

1995

SEPTEMBER

Issue #59

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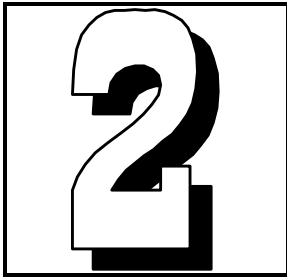
PeGASus

Newsletter of the
The Prince George Astronomical Society

The PGAS meets next at 7:30 PM,
Wed., Sep. 27 at the Observatory

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

Contributions to the newsletter
 are welcome.

**Deadline for the next issue
 is October 14.**

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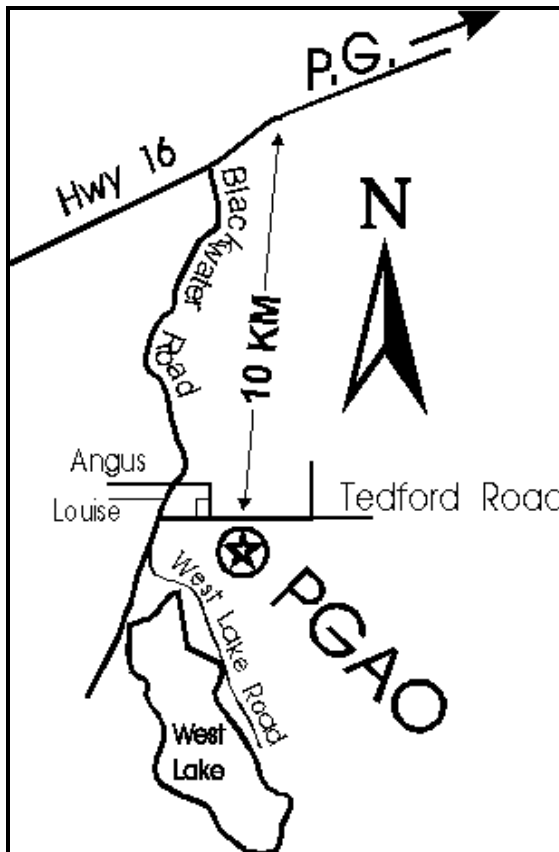
Nominated Positions

Technical Director
 Bob Nelson
 *

Observing Director
 Jon Bowen
 *

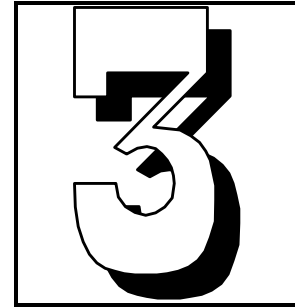
Promotional Director
 Orla Aaquist
 *

Observatory Director
 Eric Hansen
 *



The observatory phone number is
 964-3600. This is a party line, so
 if it rings busy, it does not imply
 that someone is at the

Editorial



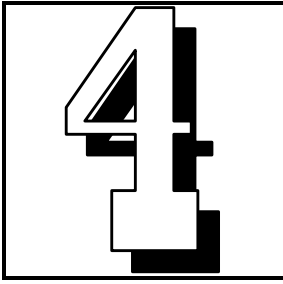
Miracles happen. CNC hired me back for another year with a little help from the Fraser-Fort George Regional Museum (FFGRM). Yes, the museum saved my job. In appreciation for this, all PGAS members must support the museum by becoming museum members and volunteering some of their time to the museum.

I am assisting the museum develop astronomy and physical science programs and displays this term, so if any of you are school teachers, you should call Sandra Walliser, FFGRM Education Officer (562-1612), and ask about their new astronomy programs.

In early August, my employment situation became somewhat complicated. UNBC asked me to teach two courses for them. Whereas, most of June and July were spent looking for work, most of August was spent sorting out a work overload situation. I have it all straightened out now: half of my time is spent at CNC, another half is spent working with the museum, and a third half is spent at UNBC.

Required reading for all PGO users is Alan Whitman's article on page 10 of this newsletter. I think that all of us who use the telescope can add to Alan's list of 'near miss horror stories'. For the record, here is mine.

