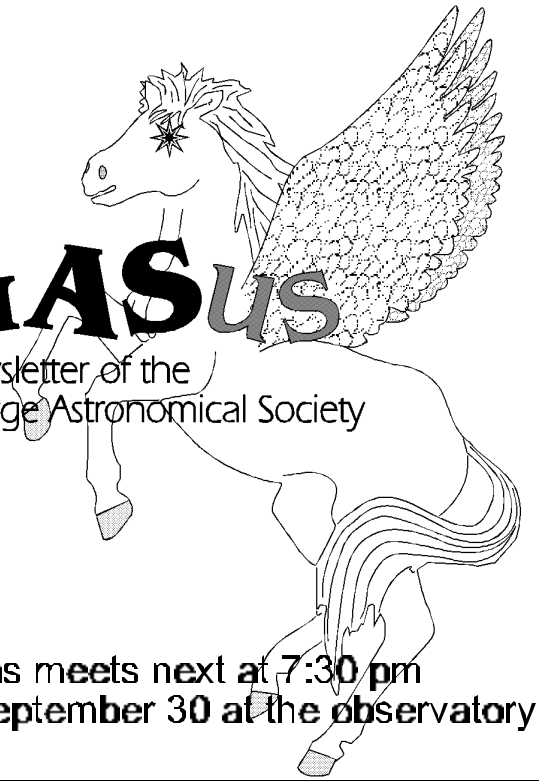
1998 AUGUST ISSUE #86

the PeGASus

Newsletter of the
The Prince George Astronomical Society



The pgas meets next at 7:30 pm
Wednesday September 30 at the observatory

INSIDE :

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

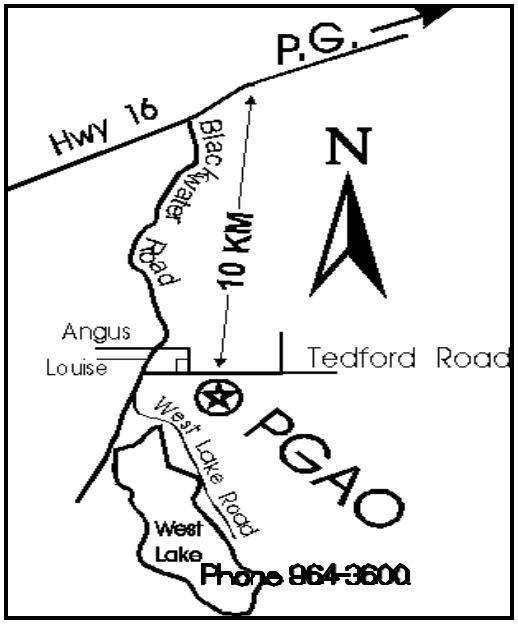
Our pursuits are out of this world.
Our activities are astronomical.
Our aim is the sky.

Contributions to the newsletter are welcome.

Deadline for the next issue is

SEPT 18

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



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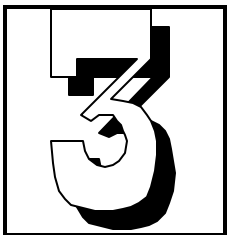
EDITORIAL

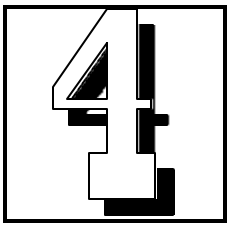


It was with the best of intentions, back in June that I decided during the long slow summer ahead, I would get several issues ahead. My kids are away at camp for six weeks, the house is calm and quiet, almost no deadlines or appointments. Just lots of quiet evenings at home with my wife, work ahead on the newsletter ,paint the kitchen, maybe even clean up my workshop——well I guess Mr. Murphy heard about this . He selected an appropriate blight to visit upon us HARD DRIVE FAILURE. And that was just the beginning. I had been having off and on problems, it would do strange things from time to time. You know the kind of strange event that makes you shrug your shoulders, emit strange guttural sounds from deep in the back of your throat push the reset button and mutter something about Bill's parentage. Well, without getting into to much detail someone with more know-how could probably have fixed this all up in about 30 minutes (bundle it up in the back seat of the car and take it to the shop). With this and about five subsequent problems I spent most of the summer "working on the computer" . You sure learn a lot by doing something like this, I have most likely done almost everything wrong at least once, very few things worked right the first time. But after a while you start to catch on, at one point I found myself in a computer shop talking cone-head talk to a computer technician—and I understood it.

