

*Web Page of the Month*



Mars....for kids!

[http://marsprogram.jpl.nasa.gov/funzone\\_flash.html](http://marsprogram.jpl.nasa.gov/funzone_flash.html)

# Skynews



January 2004



Number 250

<http://victoria.rasc.ca/>

*This Month*

**Members' Night**

**Astro Imaging**

We'll enjoy a movie of the 2003 Lunar Eclipse and then several members will talk about how they image astronomical objects.

We're going to show off! Bring slides of the pictures you took of Mars, the Lunar Eclipse, or other sky images. Be prepared to brag and tell us how you bagged your image.

*Cover—Moon Halo*

This is the first time I've captured this often-observed phenomena, when ice crystals act like jewels in the atmosphere, creating a halo around a bright, near full phase Moon. Due to the identical interfacial angles of the ice crystals, the halos (lunar or solar) all have a radius of 22° or 44° edge-to-edge in the photo.

This photo was taken at 12:32 pm PST on January 5, 2004 on an especially cold January night for Victoria. The temperature was -5°C (23°F). Saturn is visible at the 10 o'clock position, Capella at 2 o'clock, Betelgeuse at 8:30, and Aldebaran at 6 o'clock—all inside the ring. The three Orion belt stars are just visible outside the ring at the 7:30 position - to the right of the trees. Below the Moon is an aberration caused by internal reflections of the camera lens caused by the overexposed Moon.

For more info, please browse Joe's astrophoto web page:

<http://joecarr.ca/astro/astrophoto.htm>

*Joe's just too modest—Spaceweather.com featured this picture January 9.*

*Contact Us On-Line*

**Web Site:** <http://victoria.rasc.ca>

**Victoria Council members:**

[president@victoria.rasc.ca](mailto:president@victoria.rasc.ca)

[vp@victoria.rasc.ca](mailto:vp@victoria.rasc.ca)

[treasurer@victoria.rasc.ca](mailto:treasurer@victoria.rasc.ca)

[secretary@victoria.rasc.ca](mailto:secretary@victoria.rasc.ca)

[librarian@victoria.rasc.ca](mailto:librarian@victoria.rasc.ca)

[nationalrep@victoria.rasc.ca](mailto:nationalrep@victoria.rasc.ca)

[newmembers@victoria.rasc.ca](mailto:newmembers@victoria.rasc.ca)

[web@victoria.rasc.ca](mailto:web@victoria.rasc.ca)

**General Enquiries:**

[info@victoria.rasc.ca](mailto:info@victoria.rasc.ca)

RASC Victoria Council

This Month

President: Chris Gainor  
1490 Thurlow Road  
Victoria, BC V8S 1L9  
380-6358  
[cgainor@islandnet.com](mailto:cgainor@islandnet.com)

Vice President: Bruno Quenneville  
477-2257  
[brunoq@shaw.ca](mailto:brunoq@shaw.ca)

Treasurer: Laura Roche  
8581 Sentinel Place  
Sidney, BC V8L 4Z8  
656-2396  
[lroche@shaw.ca](mailto:lroche@shaw.ca)

Secretary and Recorder:  
Li-Anne Dorrance  
[lidorrance@aol.com](mailto:lidorrance@aol.com)

Honourary President:  
George Ball

Librarian & Telescopes:  
Sid Sidhu  
[J.S.\\_Sidhu@telus.net](mailto:J.S._Sidhu@telus.net)  
Past President and  
National Representative:  
David Lee  
479-5187

[David\\_Lee@telus.net](mailto:David_Lee@telus.net)  
Skynews Editor: Sandy Barta  
Website Editor: Joe Carr  
Email list: Joe Carr  
[web@victoria.rasc.ca](mailto:web@victoria.rasc.ca)

Members at Large:  
Bill Almond, Jim Hesser,  
Ed Maxfield, Frank Ogonoski,  
Blair Pellatt, Colin Scarfe,  
Rich Willis

New Members Liason:  
Sandy Barta

On  
**CLEAR**  
Fridays

*Astronomy Cafe*

At Sandy Barta's, 2949 Michelson Road,  
Sooke, BC  
Call 642-0205 for more information or  
directions.  
And you **WILL** need directions!  
Newcomers are most welcome.  
Come and enjoy!

