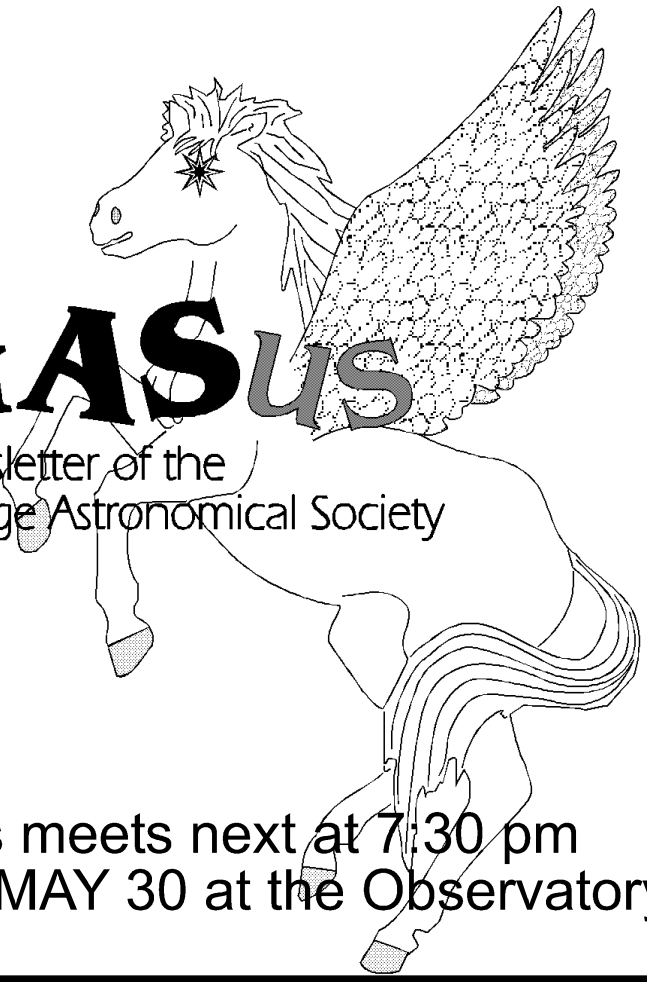
MAY 2001 ISSUE #112

the PeGASus

Newsletter of the
The Prince George Astronomical Society



The pgas meets next at 7:30 pm
Wednesday MAY 30 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

August 17

Send correspondence to
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or
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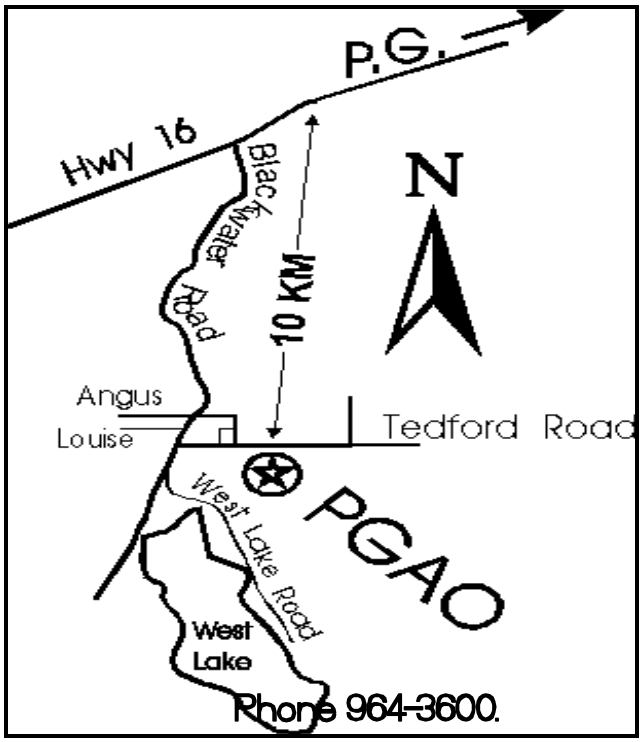

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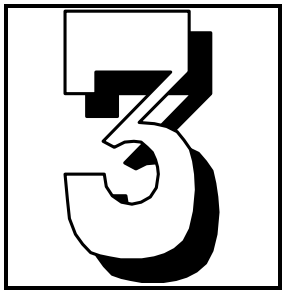


EDITORIAL

By Gil Self

There are a few items I should catch you up on , since this is the last issue of the newsletter until August.

