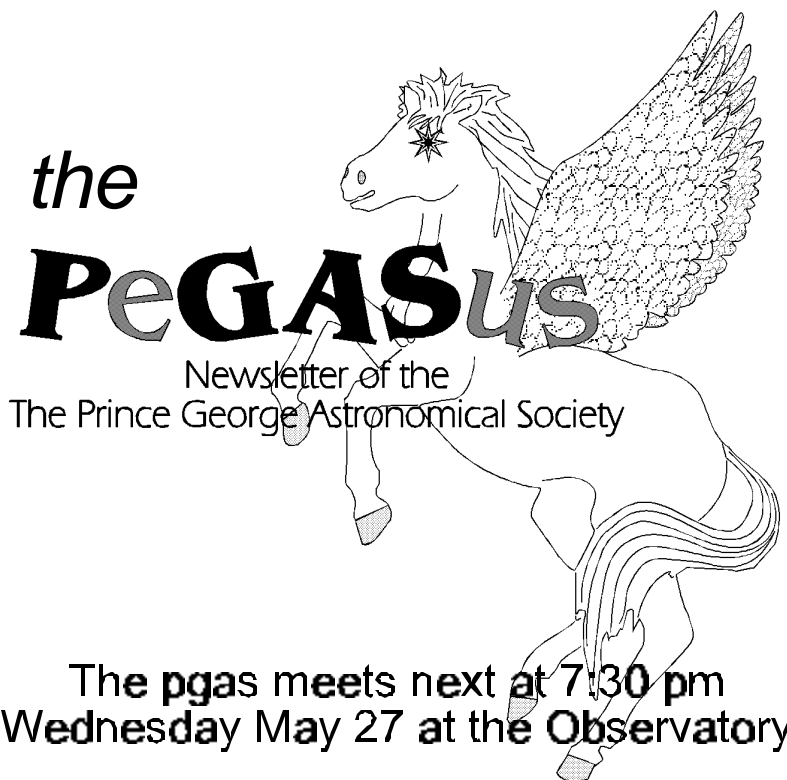


1998 MAY ISSUE #85



the

PeGASus

Newsletter of the
The Prince George Astronomical Society

The **pgas** meets next at 7:30 pm
Wednesday May 27 at the Observatory

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the PeGASus
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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

August 15

Send correspondence to
The PGAS
3330 - 22nd Avenue
Prince George, BC, V2N 1P8
or

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Vice President
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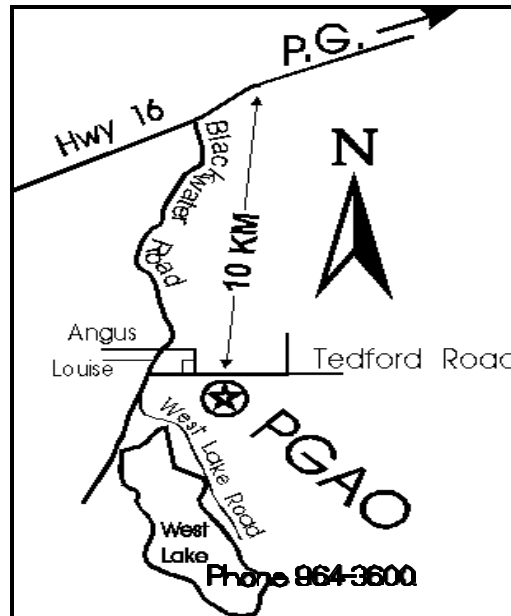
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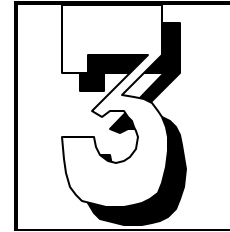
PeGASus Editor
Gil Self



EDITORIAL

by Gil Self

Close encounters of some kind

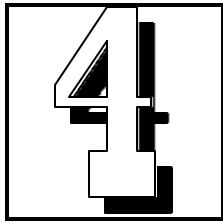


It's finally happened to me. All those times I have smiled and nodded while someone recounted their adventure now I know how they feel—I saw it.