I very carefully reinstalled everything and left almost no loose ends (stuffed the snakes back in the box). Backed up everything (covered my —). And right now (whispered) *I have never had a computer work so well.*

So much for good intentions but now I need to get caught up. The kids are back from camp (Aimee earned her pilots license) the house is back to it's low level mayhem, but I'm not complaining, its nice to be back to normal. I hope you all had a good summer.

This is the time of year when we need to get back in gear. That pesky sun goes down at a decent time and we can get some astronomy done. There are many observing programs going on or in the works if you would like to get involved just speak to any member of the executive. We are losing Bob N. for a few months and we all need to take on a bit more work to make up for the many many jobs that Bob does. We also need to get the building ready for winter, it would be nice to get it painted and fix the dome so it will work more reliably in the winter. If you can afford some time to help us out please let Owen know.
Clear Skies



Coming Events

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

September 30 — General meeting at PGAO

The Night Sky for September '97

by Bob Nelson, PhD

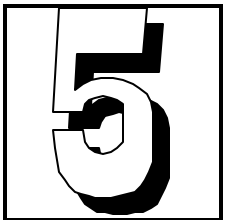
Hi folks, and welcome back from the summer holidays! As the Earth travels in its orbit, we move away from summer (with its abbreviated nighttime) and into fall. Fall is pretty well our best observing season since the temperatures are still mild, darkness occurs at a reasonable time, and we often get a string of clear nights as the 'Indian summer' makes its appearance. We can only hope that the latter will happen again this year.

There are two eclipses this month, but unfortunately neither is visible from Prince George. The first is a partial solar eclipse; it occurs Sept 2 and is visible from Australia, New Zealand, and in the part of Antarctica bordering on the Pacific. The second is a total lunar eclipse; it occurs Sept 16 (max at 18:50 UT) and is visible from the eastern hemisphere (centered on India). As I worked through the planets this month, I realized that September this year should be a good month for viewing planets -- so many of them well placed for convenient viewing. In a 12 hour period, it should be possible to view all eight! As usual, information on each planet as to size, brightness, etc. applies to the 15th of the month, unless otherwise noted.

MERCURY is visible in the pre-dawn sky and presents the best view of the year for northern observers in the third week of September (because of the steep angle that the ecliptic makes with the celestial equator in the fall). It reaches greatest western elongation (the angular distance from the Sun) of 18 degrees on Sept. 16. The disk's angular size is only 7", the brightness is -0.2 magnitudes, and the illumination is 50% (like a first quarter Moon). By the end of the month, the values change to 5", -1.1 mag and 93% (like a nearly full Moon) respectively as Mercury gets further away from the Earth and moves into the gibbous phase. A good object for early risers.

VENUS is low in the southwest at sunset and sets about an hour later. Venus is moving steadily eastward (away from the Sun) before it catches up to the Earth in its orbit and should get better and better as the weeks go by. If you can catch it in a telescope while it is high enough in the sky (before sunset if possible), you should see a 16" disk in the gibbous phase at

magnitude -4.1.



MARS, in Libra for most of the month, is low in the southwest at sunset and sets an hour later.

JUPITER, in Capricornus, is low in the southeast at sunset and sets around 3 A.M. (PDT). It's a fine object of diameter 46" and magnitude -2.7. According to the Observer's Handbook for 1997, Jupiter also undergoes a phenomenon known as a 'double shadow transit' once on Sept 7 and twice on Sept 21. This is presumably the shadows of two of Jupiter's moons appearing on the surface of the planet. Unfortunately, we cannot see any of these events. There will, however be a double and a triple shadow transit in November that we will be able to see. More in the October issue.

SATURN, in Pisces, rises around 7 P.M. (PDT) and is up all night. It too is a fine object (a 20" disk of magnitude -0.7) and is worthy of study. You might want to look for as many of Saturn's moons that you can find (aided by Guide 4, PC Sky and other fine planetary programs that we have on the observatory's computer).
URANUS, in Capricornus, is low in the south-southeast at sunset and sets around 2 P.M. (PDT). Its moons, too, should be good targets for the 24" telescope. It's a 3.7" disk at magnitude 5.7.
NEPTUNE rises at about 4:25 P.M. and sets at about 12:35 A.M. It's only a 2" disk at magnitude 7.7 but should not be difficult to find with the 24" telescope and finder charts from Guide 4. As you get better at finding it, you should be able to capture it with one of the smaller telescopes or even binoculars (a nice challenge).
PLUTO rises at about 11:30 A.M. and sets at about 10 P.M. It's a faint star-like object at magnitude 13.8 but should be findable in the 24" telescope with good finder charts.
DEEP SKY observing should also be good in early September with the new Moon occurring on Sept 1. Sagittarius and all the glories of the southern Milky Way (all that we can see from our northern location, that is) are visible to the south at 9 P.M. Now would be a good time to catch up on all those Messier objects that you can't see at other times of the year!
Fall equinox occurs on September 22 at 16:54 PDT. The nights become longer than the days and stargazing gets better and better. B.N.