On June 23 we will be having a club social at the observatory, families and food is all I know so far

Even thought summer in the north is almost never really dark, there are still several events planned for June and July. Not all the dates are firmed up. If you attend the meeting on May 30 th we should have sign-up sheets available, and a pretty good idea of our summer projects dates.

We will once again take a Celestron and solar filter down to the parking lot at Parkwood Place for Astronomy at the Mall, at least once or twice during the summer. Last year Astronomy at the Mall brought us a new member, Glenn Harris, That in itself was worth the effort.

We are planning two star parties between now and September. The first will be probably within an hours drive of Prince George, we have access to the site atop the mountain south of Vanderhoof for example. There are several other possible locations, come to the meeting and help us decide. The other trek will be Jon's planned outings at Canoe mountain. Jon has made this trip before, the site is at 9000 feet, accessible with 4 wheel drive and I hear its awesome , and cold.

The fall open house schedule begins in August 3 , public open every Friday night and Brian's members night every Saturday through October. Don't forget our annual open house for the Perseids. August 11. If the weather co-operates this is one of our best public evenings.

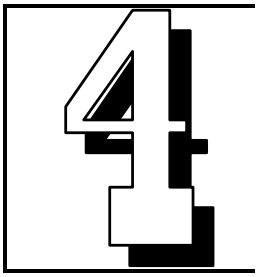
On several weekends throughout the summer we will have work-bees. At this point it is somewhat dependant on the current funding proposal. If it goes through fairly quickly we might have a chance to complete the new viewing deck before the Perseids open house. Probably just a pipe dream but decks go up pretty fast. There are many other projects under-way, (see Brian's article on page 11), so if you can lend your skills in any way let us know what you can help with.

As you already know "we" (The P.G.A.S.) are now
The Prince George Centre of the Royal Astonomical Society of Canada.
Dues (in the amount of $44.00) are now payable to the RASC not the PGAS. Membership forms will be available at the next meeting. And by the time you read this you should be able to join at the RASC web site.

I just called out to the observatory to see what was going on. Glenn and Brian are shooting meteors. They have several images so far and they are going to string them together as a movie. We will post it on the web as soon as we can make sure you can click and view it.

Summer is almost here. Lawn chairs, binoculars, front / back porch astronomy, meteors, satellites, northern lights, conjunctions, and a bit too much daylight, but hey
I'll tough it out.

G.S.



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 30 , 7:30 pm at the Observatory

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

As I am writing this, it is a lovely Sunday, I was up all night doing observations for the international eclipsing binary team I work with, I went for a walk this afternoon with my wife in the woods, and I am again late with this column. Sorry Gil!!!

The star in question, GSC 3510-0396, was discovered by ROTSE, the University of Michigan survey project looking for optical transients (gamma ray bursters etc.). This was (is) a project involving taking many images of the entire sky using I believe several cameras each consisting of a CCD chip at the focal plane of an ordinary camera lens. I don't have any more details, but I believe they cover the entire night sky available to them (-30° to +90°) every 10 days or so. Needless to say, this has resulted in an immense amount of data. As an offshoot of this search, they did an automatic search for variable stars and have, so far, completed only 5.6% (2000 square degrees) of their data. In it, they discovered some 1781 "robust" variable star identifications, of which only 10% are in the catalogues. (The results are posted on their web site http://umaxp1.physics.lsa.umich.edu/~mckay/rsv1/rsv1_home.htm if anyone wants to check it out). I and the others in our group have been checking these out, publishing our results as we get them. (There's another group in Europe; we try to avoid overlap, I believe.) Anyway, it's engaging work, with enough prospects to last to the end of our working lives, I believe.

