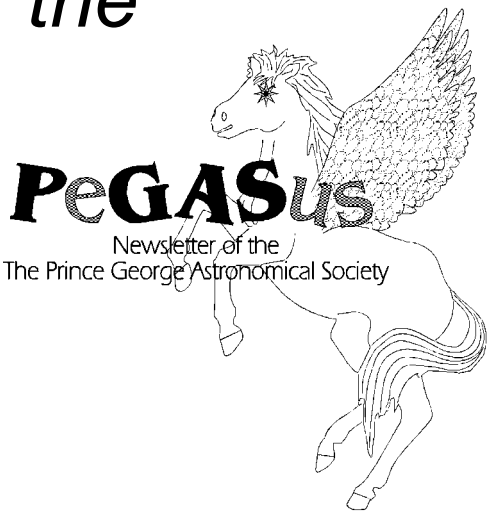
PeGASus
Newsletter of the
Royal Astronomical Society of Canada
Prince George Centre

The RASC-PG meets next at 7:30 pm Wednesday October 29th at The Observatory

Map on Page 2

OCTOBER 2003

the



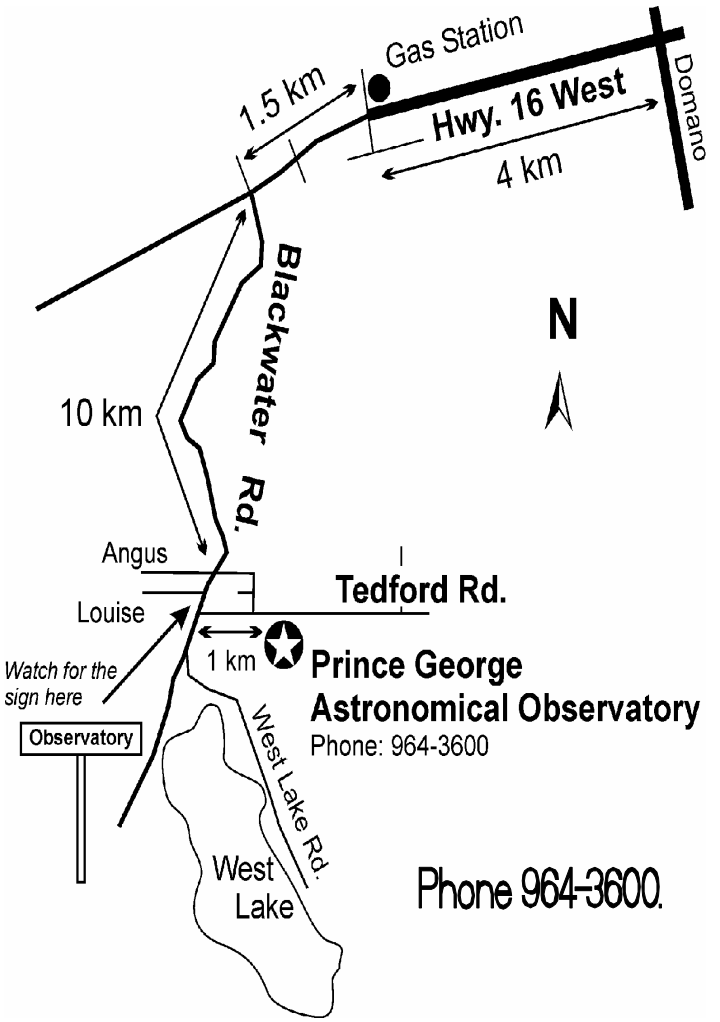
In Issue # 131

Also This Month;

2

the PeGASus
is published monthly by the
Royal Astronomical Society Canada
Prince George Centre

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

November 14

PeGASus Editor
Gil Self

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you can renew your membership at
www.rasc.ca/princegeorge

Editorial

By Gil Self

I was saddened to read in Vince Hogan's e-mail that he has moved to Kelowna. We will certainly miss his humour and wit, but also Vince was a great help at the observatory. He refers to his " low tech explorations of the sky", well maybe he wasn't into charge coupled devices, and GPS robotic drives, but give him a pair of binoculars and a group of strangers and he would keep them interested and entertained with his comfortable familiarity of the night sky. Glad you stayed a member of the PGRASC, glad your new house didn't burn down, All the best to you!

This reminds me that we have had many of our valued members move away over the years. It is quite amazing how without fail, someone steps up and fills that spot. We have a very active group at this point in time. It is very satisfying to see all the progress we have made over the last few years. Once we finally have the heads for our new piers (my fault) we will have a facility that will be very easy to set up and use. Whether we are hosting a large tour or an open house or members activities. The observatory is very flexible. You can pop a telescope on a pier and be set up observing outside in just a few minutes. Or for a large group you will be able to set up the 24 inch with a real time video feed down to the classroom and project it on the 20 foot screen. On a rainy night we can show PowerPoint presentations and perhaps some stored images from a previous viewing session.