SIGNS OF JOVIAN ACTIVITY

Have you taken a look at second largest object in the solar system lately? Since emerging from the Sun's glare earlier this year, Jupiter has been a subject of scrutiny. In May, observers noticed that two white ovals in the planet's atmosphere had apparently merged. More recently, Jupiter's South Equatorial Belt (SEB) has been churning and now has the appearance of being split in two. An announcement by John W. McAnally of the Association of Lunar and Planetary Observers' Jupiter Section urges amateurs to help characterize the disturbance in the SEB. If that wasn't enough, there's also a dark spot in the South Temperate Belt. As the weeks pass, Jupiter is becoming better placed in evening skies. It rises in late twilight and is low in the east by 10:00 or 10:30 p.m. local daylight time. It's high in the south during early morning hours. According to Jupiter watcher John Sabia, the "new" white spot is at 295 deg. System II longitude, and the

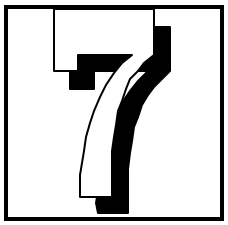
Royal Astronomical Society of Canada
General Assembly 1998

This summer from June 18 through 22, both Bob Nelson and I attended the RASC GA in Victoria, held at the picturesque Pearson College. The trip had two major purposes for me: first, get information about RASC and why we as a society might want to become a part of this national organization; second, learn something. We have the situation of being somewhat isolated from the rest of amateur astronomy here in northern B.C. and this assembly to talk with other amateur astronomers from across Canada.

Upon arrival, I registered and tracked down my room, and Bob. We had a quick supper before getting whisked off to the hillside observatory with a house attached that is (was) Jack Newton's place. (He has retired to dual residences, one in the Okanogan, one in Florida, setting up bed & breakfasts where one can use telescopes and learn CCD imaging from a master) The weather was very uncooperative, forbidding viewing through his great setup. It's not hard to wonder how he gets such great images when you have such top notch equipment. His primary scope is a Meade LX200 16" Schmidt Cassegrain, secondary a Meade 7" APO refractor, a Meade ETX sitting piggy-back on the whole arrangement. He has a Meade 1616XT as his primary camera, with a lowly ST6 as his guide scope. Three computers handle the tasks at hand. Life is truly difficult with equipment like this at hand. His great anecdote involved splitting Epsilon Lyrae - the Double Double - in time for lunch - the middle of the day. Pretty precise pointing! We all slobbered in scope envy at this setup.

The following day was a day of tours including Fort Rodd Hill and downtown Victoria. Bob seemed to greatly enjoy the tour of the historic fort. As luck would have it, the weather turned absolutely beautiful for the weekend. This allowed for three great evenings of observing on the Pearson College observatory. The scope is Jack Newton's old 25" f/5 Newtonian reflector. The view was pretty nice, but it wasn't so nice climbing waaay up a ladder to observe near the zenith. Oh well… Several Victoria members brought out their scopes as well, including 20" Dobs, 10" Schmidt Cassegrain, 6" Newtonian and a nice set of binocs on a homemade mounting. In the common area of the observatory on the first night, there was some interesting conversation to be had with one of the guests of honour, Julie Payette.

Before the star gazing on the Friday, we had a most excellent and inspiring speech from one of Canada's astronauts, Julie Payette. She is a vivacious woman and a joy to talk with. We should be proud to have such a great ambassador for Canada in the space program. It was particularly rewarding when it was announced this month that she would be on one of the initial NASA missions involving the construction of the International Space Station next year (May 99).



On the weekend, the business of the GA occurred with a day of presentations on Saturday and the actual assembly on Sunday. Presentations were both good and not so good. Exceptional were the presentations of Jack Newton, Jeremy Tatum, Geoff Marcy and David Crampton. For those of you following astronomy news both locally and internationally this summer, two of these names will have significance.

