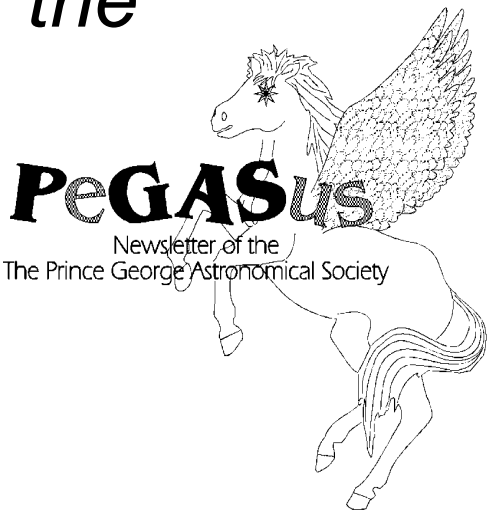
PeGASus
Newsletter of the
Royal Astronomical Society of Canada
Prince George Centre

The RASC-PG meets next at 7:30 pm Wednesday February25th at The Observatory

Map on Page 2

FEBRUARY 2004

the

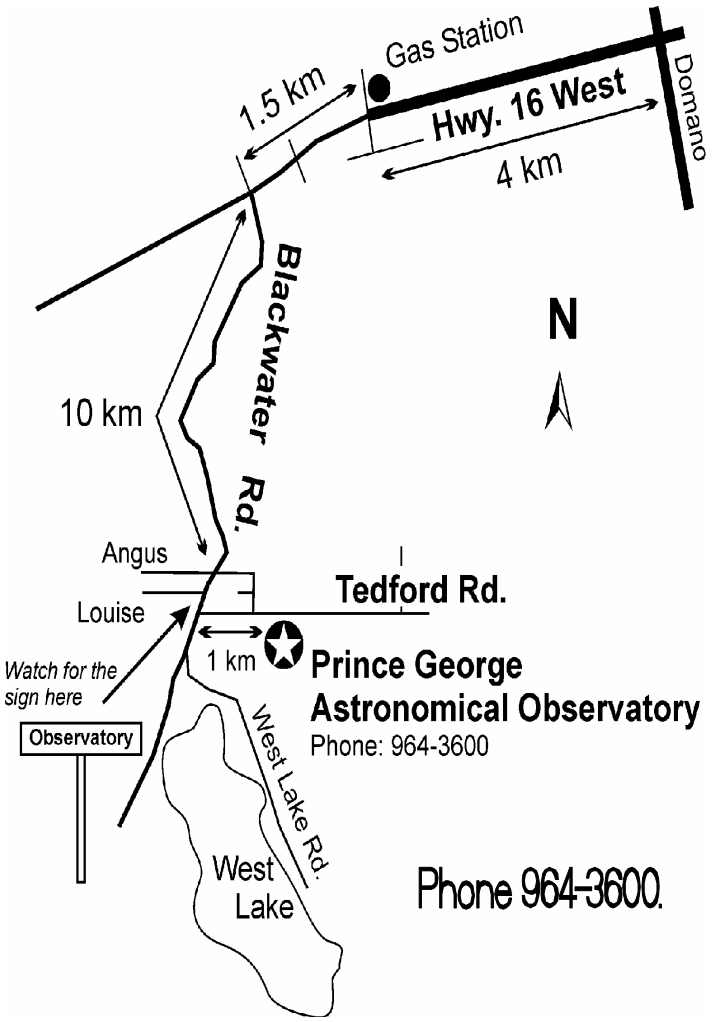


In Issue # 134

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

March 19

PeGASus Editor
Gil Self

Send correspondence to
Prince George RASC
7365 Tedford Road
Prince George B.C.
V2N 6S2
or
gil-pg@shaw.ca
phone:964-3600

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

Editorial

By Gil Self

We have some interesting months ahead of us.

The spring observing in my mind is always the best. Sure the days are getting longer and the nights shorter, but you just can't beat a spring evening waiting for the sky to darken. The air is fresh, its good to finally spend some time outside after all those weeks indoors. Cool days and moderate evenings often bring some pretty good seeing with it. The ground is still damp and not producing clouds of dust. And best of all, no bugs. Once you have the equipment set up and operating smoothly there is usually a half hour or so of nothing to do but sit out back and listen to the forest, very relaxing. If I looked up Zen or cathartic in the dictionary the definition would probably be " sitting out behind an observatory on a spring evening, waiting for dark"

Ok so I've done the feminine side stuff now lets get back to the spring observing. We are planning on promoting our availability for group tours and the hope of course is a dramatic increase in the number of people visiting the observatory. Unfortunately we need to look at this in two ways, one we are glad to have more people interested in science and particularly astronomy, we all enjoy sharing this great pastime with others. But we also need to remember that this is our best method of fund raising. I don't think anyone wants to go door to door selling raffle tickets or almond chocolate bars. It costs several hundred dollars a month just to keep the doors open. In preparation for this we have about three new "presenters", members who are willing to host tours , give presentations and answer questions. If you are interested in participating in this programme please let any member of the executive know and we will make sure you are included. It's a lot of fun!