With all that in mind may I suggest that if you haven't hosted a tour or an open house, not only are you missing out on all the fun but we could really use your help. If you feel you need some practice first please join us at any of the mentioned functions. You must be a key holder (but that's not that difficult) and you should feel comfortable operating the equipment. I suspect some people think the biggest challenge is answering all the questions, I think you will surprise yourself , everyone reads everything they can get there hands on, there is a lot of general astronomical know-how out there, and you hear it being shared every time there is a get together.

Do you think it's time we decided on a club project? We have been working hard for a long time just to keep the doors open. Week after week of tours and open house to raise enough donations to pay the bills. Maybe its time we had some fun! Some time ago we planned a supernova hunt. As planned it offered the advantage of a well laid out observing list that was flexible. You often end up at the observatory without a specific list of objects to view (at least I do) :-) Or the sky is patchy, or you have limited time. A prepared list of targets that we could all participate in would allow you to spend the time you have free on the "project". Once a week or so we could crunch whatever data had been gathered and chances are over time we could very well "get lucky". The holdup before was the cost of the reference plates, with the access we now have through the internet this would no longer be an issue. Its not likely we would be first on an "nearby" galaxy but ya never know! What do you think? Are there any other ideas? Lets talk about it at the next meeting.

Two years ago I tried something different with our newsletter, November's issue was devoted to the humorous side of astronomy. If you have any "tongue in cheek" articles , jokes or maybe an idea for something you could write relating describing the lighter side of astronomy please send them to me.
Thanks
Gil

Coming Events

October meeting and AGM October 29 at the observatory

Tours are booked for November 7th and 12th

Friday evenings: Open House night (rain or shine)
Saturday evenings: Members night (weather permitting)

The Night Sky for November 2003

by Bob Nelson, PhD

Hi Folks,

Well, Lois and I arrived back from Italy October 17th after the usual grueling journey home (20 hours this time, 13 hours in the air). Italy was, as expected, wonderful with its many scenic and cultural treasures. For almost every day in our 4 1/2 week holiday, we had beautiful sunshine and much warmth; needless to say, it was a rude awakening to arrive back in PG to heavy rain and gloom! However, it's good to be back. If there is time and interest at the next meeting, I will show a sensible subset (40 or 50) of the 3000 digital images I took over there. Of scientific interest was the Museum of Science in Florence which contains many Galileo artifacts, including two of his actual telescopes and a preserved finger of his. (As luck would have it, it's his third finger – the old guy is still giving us the middle digit after all these years! Just kidding, folks.)

Anyway, here is what is happening in the sky this month:

MERCURY is an evening object in November; however, it's not easy to see this month. However, if you must, by month's end, it sets at about an hour after the Sun. Then, it's a 5.8" disk of magnitude -0.4.

VENUS, is an evening object in November. At the beginning of the month, it sets about 50 minutes after sunset; this increases to one hour and 40 minutes by month's end. Throughout the month, it's a gibbous disk of about 10" and magnitude -3.9.

MARS, in Aquarius until December, is fading fast. At mid-month, it transits at about 7:30 PM, PST (about 3 hours after sunset), and sets at about 1 AM, PST. It's a 12.75" disk of magnitude -0.7.

JUPITER, in Leo until 2004, is a morning object in November, rising at mid-month at about 1 AM, PST and on the meridian at sunrise. It's a 34.7" disk of magnitude -1.9.

SATURN, in Orion until November 20 when it passes into Taurus, at mid-month rises about three hours after sunset and transits at about 3 AM, PST. Although you will be able to see it mid-evening, the best views will be well after midnight. It might therefore be wise to wait a month or two for the best views. This month, it's a 20" disk of magnitude -0.1.

URANUS, in Aquarius until 2009, at mid-month transits two hours after sunset and sets at about 11:45 PM, PST. This is a good target for binoculars or any telescope if you know where to look. For a finder chart, use Guide 7 (or indeed any planetary program), or the Observer's Handbook for 2003 (page 196). As usual, it's a 3.6" disk at about magnitude 5.7.

NEPTUNE, in Capricornus until 2010, at mid-month transits an hour after sunset and sets at about 10 PM, PST. This is also a good target for any telescope. As usual, it's a 2.3 disk at about magnitude

8.0.

PLUTO, in Ophiuchus until December, sets at mid-month about two hours after the Sun. (However, since the Sun sets then at 4:30 PM PST, you'd have to get out to the observatory early to see it!) As usual, it's a 0.1" disk at magnitude 13.8

CONSTELLATIONS to look for in November (at 9:00 PM, PST) are Sculptor, Western Cetus, Pisces and Andromeda.

