



January 2004 Newsletter of the Omaha Astronomical Society Issue 193

**What is the picture below?**



See page 4

General Meeting of the  
Omaha Astronomical Society  
Friday, January, 9th at 7:30 PM  
Durham Science Center, Room 169  
UNO Campus

Program: See Page 3

## Events

**JANUARY CLUB STAR PARTY**  
17th of January  
at Platte River State Park

**MAHONEY PUBLIC STAR PARTIES**

Done for 2003

**PLANNING MEETING FOR 2004  
NEBRASKA STAR PARTY**

8 January , 7:30 pm  
Mahoney State Park Lodge  
Join us and do your part to help plan NSP 10!

**NEALE WOODS NATURE CENTER PROGRAMS**

Phone number: (402) 453 - 5615

Friday Jan 23 Telescope Tips 7-8:30 pm

Friday Feb 6 Orion Abounds 7-8:30 pm

OAS members are encouraged to help out with these events.

STELLA is a publication of The Omaha Astronomical Society. Please send related correspondence to: STELLA, c/o Omaha Astronomical Society, P O Box 540424, Omaha, NE



# **BULLETINS**

## **January Meeting**

How to make Solar Filters with Baader  
Astro Filter Film lead by Deb Cheney

## **Good January Dates to Observe Somewhere**

Friday & Saturday 16 & 17 Jan 2004  
Just prior to new moon

Friday & Saturday 23 & 24 Jan 2004  
Just after to new moon

## **Upcoming Events**

February Meeting Open  
Discussion for people with new  
items to ask questions.

Close Grouping of 3 of  
Jupiter's Moons 22 Feb, 2004

# JANUARY ASTRONOMY QUIZ

Answer to front page question.

1. Kembles Cascade.

January Quiz.

1. What happened 3 January 1818, that will happen again 22 November 2065?
2. Who created Lacerta the Lizard?
3. What is the 13th brightest star ?
4. What is special about the star R Corona Borealis?
5. What is the second smallest of the 88 constellations?
6. Who first observed M25?
7. What are NGC 869 & 884 better know as?
8. What lies 9.03 AU's from the sun?
9. Is Rasalmothallah a single star, and in what constellation is it located?
10. What is the picture below?



2004: Welcome to the Year of Mars, Saturn, and Titan  
Harlan Seyfer

As I am writing this (New Year's Day) there still has been no word from the European Space Agency's Beagle-2 lander on Mars. However the European Space Agency (ESA) Mars Express orbiter is healthy as are Spirit and Opportunity, NASA's Mars Exploration Rovers. For the latest news you may want to visit the websites devoted to each mission.

The Beagle-2 home page is

<http://www.beagle2.com/index.htm>

The Mars Express home page is

[http://www.esa.int/SPECIALS/Mars\\_Express/index.html](http://www.esa.int/SPECIALS/Mars_Express/index.html)

The Mars Exploration Rover home page is

<http://marsrovers.jpl.nasa.gov/home/index.html>

Then there's Saturn. On New Year's Eve, that planet and the Earth passed by each other. Technically this occurs near opposition, when a planet is opposite the sun in the sky. In other words the sun, Earth, and Saturn form a straight line when viewed from north (or south) of the solar system. (Interestingly enough, because planet orbits are not exactly circular, opposition and closest approach occur at different times, although close.) Around that time Saturn had an angular diameter of 20.6 arc-minutes at its equator. Not quite as big as Mars was last August at 25.1 arc-minutes. But, since the ratio of the planet to outer edge of the A ring diameter is about 1:2.7, the angular size of the rings is around 55.6 arc-minutes — an easier view than Mars ever was, even in small scopes.