Probably the most exciting event this spring is the upcoming visit of the national president of the RASC, Rajiv Gupta will be in Prince George on the 20th of April. We are looking forward to two short talks (about one hour each). One presentation will be background and history of the Observers Handbook, for which Rajiv is currently the editor. The other talk is relating to the extensive work he has done on astro photography. It's hard to decide which I am looking forward too more!

Time and place aren't firm yet, more soon.

Gil

Coming Events

February 25th general meeting at 7:30 pm at the observatory
Open houses and Members Nights will start in March

Rajiv Gupta National President RASC to visit Prince George on April 20th
Rajiv will offer a presentation at UNBC, 7:00 pm in the Small Lecture Theatre (room 7-150),
The lecture will be followed by a visit to the PGAO.
Don't miss it
Bring a friend

Astronomy Day 2004 is scheduled for Saturday, April 24

The Night Sky for March 2004

by Bob Nelson, PhD

Hi Folks,

Ah, the winds of spring! At time of writing, we have recently had some glorious sunny and warm days (but yet some not-so-nice days as well). Is spring around the corner? Well, yes, but don't count winter out yet. We often get some last gasps, so be ready for them!

With spring, we can look forward to more public observing, newly finished piers onto which we can mount our various telescopes, and more great observing.

Anyway, with perhaps a renewed sense of vigour, here is what is happening in our skies in March:

MERCURY, is at superior conjunction (on the other side of the Sun and at the greatest distance from Earth) on March 4th - national hikers' day ;-). By mid-month, according to the Observer's Handbook, "it begins the best evening apparition of the year for northern observers". By month's end, it sets more than 1.5 hours after sunset, and will be a 5.2" disk of magnitude -1.5. Also, (the OH goes on to say), for approximately two weeks starting on March 22, all five naked eye planets will be visible by northern observers in the evening sky. Let's go for it, chaps!

VENUS sets at mid-month some four and three quarter hours after the Sun! It's now a 57% illuminated (roughly half) illuminated 21" disk of magnitude -4.2. And a very bright object at that (possibly generating a new spate of UFO reports!).

MARS, passes from Pisces into Taurus on March 13, sets at mid-month at 0:20 PST. Those with good memories (not me, but I am writing this column!) will remember that this is only 2 minutes before the mid-month set time last month. How can this be? Well, Mars is zooming eastward and that accounts for the fact that it does not rise (and average of 2 hours) earlier as the outer planets do. It's now a 5.5" disk of magnitude 1.1, fading away.

JUPITER, in Leo until August, transits at mid-month at 23:31 PST. Opposition occurs on March 4, at which time Jupiter is at is biggest (44.55" equatorial diameter) and brightest (magnitude -2.4). Now's the time to look observe it! Look also for the satellite events (shadow transits, etc) which are well listed in Guide 7.

SATURN, in Gemini until 2005, transits at mid-month at 19:02, PST and is therefore high in the south at sunset (great for public observing!). It's a 19" disk of magnitude 0.0.

URANUS, in Aquarius until 2009, rises at mid-month at 05:58 PST, only an hour and a half before the Sun. Forget it, Newt.

NEPTUNE, in Capricornus until 2010, is still unobservable this month (at mid-month, it rises an hour before the Sun – big deal).
PLUTO, in Serpens until August,

rises at mid-month at 01:25, PST. As usual, it's a 0.1 disk at magnitude 13.8. Let's go after it later this spring.

March Equinox occurs on March 19 at 22:39, PST.

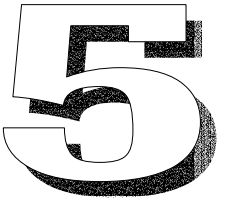
CONSTELLATIONS to look for in March (at 9:00 PM, PST) are Pyxis, Puppis, Western Hydra, Cancer and Lynx.

Pyxis ("the compass on the Argonaut's ship") is visible on the extreme south at 9:30 PM on the 15th. It's just at the edge of the Milky Way but contains little of interest (no open clusters, etc.). It does have the recurrent nova T Pyx. According to Burnham's Celestial Handbook, it's normally an object of magnitude 14, but in 1890, 1902, 1920, 1944, and 1966, it brightened suddenly to around 7th magnitude dimming only slowly back to its original level. By the above sequence, it's overdue!! Maybe it'll brighten when *you're* watching.