**Note:**

**The Café will no longer  
be every Friday night.**



*Please:*

**Call or check our website to find out  
if it's likely to be clear.**

Jan  
23

*New Observer's Group*

**At Sid Sidhu's:**

1642 Davies Road (off Millstream Lake  
Road) at 8:00 PM.  
Call 391-0540 for more information or  
directions

Feb  
11

*February Meeting*

7:30 pm  
Uvic, Elliott 060

Jan  
21

*Back by Popular Demand*

**Every 3<sup>rd</sup> Wednesday**

**Astro Imaging at**

**Bill Almond's**

354 Benhomer Drive  
478-6718

**Yes, We post important,  
timely, member-related  
news to our email list.**

Online information about the RASCVic  
and Skynews email lists:

<http://victoria.rasc.ca/>  
click on: 'Members Only'

*Council Meeting*

**January 28 2004**

Our next Council meeting will take place Wednesday January 28 at 7:30 p.m. in the Astronomy Lounge at Uvic.

Everyone is welcome.

*Address Change? Information Incorrect?*

Telephone: (416) 924-7973 (toll-free at (888) 924-RASC in Canada)

Fax: (416) 924-2911

E-Mail: <mailto:mempub@rasc.ca> Website: [www.rasc.ca](http://www.rasc.ca)

Postal Mail: RASC, 136 Dupont Street, Toronto, ON M5R 1V2, Canada

General enquiries: [nationaloffice@rasc.ca](mailto:nationaloffice@rasc.ca)

**Island Eyepiece and Telescope**



PO Box 133, 647 Hunter PI  
Mill Bay, BC Canada V0R 2P0  
250-743-6633

Email: [sales@islandeyepiece.com](mailto:sales@islandeyepiece.com)

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*President's Message*

Although the Great Galactic Ghoul gobbled up the Nozomi spacecraft that was supposed to carry an atmosphere experiment from Canada into orbit around Mars last month, 2003 had some good news for Canadian space science.

Canada launched its first scientific satellites into space since the end of the Alouette-ISIS program in 1971. One of them was SCISAT, a spacecraft that will probe the depletion of ozone in Earth's atmosphere.

At the end of June, a Russian rocket launched MOST (Microvariability & Oscillations of STars), Canada's own Humble Space Telescope. It weighs only 60 kg and looks like a suitcase, but MOST is a big step forward for Canadian astronomy.

MOST's space telescope will probe planets orbiting other stars and help scientists decide on the size of the universe. I look forward to hearing about MOST's findings in the coming months.

NASA announced this year that it will launch a spacecraft named Phoenix in 2007 that will land on Mars with a battery of experiments, including a weather station that will be built in Canada with the support of the Canadian Space Agency.

On a less positive note, the federal cabinet turned down the CSA's plans to equip a 2009 NASA Mars lander with a Canadian robot arm and experiments package. And NASA's plans to launch Canadian astronauts Steve MacLean and Dave Williams into space in 2003 were indefinitely postponed after the loss of the shuttle Columbia on February 1.

Back on Earth, Canadian astronomers and technicians were hard at work advancing science, as the Herzberg Institute of Astrophysics' new director, Dr. Greg Fahlman, reported to us at our banquet in November.

People like Dr. J. J. Kavelaars, who spoke to our 2002 banquet, are finding new moons around the gas giant planets in our solar system.

The Altair adaptive optics system, built at the DAO, is at work in the Gemini North Telescope delivering clear images of distant objects in the universe. MegaPrime, the world's largest digital camera, built in part at the DAO, is now in use at the Canada-France-Hawaii Telescope.

These Canadian instruments and scientists will have some great photos and greater discoveries for us in the years to come.

*Chris Gainor*

The deadline for the next issue of *Skynews* is

**January 25 2004**

Get your *Skynews* early and in colour. Tell Lauri, our Treasurer, that you get *Skynews* on line and we won't mail you a copy.

*General Meeting Minutes*

**December 11, 2003, 7:35 pm at UVic**

The Regular Monthly Meeting of the Victoria Centre of the Royal Astronomical Society of Canada, which took place at the University of Victoria, commenced at 7:35 p.m. with President Chris Gainor presiding. 36 people attended.