I believe that I was the first to capture the primary eclipse in the visual (although Anthony in California was observing too, I believe). We'll see; I have yet to complete my data reduction.

Here's what ELSE is happening this month:

MERCURY is lost in the glare of the Sun all month but becomes a morning object in July.

VENUS is a morning object all month but is still only 13 degrees above the horizon at sunrise on the 15th. It reaches greatest elongation west (to the right of the Sun) of over 45° on the 8th. At mid-month, it's a 21" half disk of magnitude -4.9.

MARS, in Ophiuchus all month. On the 15th, it rises at about 9:50 PM and is a 20" disk of magnitude -2.4. It reaches opposition on about the 13th when it's about the same size. Owing to the complexities of the elliptic nature of the Earth's and Mars' orbits (especially Mars), this is not the most favourable opposition. Favourable oppositions occur in late July and early August when Mars can reach diameters of 24"; unfortunately, Mars (being opposite to the Sun in the sky) is in the southern half of the celestial sphere and therefore appears low in the sky to northern observers. [It's 10 degrees above the horizon for us!!]

JUPITER, in Taurus until July, is lost in the glare of the Sun this month.

SATURN, in Taurus all year, is also close to the Sun but becomes a morning object late in the month.

URANUS, in Capricornus all year, rises on the 15th at 12:30 AM (PDT) and is a 3.6" disk of magnitude 5.8.

NEPTUNE, in Capricornus all year, rises just before midnight at mid-month. As usual, it's a 2.3" disk at about magnitude 8.0.

PLUTO, in Ophiuchus all year, rises at mid-month at 7:21 PM (some 2 ½ hours before sunset, and therefore is up all night). This would be one of the most favourable times of the year (you could also do it in July or August) to get some images of the tiny planet. As series of CCD images would show its motion. What about it folks? (As usual, it's a 0.1" disk at magnitude 13.8.)

Summer solstice occurs on June 21 at 12:38 AM PDT (tell your friends). New Moon occurs on 4 hours and 20 minutes later. (No, Martha, there is no connection.)

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.)

(continued on page 6)

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.

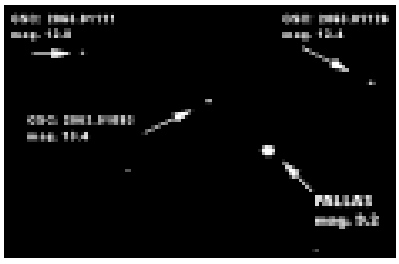
This will be the last "Night Sky" for the season, so you're on your own until the August issue! (The constellations are all covered, since August viewing, although two months later, will normally occur earlier in the evening; you are therefore looking very conveniently at the next segment of sky. It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