Puppis "the stern on the Argonaut's ship" is just to the northwest of Pyxis. Straddling the Milky Way, it contains numerous goodies including open clusters M46, M47, M93, NGC 2477 and others.

Hydra "the Sea Serpent" extends all the way up to declination +5°. The western part contains M48, another fine open cluster. It also contains R Hydrae, a fine Mira star discovered in 1704. Miras are red giants that pulsate over long periods (around a year or more) expanding, cooling, contracting and becoming hotter. Because of the radiation laws, the star in its hotter (surface) state emits a much larger fraction of its light in the visible range (the rest is in the infrared) and so is brighter by hundreds of times (in addition to emitting more power overall). This translates into a magnitude range of many magnitudes. In the case of R Hya, it rises from a relatively faint 10.9 mag (just visible in binoculars) to a whopping 3.5 mag. It is also peculiar in that the period appears to be shortening, from 500 days in the early 1700s to around 390 days today. The explanation for this shortening is apparently unknown. It's a little hard to see from PG at -23 deg, but worth a try.

Cancer "the Crab" is more familiar to us northerners, lying as it does between Gemini and Leo. It contains the famous "Praesepe" or "beehive" Cluster, M44. This fine open cluster is one of the largest, brightest and nearest such clusters and is visible to the naked eye. Another famous cluster in Cancer is M67, a rich cluster containing some 500 stars and lying at a distance of 2500 light years (767 pc). M67 is one of the oldest "Galactic"or open clusters known, at 10 billion years old. Cancer also contains Zeta Cancri, a fine triple system. The inner, or AB pair, are separated by 1 to 1.5" (and therefore are pretty well impossible for us to split) revolve with at a period of 59.6 years. The outer star, C is about 6" away and revolves about the inner pair with a period of 1150 years! The elements of the outer orbit are uncertain (no kidding!).



Lynx ("the Lynx" -- gee!) lies to the north of Cancer, out of the Milky Way and contains only NGC 2419, the famous "Intergalactic Wanderer", the most distant of the globular clusters. It was discovered in 1788 by William Herschel (and rediscovered by his son John in 1833), observed by Lord Rosse in 1861, and finally classified as a globular in 1922 when photos were taken by the 42" reflector at Lowell Observatory. The distance was determined by observing 31 RR Lyrae stars in the cluster; it's some 182,000 light years (55,800 pc) from us (and 210,000 light years = 64,400 pc) from the galactic centre.

Clear skies,
-Bob

Executive Meeting Summary for 2004/02/11

Treasurer's Report

Club Account		Gaming Account	
Total Income	$2158.37	Total Income	$261.02
Total Expenses	$2472.06	Total Expenses	$1956.31
Total Income/Expenses	($313.69)	Total Income/Expenses	($1695.29)
Total Net Worth	$2476.70	Total Net Worth	$2866.70

General Business

-Gil and Bob will spearhead a corporate fund raising drive. A progress report will be presented at the next executive meeting.

A workshop to build 8 sound deadening ceiling panels will be scheduled soon. Wayne will check out a possible workshop in which to do the project and is to report his findings at the next General Meeting.

-The club will participate in the Spring Recreation Market on March 6th and 7th at Pine Centre. Set up is on Friday evening, March 5th.

Volunteers to man the booth are requested.

-Motion: To pay for Evan, the website host's, club membership. Carried

-Calendar sales have been a disappointment. The remaining calendars will be offered for sale at $10 each.