Jack Newton's presentation was, as expected, heavily accented with his slides. Some excellent photos to be certain. David Crampton was part of the team that designed and built the adaptive optics bonnet for the Canada-France-Hawaii telescope. This piece of technology is amazing, removing the effects of the atmosphere on the telescope almost completely, giving ground based images that almost equal those of Hubble. Pretty amazing really. They are now working on the adaptive optics bonnet for the Gemini telescope presently under construction. This is a much larger scope next door to the CFH scope in Hawaii.

Jeremy Tatum is leader of Spaceguard Canada and gave a speech on the trials of searching for Earth-crossing asteroids. We later had a tour of the Dominion Astrophysical Observatory and the 1.82m and 1.2m telescopes. Not only did this permit us to see the instrument that they have discovered many asteroids, but also to see the normally closed 1.2m scope. It is significant in having a spectroscope that you can walk around inside of quite comfortably!!! The DAO machine shop was a site to see as well. "Machine shop?!?" you may ask… this one is amazing. I think that one could safely eat off of the floor and workbenches in this shop. Meticulous only begins to describe it. Jeremy Tatum's partner and principal observer - David Balam - was giving the tours of the 1.8m scope. Great for me, as I used to skydive with him… surprised starts to describe his reaction to seeing me. <grin>

Lastly was the true gem of the whole weekend, the presentation of Geoff Marcy. With his partner, Dr. Marcy has discovered more extra-solar planets than any other team in the world! He was giving the presentation as a warm-up to his presentation to other professionals the following day. As a result, we at the GA were given the first announcement of the discovery of a new planet, which was announced to the world press about a week later - Gliese 876. It was quite an informative and exciting presentation. The data presented so current that the last two data points on his graph having just been taken the day before on Keck.

I came away from the assembly quite enthusiastic, as both my objectives had been met. Personally, I think that RASC is a good organization to become a part of, if not as a group, then as an individual. If for nothing else but the publications that come with membership (Observer's Handbook, SkyNews and the RASC Journal). (I just phoned in my membership this past week.) There is also the exchange of information and assistance with other members. I also learned a great deal about astronomy in the meeting from the presentations and discussions with other participants.

Now, to save the money to get myself to the joint assemblies of the RASC, the ASP, and the AAVSO next July in Toronto.

Special Thanks To Owen for his review of the RASC meeting and for these photos. Well done Owen!

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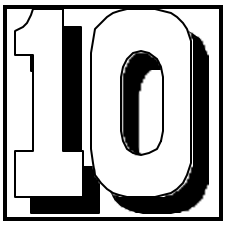
page ten



Some hints on weather forecasting

By Alan Whitman

Here are a few general rules for picking a promising observing night:

The best transparency (clean, unpolluted air) normally occurs when the sky first clears behind a strong cold front. This is because the source region of the airmass behind the cold front is normally higher latitudes areas to the NW (which are essentially uninhabited areas in Canada) or, better yet, the vast Pacific Ocean. However, such a night is apt to be restricted to low power viewing because, while the transparency is excellent, the seeing (image steadiness) is poor due to all the turbulence aloft caused by the strong winds and windshear associated with active weather systems.

If a LARGE high pressure area builds in behind the cold front, the seeing will probably improve night after night as the winds become lighter both at the surface and aloft. The downside of this, of course, is that as the seeing improves, the transparency will probably deteriorate as your local pollution sources cause increasing concentrations of pollutants in the now stagnant air in the high pressure area.

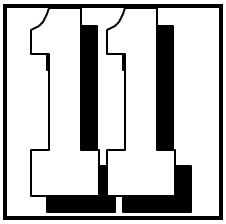
I find that the best overall observing conditions are frequently the second night after the cold front passes through. The air is still clean enough to offer very good to excellent transparency and the seeing may by then have improved to good as the wind shear aloft decreases.

The very best seeing occurs just as the UPPER RIDGELINE passes overhead. For a few hours the winds may be light all the way from the surface to the stratosphere and your telescope's resolution may indeed be "diffraction-limited" for once! This is the rare night that you can use high power to split very close double stars and see incredible planetary detail, things like details in Jupiter's Great Red Spot, not only Cassini's Division but maybe even Encke's Division in Saturn's rings.