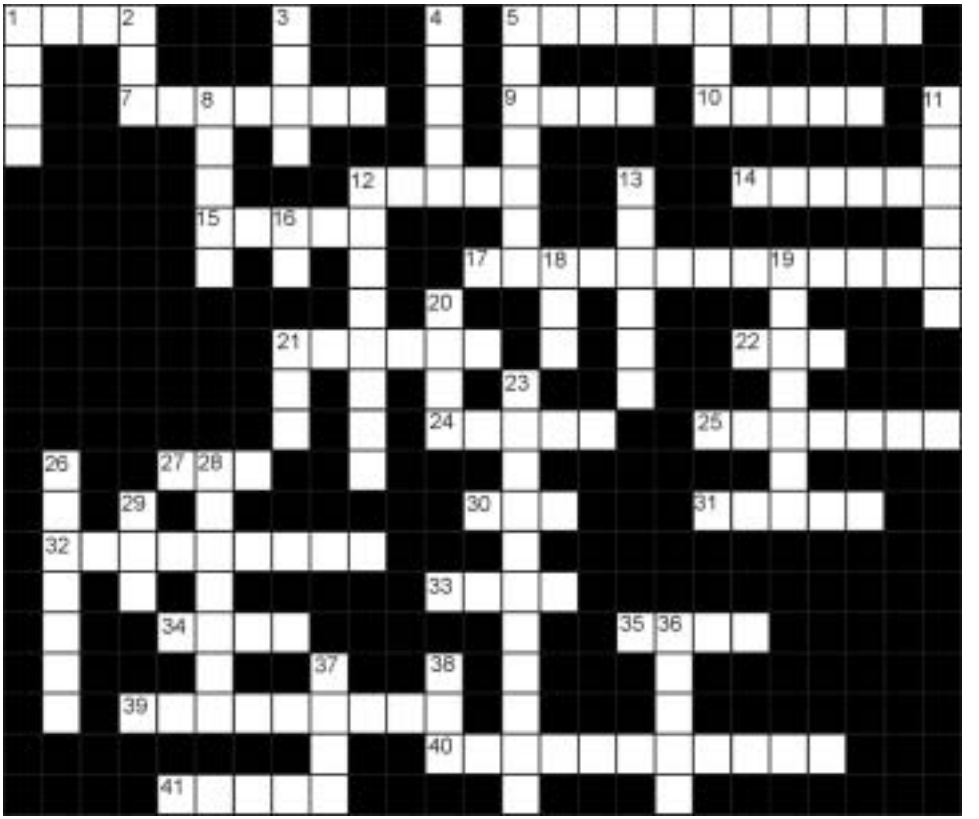
Sculptor (Scl, 'The Sculptor's Tools"), another southern constellation at the limit of our visibility here in Prince George lies out of the Milky Way. It contains a few faint galaxies, a faint globular, NGC 288 and, near the latter, the south galactic pole which, at declination 27.5 degrees south, is just visible from Prince George. It also contains NGC 253, a spiral galaxy which Burnham says is the most easily observed spiral after M31.

Western Cetus (Cet, "The Sea Monster'), contains a number of galaxies, including M77 which is a bright and compact spiral galaxy, contains three distinct sets of spiral arms and lies about 60 million light years distant. According to Burnham, this and NGC 4594 in Virgo (The "Sombrero') were the first two systems in which very large redshifts were discovered, leading to the discovery of the expanding universe.

Pisces (Psc, "The Fishes"), lies on the Zodiac. It contains M74, mentioned last year and, according to Burnham, one of the faintest and most elusive of the Messier objects requiring a dark sky and suitable eyepiece. Who-all's seen it? Pisces also contains, according to Norton's 2000.0 Star Atlas, the galaxies NGC 487 and 524.

Andromeda (And, "The Princess of Ethiopia"), is familiar to most of us; it contains the "Great Andromeda Galaxy" M31 along with its satellite ellipticals, M32 and NGC 205 (a.k.a. M110 -- but not really on Messier's list). According to Burnham (and the references therein), M31 has been known at least as far back as 905 AD; it was known as 'The Little Cloud' and appeared on star charts long before the discovery of the telescope in 1609. Simon Marius is usually credited with the first telescopic observation in 1611 or 1612. Early observers thought the 'nebula' consisted of glowing gases but long photographic exposures early in this century revealed it to be a vast star system. Edwin Hubble, observing Cepheid variables with the 100' Mt Wilson telescope, established the distance as around 90,000 light years, well out of this galaxy. Later, corrected calculations in 1953 extended the distance out to 2.2 million light years. We now know that M31, along with M33 and our galaxy, are the three largest members of the "Local Group", gravitationally bound and holding numerous smaller galaxies, including the Large and Small Megallanic Clouds. Needless to say, M31 has been the subject of many studies by professionals using the largest telescopes and is also a fine object for amateur study and photography.
Bob

Astro Crossword



Across Clues

1) Recent nearby visitor (4)
5) CCD imaging tool (11)
7) I go around the Sun (7)
9) Fourth image in the current imaging system (4)
10) Method to remove dust donuts and other artifacts (5)
14) Very good eyepiece (6)
15) 3rd from the Sun (5)
17) Math formula used as an imaging editing tool (13)
21) Focal length/diameter (6)
22) Deep space object
24) Map (5)
25) Changing overall values by the same percent (7)
27) Centre for backyard astronomy (3)
30) Jet Propulsion Laboratory (3)
31) Method used to gain film "speed"
32) Black & white image used in the 3 colour image method (9)
33) Star appears distorted into a comet shape (4)
34) Another image format (4)
35) Electronic image format (4)
39) Math formula or method of doing something (9)
40) Method of measuring the brightness of a star (11)
41) Needed for better CCD images (5)