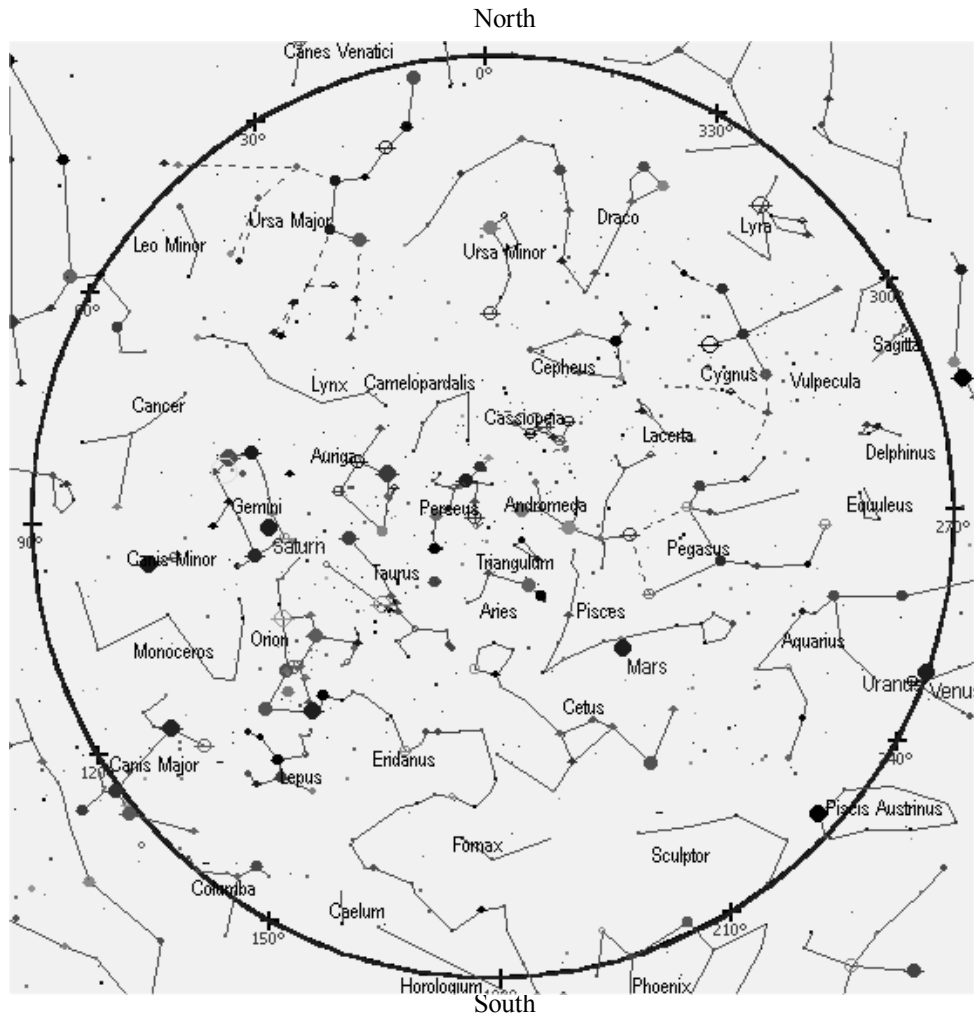
Like many amateur astronomers, I can still remember my first view of the ringed planet through my first telescope, a two inch refractor. I was 12 and had bought the scope with paper route money. My buddy and I were camped out in my backyard. And we were impressed! Since then I have shown Saturn to many other people. It never fails to have an impact. Usually I hear something along the lines of "By golly, you really can see the rings!" No doubt you have had a similar experience when you showed this solar system masterpiece to someone.

By the way, that first telescope had 30X magnification. It doesn't take much power for Saturn to wow.

Last spring Saturn's rings were at their maximum tilt of 27 degrees. So this month we arguably have the best view of Saturn for the next 15 years. Because the planet has an orbital period of 29.4577 Earth years, it'll be half-Saturn year before the rings are similarly opened to us again.