**Welcome:** Chris Gainor welcomed everyone.

Chris spoke of the recent news of lost contact with the Japanese Nozomi Mars Probe.

Chris thanked tonight's speaker, Matteo Monelli, for stepping in on short notice to take the guest spot originally set aside for Earnie Pfannenschmidt who passed away on November 17, 2003.

Chris announced there is an obituary for Anne Underhill in this month's RASC Journal.

**Treasurers Report:** Lauri Roche reported the new bank balance as of Nov. 30, \$4997.37. Petty cash and the Gaming Account the total is \$9485.30. Lauri mentioned there were a record 57 people who attended the banquet, and there are a few items outstanding before she can report on the financial results. Lauri read the cards sent from Pauline Rafferty, CEO of the Royal BC Museum Corporation, and Betty Kennedy, President of the Friends of the Royal BC Museum, and she read the letter from Linda Isitt, Director of Operations of the Friends of the Royal BC Museum, thanking the RASC Victoria for the donation of \$500 in support of Astronomy day at the Museum. Lauri reminded members she has forms to renew Sky and Telescope Magazine at a reduced rate. Lauri asked if everyone has now received the November mailing from National. Lauri mentioned she could order more calendars if there was interest.

**New Members:** There was one visitor to the meeting and he was welcomed by Chris and was asked to join the group for coffee on the 4th floor where he could find information about joining the RASC Victoria from Sandy Barta the New Members Liaison.

**Library and Telescopes:** Sid Sidhu informed members that the library would be open after the meeting. He asked that members return overdue books and asked that borrowers call him before they are due to renew, to avoid being charged a fine. Fines will go towards purchasing new books. Sid displayed four new additions to the library.

Donated by Jan James:

**Observing Handbook and Catalogue of Deep Sky Objects** by Christian B Luginbuhl and Brian A. Skiff

**The Dobsonian Telescope. A Guide for Building Large Aperture Telescopes** by David Kriege and Richard Berry

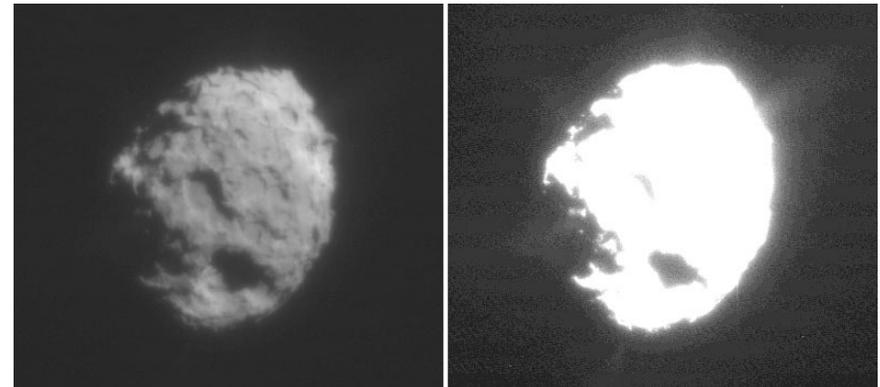
*Continued on page 4*

*Stardust*

**NASA Stardust Spacecraft Survives Close Encounter with Comet Wild 2**

Friday, January 02, 2004

Comet Wild 2 is shown in this image taken by the Stardust navigation camera during the spacecraft's closest approach to the comet on January 2. The image was taken within a distance of 500 kilometers of the comet's nucleus with a 10-millisecond exposure.



Team Stardust, NASA's first dedicated sample return mission to a comet, passed a huge milestone today by successfully navigating through the particle and gas-laden coma around comet Wild 2 (pronounced "Vilt-2"). During the hazardous traverse, the spacecraft flew within 240 kilometers of the comet, catching samples of comet particles and scoring detailed pictures of Wild 2's pockmarked surface.

The collected particles, stowed in a sample return capsule onboard Stardust, will be returned to Earth for in-depth analysis. That dramatic event will occur on January 15, 2006, when the capsule makes a soft landing at the U.S. Air Force Utah Test and Training Range. The microscopic particle samples of comet and interstellar dust collected by Stardust will be taken to the planetary material curatorial facility at NASA's Johnson Space Center, Houston, Texas, for analysis. Scientists believe in-depth terrestrial analysis of the samples will reveal much about comets and the earliest history of the solar system. Chemical and physical information locked within the cometary particles could be the record of the formation of the planets and the materials from which they were made.