Soon after obtaining our CCD camera, Ted Biech and I spent a lot of time learning how to use it. We had a hard time finding objects in the field of view because the field was so darn small. In order to find an object, we had to take the camera off and insert an eyepiece, centre the object and reinsert the camera. One time I forgot to tighten the camera to the focuser securely. The telescope was pointing almost to the zenith because we were trying to take a picture of the Ring Nebula in Lyra. Some visitors had just arrived, and I wanted to finish my shot so that they could see the picture being taken and have a look through the eyepiece. I was in a hurry. I inserted the camera, turned to walk away, and the camera headed for the floor. Normally, the safety strap would catch the camera, but in my hurry to go to the computer, I had also forgotten to put that on. Fortunately, I was not observing alone. Ted caught the camera just as it was slipping from the focuser. I was horrified at the time. I am still embarrassed when I think of it, and so I should be. But every time I observe, I remember, and slow down to one-quarter speed.



Coming Events

- September -Mathew Burke's exhibit at the public library. Mathew has put together an exhibit at the public library. Look for it next time your are picking up or returning books.
- September through November -the observatory is open to the public every Friday evening from 8 PM to midnight. It is a good time for new members to come out and see our observatory in operation.
- Sept 27 -monthly meeting at the Observatory. Come out and feel our new furnace in action. Get a lesson on the convenience of our new 4-shooter. Bob Nelson will give a presentation on how to do photometry. Being three days past new moon, the moon should be rising late enough to find many deep sky objects, as well, using our pre-programmed digital setting circles.
- Oct 12 -PGAS executive meeting at Xerox Office.
- Oct 25 -Annual General Meeting of the PGAS to be held at CNC. Election of executive. This is too close to the full moon for good observing.
- Oct. 23-29 -Science & Technology Week. Display at Pine Centre on October 28 and 29. Be prepared to volunteer once again.
- Oct 29 -daylight saving time ends. Spring forward, Fall back.
- Nov 29 -monthly meeting at the Observatory. The first quarter moon should make for some good observing, too.
- Dec ?? -Christmas meeting.

The Night Sky

by Alan Whitman

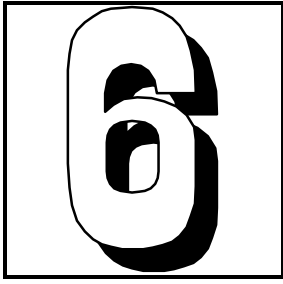


There are predictions that a great comet will grace northern hemisphere skies in Spring 1997, based on Comet 's 10th magnitude brightness at discovery while still beyond Jupiter. Comparisons are being made with "the Great Comet of 1811". Sounds promising -- we're way overdue for something, like the old woodcuts show, with a tail streaming 70 degrees across the sky.

Saturn is well placed for evening telescopic observing now, having been at opposition on September 14th. The upper ridge, which finally arrived in early September, gave some nights with excellent seeing due to light winds aloft. That fine seeing gave me glimpses of contrast features within Saturn's two equatorial cloud belts using my Meade 16".

Mercury becomes well placed in the dawn sky in the latter half of October. One Sunday morning, October 22nd, Mercury will be near a very narrow crescent moon. As though just to make early rising worthwhile, the Orionid meteor shower also peaks on that morning. While the Orionids only produce about 20 meteors per hour, they are very fast. This produces fine fireballs, and several Orionid fireballs that I've seen have left long-lasting trains. If you get the chance, watch the train in binoculars as it twists and contorts due to high altitude wind shear.

Congratulations to Kelowna amateur Jim Failes whose dramatic lunar eclipse photo made the front cover of SKY NEWS.



News From the Observatory

by Bob Nelson

Gil and I recently made some changes and additions to the telescope that all observers should be aware of:

1. You don't need to unplug the drive motors at shutdown. We installed a permanent outlet box on the floor near the main drive gear -- the digital setting circles are plugged into it. Only the drive motors are plugged into the power bar. Therefore, at shutdown, you need only flip off the switch on the power bar.