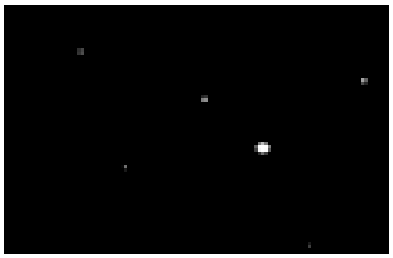
Clear skies, -Bob

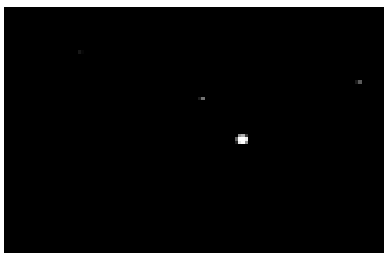
Movie of Asteroid Pallas

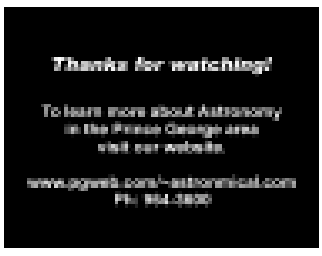
By Brian Battersby

During the late hours of Saturday May 19th and the early morning of Sunday May 20th Glen Harris and I worked for several hours on imaging the asteroid Pallas in Hercules. The next day I drove out and picked up my data because I forgot to bring some disks with me the night before. (I wonder if anyone would have dreamed 15 years ago that part of an amateur astronomers regular equipment would be diskettes?) Then I sat down to look at it using the blink feature in CCDSoft As I watched the little guy move among the stars I thought, "Wouldn't it be cool to have a movie of this." then I realized that my new computer came with video editing software built in. (Thanks Microsoft!) So I thought to myself "I wonder if you can add still pictures into this thing" Sure enough you can! So I put it this little video clip together. I really enjoyed this little project. Thanks for the help getting the images Glen.









Observing Notes

On Feb.6, 2000 I went out to Beaverly to get a good horizon to the southwest in the hopes of seeing Mercury near a very thin crescent moon. A lot of cloud was gathering near the horizon so I didn't really expect to see anything. About a half an hour after sunset I was scanning with binoculars just above a low cloud line and picked up the very thin crescent of the moon. To my surprise I spotted a "star" in the bright twilight just about 4 degrees to the right of the moon, I knew it had to be Mercury. In the telescope Mercury was a shimmering ball of light. I then put my Canon F-1 camera on my LX 10 telescope and at prime focus took this picture of the 36 hour and 17 minute old moon. It was a 1 second exposure on 800 Kodak Max film. You can see the cloud in the picture, a minute or so later it was lost behind the cloud.
Doug W. (more on page 10)

On Sunday April 8, 2001 it was a very clear day so I went out to the observatory in the evening to try and get a photo of the one day past full moon rising behind the low hill just to the east. I set up at the south end of the clearing at the observatory site to get the best unobstructed view past the foreground pine trees.
At 21:00 it was getting very dark and I could see the glow in the eastern sky from the moon just below the horizon.

At 21:15 it began to poke through the trees on the hill top, what a beautiful sight in the telescope. It pretty well filled the view through the camera which was at prime focus on my LX 10. I took several exposures from 1/2 second to 1/15 second as the moon rose through the trees. The one I have attached was 1/4 sec. on Kirkland 400 film. I had waited for several months for this opportunity and I am very happy with the results. (See Page 10)

A Letter to the P.G.A.S.

I never knew Venus had phases. I know that it seems like a small matter, a little piece of knowledge unknown by almost everybody in Prince George (let me assure you, it is), but it's still annoying to not know. That's what I learned the first time out to the observatory at my work experience, as well as a few dozen constellations, of which most can be classified as big triangles, small triangles, and, more rarely, bent rectangles.

Getting into astronomy for work experience was relatively easy, seeing as I was interested in science (eliminating 95% of P.G.'s businesses and organizations) but didn't like biology, forestry, or electronics (eliminating the other 5%). >From October to January, my counselors attempted to find an organization to suit my interest, finally settling on the observatory, resulting in me being the first student to have work experience at the PGAS. Brian, who I suppose could be called my teacher, helped set up the program.