More information on the Stardust mission is available at

<http://stardust.jpl.nasa.gov>

*Source: Jet Propulsion Laboratory*

*Centre of the Universe Continued*

the Sun is not circular; instead, we travel in an ellipse, or oval path, causing the earth to be at different distances from the sun throughout the year. Many people believe that it is our distance from the sun that causes our seasons. This is incorrect as we are the closest to the sun during winter in the Northern Hemisphere. It is the tilt of the Earth and the amount of sunlight that hits us that causes our seasons.

**Mars**, the red planet, is back in the news this January with the arrival of several space craft. Last month on Christmas Day, the Beagle 2, a lander from the European Space Agency landed, or possibly crashed, on the surface of Mars. Its main mission is to search for the evidence of Martian life, past or present! Currently, the ESA is searching for a signal from the Beagle, but most people have lost hope that one will be found. This month, the two Mars Exploration Rovers sent by NASA will be arriving on Mars. "Spirit" landed January 3rd and "Opportunity" will land January 24th. The primary mission of the rovers is to study the geology on Mars and look for evidence of liquid water. "Spirit" has already sent back some amazing photos from Mars! For more information on the Mars Exploration rovers, visit <http://marsrovers.jpl.nasa.gov/home/index.html>

For more information on the Beagle 2, visit <http://beagle2.open.ac.uk/index.htm>

**Winter constellations** are still beautiful over the skies of Victoria! Head outside at 8 pm to view the following constellations. Look to the West to find the "great square" of Pegasus above the horizon which looks more like a diamond this time of year than a square. To the North you will see the big dipper standing on its handle just off to the Northeast. To the East, look for two bright stars perpendicular to the horizon. These are Castor and Pollux, the head of the Gemini, the twins. Above these two stars, you will find a very bright star twinkling in our skies. This star is called Capella which is part of the constellation Auriga, the charioteer. This star is quite bright and often mistaken for a planet or aircraft. Orion, the hunter, can be seen just above the Southeast horizon. His hourglass shape is one of the most recognizable constellations in the night skies. Look down towards the horizon from Orion to find a bright star. This is Sirius, part of the constellation Canis Major. Sirius is the brightest star in our skies.

Many planets are visible this January. The "evening star" Venus is the brightest planet seen in our skies. Look to the West after sunset to see the very bright Venus shining above the horizon! Mars still glows orange high in the Southwest. Look for Saturn near the heads of the Gemini, Castor and Pollux. Saturn will be the yellow "star" completing a triangle with Castor and Pollux. Jupiter is rising in the East just past 10:30 pm this month. You will see the yellow planet just off the horizon.

*Cassie Holcomb, Interpreter Centre of the Universe*

*General Meeting Minutes Continued*

Other books:

**Skyways Astronomy Handbook for Teachers** by Mary Lou Whitehome  
The New Cosmology by Harold W.G Allen

Sid mentioned that due to the bad weather in December there were no calls for the school telescope program.

Sid mentioned there are many telescopes available for members to borrow right now.

**Other News:** Chris informed the members of the changes in the executive. Rich Willis will remain on Council, Li-Ann Dorrance is Secretary and Recorder, and Bruno Quenneville is Vice-President.

**Guest Speaker:** Bruno Quenneville introduced the guest speaker.

Matteo Monelli spoke about many of Italy's telescopes and the research they carry out as well as his own research on Globular Clusters and Dwarf Galaxies. He suggested a visit to some websites.