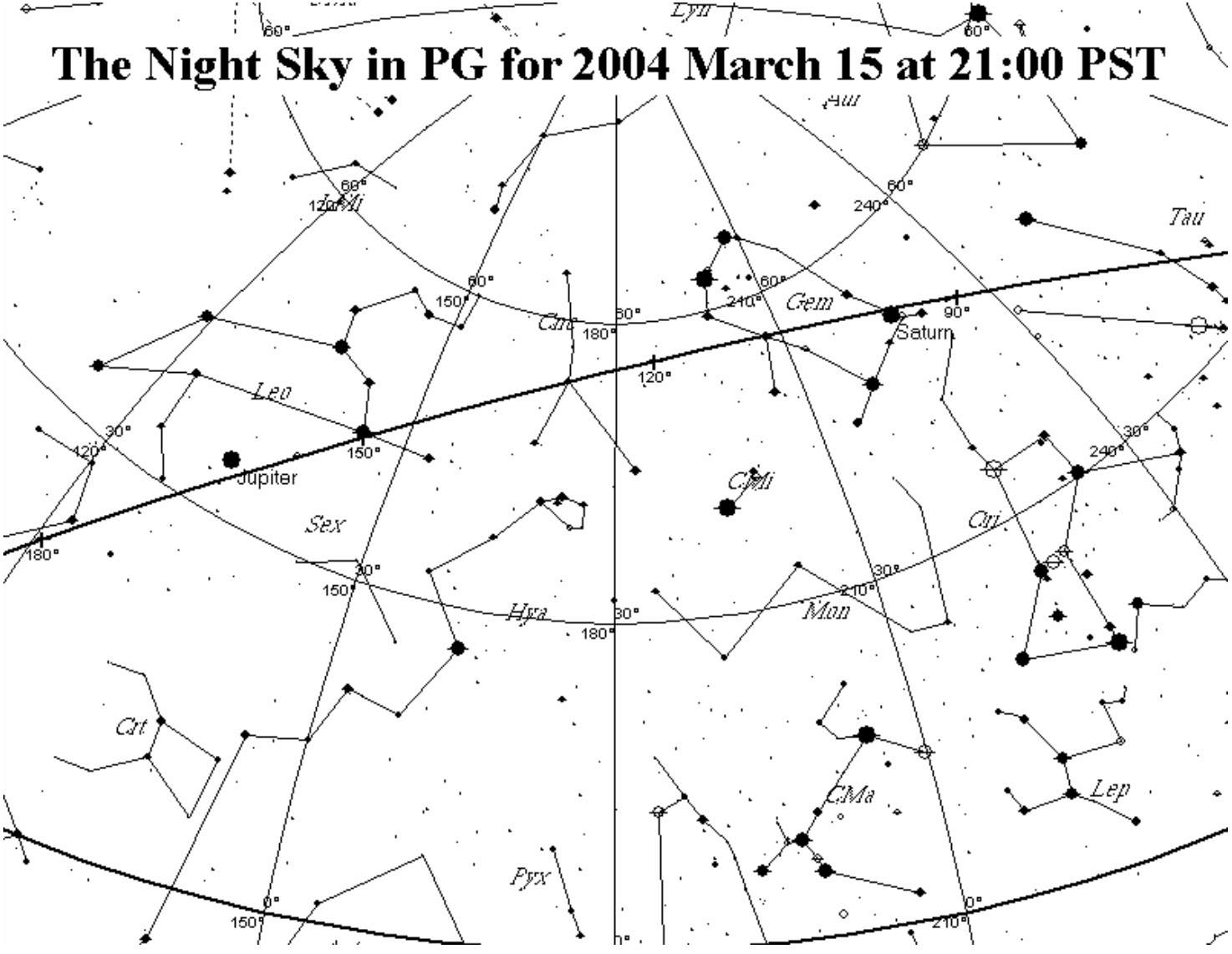
-The RASC president, Rajiv Gupta, would like to visit the Prince George Centre sometime between April 16th and the 21st.

Once Rajiv's itinerary is firmed up, sometime in the next week, billeting or accommodation arrangements will be made.

Gil will ask his daughter Aimee to investigate the possibility of using a UNBC lecture hall for Rajiv's presentation.