Down Clues

1) Goes around Earth (4)
2) Earth goes around me (3)
3) Part of the 3 colour imaging system (4)
4) All colours (5)
5) Equal weight of in balalnce (7)
6) Part of the 3 colour imaging system (3)
8) I too go around the Sun (5)
11) Camera adaptor (6)
12) CCD imaging process used to give a pleasing value above and below a (8)
13) Ones and zeros (6)
16) Right ascension (2)
18) Charge coupled device (3)
19) Image processing tool (7)
20) Faint star that suddenly erupts in brightness (4)
21) Field of view (3)
23) Straight through or not (11)
26) Eyepiece manufacture (7)
28) Method of making bigger CCD images with a wider value (7)
29) Three colour image method (3)
36) Smallest area of a picture that can have a value (5)
37) Astro image format (4)
38) Computer image format (3)

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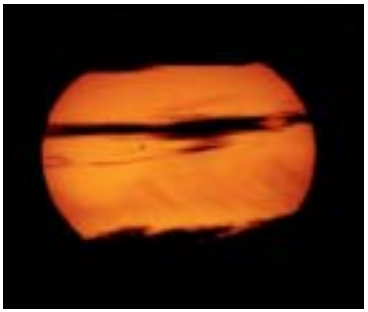
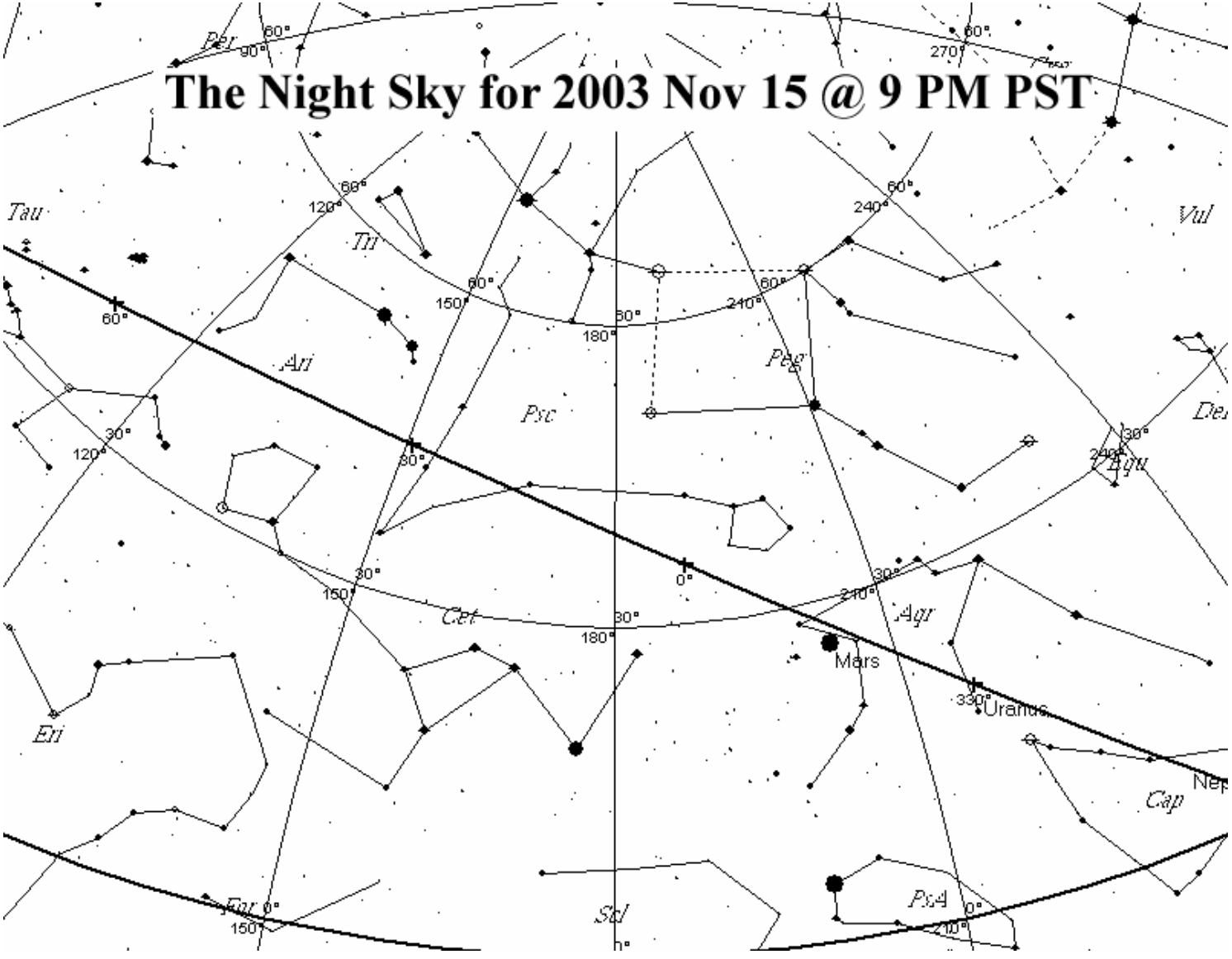
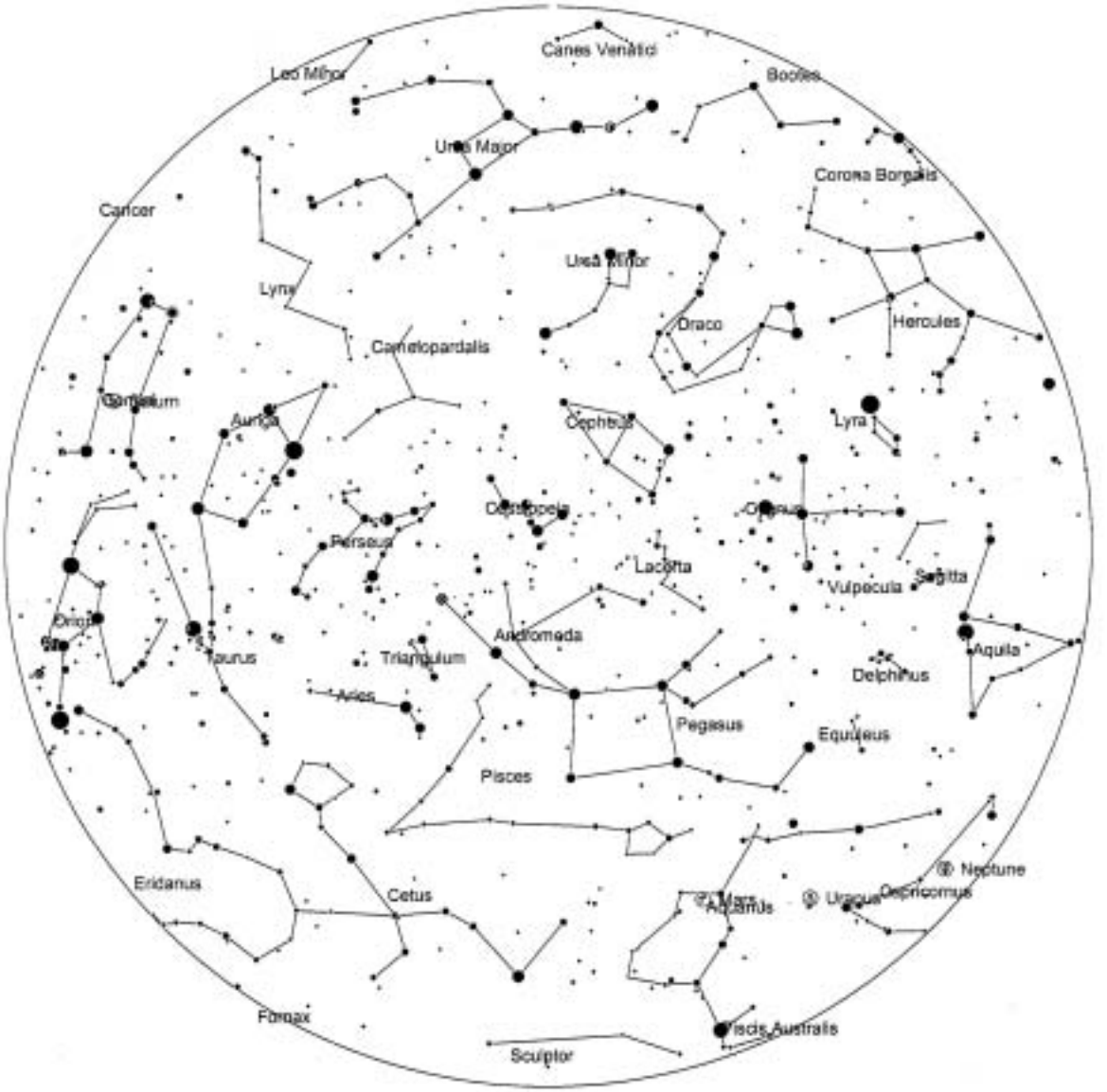


The second annual Baldy Hughes Star party (or Messier Marathon , depending on how late you wanted to stay up) went very well. Photo above by Rob Frith, the rest are from Doug Wayland- I think the photo at the bottom should be our new signature picture– GS

The Night Sky for 2003 Nov 15 @ 9 PM PST



Sky Map courtesy Dr Bob Nelson



SOUTH

Prince George Centre Observatory
November 15, 2003
9:00 pm

An Italian Conjunction

two images taken a day apart of the Moon and Mars from Porto San Stefano, Italy. (It's about 150 km NW of Rome.) The dates and times were:

7172: 2003-10-05 at 19:25 UTC
7279: 2003-10-06 at 18:47 UTC

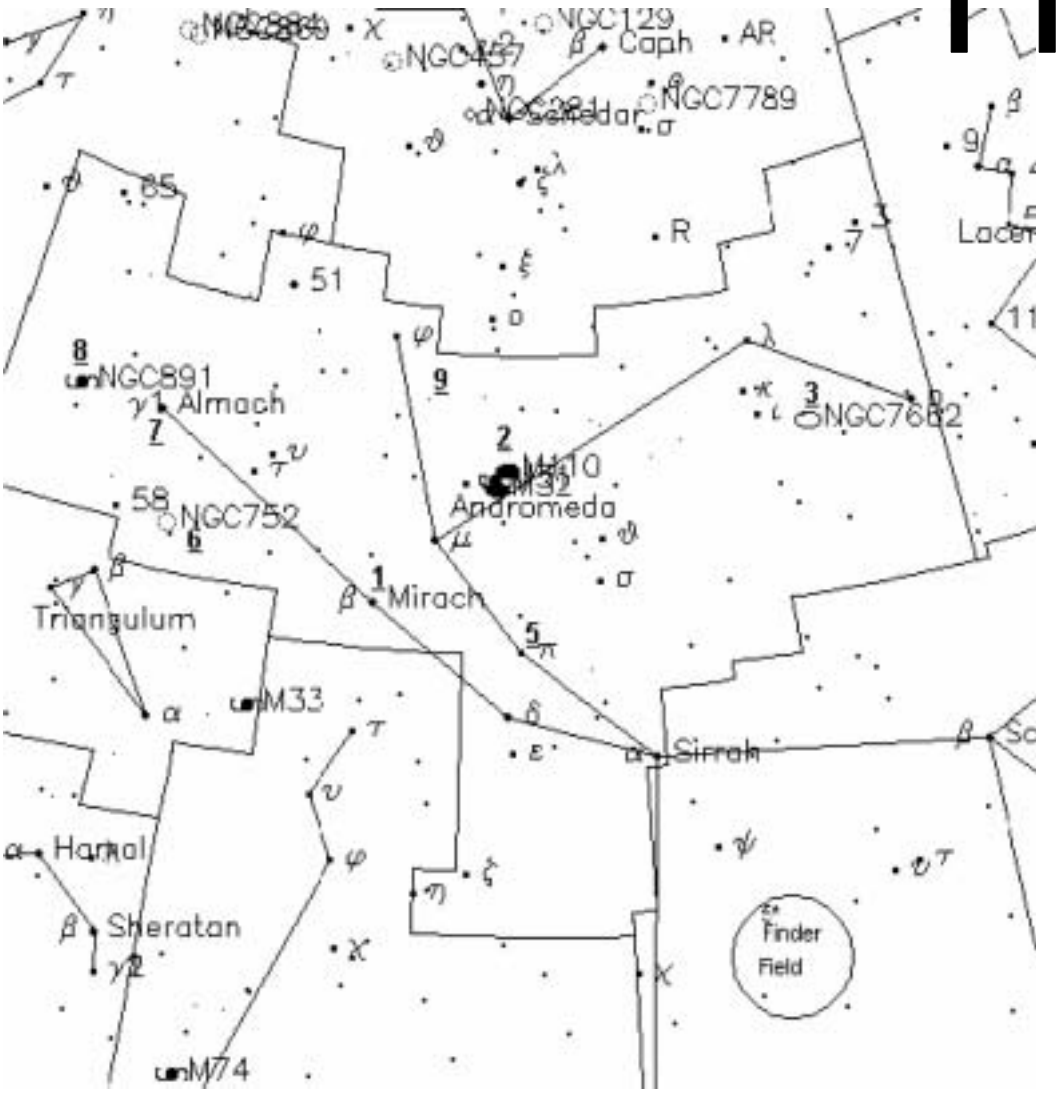
Exposures were around 1 second at F/2 with a Canon Powershot G3 digital
camera resting on a solid support. The latter was digitally enhanced using Photoshop. In particular, I superimposed a shorter image of the Moon so that it was not overexposed.

Bob N.

7172

7279

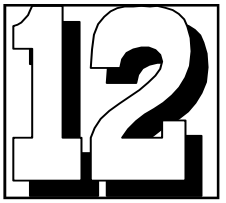
November Star Hop in Andromeda



Map courtesy of
Your Sky, web:
www.fourmilab.ch/

North is to the top,
West is to the right.

Cont on page 12



From page 11

I have picked out a few interesting telescopic objects for you to find in Andromeda this month

1 We'll start with the mag 2.1 star Beta Andromedae or Mirach, the second bright star off the NE corner of Pegasus. In the same field of view there is an often overlooked mag 10.3 galaxy, **NGC 404**, seven minutes NW of Mirach. It easily fits into the same high power field. The galaxy forms an almost equilateral tri-angle with Mirach and the first noticable star NE of Mirach. Once seen, the galaxy is unmistakable as a faint round haze and is really cool next to the bright Mirach. I can see it easily in my 8" LX 10 and with averted vision in my ETX 90. NGC 404 is about 8 million light years away from us.