Continued on page 8

# The January Sky



This map reflects the Northern Hemisphere sky at the following times:

Early January	9 pm
Late January	8 pm
Early February	7 pm

## January Sky Calendar

7th Full Moon  
14th Last Quarter  
21st New Moon  
29th First Quarter Moon

### Recent Observing Awards

No new awards this month

Visit the club web site at: **[www.OmahaAstro.com](http://www.OmahaAstro.com)**

Save the club money... and get your newsletter in full color by signing up for the email edition of the Stella. Signing up is easy... just go to:

**[Http://www.omahaastro.com/DigitalStella](http://www.omahaastro.com/DigitalStella)**

### Welcome New Members...

Leon Fair of Omaha  
Charles & Rita Livengood of Omaha  
David Pares of Omaha  
John Pass of Omaha

Then we'll be looking down on the north side, since we are now seeing them from the south.

Here is a trivia question for you: Usually there is an opposition of Saturn every year, however . . . What is the next year in which there will be no opposition of Saturn? The big clue of course is that opposition just occurred on December 31. So if you were to say 2004, you'd be correct. Give yourself a star (sticky type) and a pat on the back. Opposition happens about 13 days later each year, hence 2004 is one of those rare years in which there is no Saturn opposition. Saturn's next opposition is January 13, 2005.

At last count, Saturn had 31 moons. The largest, Titan is easily visible in any telescope. At west and east maximum elongation that moon appears as an 8.4 magnitude object orbiting approximately five ring diameters from the planet. Saturn's other visible moons are Rhea (magnitude 9.7), Tethys (10.3), Dione (10.4), and Enceladus (11.8). Spotting all but Titan is a challenge worth taking on. Look for the satellites at elongation, the farthest point they reach in their orbits around Saturn. *Sky and Telescope* each month publishes a corkscrew chart showing the position of the five visible satellites.

The Cassini Mission is due to arrive at Saturn on July 1 this year. It's a joint endeavor of NASA, the European Space Agency, and Agenzia Spaziale Italiana, the Italian space agency. According to the NASA website (<http://saturn.jpl.nasa.gov/index.cfm>), on November 6, 2004, Cassini will release the European-built Huygens probe toward Titan. On November 27, the 2.7-meter-diameter (8.9-foot) Huygens will enter Titan's atmosphere, deploy its parachutes and begin its scientific observations during a descent of up to two and a half hours through that moon's dense atmosphere.

Quoting from the NASA press kit: Instruments onboard will measure the temperature, pressure, density and energy balance in the atmosphere. As the probe breaks through the cloud deck, a camera will capture pictures of the Titan panorama. Titan's surface properties will be observed, and about 1,000 images of the clouds and surface will be returned. In the final moments of descent, a spotlight will illuminate the surface for the imaging instrument onboard.

If the probe survives landing at a fairly low speed of about 25 kilometers per hour (15 miles per hour), it can possibly return data from Titan's surface, where the atmospheric pressure is 1.6 times that on Earth. The probe could touch down on solid ground, ice or even splash down in a lake of ethane or methane. One instrument on board will discern whether Huygens is bobbing in liquid, and other instruments on board would tell the chemical composition of that liquid. Throughout its mission, Huygens will radio data collected by its instruments to the Cassini orbiter to be stored and then relayed to Earth.

If it lands in liquid ethane, Huygens will not be able to return data for long

because the extremely low temperature of this liquid (about –180 degrees Celsius (–290 degrees Fahrenheit)) would prevent the batteries from operating. In addition, if liquid ethane permeated the probe science instrument packages, the radio would be badly tuned and probably not be operable. If the battery-powered probe continues to send data to Cassini from Titan’s surface, it will be able to do so for only about 30 minutes, when the probe’s battery power is expected to run out (end of quote from NASA press kit).

With NASA’s Mars Odyssey in orbit since October 2001, ESA’s Mars Express now in orbit, the two Mars Exploration Rovers Spirit and Opportunity, and — with luck — the Beagle-2 lander in addition to the Cassini-Huygens Saturn mission, 2004 promises to be a landmark year in planetary exploration.