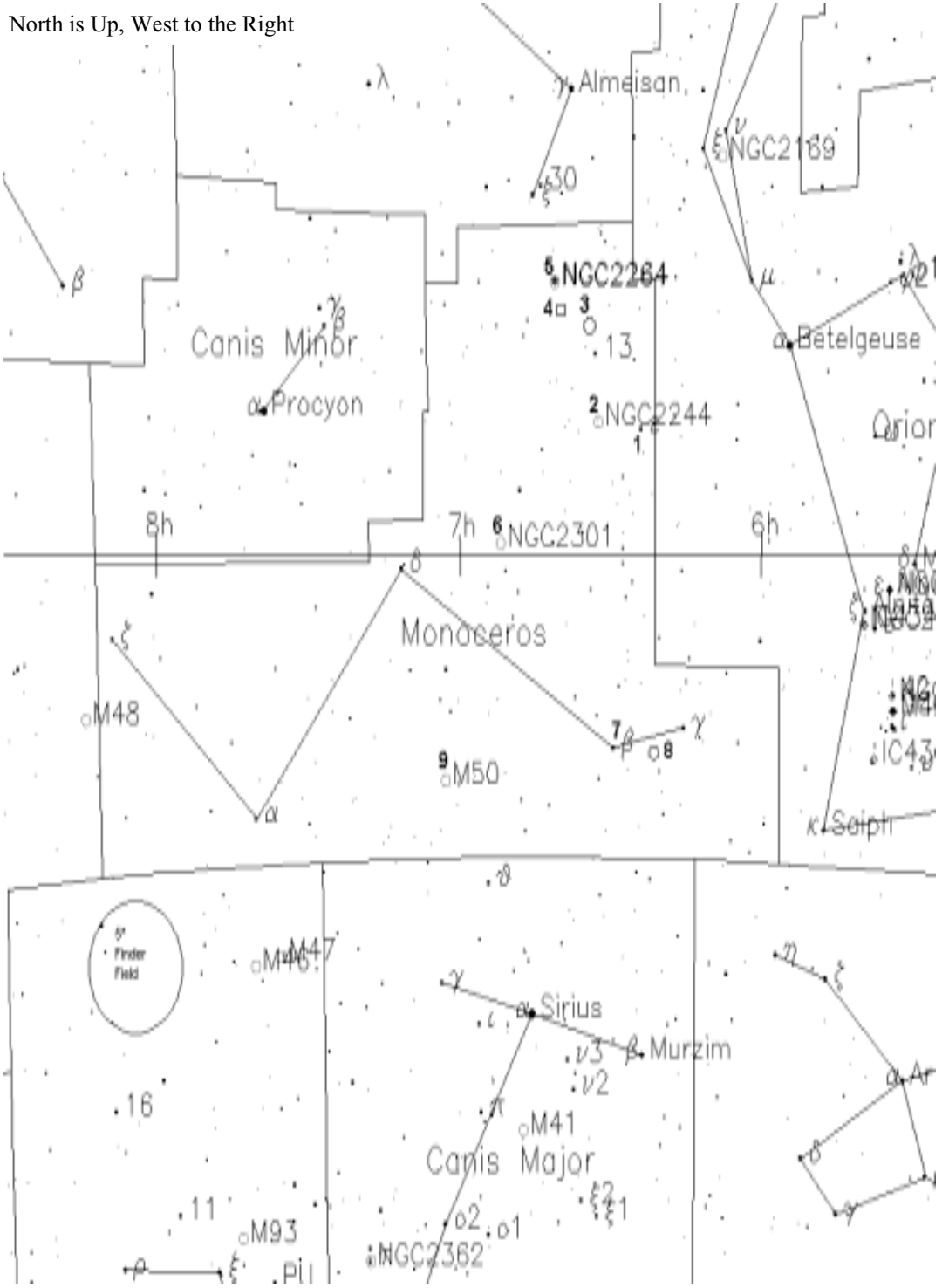
Hi Folks,
I would like to share some photos that I took recently. On January 15, I was at the observatory by myself, except for a visiting moose. It kind of spooked me at first as I could hear it, but couldn't see it. Finally I could make out the silhouette of the big animal. It wasn't scared of me at all, even with my radio playing. It was close enough for me to get this flash photo with my 50 ml lens. I then took several astro photos with my 35 ml camera and 200 ml f4 lens piggy backed on my LX10 scope. I manually guided the shots. They were on Kmax 800 film and were exposed from 10 to 30 minutes.
Clear skies,
Doug

The Night Sky in PG for 2004 March 15 at 21:00 PST



Sky Map courtesy Dr Bob Nelson

North is Up, West to the Right



The Rosette photo was taken Jan 19 Doug Wayland

The first comet photo of C/2002 T7 was taken that night and the second on January 19th. Both photos are of the same field, showing the comet travel over 4 days Doug Wayland

January 15 , 04

January 19 ,04

An Observing Philosophy

by Alan Whitman

A few years ago a member of my centre who had recently finished both the Messier list and the Finest NGC Objects list asked me for observing suggestions because he was starting to feel that he had "been there, done that". This was my response:

I always have an observing hitlist going. Some are challenge objects, which for my 16-inch mostly means 14th to 15th magnitude galaxies. Try dense clusters like the Coma Cluster when you get a chance through a big scope
-- you can see little galaxies orbiting close to one of the giant cD cannibal galaxies at the centre of the cluster -- the little guys are about to become lunch! My list includes some faint Terzan globular clusters that I haven't yet seen and some supernova remnants that are probably invisible (but you don't know until you try). The Deep-Sky Challenge Objects list in the Observer's Handbook is fun to dip into when you have a night of both excellent transparency and good to very good seeing. A few of these challenge objects are even visible in binoculars or a 4-inch RFT -- sky conditions are the most important factor.

But many objects on my observing list are Messiers (10) and Finest NGCs that I "saw" decades ago. They are still on my list because, in all of these years, I have never observed the object on a rare perfect night so have not yet seen the details that others have reported on a superb dark night when the seeing is sub-arcsecond. The Ring Nebula is no longer on my list because I have seen the central star and the broad parallel banding in the gauzy nebulosity inside the ring shown on big scope images of M57. If you haven't seen these details, perhaps you shouldn't be crossing off M57 just yet? Have you seen the two "eyes" in the Owl Nebula? If not, you have only located M97, but you certainly haven't seen this planetary nebula as it can be seen. Seek details that your first scope or first views never showed you. Resolve globulars, tease out low-contrast spiral arms and HII regions in Messier galaxies. There are always more challenges!