Here is what happened, I was working late at my office, it was about 10:45 May 3 (I don't wear a watch on weekends— my little fight on stress). As I walked out the door I looked up at the remarkable display of northern lights. I am not very well orientated to the night sky in the downtown area but I was facing more or less north. As I watched the lightshow, what looked like a star brightened over a space of about 30 seconds until it was at least equal to a full moon a very brilliant blue white. It was still in the sky, it never moved. After a few seconds at full brilliance it dimmed until after another 30 to 45 seconds I couldn't even see a star at that spot. Now of course the viewing was less than great but something that bright you would see through a cloud? The spot in the sky was about 50 to 60 degrees high and approximately NNE, I approximated the spot when I got home where I am blessed with pretty good seeing, it was in the general location of Andromeda. Now I know it was probably an aircraft turning onto final approach for the PG airport but I waited and didn't hear any airplanes.... It was probably a meteorite coming straight at me—well maybe but it just seemed the wrong color—maybe. A satellite tumbling into the sunlight but it was really still—maybe. There a lots of maybes but I wanted to write this down while it was still fresh, I know logically it was no big deal— probably. But for a few moments it was pretty exciting. You never know!

This is kind of our year end, the last issue before summer—you know the season when it almost never gets really dark. Well it is also a good opportunity to get some work done at the observatory. If you have any spare moments this summer we have many projects that need extra help, just call any member of the executive.

But this is the time to thank everyone for all the effort they have given freely throughout the past year. To start naming people is risky, I might miss someone and everyone's contributions are welcomed. Some are able to offer more time, some less. We all have other responsibilities that use up our free time. So maybe it would be more appropriate if I suggest that we all take a moment to give each other a pat on the back from time to time. We have made great progress in the past few years and we can all be proud of what we have accomplished.



Coming Events

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

May 27 —General meeting at the Observatory

The Night Sky for June '98

by Bob Nelson, PhD

Hi Folks,

Well, summer is not far away, and for us astronomers, our favourite activity is very late indeed. Near solstice, which occurs this month, we have only two hours of relative darkness -- from midnight to 2 A.M. Strictly speaking, we do not have true darkness at all -- we're in what is called astronomical twilight. One of the few advantages, however, is that the full Moon, when it occurs, is low in the sky (it's where the Sun will be six months from now in the depths of winter). In addition, if you can stay up late, the temperatures can be quite mild -- I have the occasional memory of observing in shirt sleeves sipping a beer! (That would be only following a very hot day.)

This month sees me using a new planetarium program to gather information for this column. It's called Starry Night, originally written for the MAC, and now available for Windows 95. A Canadian product (it has all the Canadian spellings), it is by far the most beautiful planetarium program I've seen. Its simulation of sunrise and sunset, eclipses, views from other planets are truly spectacular. Also, with the CD ROM disk in place (and in chart mode), it now plots the stars from the Guidestar catalogue (to 14th magnitude). However, it will never replace my other programs (Guide 6, Redshift, Skymap, PC Sky, The Sky) all of which have their advantages and disadvantages (Guide 6 has no peer for making starcharts and for its extensive catalogues). Sometime in the future, I'll write a article reviewing and comparing these programs.

PLANET ROUNDUP

MERCURY, in June, starts out as a morning object on the first of the month and ends up an evening object by the end; it reaches superior conjunction on the 10th (at 700 UT). By the end of the month, Mercury sets about an hour and a half after the Sun and may be worth going after (it's a 6" disk of magnitude -0.25 and is 21° away from the Sun).

VENUS, a morning object in June, rises over an hour before sunrise. It's a 13.1" disk of magnitude -4.0. It should be really obvious just before sunrise, so look for it, you early risers (or late observers).

MARS, in Taurus, is lost in the glare of the Sun.

JUPITER, in Pisces, rises around 1 A.M. and is low in the southeast at dawn. It's a 40.1" disk of magnitude -2.4.

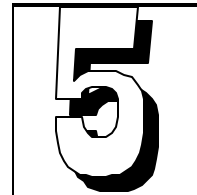
SATURN, in Pisces, is lost in the glare of the Sun.

URANUS, in Capricornus, rises around midnight (PDT) and is low in the south at dawn. It's a 3.6" disk of magnitude 5.8.

NEPTUNE, in Capricornus, rises at about 10:40 PM and sets at about 7 AM. As usual, it's a 2.3" disk at about magnitude 7.9.

PLUTO, in Ophiuchus, rises at about 5:45 PM and sets at about 4:15 AM. As usual, it's a 0.1" disk at magnitude 13.8 (how boring!).

Next time you're at the observatory, let's have a go at the outer three planets, which should be reasonably placed for good observation.