As an upper ridge passed on October 12, 1983 I saw Sirius' white dwarf companion with my Meade 8-inch Newtonian at 348x using a polarizing filter in bright morning twilight. [They were 9" apart in 1983, but are only 3.5" now.] Another upper ridge allowed my Meade 16-inch Newtonian to split Gamma Andromedae BC at 0.43" using 522x and the polarizing filter on October 29, 1995. [The well-known components of Gamma Andromeda are golden A and blue B, but I am talking about splitting B into its two components, B and C.]

If you have had a long hot dry spell and the forecast is for a change beginning tomorrow (either increasing high cloudiness or a forecast cold frontal passage) OBSERVE TONIGHT because the upper ridge line is forecast to pass through shortly and image steadiness (seeing) may be the stuff of legends. [I said "may be" because we are dealing with meteorology and there are always qualifiers which I won't get into because we're talking textbook-length.]

As soon as the upper ridge passes, you will probably get thin high cirrus or cirrostratus cloud pushing in and your seeing quality will plummet. Even if the winds aloft remain relatively light for a day or two, the ice crystals in cirrus and cirrostratus clouds destroy image quality. Conversely, you can view planets or the moon quite happily through clouds formed of water droplets, like thin altocumulus clouds, thin stratocumulus clouds, or fog, if the winds aloft are light. These thin water-droplet clouds just act as a neutral density filter.



Other things being equal, the best seeing in a high pressure area usually occurs towards dawn. This is because (a) the radiational cooling of the ground has largely ceased so you are not dealing with rising warm air as you were in the evening; (b) the lower layers of the atmosphere become stratified as an inversion forms and the winds frequently are nearly calm for several thousand feet above the surface. [But if a morning low-level jet forms just above the inversion, your hoped for fine seeing will not then materialize--there are no sure things. BUT there are very PROMISING patterns which repeat over and over again.]

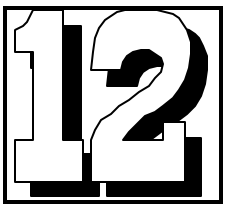
Your immediate observing environment also improves towards dawn for two reasons: (a) your telescope should be in thermal equilibrium with its surroundings after an all-nighter, and (b) most of your heat-producing fellow observers have gone home to bed (grin). [The Prince George Observatory's 0.6-metre Cassegrain is in a dome with a classical slit. The heat from all the bodies in the dome rises up through the same slit that you are trying to view through. I have never had a high resolution view when more than one other observer was in the dome at the same time. Worse yet, every time that someone enters the dome from the warm room, the surge of warm air through the open door instantaneously destroys the seeing until the door is closed and the warm air exits the dome.]

Thus endeth Amateur Astronomy Observing Weather 101.

But whilst I have the floor, let me say something about a pet peeve. The word "seeing" is misused by far too many amateurs, including experienced ones who should know better. The word "seeing" refers ONLY to image steadiness and the potential for achieving high resolution. "Seeing" has nothing to do with sky clarity and cleaniness--that is "transparency".

The TRANSPARENCY will probably be poor after the air in a high pressure area has stagnated over you for a few days, but the SEEING will probably improve night after night, with the best seeing as the upper ridge passes even though your limiting magnitude may be magnitude 4 by then in murk.

Alan Whitman



Next month…. Mt. Kobou Star Party (leaving in a couple days)

Clear Skies.

Owen Salava

Some E-Mail traffic you might be interested in.

Date: Fri, 7 Aug 1998 17:45:20 +0400

>From: ROY BISHOP <roy.bishop@acadiau.ca>
>To: Multiple recipients of list hfxrasc <hfxrasc@astrotech.stmarys.ca>
>Subject: Halifax RASC List: SL9 impacts Jupiter once more?
>>Roy here;
Last evening (Thursday) I had a call from David Levy. He said that **a new dark spot** has been seen on Jupiter and that it is possibly an impact from a piece of SL9 that missed in July 1994. He had not seen the spot as of last evening.

I looked at Jupiter shortly after it rose last night (about 11:45 pm) and did not see any spot. I awoke at 5:30 this morning (without an alarm clock!) to have a look at the other side of Jupiter and immediately **saw a very small black spot** near Jupiter's meridian on the S edge of the first faint band S of the large S equatorial band (perhaps at about S latitude 20 degrees(?)). 10 minutes later it had noticeably rotated with Jupiter away from the meridian. I could see it in all three of my telescopes (444 mm, 200 mm, and 100 mm, although in the smallest telescope it was distinct but not obvious
due to its tiny size).