The observing articles in Sky&Telescope magazine have guided me on many pleasant nights under the stars for over forty years and there are always enticing articles from previous years that I haven't yet had a chance to follow.

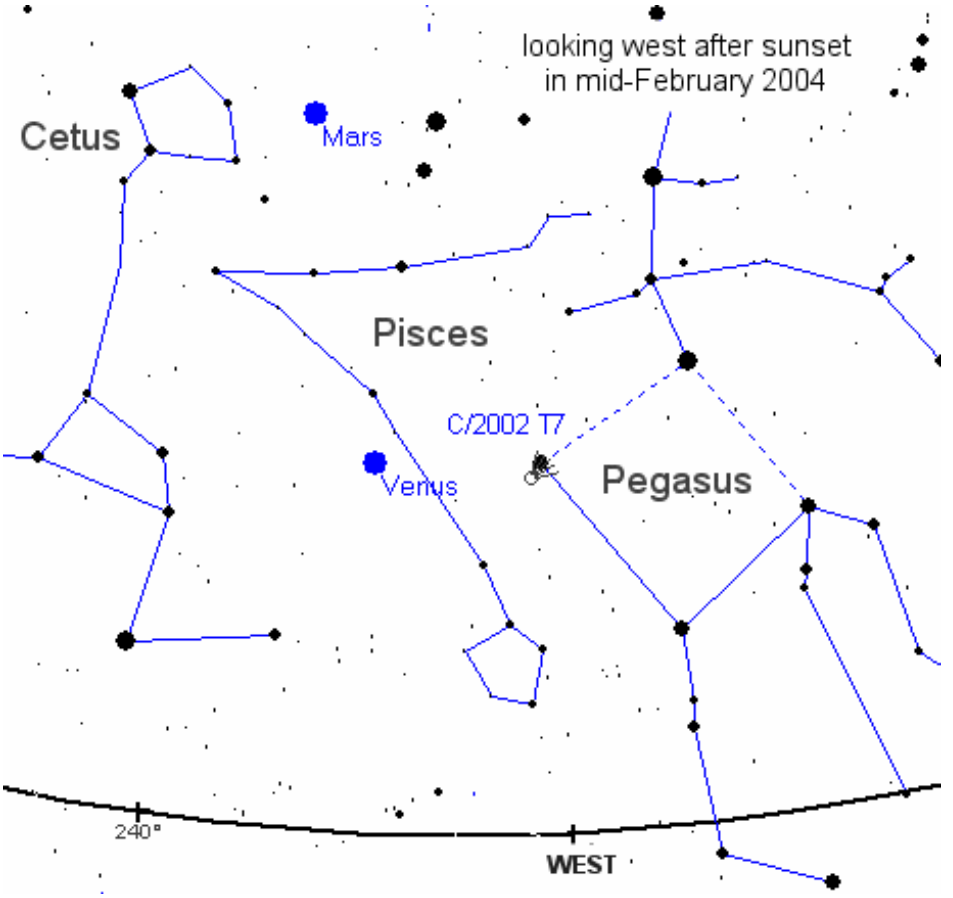
And the centre member who asked me what was left to observe? He has become one of the finest and most active deep-sky observers in Canada. He writes deep-sky observing articles for the RASC JOURNAL and several of his sketches have been published in Sky&Telescope. And his observing list is longer than it ever was.

Spaceweather News for Feb. 15, 2004

http://spaceweather.com

Comet C/2002 T7 (LINEAR) is approaching Earth and brightening every day. It's not yet a naked-eye object, but the 7th-magnitude fuzzball is easy to see through backyard telescopes. The comet lies not far from brilliant Venus in the western sky after sunset.

For the next three months, the comet will continue to brighten as it nears Earth. May 19th is the date of closest approach (0.27 AU). At that time C/2002 T7 might glow brighter than a 1st magnitude star--easily seen with the unaided eye. (Note: there is considerable uncertainty about how bright this object will become.) In May you'll have to be in the southern hemisphere to see it easily. Now is the best time for northern hemisphere observers to look, before the comet plunges south.



,

March Star Hop in Monoceros

By Doug Wayland

Map Courtesy Your Sky
(Page 15)
web: www.fourmilab.ch/yoursky/

Just look for the small bold numbers on the map and match them to the corresponding numbers in the text. It is very important that you know the directions in your eyepiece. You can do this by nudging your scope in a known direction while looking in the eyepiece, note which part of the field the stars are appearing, that is the direction in which you were pushing the scope. You may have to do this for both finder and telescope.