Summer solstice occurs on June 21 at 7:03 PDT (tell your friends). Full Moon occurs on the 10th.

CONSTELLATIONS to look for in June (at midnight, PDT) are Corona Borealis, Hercules, Serpens Caput, Scorpius, and Ophiuchus.

In Corona Borealis, there are no Messier objects; but there are two interesting stars: Corona Borealis (CrB), a 17 day eclipsing binary of the Algol type and R Coronae Borealis (R CrB) which is the prototype of a small but distinctive class of variable stars. R CrB is normally at maximum light of about magnitude 5.8 but will fade suddenly and without warning by up to eight magnitudes; the minimum may last from several weeks to up to several years. It's thought that plumes of carbon (soot!) which shoot out from the star (in the later phases of its life) are the cause of the drop in magnitude.

The northern part of Hercules contains the globular clusters M13, M92 and NGC 6229 and is fairly familiar to most of us, since it's visible for a good part of the year.

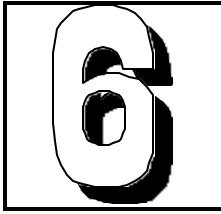
Serpens Caput contains the fabulous M5, one of the best globular clusters visible in the northern hemisphere. (It's right up there with M3 and M13.)

Scorpius 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.

Ophiuchus continues on with the following globulars: M9, M10, M12, M19, M107, plus numerous fainter NGC globulars. Check 'em out! Maybe I'll have the CCD problems worked out by then and we can image a bunch of them.

This will be the last "Night Sky" for the season, so you're on your own until the August issue! (The constellations are all covered, since August viewing, although two months later, will normally occur earlier in the evening; you are therefore looking very conveniently at the next segment of sky. It all works out!)

Clear skies,
Bob



At the Eyepiece: Capturing the Heart of Virgo

(Reprinted from the RASC JOURNAL)

Please see photo on page 8

How many galaxies have you ever seen at once? There is a marvellous knot in the Virgo Cluster where ten galaxies crowd into my 20-cm Newtonian's 61x field. Start by examining the two bright ellipticals M84 and M86, only 17' apart. Take your time because these are the last bright objects that you will see for awhile. Each has a prominent nucleus. (All descriptions refer to the view through a 20-cm reflector.)

M84 is an E1 galaxy while M86 is a more oblate E3.

Our first spiral, spindle-shaped NGC 4388, lies 16' south of the two Messiers, forming an equilateral triangle with them. The NGC describes this large magnitude 11.1 galaxy as "very faint". While 4388 is not exactly prominent, I find this to be a good example of why the NGC descriptions need to be read with a grain of salt. I doubt that the transparency was all that great on the night that "very faint" was penned by a 19th century observer.

Carefully examine the very centre of the above triangle and you should be able to pick out tiny NGC 4387. Despite the NGC's description, "pretty faint", this magnitude 12.0 galaxy's relatively high surface brightness makes it less of a challenge than most 12th magnitude galaxies are.

Look 10' north of M86 for NGC 4402, an edge-on spiral. BURNHAM'S CELESTIAL HANDBOOK states that it has "a prominent equatorial dustlane." I can unequivocally state that Burnham wasn't using a 20-cm for that observation! Has anyone bagged this darklane using big glass?

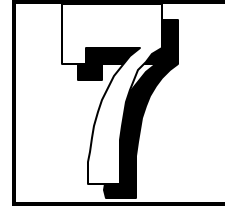
Now extend the line from M84 to M86 about 20' and you will come to The Eyes, NGC 4435 and NGC 4438. Both "eyes" show "pupils", nuclei.

Another edge-on, faint NGC 4425, lies 20' south of NGC 4435. "Faint" is my logbook's entry for this magnitude 11.9 lens-shaped spiral; the NGC labels it "pretty faint". NGC 4425 is at the midpoint of an arc from NGC 4388 to NGC 4438. As a further check, NGC 4425 forms an equilateral triangle with NGC 4435 and M86. Now you are learning how to navigate the thickest parts of the Virgo Cluster. Forget starhopping-- galaxy hop!

With this new skill, take on the toughest galaxy yet, the only one not visible at 61x in my scope. Extend a line from NGC 4402 through M86 exactly twice its length. You will be equidistant from your most recent find, NGC 4425, and from NGC 4388, 12' from either. Note the star field and switch to a moderate power. NGC 4413 was detected with averted vision at 116x on an Okanagan night with excellent transparency and very good seeing. (The former is standard in the Okanagan but the latter is rare.) Since 13th magnitude (photographic) NGC 4413 was not visible at low power, this galaxy, while in the field, is

not one of the ten visible at once.