According to the Observer's Handbook, no shadows of the Galilean satellites were in transit while I was looking at the new dark spot (from 5:30 to 6:15 this morning, Friday, Aug. 7). David (Levy) said that if there was an unexpended fragment of SL9, now is the time when it would be near Jupiter.

Has anyone else seen the spot or have any other information on this apparent encore to an historic event?? Since it is located in System II on Jupiter where Jupiter rotates 36.26 degrees/hour, the spot should be near Jupiter's meridian at 1:30 am Saturday morning (i.e. tonight). I shall be looking! Roy Bishop
>------------------------------

Date: Sat, 08 Aug 1998 17:29:22 +0100
From: H Pulley <hpulley@home.com>Subject: Re: SL9 impacts Jupiter once more?

I have been observing a large spot (one of several) south of the STB June 20. The ALPO Jupiter section has been watching it and timing its transits. Please see
>http://www.lpl.arizona.edu/~rhill/alpo/jupstuff/jupalert.html
Here is a message forwarded from saa and the Shallow Sky list: --begin--

There is a dark spot that has formed on Jupiter in the Southern Temperate Belt at Sys. 2 longitude 196. It is the talk of the town on the ALPO Jupiter section. While many of my ccds have been at the wrong longitude.. Don Parker, and Terry Platt have nailed this puppy, if you'd like to have a look. Don's picture is on the ALPO page. I have three of Terry Platt's ccd images illustrating the spot, plus images 'round the globe of jupiter at > http://www.weatherman.com/jupiter.htm > The dark spot can be seen especially on the Sys2 longitude 211 shot, on the preceding (upper left) side of the planet. The question is.. what is the spot?? It is similar to the impact sites of S-L9, but not exactly..it's not expanding at all. D. Lehman of ALPO feels it is atmospheric in nature. It looks very similar to jovian moon shadows, but not as contrasty (although quite

contrasty in

Last May Bob was fortunate enough to spend three days at the fabled Mount Wilson observatory. Somewhere up there he managed to find a computer with net access and he was kind enough to share this adventure with me via

Hi Gil,

We have one more night (we had Fri, Sat, Sun). There is quite a bit of cirrus at present and, at the moment (12:20 A.M.), we're in a holding pattern. But, these guys go all night (it was dark at 4:00 A.M. last night when I went to bed) and there's still a lot of night left.

This is really a fascinating place. It's all very old but with new hardware upgrades all over the place (imagine acquiring images with a Sun workstation when the telescope is World War I vintage). The whole observatory building has a musty smell, the outer shell is steel, there's lots of steel girders everywhere, you go up a steel staircase, walk along a steel cat-walk (with steel railings) and walk along a corridor alongside the steel dome (which rotates -- there are protective grids covering the wheels). Eventually you reach the control/warm room which is effectively a large box in this cavernous observatory building. All this is in the dark (thank God I remembered to bring my small MAGLITE). There are fascinating nooks and crannies everywhere with ancient equipment all around. They've even kept Hubble's chair which he used when hand-guiding the 100" Hooker telescope and making his great discoveries. I don't think that anyone dares to sit in it - I sure don't!

The 100" Hooker is just amazing -- a huge piece of equipment right out of the 1917 era -- rivitted steel girders and plates everywhere. The mount is not great -- it has to be hand-guided constantly. The mirror is made of coke-bottle type glass but seems to work ok. They often get 0.5 arc- second images here.

Today I slept only to 9:00 A.M. (not enough sleep!) but got up around noon. I had more fascinating discussions with Scott Teare (he's a transplanted Canadian working for the U of Illinois at Mt. Wilson). (He pays taxes to California, the U.S. Gov't and Ontario -- some 65% of his income!)

By the way, this evening, I watched Tom Bisque run a Celestron 14 (on one of his mounts, I believe) using The Sky. It's amazing to watch the telescope symbol on the screen move and hear the telescope slewing at the same time. Tom also acquired an image on the ST7 using Software Bisque's capture software CCD Soft. Very slick. (I forgot to mention that he also used TPOINT which is perfectly integrated into The Sky. We've got to get this software.) Needless to say, the image downloaded MUCH faster than happens on our camera. The secret is to use a PARALLEL port, not a serial one. (Meade, contrary to Tom's advice, uses a SCSCI and a serial. The SCSCI is only 50% faster at the cost of complications and the serial is much slower as noted. The ST7 uses the parallel but the problem with this camera is that the quantum efficiency is significantly less than the ST6 (which is not a bad camera) and also has the smaller pixels.