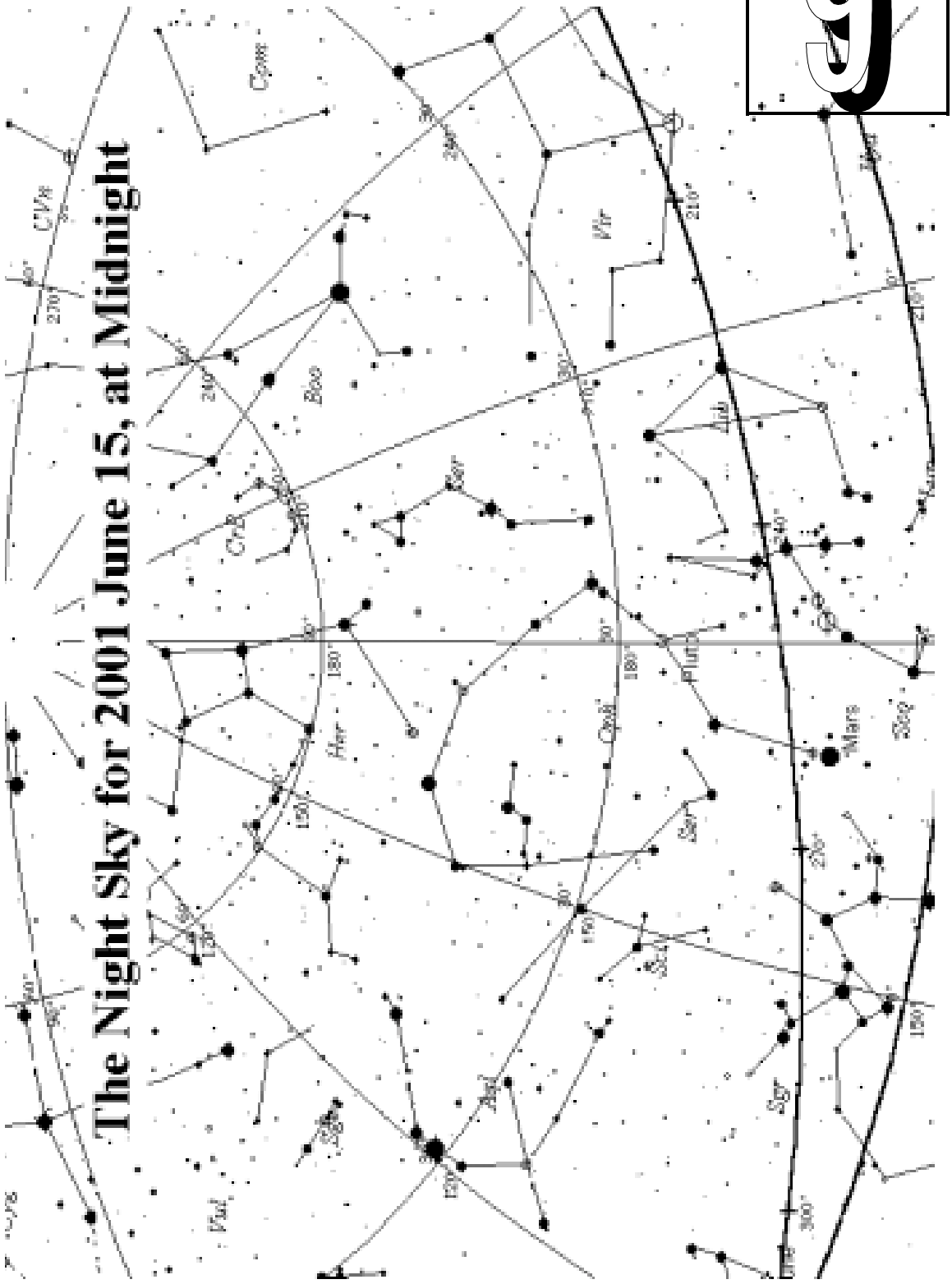
On my second visit to the observatory, we focused on more distant objects then the planets, both on the main telescope and the outdoor ones. I saw galaxies and clusters through the telescope, which I joined under the category of fuzzy spots. Single and double stars were easier to recognize, consisting of only one or two points of light. Reviewing the constellations, I recognized a few more, most notably Andromoda and Leo, and added them to my wide list of constellations I knew; the big dipper, Orion, and Cassiopeia. Later I would add others, such as Gemini, to the list, although most would remain with the generic title 'Triangle-type shape'. However, seeing meteors on several occasions gave me insight as to why most astronomers should know the constellations; many times, my description of a meteorite's location went along the lines of "it was about between those two triangle shaped stars over there, and slightly above or to the right of that star, you know, that twinkly one."