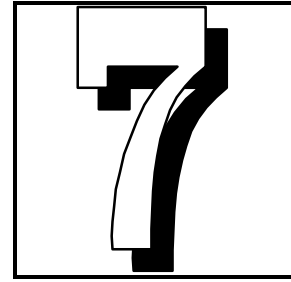
2. We installed the fourth focuser on the "4 shooter". The CCD camera is now more-or-less permanently installed on this 'port' and, at the present time, is in focus. (You may want to check the focus; only minor adjustments should be necessary.) There is a diagram taped up near the computer which explains where the image should be placed in the 60 mm eyepiece (assumed to be in the upper focuser) so that the image is in the CCD frame.

3. The cable from the CCD camera, properly clamped, now runs down the RA axis, out of the way. CAUTION: Should it be necessary to 'flip' the telescope to the other side, you will have to take off the cable clamps and remove the cable from the CCD camera before flipping. Please avoid flipping the telescope unless it is really necessary to do so.

4. We will probably now use my 286-compatible computer to record CCD images, thus freeing up the 486 for star charts and the like. Eventually, we'd like have several computers out there, all networked together.

These changes are designed to make the telescope convenient and pleasant to use. Future possibilities include mounting the club's Celestron-8 directly on the 24" telescope -- we'll likely put the CCD camera on it, giving images 11' x 14' (arc minutes) in size (the present size is 3'x 4'). Also, we plan to get the observatory darkroom in operation. A counter, chemicals and

a temporary sink would mean that we could develop black and white film (colour film too??) soon after it was exposed. A team effort, on some clear night, could yield great results. Coming soon to an observatory near you.



Speaking of easy and pleasant to use, I recently had a good night doing photometry on a star that I have been working on with Dr. Eugene Milone at the University of Calgary. The star is V728 Her, it's a contact eclipsing binary, we did the analysis (modelling) at the University of Calgary and at CNC, and we have a paper coming out in the Astronomical Journal, probably in November. The goal here was to record a minimum (the primary eclipse) and check to see if the period has changed since we last looked at it four years ago. Everything worked well with my OPTEC SSP5A photometer installed in the right-hand 'port' and plugged into with my computer. (The computer does all the filter changes and records the data to a disk, after which the numbers are reduced using a specially-written program.) The stars were easy to locate (Gil found them in a flash) and easy to centre in the pinhole; the telescope was rock-steady with practically no 'drift'. Unfortunately, the clouds came in halfway through the eclipse and I got no data that I can use. I did demonstrate, however, that everything works well. I shall be ready for the next really clear night, whenever that happens.

Announcements

Welcome

to our new members Ramona and Dave Crowe. We hope to see you at our next meeting. I spoke with Ramona briefly, and they joined when they saw our exhibit at the exhibition. Ramona said that someone was handing out brochures at our booth. To my knowledge, our booth was unstaffed. Therefore, **thank you** to whomever temporarily staffed our exhibition booth.

Thank You

to Mathew Burke and Lutz Klaar for obtaining and installing the plastic covering in the crawl-space below the classroom. Hopefully, this will help reduce the amount of moisture in the observatory. The approximate value of the job & plastic was \$200. This, of course, does not including Mathew's own labor and gas. Lutz's donation has been included in our **PGAS Contributors** list on page 15 of this newsletter.

Thank You

to Gil Self and Eric Hansen for installing our new furnace and ducting at the observatory. It will be great having heat on those clear winter nights.

Thank You

to Bob Nelson for building and installing our 4-shooter. This device is a great convenience for those of you who use the Yellow Giant. (I think that we should paint the telescope green next time.)

Public Viewing

Remember that the observatory is open every Friday evening from 8 PM to midnight until the end of November.

PGAO Daytime Tours

If you get any requests for daytime tours of the observatory, please refer them to Sandra Walliser at the Fraser-Fort George Regional Museum. Sandra's phone number is 562-1612. The PGAS is trying to establish closer ties with the museum.