To spot galaxies number nine and number ten, extend the line from M86 through The Eyes its same length and curve very slightly northwards. There you will find another pair, NGCs 4458 and 4461--a smaller pair of eyes! They are magnitudes 12.1 and 11.2 respectively. When this last pair were just far enough inside the edge of my 20mm



Erfl's field that I could still discern them, M84 was barely inside the opposite edge. Ten galaxies visible at once, count 'em!

The edge of this remarkable field is not the natural end to this tour. Hop onwards to M88, following the curve from M86 through The Eyes and "the small eyes". Just where the next bauble on the necklace should be, 10th magnitude NGC 4473 appears. Tighten your northwards curve, leaving Virgo behind, and you're upon NGC 4477 in Coma Berenices--easy at magnitude 10.4.

My 20-cm Newtonian couldn't pick up magnitude 12.5 NGC 4479 just 3' south of NGC 4477; but a 1996 tour with the Prince George club's 0.6-metre Cassegrain at 120x made short work of 4479. It was hardly sporting to jump that much in aperture for the second attempt I suppose, but then I don't much like missing on objects!

Cruise on northwards through the wide pair NGC 4459 (magnitude 10.4) and NGC 4474 (a magnitude 11.8 E6) and then shade your eyes--Messier ahead! Bright M88 sports a nucleus, as do NGCs 4461, 4473, 4477, and 4459. Four of these five are spirals, but NGC 4473 is an E4 elliptical. A nucleus is about all the detail that amateur telescopes reveal in most Virgo Cluster galaxies--their glory is in their sheer numbers.

Because these fuzzies are so close together, this galaxy-hop was easy even with the big Cassegrain's tiny 24' field of view. There would be no point in listing the celestial coordinates of this month's objects, since the three degree long chain of galaxies is anchored by bright Messiers at both ends.

Certain objects demand attention whenever they are well- placed. The finest jewel in Virgo is Gamma Virginus, a matched pair of magnitude 3.5 pale yellow suns. The pair have been closing for all of the 36 years that I have observed them. In 1962 they were an easy 5.0" target for my new 60-mm refractor. They are now 1.8" apart and accelerating towards the periastron of the binary's 170-year orbit. Watch over the next nine years as they close to only 0.3" in 2007!

The author of an observing column writes in a curious time- warp. The sky he describes always lies a full season ahead; the most recent descriptions in his logbooks of the objects he writes about are at least nine months old. Thus he is frequently found observing the black predawn skies, checking some detail, while making resolutions to the effect that his logbooks will be more carefully written in future!

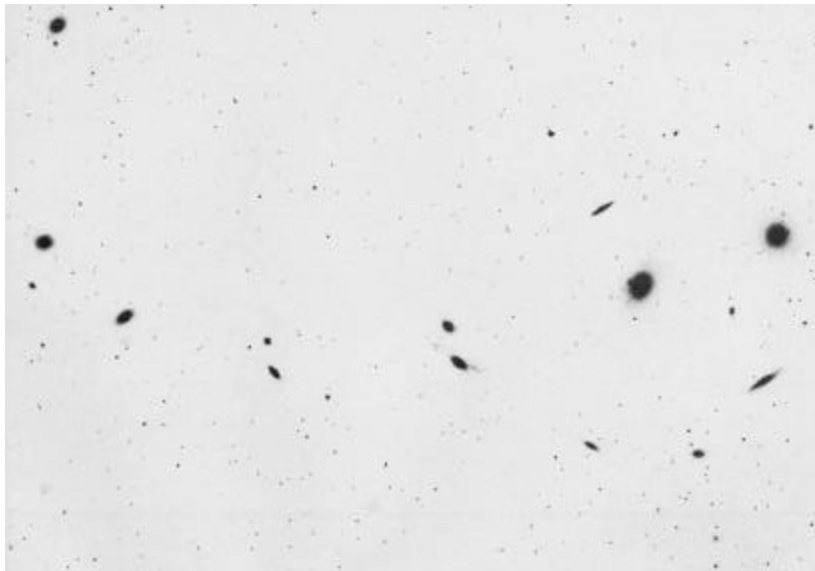
(cont on page 8)