During the few meteor showers I came out to, I spent most of my time looking at the sky in a more or less random location, deciding that as I never seemed to see a meteor where I was supposed to look, I would have about as good a chance seeing a meteor if I looked in whichever direction suited my comfort, and stared blindly there for the night. If another person saw a meteorite, however, I would turn to look in the general section of space where they were watching, and watch blindly there. My scheme usually resulted in me seeing few meteors, but I became an expert in finding satellites.

All in all, it was an informative experience, although, from the sky being clouded over much of the time we were supposed to go out, I didn't get to go to the observatory as often as I would have liked. I know much more about space than I did, and enjoyed it more than I thought I would.

By Ryan Unruh

Well done Ryan, we all enjoyed meeting you and welcomed your participation in several club activities. G. S.



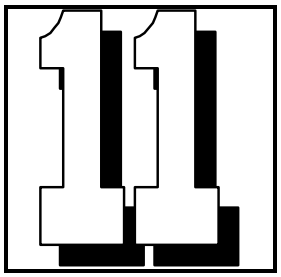
June Sky Map courtesy Dr Bob Nelson

The last photo I have attached was taken on open house night April 20, 2001. Just before dark I had my LX 10 set up, Brian Battersby his TAL 150 and Rob Frith his 10" Dobsonian. Glen Harris set up the club C 8 on the pier. That was when I took the picture. Later Gerhard Bierman came out and set up his 10" Dobsonian. The club 10" Dob was also brought out so in all we had 6 scopes out not to mention the 24" in the dome. It was a beautiful night, no moon, and deep sky objects showed well. It was a lot of fun comparing views in the different telescopes and eyepieces. M51 was even showing some structure that night. About 20 public came out for an enjoyable evening, it was a star party atmosphere.

That's what astronomy clubs should be like. I would also like to mention that members nights have been a hit this spring, thank you Brian Battersby for all the effort in organizing and keeping them going.
Doug Wayland

Secretaries Analysis

By Brian Battersby



The year is almost over so I thought it would be neat to do a bit of a summary of the year based on the minutes. Highlighting, among other things, what projects we completed, are in progress and never got off the ground.

Projects we wanted to do this year & when they first appeared in the minutes:

- Join the RASC – October 25, 2000
- Hold Members Nights – October 25, 2000 / November 29,2000
- Install the Washroom – Nov 15, 2000
- Install a Holding Tank for the washroom – Nov 15, 2000
- Install a Water System for the washroom – Nov 25, 2000
- Purchase a second Slide Projector – Nov 15, 2000
- Start a Dark Sky committee – Nov 15, 2000
- Hold NOVA classes – Nov 15, 2000
- Have a Christmas Party – Nov 15, 2000
- Put in an application for a New Grant – Nov 15, 2000
- Fundraise – Nov 15, 2000
- Install video surveillance to be monitored by members over the Internet. – Nov 15, 2000
- Review the clubs Insurance policy. – Nov 15, 2000
- Install a Dial-Up Server to enable remote access to the PGAO network – Nov 15, 2000
- Make a flip mirror system for the main scope to convert it to a Newtonian when desired by the user – Nov 29, 2000
- Create a plaque thanking major contributors & founding members – Nov 29, 2000
- Create an Archivist position – Nov 29, 2000
- Update the Website – Nov 29, 2000
- Submit the Financial Report to the Gaming Commission – Dec 20, 2000
- Submit the Societies Annual Report – Dec 20, 2000
- Get a new Building Coordinator – Dec 20, 2000
- Reduce Noise in the Classroom – Dec 20, 2000
- Mark off the new Parking Lot – Dec 20, 2000
- Add a Finder Scope to Bobs/ Clubs 10” Dob.
- Purchase Educational Videos to aid in NOVA – Dec 20, 2000
- Create a New Members Handbook – Dec 20, 2000
- Build an Observing Deck – Dec 20, 2000
- Try to control the Borrowing of Club equipment better through Sign-Out books – Dec 20, 2000
- Security System: Look into the false alarms – Dec 20, 2000
- Have Klaus at the CNC put together a circuit to control the slide projectors with the computer. – Jan 17, 2001
- Put a water cooler into the Observatory – Jan 17, 2001
- Put together a Schedule of Events for the newsletter – Jan 17, 2001