Spee-Dee Printers

is now printing our newsletter for free. Please note the business card on the back cover of this newsletter

Library Exhibit

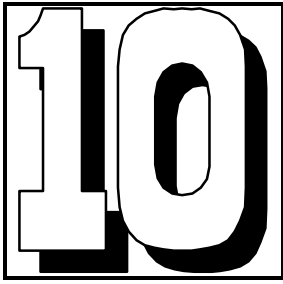
Have a look at Mathew Burke's display at the public library. This is the kind of effort we need in order to help publicize our society. Thanks Mathew!

Exhibition Exhibit

Thanks to Jon Bowen for organizing the exhibition exhibit and to Eric and Barb Hansen for reclaiming our posters and scrapbook from the exhibition office.

Bucket and Mop

Please note the bucket and mop at the observatory!
Thanks Barb.



Telescope Ahead!

Slow to One-Quarter Speed

by Alan Whitman

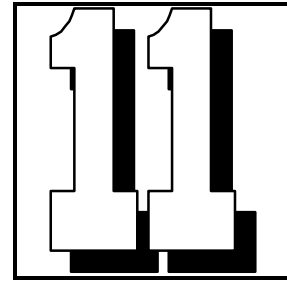
In 1980 I bought an 8" telescope. In those pre-Dobsonian days it was one of the largest in the Okanagan Valley. My new treasure was in use every clear night. One evening, about a month after taking possession, I was rushing out of the basement with the tube when the finder scope encountered the doorjamb. The finder stopped suddenly while I and the rest of the optical tube continued. The result was several jagged tears in the tube. By great good luck, none of the tears reached the secondary mirror supports or the focuser. So the finder was remounted and the evidence of my carelessness hidden under a Diamond Ring photo of the '79 eclipse. I learned from that experience and formulated a rule which has served me well ever since:

"When around telescopes, make all movements at one-quarter speed".

Unfortunately, many club members have each had to learn the same lesson but at the expense of our 24" telescope. It's mirror is scratched, permanently degrading resolution and contrast. The cables to the lower shutter have come off at least twice, despite Bob's clear warnings before the observatory reopened. Heavy accessories are hung on the telescope without rebalancing it, to the detriment of the drive motors. One night I watched in horror as a member inserted the star diagonal and raised the telescope towards the zenith; the diagonal fell out on the hard floor, amazingly surviving.

In August the whole shutter was found wide open one morning, forgotten in the observer's haste the night

before. If the observatory hadn't been visited for a week during last month's wet weather, what would have been the result?



No one intends to do these things. But can the telescope stand the stress of each user learning the same lesson the hard way? It takes time to put the telescope into operation properly and carefully, and it takes even more time to close it down carefully and to THEN CHECK THAT EVERYTHING IS DONE. Just hoping that you're done because it's 1:30 AM and you're due at work at 8 AM just isn't good enough. If you do not have time to use the 24" properly and to close it up properly, perhaps it is a night for a portable telescope or binoculars; they can be enjoyed in half hour sessions.

Telescope Ahead Slow to One-Quarter Speed

Editor's Note:

Shut-Down Procedures

**~~are posted at various locations throughout~~
the observatory. Please don't leave without following the steps outlined therein. If you have any suggestions regarding these steps, please let Orla know what they are.**



AstroSurfing

Astronomy news gathered from surfing through the Internet and other sources. Much of the contents presented here are severely edited for presentation in this Newsletter. For more details, contact the PeGASus editor.

Comet Bale-Boop is within reach of many amateur telescopes as it slowly cruises through the Teapot asterism. If you want to find it, its coordinates can be found on the Astronomy Forum on the FreeNet in the weekly SkyNews bulletin.

NASA has set Thursday, September 28, as the official launch date for Shuttle Mission STS-73. The 16-day microgravity research flight aboard Shuttle Columbia is designed to increase scientific understanding of basic physical processes on Earth and in space, as well as prepare for more advanced operations aboard the international Space Station.