My deadline for this column was today, February 15th. When Spica culminated at 3 this

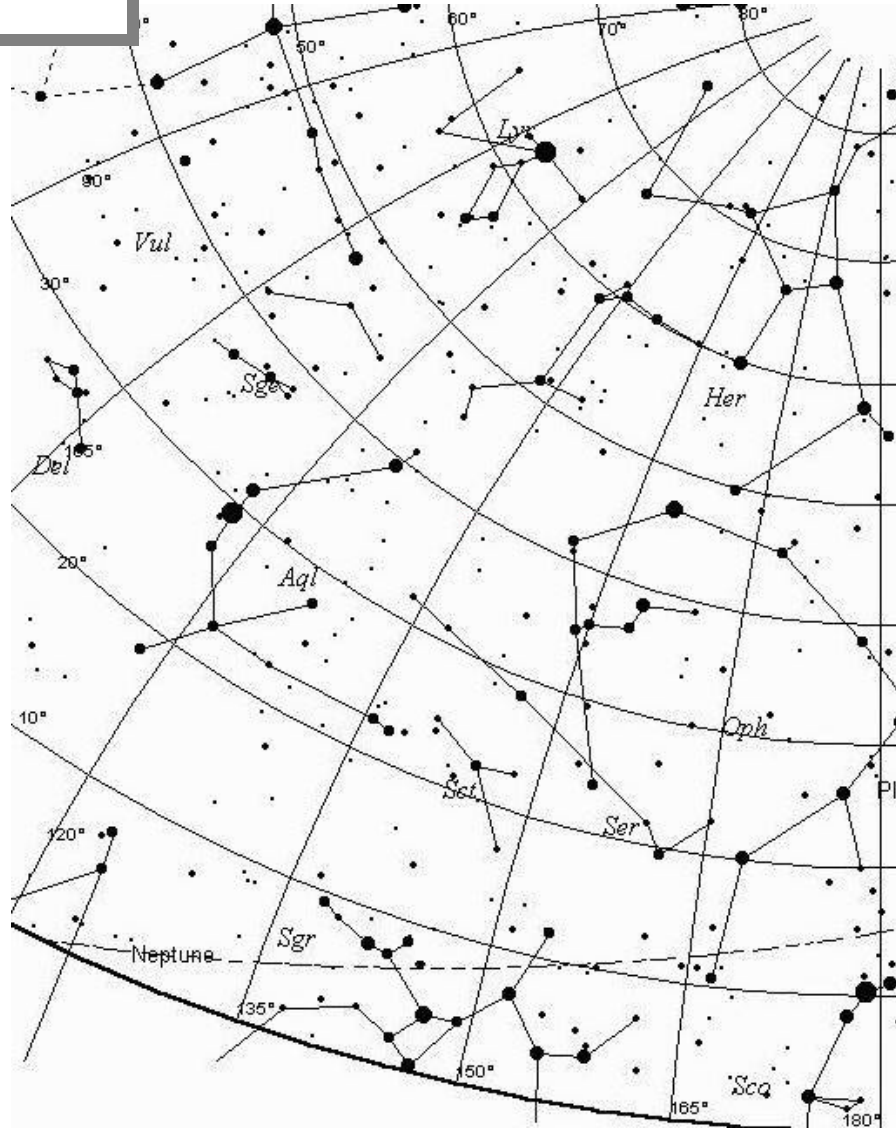
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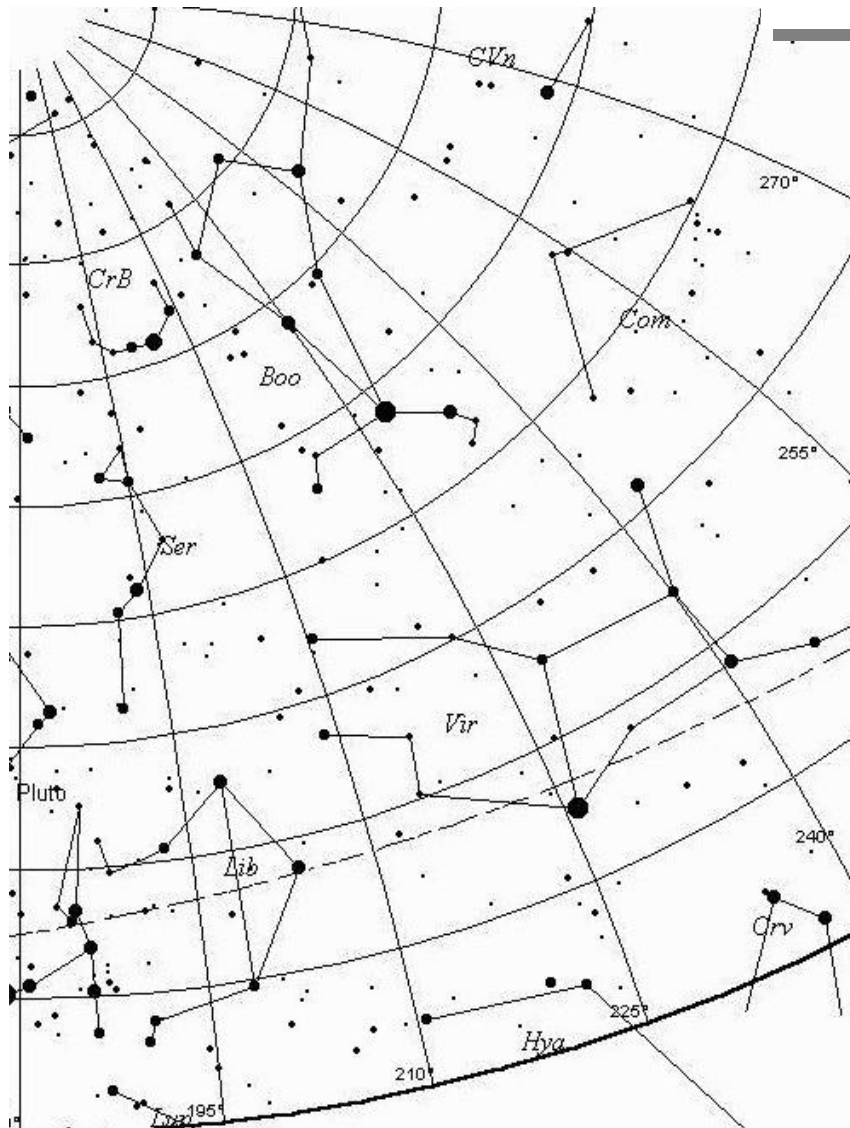
My deadline for this column was today, February 15th. When Spica culminated at 3 this morning, it was a magical moment for what it portended. Spica is the key to the south, the key to wondrous objects below the horizon. I cannot know with certainty that my perfect record in the moon's shadow will continue this February 26th. But I do know that one morning very soon I will stand on the Sky Deck of the ms VEENDAM and look straight down from Spica and there, 36 degrees lower, will be a naked-eye fuzzy patch, Omega Centauri. My Astroscan will resolve the king of the globulars and linger long. Then I'll sweep back north along the line towards Spica, but be halted by two of the southern sky's finest galaxies, Centaurus A and M83.