Keep looking up.

## Take Care when Observing in Cold Weather

When winter arrives in the Midwest it is rarely subtle. Suddenly, sometimes overnight, we have to deal with snow on the ground, below-zero wind-chill, and yet we still want to observe.

Here are some rules to follow.

- 1- Wear warm boots. If your feet get cold your observing session will be short.
- 2- Wear a hat. Most of the heat in your body escapes through the top of your head. Cover your head and retain body heat.
- 3- Keep your hands warm. Mittens are better than gloves, but they are awkward to use when observing. If you wear gloves, keep your hands in your pockets as much as you can and out of the wind.

**IMPORTANT:** Frostbite can be very painful, if any part of you

gets cold and hurts, get out of the cold, NOW.

4- Get out of the wind. Put a building or a hedge or an observatory between you and the wind and you will be able to endure the cold longer.

5- Don't breathe on optics. Breathing on cold glass means instant frost. If you wear a scarf over your face, be sure not to exhale onto the eyepiece. Try to set up your finder so you are not breathing on the eyepiece when looking through the finder.

6- If you have dew heaters, use them right from the start of your session. They are much better at preventing frosted corrector plates, secondaries, eyepieces and finders than they are at removing frost.

7- Keep your pen warm or the ink will freeze.

8- Use a plastic flashlight. If you are like most of my friends who read charts and log observations by flashlight, you put the flashlight in your mouth to write. A very cold metal flashlight can be hard to remove from your lip without losing a bit of flesh.

9- Take breaks every hour or half hour, depending on the weather, and go warm up. Keep an extra pair of dry socks, extra gloves or mittens, and a hat warming on the dash of your car. de!

10- Be aware of battery life in cold temperatures. The batteries in your flashlight, telescope, camera, dew heaters, etc., will perform poorly in cold temperatures. Keep warm extras handy.

11- Keep your own personal battery charged. Plenty of rest, a good meal, snacks and hot coffee go a long way towards warding off the inevitable freeze. A thermos that keeps coffee hot in sub-zero temperatures is a great help.

12- Know your limits. You have to be realistic about how much cold, discomfort or pain you can endure in order to get those last few observations. Don't wait until it's too late and then decide to

“The heavens are immense in comparison with the Earth.”  
— Nicolaus Copernicus  
Polish astronomer (1473-1543)

### Volunteers from December Meeting



“We had the sky, up there, all speckled with stars, and we used to lay on our backs and look up at them, and discuss about whether they was made, or only just happened.

— Mark Twain  
American writer (1835-1910)  
*Huckleberry Finn*



## Club Officers .....

**President:** Al Dorn 291-5595

*all@ditol.com*

**Vice President:** Deb Cheney 296-4733

*cdcheney@jagwireless.net*

**Treasurer:** Bill Bond 491-4135

*bill.bond1@cox.net*

**Secretary:** Eric Balcom 491-3502

*eric.balcom@cna.com*

**Program Chair:** Mark Weiss 291-5322

*mweiss4@cox.net*

**Youth Chair:** John Johnson 333-5460

*jwjohnson@oppd.com*

**Stella Editor:** Mark Weiss 291-5322

*Stella@OmahaAstro.com*

## BENEFITS OF MEMBERSHIP

- ◆ Members receive the STELLA, our monthly newsletter.
- ◆ Each member is automatically a member of the Astronomical League, the only nation-wide organization for amateur astronomers.
- ◆ Use of the observing site at Weeping Water, NE
- ◆ The opportunity to borrow one of several club-owned telescopes.
- ◆ Organized trips to local observatories, planetariums and museums.
- ◆ Significant savings on subscriptions to **Sky & Telescope** and **Astronomy** magazines.
- ◆ Savings on astronomy books and printed materials.

## ANNUAL MEMBERSHIP DUES

Regular/Family  
\$25.00

Junior/Student  
\$10.00

Newsletter Only  
\$10.00

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