Monoceros has some very interesting nebula, star clusters and multiple stars, but its stars are rather dim compared to a lot of other constellations, so finding your position can be tricky.

1) To find the first easy target, start at the grouping of stars that form Orions head, go ESE to Betelgeuse and continue along that line about the same distance until you come to a fairly bright star. That is **Epsilon Monocerotis.** The book says it is a pair of pale yellow stars, but in the eyepiece I thought the primary was bright yellow and the secondary a little dimmer blue. At 57x they formed a nice tight pair, mag 4.5 and 6.5 separated by 13.4" at a position angle of 27 degrees.

2) On a dark transparent night, you may be able to pick out a small glow with the naked eye about 2 degrees East of Epsilon Mon. In a finder scope it is easy to see in the field with Epsilon Mon. This is open cluster **NGC 2244.** It is a beautiful large bright cluster with several wide doubles in a crooked N-S line.
This cluster shines in the center of the **Rosette Nebula.** If you have a UHC or OIII filter, you can make out the dim glow of the nebula, especially just N of the star cluster. A low power wide field view is best for this.
In a recent photo I took, the Rosette stood out as a very nice red color around the cluster. 2244 and the Rosette are about 5,000 ly away**.**

3) Now look about 4 degrees NE of Epsilon Mon to mag 4 star 13 Monocerotis. Our next target is open cluster **NGC 2251,** just a little over one degree NNE of 13 Mon. At 57x this is a striking, fairly bright and large cluster that appeared like a cascading river tumbling from NW to SE. There are lots of other stars around the cluster as well. 2251 is about 300 million years old and about 5000 ly away.

4) To find our next target you can stay at the eyepiece and shift a little over one degree NE from 2251 and you should see a small comet like glow come into view. This is **NGC 2261 or Hubbles Variable Nebula,** it is a tight V shape pointing south. It is just SW of a dim star and another slightly brighter star is a bit further SSE. The nebula is an emission and relection type. It varies because of its association with variable star R Monocerotis and as R Mon varies so does the relected light of 2261. You can boost the power up to over 100x on this object to see a little more detail. 2261 is about 3 ly long by 1.5 ly wide and about 3000 ly away from us.

5) Go back to a low power eyepiece and shift the view about one degree NNE and you will come upon a very large, bright, triangular shaped cluster. This is **NGC 2264 or the Christmas Tree Cluster**. The brighter stars of the cluster outline the shape of a Christmas tree with the brightest star being the base or trunk. 2264 is about a half a degree in size so is easily visible in binoculars or a finder scope. The top of the tree is pointing south and will appear upside down in binos and mirror image telescopes and right

(Continued on page 14)

side up in an inverting telescope. The Cone nebula is a dark nebula situated at the top of the tree, but doesn't show up except as possibly a star poor area fanning out to the south from the tip star. NGC 2264 spans about 20 ly and is about 3000 ly away.

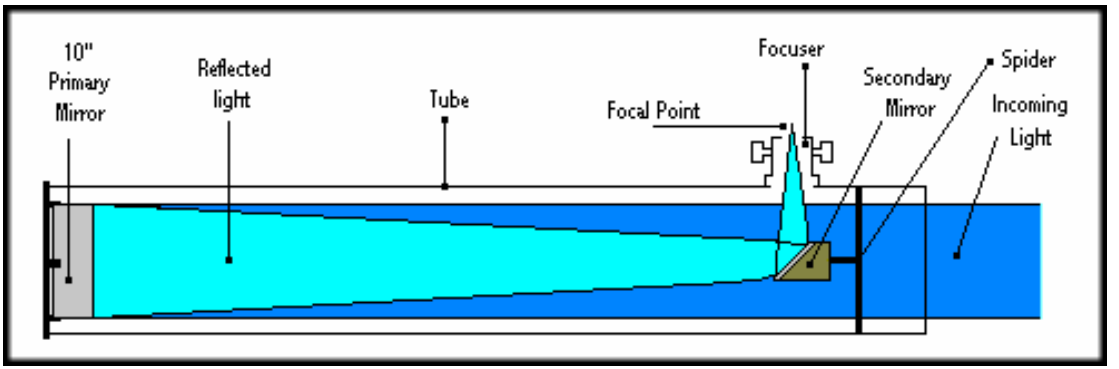
6) Next if you pan your finder about 5 degrees W of Delta Monocerotis, you should recognize the lopsided house pattern of stars that appear on the map just N of the 'er' in Monoceros. Shift your finder about one degree NNE of the top of the house and you should see a bright patch. Now look in your low power eyepice (I used 57x), you should see a very striking cluster, **NGC 2301**. It is fairly large with a bright core and a couple of crooked strings of stars coming off the SE side. I thought it looked like a squashed Dandy Long legs with a couple twisted legs sticking out from the body. NGC 2301 is about 110 million years and 2500 ly away.