Oh, boy, I seem to have a case of verbal diahorrea (except that there's so much neat stuff happening.I meant to just answer your e-mail

Cheers,

Bob

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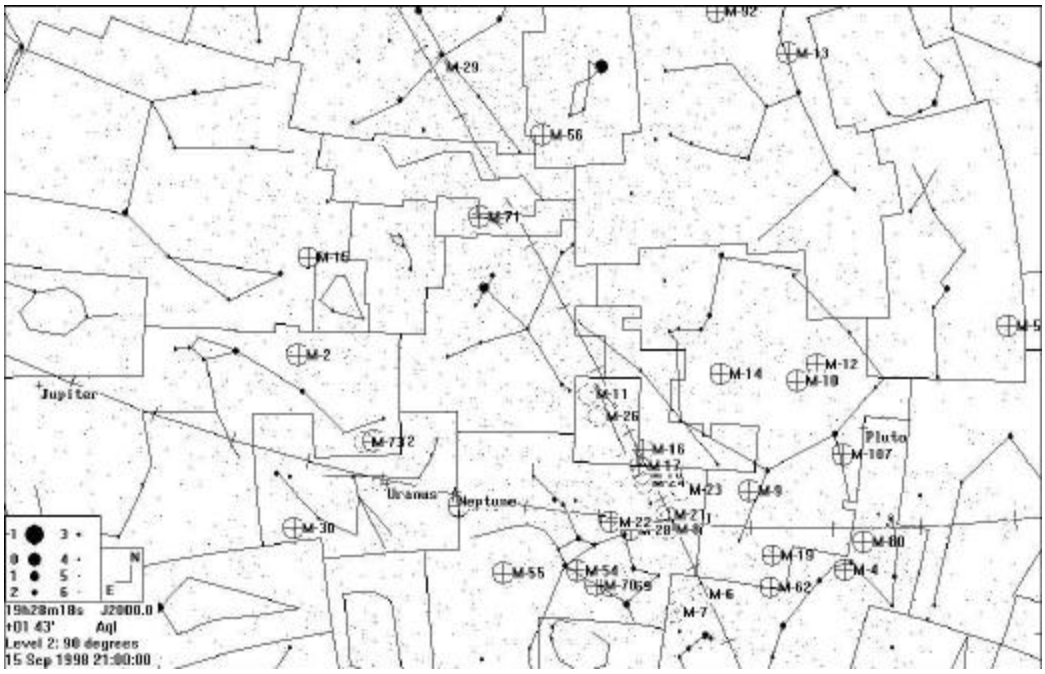
M-92
M-13
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Pluto
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Uranus
Neptune
M-23
M-9
M-21
M-22
M-28
M-30
M-80
M-19
M-55
M-54
M-4
M-7059
M-62
M-6
M-7
19h28m18s J2000.0
+01 43' Aql
Level 2: 90 degrees
15 Sep 1998 21:00:00

In the coming year, there are a great number of things to be done around the observatory to both improve it for the use of the members and to present a great face to the community. Donations of time and materials in the coming year will be highly appreciated as we work as a society to improve the capabilities of the equipment, and increase the comfort and usability of the building overall.

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
Prince George Rotary Club	1,000
The Pas Lumber Co	750
Rustad Broth & Co Ltd	750
Canfor Polar Division	744
Bisque Software	500
Xerox Canada	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

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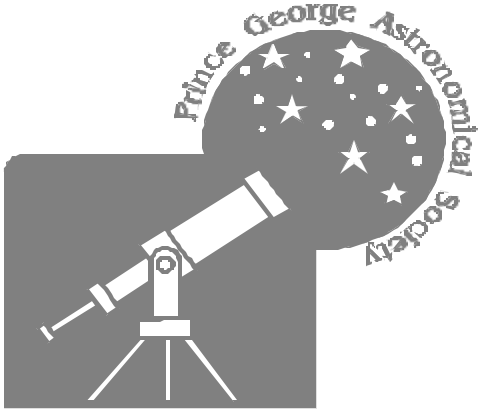

The P.G.A.S Would like to thank

BISQUE SOFTWARE

for their donation of

THE SKY (Level 4 software)

To The Prince George Observatory

The Prince George Astronomical Society's
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