A NASA unpiloted, remotely-controlled aircraft called Pathfinder, used the Sun's energy to fly to stratospheric altitudes. It achieved a milestone flight demonstration on September 11 as the first in a series of high altitude tests of the solar-powered aircraft. During the nearly 12-hour mission, Pathfinder -- controlled from a ground station -- reached an altitude of 50,500 feet, a new record for a solar-powered aircraft.

Still three months and 60 million km from Jupiter, the Galileo orbiter is passing through an intense barrage of interplanetary dust. Each day an on-board dust detector is registering up to 20,000 hits from microscopic particles, all coming from Jupiter's direction at 40 to 200 km per second. But they are apparently no larger than smoke particles, so the spacecraft is not in danger.

There's new evidence that something might be amiss with cosmologists' standard view of the universe. In the September 7th issue of NATURE, a team of astronomers reports new Hubble Space Telescope observations of Cepheid variable stars in M96, a galaxy in the constellation Leo. Based on the stars' brightnesses and pulsation periods, the team



concludes that M96 is 38 million light-years away. This in turn provides a baseline for gauging how far it is to the more distant Virgo Cluster of galaxies. Folded together with their recession velocities, these distances suggest that the universe could not be more than 9 to 12 billion years old. The conundrum is that some stars are known to be considerably older.

Naturally occurring laser emission has been discovered in MWC 349, a young, luminous star in Cygnus that's surrounded by a disk of gas and dust.

Observations suggest that a new solar cycle, number 23, has begun, even though the turnaround at solar minimum was not expected until sometime next year. Caltech's Big Bear observatory reports two active regions on the Sun with the magnetic polarity expected for the new cycle. According to solar expert Cary Oler, cycle 22 took only 34 months to rise from minimum to maximum, so an early minimum thereafter would not be a huge surprise. Oler says we might now expect the next solar maximum to occur in late 1998 or early 1999, rather sometime in the year 2000.

The science fiction concept of plants providing a complete life support system for the crews of lunar and deep-space missions came a step closer to reality with the successful completion of a NASA life sciences experiment that studied potato production in a self-contained environment. KSC scientists conducted a successful 418-day experiment in the Biomass Production Chamber of the Controlled Environment Life Support System. During the experiment, the potato plants produced enough oxygen to support one crew member on a continuous basis, while also removing excess carbon dioxide from the atmosphere. In addition, the potato crops produced enough food to supply 55 percent of the caloric needs of an astronaut, along with enough purified water for a total of four crew members. A larger chamber could be used to provide all the consumables for the crew for as long as a mission might last.

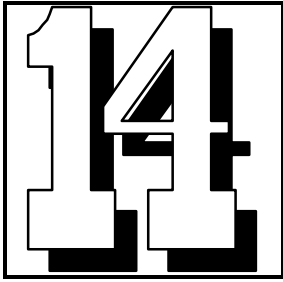


Image Gallery

(Library Exhibit)

The image below shows Mathew Burke's library exhibit. The theme is *Tools of the Amateur Astronomer*. In the exhibit are club photos, handbooks, video tapes, magazines, telescope, binoculars, planetariums, photos from the HST, & cool web sites. Also, several brochures are available for the public.

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.

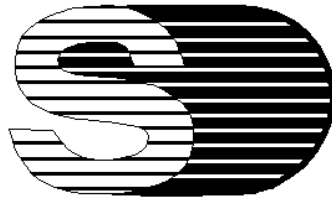
Ministry of Adv. Ed. Training and Tech.	\$25,000
BC Science Council	16,000
BC Lotteries	3,900
Helmar Kotsch (Acme Mas.)	1,932
Northwood Pulp and Timber	1,665
Electrical Services Ltd.	1,583
Royal Bank of Canada	1,500
Regional District of Fraser-Fort George	1,000
The Pas Lumber Co.	750
Canfor Polar Division	744
A.V. Jay Roofing	600
Xerox Canada	500
Russelsteel	465
Lakeland Mills Ltd.	460
Canfor Clear Lake Division	270
Lutz Klaar	200
Canfor Netherlands Division	200
Carrier Lumber Ltd.	160
Pine Drilling	150
Claus Schlueter	

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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Science**

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the
PGAS
!**



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