2 Next we can move up to **M31, the Andromeda Galaxy**. From Mirach look NW about 4 degrees to Mu Andromedae and go about the same distance again and there you will find M31 which is visible as a hazy patch to the naked eye. Most everyone has looked at this huge galaxy. It is very nice in binoculars. If you put it into a low power telescopic eyepiece, you may be able to see the **M32** and **M110** galaxies in the same field of view. M32 is small and bright about a half degree S of the centre of M31 and M110 is larger and dimmer located about three quarters of a degree NW of the centre of M31. The three galaxies are members of the local group and are about 2.5 million ly away.

3 Now we will try a more challenging object, the planetary nebula **NGC 7662 or the Blue Snowball** as it is known. This map is a little cluttered and small scale, so you may need a better star map to find it. At mag 8.3 and 17 arc seconds in diameter, it is easy to see in small scopes. From M31 keep going in a NW direction about 11 degrees to the naked eye star Lambda Andromedae (looks like the upside down y on the map), then look about 7 degrees SW to another naked eye star Omicron Andromedae (right above the first 6 in 7662). I visualize the blue snowball to form a flat symetrical triangle with these two stars and put my finder in this area and fish around with a wide field eyepiece until I see a small round ball of light. The stars will be pin point, but this ball is obvious when you see it. NGC 7662 is about 3900 ly away and actual size about 1/3 of a ly wide. It is number 22 in the list of Caldwell objects, a list of 109 nice telescopic objects drawn up by British astronomer Patrick Moore.

5 I am going to skip 4 and go onto 5. This is **Pi Andromedae** an unequal double that is kind of interesting. It is the first fairly bright star on the upper arm off the NE corner of Pegasus. Centre this star in you eyepiece, low power is fine, and you will see the primary as a bright white star at mag 4.4 and 35.9 arc seconds south is a dim blue star which is mag 8.6. They are about the same spacing as Albireo.

6 Next we will go to a large open cluster **NGC 752** which is situated just N of a nice binocular double star known as **56 Andromedae**. On the map, 56 is the one just below the dotted circle marking NGC 752. To find this go to the upper two stars of Triangulum and extend the line from these two stars toward Andromeda about twice the spacing as the two. In binoculars or a finder scope you will immediately see the binocular double as two equally bright stars nicely spaced at 190 arc seconds in a SE to NW direction. Now look just N of this double and you will se a hazy patch of stars in your binoculars or finder scope. This is NGC 752. In a low power telescope eyepiece the cluster completely fills the fov. It reminds me of a dimmer Beehive cluster. NGC 752 is mag 5.7 and its brightest star is mag 9. It is over one degree in size. Its distance is about 1300 ly. It is Caldwell 28.

7 From here go NE about 5 degrees to the beautiful double star **Gamma Andromedae or Almach** at the end of the lower line of stars off the NE corner of Pegasus. In the eyepiece it is a fairly close, color contrasting double, with the primary being

Cont on page 14

Meteor rockets over region, brightening night sky

By PAUL STRICKLAND
Citizen Staff

Astronomers continue to look into a meteor that flashed across the northeastern sky near Prince George earlier this week.

"It was as bright as the moon – bright enough to cast shadows," Brian Battersby, president of the Prince George Astronomical Society, said Friday.

"It had a smoking green-blue tail."

Battersby said he saw the fireball while outside his home in the Heritage subdivision Wednesday at 10:38 p.m. The appearance of the meteor lasted only about 3 seconds. "It was heading from east to north," Battersby said.

The meteor was in the constellation Auriga in Taurus in the eastern sky.

"It was low on the horizon, about 12 degrees off the horizon," he added. "It appeared to be moving fairly slowly."

Suggestions that the meteor, or space rock, might have landed near tabor Mountain are likely incorrect, Battersby said. If it had landed, it would have created a loud sonic boom.

A meteorite that hit the earth's surface near Vanderhoof about five years ago caused a sonic boom that was heard throughout much of B.C.

Battersby said he received an e-mail from a Chetwynd resident who also saw the meteor, as well as a call from a local resident about it.

Battersby said there is an outside chance that the phenomenon was a satellite falling back to earth at the end of its life expectancy, or it might have been a falling rocket booster. However, information is available to astronomers about when these things are expected to re-enter the earth's atmosphere, he said. Battersby noted he would have received e-mail about the predicted fall of a satellite back to earth.

"This was more likely a fireball, a space rock or meteor," he said.

You can e-mail the astronomy society at *pgcentre@yahoo.com*

Reprinted from the Prince George Citizen
Saturday, October 4, 2003 edition

ATTENTION: Brian Battersby Re: "Meteor Rockets Over Region ,pgcitizen Oct04/o3
F.Y.I

On October 01/03 at approx 10:30pm in the eastern night sky we witnessed what appeared to be a meteor. Looking out the Living room window facing east (from western outskirts of city) we watched a very bright and fairly large green light with a reddish tail move quickly from south to north apparantly just a few degrees above the treeline. It was kind of emeraldy green-kryptonite coloured ball trailed by a brief reddish glow. It disappeared into the night. This entire event took no more than five seconds.