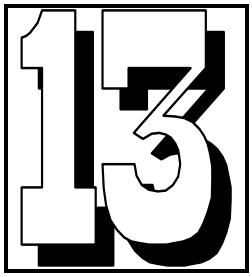
- Upgrade the computers to a High Speed Network – Feb 28, 2001
- Fix the leak in the roof – March 28, 2001
- Make a movable fence to block access to the parking in front of the dome. – March 28, 2001
- Have a Star Party next August or September. – April 25, 2001
- Write a weekly Newspaper Column – April 25, 2001

Projects Completed:

- Join the RASC – *won't be officially official until the summer but we were told we're in.*
- Hold Members Nights
- Start a Dark Sky Committee
- Create a plaque thanking major contributors & founding members – *this was changed to thank the CNC only.*
- Update the Website – *this is one project that is never truly completed!*
- Submit the Financial Report to the Gaming Commission
- Submit the Societies Annual Report
- Get a new Building Coordinator – *Bob Klick*
- Create a New Members Handbook – *was changed to a CD Rom*
- Try to control the Borrowing of Club equipment better through Sign-Out books
- Put a water cooler into the Observatory
- Put together a Schedule of Events for the newsletter

Projects Started:

- Install the Washroom, Holding Tank and Water System – *almost there!*
- Purchase a 2nd Slide Projector – *ordered but not picked up yet because of lack of funds*
- Hold NOVA classes – *only one class was held due to a lack of teaching materials*
- Put in an application for a New Grant – *this should be in by the time you read this*
- Install a Dial-Up Server to enable remote access to the PGAO network
- Newtonian Secondary Mirror
- Create an Archivist position :Done
- Noise Reduction– *we did get some pricing but not much else*
- Security System: *Look into the false alarms – I think a couple of people looked into this a bit but ran into problems getting the info.*
- Control Circuit for the Slide Projectors – *Klaus was asked to make this*
- Upgrade the computers to a High Speed Network
- Fix the leak in the roof – *this might be finished just waiting to see if more leaks show up.*
- Have a Star Party next August or September



Projects Not Started:

- Have a Christmas Party
- Fundraise – this never got going this year due to the lack of washrooms
- Install video surveillance to be monitored by members over the Internet
- Review the clubs Insurance policy
- Mark off the new Parking Lot
- Add a Finder Scope to Bobs/ Clubs 10" Dob
- Purchase Educational Videos to aid in NOVA – waiting for funds
- Build an Observing Deck – waiting for funds
- Make a movable fence to block access to the parking in front of the dome
- Write a weekly Newspaper Column – I'm not sure how this one ended up I think Matt C was going to write some articles over the summer. In any event the target start date wasn't until the fall of 2002

Finances:

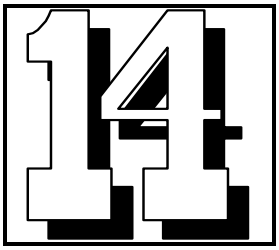
November 2000 - 2,401.23 General 5,268.58 Gaming
December 2000 - 3,000 General - 3,990 Gaming - Steve gave the report not Paul. Figures were approximate
January 2001 - 2,500 General 70 Gaming – Figures were approximate
February 2001 - 2,290 – this was an approximate total of both accounts
March 2001 - 1,800 General 40 Gaming
April 2001 - 1,650 General + about 20 cash 29 Gaming

My Opinion:

Projects: When I started this I felt that there was not a whole lot that we accomplished this year but now that I went through it I think all in all we did OK. While technically the biggest projects are not yet complete they are all on the verge of being completed. The only important things that never got started are being held up by the lack of money we are currently experiencing. I'm looking forward to working with you all next year and I hope we do even better!