Alan Whitman



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June Sky Map by Dr Bob

This is probably a good place to thank Bob for all the time he gives us all year round. I don't think anyone works harder than Bob, sharing his knowledge and excitement. I know I could never keep up his pace.

Thank-you Bob



PGAS Year Round Calendar

From time to time there is a little confusion as to things like —Where is the meeting this month? Is there a meeting this month? When is open house? Here is my attempt to make sure we are all on the same page.

Month	Newsletter?	Meeting?	Open House
January	Yes	Yes at CNC	No
February	Yes	Yes at CNC	No
March	Yes	Yes at PGAO	Yes
April	Yes	Yes at PGAO	Yes
May	Yes	Yes at PGAO	Yes
June	No	BBQ ??	No
July	No	No	No
August	Yes	No	Yes
September	Yes	Yes at PGAO	Yes
October	Yes	Yes at PGAO	Yes
November	Yes	Yes at CNC	No
December	Yes	No	No

Don't forget Perseids meteor shower August 11 th , it is only 4 days after full moon (waning gibbous) but Jupiter is back in the night sky and we always have a very pleasant evening
GS

The 1998 Casino



As part of our on-going fundraising (our *only* fundraising, apart from the occasional donation), we have held (are holding, at time of writing) our 1998 casino. Even though we make a practice of trying to apply for another as soon one is finished, we still seem to have casinos about once a year. This year, there were delays; however, we were offered one a little earlier than expected since another group bombed out. (The Gaming Commission even got one of the dates wrong, ending up asking us to do a date with around three days' notice. As usual, our volunteers came through in fine style and we able to cover every shift.)

