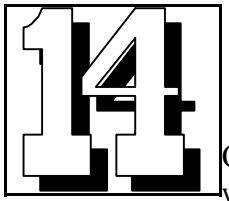
This is the first correct answer **SUBMITTED** to me. Although Glenn Zuhlke showed me, I think the same answer at last months meeting. The question was **DERIVED** from Glenn's suggestion of a month ago. He caught the "trick" . So I am making a judgement call. We are getting a lot of interest in the quiz maybe we can start working on a prize you can spend,

This Months Question

What point on Earth's surface is farthest away from the geometric centre of the Earth?

Please submit your solution in writing to me before the deadline for the next newsletter. e-mail gil@attcanada.net

Mail Gil Self 7091 Tony Road , Prince George BC. V2n5P4



A Visitor from the East

On May 10th the PGAS received a sneak preview of what it would be like to be a RASC centre. Tom Cameron, from the RASC Calgary Centre, flew in from Calgary for the forest exposition. Luckily for us Tom has previously visited the lonely astronomy club of the north and came prepared to share his experiences with us. Tom is a busy guy. He has a regular job in the forest sector, he is a member of the Calgary RASC and he volunteers his time to the Rothney Astrophysical Observatory. The University of Calgary owns the RAO. The facility is used for scientific observations and to train their astronomy students. The primary scope is 1.8m mounted on an Alt – Alt mount. Meaning it tips N/S and W/E to achieve its range of motion. The unusual mount allows for the scope to be mounted in a smaller dome and "avoids the zenith 'catastrophe' of Alt-Az mounts." The mount also means it experiences an unusually high field rotation. Originally this was not a problem because the scope was designed with only looking at stars magnitudes, however it has become a problem now that they wish to use to the scope for a wider range of applications including asteroid positioning and the study of planetary nebulae. The scope is fully automated no one needs to be inside the dome when locating objects to view. The operator controls the scope from the control room using video cameras. The astronomer still needs to go to the scope to administer the liquid nitrogen required to cool the CCD camera and two people are required to run the spectrometer. Tom has a number of duties to perform at the observatory. He is a general "fix it" man making repairs to the scope and facility. One of his achievements was correcting a video camera that gave a jumpy image while the scope was slewing… by attaching a simple cardboard tube with tape!

Tom brought a great slide show with him mostly covering the technical and historical aspects of the observatory. He also had a group of "money shots", awesome CCD images of various objects. Tom was an animated speaker obviously enjoying his time at the RAO immensely. I can not wait to hear from more speakers of Tom's caliber, varied experience and most importantly enthusiasm; as I alluded to at the beginning if we join the RASC we would have at least one of these speakers a year – now wouldn't that be nice? For those of you interested the RAO has open house nights on June 10, July 8 and August 12 for more information check out their website at

www.phas.uclagary.ca/rao/

B.B

(RAO photos on pages 7 and 10)

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

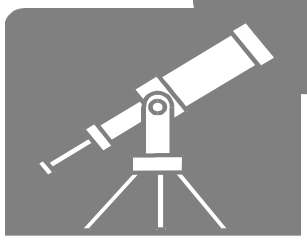
The greatest contributors to the construction and operation of the observatory are from PGAS members who have generously contributed their time to this project. The value of their contribution surpasses all external contributions.

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.

Support Community Science

Join the PGAS

Prince George Astronomical Society



The P.G.A.S Would like to thank
BISQUE SOFTWARE
for their donation of
THE SKY (Level 4 software)
To The Prince George Observatory

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We thank you for your support.