7) Now if you look just NE of a line between Orions belt stars and Sirius, you should see the two stars Gamma and **Beta Monocerotis**. Center your finder on Beta and in your low power eyepiece you will see a nice close bright double. Increase your power up to about 150x and one of the stars splits again revealing a nice bright triple. All are a blue white color and the system is 700 ly away.

8) Now because you are in the neighborhood, look just south of halfway on a line between Beta and Gamma Mon to pick out a rather dim, but obvious cluster. You will see another bright star (7 Monocerotis) about 3/4 degree SSW, this confirms you are in the right area. There is nothing striking about this cluster, but since you were nearly there anyway, what the hey. It might be tough in small scopes. NGC 2215 is 350 million years old and 3300 ly away.

9) On to our last but not least target, open cluster **M50**. If you can pick out Beta and Alpha Monocerotis, look exactly 1/2 way on a line between the two. This cluster will show in your finder. If you have a hard time seeing Alpha and Beta Mon, another way to find M50 is to pan around at about 1/3 of the way on a line from Sirius to Procyon. M50 is large and bright and a grand sight in a low power eyepiece. According to my reference book, there is a red star near the southern edge and a pretty little equilateral triangle just north of it. This open cluster is about 13 ly wide, 78 million years old and about 3000 ly away.

Enjoy the tour
Doug Wayland e-mail: djwayland@hotmail.com



Hope the Season Finds all in Good Health and Spirits.

The first meteor shower of the year has come and gone with a good many not having seen it again this year.

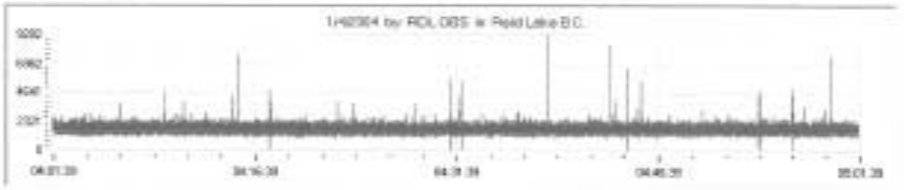
Cold temperature coupled with the moon light made visual seeing tough.

The moon was about 75% full last night and local temperature -32 degrees .

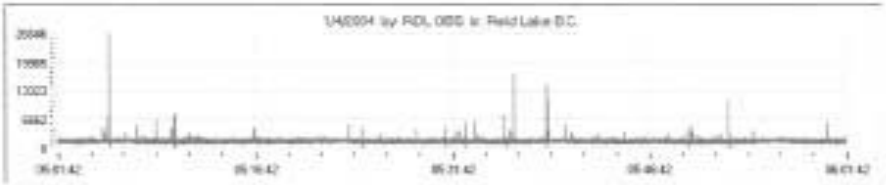
It's presents was recorded electronically here at the observatory RDL-OBS or in other words from my home.

First a short course on electronic counting of the meteors.

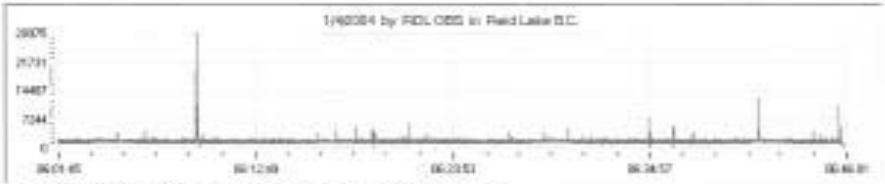
As a meteor enter the earths atmosphere it leaves a ionized trail, a radio station that is over the horizon and normally not heard is monitored. When the ionized trail and the radio station signals have the correct angles Between them they are reflected back down to earth several hundred miles further than they are normally heard. This signal enhancement has a very distinct pattern , It appears rapidly, very short duration and abruptly disappears. There are other phenomena of signal enhancement but none have the meteor abruptness.



The count on this chart was 168 meteors per hour. This is two hours before the predicted max.



This chart is for one hour before the predicted peak its count was 165 per hour



This chart is a bit shorter, time frame is 45 minutes, count is – 136 per hour. The shortness of the chart is do to some equipment problems that were not found until 16.32.06 UTC where it count had gone back to a normal 75-80 per hour.

Offset is 2524 for the count any value above this is considered a meteor trail.

I concluded that the local peak of the shower occurred 1 to 1.5 hours be for the predicted peak . This may be caused by earth's motion being retrograde to the radiant at – 10 pm Jan. 3 2004 local time.

Questions, contact me at wsanders@telus.net

Submitted

Wayne Sanders