Membership: Based on this years worth of data plus my personal recollection of the last few years I would put forward that we get markedly better attendance when the meetings are held in town rather than the Observatory. The one exception was October, which was the executive election. Perhaps it's time we consider holding meetings in town all year round to improve attendance and use the observatory solely for member's nights, tours and any classes/ special events we hold.

Finances: As you can see our funds steadily decreased over the course of the year. Next year we must do some fundraising to try and bring in enough money to keep up. The only reason the General Account wasn't depleted more than it was is because of the tours and open houses but as you can see that wasn't enough to pay the monthly bills by itself. As it stands now it is going to be tough to get through the summer… hopefully the new grant comes in quickly! Brian Battersby



Review of the Celestron Star Pointer

The Celestron Star Pointer projects a "Red Dot" in a filed of view directly where your Telescope is pointed. The filed of view is not magnified or inverted so it greatly simplifies the process of pointing your telescope. The brightness is fully adjustable. When I was shopping around I noticed the Star Pointer on the Celestron web site (www.celestron.com). I ordered my star pointer from Sirius Science & Nature at a cost of $49.98, after shipping/handling and taxes the total cost came to $63.72 (Canadian). When I placed my order the sales person suggested a Telrad or a Televue red dot finder. Both products cost about the same as the Star Pointer but the Telrad was large in size, and the Televue did not have an adjustable brightness knob. After placing the order I had to wait 6 weeks to get it because they did not have the unit in stock . If you are thinking of ordering one of these, another competing product that you may consider is the Orion EZ Finder. My main motivation for purchasing the Star Pointer was that my 30mm finder scope was too small to see most deep sky objects and I was getting frustrated locating objects.

Once I received my Star Pointer I was immediately surprised by how small it was. At a mere 5" long the Star Pointer is extremely lightweight and compact which I think is a nice feature because once mounted on a Telescope it never seems to get in the way or change the scope's balance.

Star Pointer beside a quarter (for scale)

When I opened the box I found the Star Pointer, two dovetail base plates (one for small scopes and another for 8" SCT's), mounting screws, and mounting instructions (batteries were included). The mounting instructions called for me to drill holes into my telescope's tube or to remove my finder and then use its screw holes. Rather than do this I used double-sided tape to mount my Star Pointer to my OTA (you can purchase this type of tape from the PG Hobby Shop in Spruceland Mall). I found that mounting the Star Pointer in this fashion to be nice because I did not have to damage my telescope by drilling holes, and I still have use of my 30mm finder. In the filed I use my Orion 60mm Mini Giant binoculars to find faint "fuzzies" then I use the red dot to get the scope in the general vicinity of the object that I am trying to view. After I am in the general vicinity I use my 30mm finder to fine-tune my view. Using the technique I am much more successful at finding objects and the time it takes to find those objects has been drastically reduced!

A view of the Red Dot in the Star Pointer

Getting back to the Star Pointer, I found that the red dot was some times too bright. Even though the brightness is adjustable it only goes down so far. Also because of the small size of the lens it can take a few seconds to find the "dot" but with some practice and by getting my head closer to the finder it is not too bothersome. If you turn the brightness up you can use the Star Pointer in full daylight. Once mounted you can centre the pointer with two adjustment knobs. There are two screws on the base of the Star pointer to quickly attach and detach it to the dove-tail base plate.

Here is a photo of the star Pointer attached to my 6" Celestron Telescope

Over all I am quite pleased with this purchase and I would recommend a device like this to anyone. It makes finding objects more fun and much faster. The Star Pointer is a fun to use!

Mathew Burke

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.