If it hit. I believe based upon our vantage point that the impact is more likely north of Tabor, like Monkman Prov. park area

We two swear the above statements to be fact.

G.A.Strong
TJ Strong

Wondering why green.

More on Page 14

More on,

Meteor rockets over region, brightening night sky

An e-mail received by Brian Battersby

Hi, I am sending you this email to ask about an event that took place about 10:30 P.M. on the night on Wednesday,October 2nd, that you may know what it was. I was outside about this time and happened to look up in the sky, towards the south-south-east at about a 30 degree angle and saw what appeared to be a fireball streaking across the sky in a north easterly direction. It was traveling much slower that a meteorite and was a visible ball shape. When it reaching about a due east direction from me it disappeared. I presume that whatever in was it burned up in the atmosphere. I has seen fireballs before and they are mostly reddish-orange glow, while this one was a bright blue colour with a long blue tail. I guess it would help to tell you that I live in Chetwynd,B.C. and was in town when I observed this. I was wondering if you have had any other reports of this object or have heard of any orbiting debris falling into the atmosphere at this time. I was just curious if you had heard anything?
Thanks for your time,
Dave Bridges
Chetwynd, B.C.

From page 12

yellow and the secondary being blue, sort of like a closely spaced Albireo.

8 Next object on my list is **NGC 891**, a dim, but interesting galaxy to find. You will probably need at least a 6" scope to see, I found it very dim in my 8". It is situated about 4 degrees E of Almach between the two naked eye stars you see on the map. You can just fit Almach and the two stars in the finder scope. Just position your cross hairs in the appropriate position as indicated on the map, or if you are using a red dot finder, put the dot there and you should be able to pick it out in a low power eyepiece. NGC 891 is a faint slash of light about 3 minutes long oriented almost N-S. In my eyepiece I could sort of see a faint star super imposed on each end of the galaxy. Of course you have to be looking for this one when no moon is in the sky. NGC 891 has a visual mag of 9.9. It is about 30 million ly away and has an actual width of about 110,000 ly. It is also known as Caldwell 23 and Stephen James O'meara, the author of the Caldwell Objects, calls it the "Outer Limits Galaxy" because he says in long exposure photographs it looks like a "flying saucer pitching sharply through a city of suns".

9 The last object on my list is a double star, **Struve 79**. Brian and I were looking at this one on members night, Oct 4. It is fairly easy to locate. First pick out the bright naked eye star 51 on the map, then go about 5 degrees SW to Phi Andromedae, also naked eye. Then imagine a line from Phi to M31, Struve 79 is the small point on the map located about 1/3 of the way to M31. Although Struve 79 it is not really naked eye, (it might be on a moonless night), the star just below it and to the left is and you can use it as a reference. Once found, the double is a nice, fairly evenly bright pair, separated by 7.8 arc seconds and oriented N-S. They will split in a low power eyepiece, but look nicer at a higher power.

Enjoy navigating your way around this constellation and good luck.
Doug Wayland

Crossword Answers

Down Answers

1) Moon
2) Sun
3) Blue
4) White
5) Balance
6) Red
8) Pluto
11) T-Ring
12) Gaussian
13) Binary
16) RA
18) CCD
19) Unsharp
20) Nova
21) FOV
23) Flip-Mirror
26) Televue
28) Binning
29) CMY
36) Pixel
37) FITS
38) BMP

Across Answers

1) Mars
5) Butterworth
7) Neptune
9) LRGB
10) Darks
14) Nagler
15) Terra
17) Deconvolution
21) F-Stop
22) D.S.O.
24) Atlas
25) Scaling
27) CBA
30) JPL
31) Hyper
32) Luminance
33) Coma
34) TIFF
35) JPEG
39) Algorithm
40) Photometric
41) Flats

A Word From Wayne

Saturday October the 18th saw the first session of the workshop devoted to mirror grinding and or telescope making In All there are three mirrors and mirror makers, Doing the workshop. Workshop one: Three F8, 6 inch mirrors were decided as a first mirror by each of the mirror makers. This decision was made with the help of a internet site Http://www.sellaphane.com . A very new and exciting way of grinding was shown by this site.

Bevels were ground on both sides of the mirror blanks that the workshop members selected for their own mirrors. There are still several 6 inch blanks for mirrors available for members use.

Tile tools were cast from cement. They will be dry enough to expoy mosac tiles to, by the next work shop which will be the night of the 27 Oct. 7:30 till 11 pm.
One Tile tool was complete with the tiles stuck on.

Some time was again spent on the internet web site looking at a very simple test unit so that we can test the grinding as we go. I will attempt to get the wood cut, sanded, and finished so we can put the tester together next time out. Mirror grinding will likely start to happen on the 27th . There is space still for members in the workshops.
Submitted by Wayne Sanders