This year, thanks to the government's ever increasing appetite for gambling money, we saw extended gambling (the usual roulette wheel, blackjack tables plus zillions of mindless slot machines) and expanded hours (from 12 noon to 2 A.M.). Luckily, we could do two shifts; a total of eighteen slots then needed to be filled.

The following people gave freely of their time to help out (some served two sessions); all of the users of the observatory owe them a debt of gratitude. Gerhard Bierman, Jon Bowen (1 or 2), Steve Bowen, Don Clapper, David Fidler, Robert Frith, Mike Hansen, Rod Marynovich (2), Steve Marynovich (2), Bob Nelson (2), Lois Nelson, Owen Salava, Gil Self, Steve Senger, and Donovan Unruh.

At this time, we don't know how much we'll get; an amount in the high four figures is hoped for. Oddly enough, if the government's plans go through, this will be our last casino. Word is that after July 1, *no* volunteers will be required (how are they going to make *that* work?) and charities such as ours will merely apply for a grant. It is felt that the new rules will put our group at a disadvantage since many clubs that couldn't do casinos in the past will now jump in. Time will tell.

Once again, a big "thank-you" for all who helped.

Bob Nelson

***This is probably a good spot to remember those extra effort guys Don Clapper and Owen Salava for the great job done on the new sidewalk to the viewing pedestal, a tough job and a big improvement—
Thank-you Owen , Don GS***



A Word From Our Secretary

Brian Potts

Hello Everyone. Well this newsletter ends yet another year for the PGAS. Hopefully we have all had a lot of fun, learned a few new constellations, made some friends and sharpened our observing skills.

I would like to thank everyone who has come out to help with the public observing program. No where else that I am aware of is there a observatory that is open every Friday night 6 months out of the year just for the public. This year we didn't have a comet to draw the crowds but the interest is still there. We had close to a 1000 people tour our facilities in 97/98. A school class from Mackenzie and 2 from New Hazelton, as well as many cub/scout and brownie/guide packs and local school classes along with the people who came out on their own.. This year almost all of our tours were on the Friday nights making it convenient for us as we were already staffed and ready.

With the longer days already here observing six weeks either side of summer solstice is almost an impossibility. I usually take this time to tear down my newtonian telescope and do some major modifications to help take better photographs for the fall and darker skies. It is also a good time to do projects around the observatory such as painting the outside, framing and insulating the basement and putting a countertop in the warm room. So if you have any spare time this summer call one of the executive and lets see if we can get some of these items done.

Don't forget to spend time looking at the moon and planets this summer, the warm nights and city lights don't affect observing these jewels. Show a friend and maybe they get bit by the bug too. O yes, remember to shut those lights off if your not using them. Help to preserve the dark skies we enjoy so much.

Dark Skies,

Brian Potts

A Note From Al Whitman

(received 16 May 98)

The 12th magnitude supernova in M96 dominated the galaxy Friday evening at 116x and 174x with my 8-inch Newtonian. The supernova is one arcminute north of the fainter nucleus of M96.

Seeing was very good (rare in the Okanagan) and transparency was excellent (standard). However, my closest neighbour had two annoying porch lights on until moonrise; otherwise I would have just used the 4-inch Astroscan which I believe would have shown the supernova. (The Astroscan was adequate for the M81 SN in '83 so all you guys with 4-to-5-inch scopes should go out under a dark sky and bag the current easy one in M96--use high power to dim the galaxy.)

Quite a spring for bright supernovae. They don't quite replace the annual bright spring comet [S&T says nobody has reported seeing Comet SOHO yet], but it is remarkable that three of my six lifetime supernovae should occur in a span of two months.

Alan Whitman

Okanagan Centre

SN 1998bu is North of centre in M96 (a spiral galaxy) located almost centred between M95 (a barred spiral) and M105 (an elliptical galaxy). This small group is just under the belly of Leo and about midway to the ecliptic. I was all set to show this off to our special Rotary tour Saturday (16 May), but the sky was heavily overcast. First report of the SN was 9 May, I hear the weather should be clearing— hopefully the SN will hang on for another couple of days!!!

GS

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
Regional District of Fraser-Fort George	1,000
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Russelsteel	465
Lakeland Mills Ltd	460
Canfor Clear Lake	270
Lutz Klaar	200
Canfor Netherlands	200
Art Beaumont	150

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.

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