[www.mporzio.astro.it](http://www.mporzio.astro.it)  
[www.eso.org/outreach](http://www.eso.org/outreach)  
[www.uai.it](http://www.uai.it)  
[www.ctio.noao.edu](http://www.ctio.noao.edu)  
[www.stsci.edu](http://www.stsci.edu)

The meeting adjourned at 9:50pm

*Li-Ann Dorrance, Secretary / Recorder*

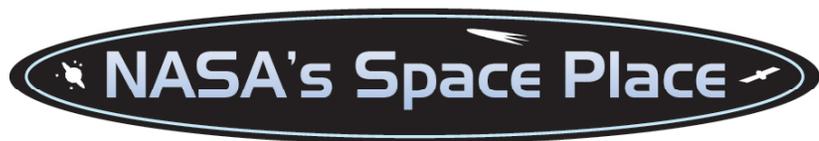
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*Request*

As I slowly chew my way through the Centre's history based on old local records and the RASC's Annual Reports, there's a puzzling discrepancy...as most of you already know, what's missing are photographs. There are almost none at all, which makes me wonder whether anyone in the Victoria Centre even owned a camera for 50 or 60 years! I checked out the library at the DAO but, naturally, their pictures are mostly professional ones made at the time the Plaskett scope was built and a succession of their top brasses. Sid says there are no photos in his files. Fortunately, our more recent history is well documented, which brings me to the point: It would be great if **any** Centre pictures in your possession could be given or emailed to me for perusal and possible use. Content info with dates, places and names is very important, if it's available, as is other Centre memorabilia concerning special events, etc.

*Bill Almond*

*The Space Place*



### **So Little Time, So Many Galaxies**

Fourteen billion years ago, just after the Big Bang, the universe was an expanding fireball, white hot and nearly uniform. All of space was filled with elementary particles and radiation. "Soupy" is how some cosmologists describe it.

Today the universe is completely different. It's still expanding-even accelerating-but there the resemblance ends. The universe we live in now is "lumpy." Great cold voids are sprinkled with glowing galaxies. In galaxies, there are stars. Around stars, there are planets. On one planet, at least, there is life.

How we got from there to here is a mystery.

Finding out is the goal the Galaxy Evolution Explorer, "GALEX" for short, a small NASA spacecraft launched into Earth orbit April 28, 2003. GALEX carries an ultraviolet (UV) telescope for studying galaxies as far away as 10 billion light-years.

"GALEX is a time machine," says astronomer Peter Friedman of Caltech. Because light takes time to travel from place to place, pictures of distant galaxies reveal them as they were in the past. "GALEX is investigating the evolution of galaxies over 80% of the history of our universe."

The Hubble Space Telescope can see faraway galaxies, too, but GALEX has an advantage: While Hubble looks in great detail at very small regions of the sky, GALEX is surveying the entire sky, cataloging millions of galaxies during its 2-year mission.

GALEX is a UV mission for a reason. Friedman explains: "UV radiation is a telltale sign of star birth." Stars are born when knots of gas condense in interstellar clouds. The ones we see best are the big ones-massive stars that burn hot and emit lots of UV radiation. "These stars are short-lived, so they trace recent star formation."

Understanding star formation is crucial to studies of galaxy evolution. When galaxies collide, star formation surges. When galaxies run out of interstellar gas, star formation wanes. In galaxies like the Milky Way, spiral arms are outlined by

*Continued on page 6*

*Report from the Centre of the Universe*

I hope you all enjoyed a wonderful holiday season with friends and family and maybe a little astronomy! Here at the Centre of the Universe, we are gearing back up for school programs and courses! We are still open daily from 10 am to 5:30 pm Tuesday through Saturday. Join us for safe solar viewing on sunny days and some small telescope observation once it is dark on clear evenings. For an up to date schedule on programs and events, please visit:

[http://www.hia-ihc.nrc-cnrc.gc.ca/cu/events\\_e.html](http://www.hia-ihc.nrc-cnrc.gc.ca/cu/events_e.html)

**We are pleased to offer our Winter Skies Course**, a nine-hour introduction to the winter constellations and our solar system. Taught by astronomer Margaret Milne, we will introduce you to astronomy, with emphasis on the constellations, planets and deep sky objects visible in the winter season. Designed to be both recreational and educational, courses will include multimedia instruction, guest speakers, and telescope observation. Winter Skies will run three consecutive Monday evenings in February 16, 23 and March 1 from 7 to 10 pm. The cost is 89\$ plus GST (79\$ plus GST for seasons pass holders). To sign up, please call the centre at 363.8262 or email me back. For more information, please visit: [http://www.hia-ihc.nrc-cnrc.gc.ca/cu/astr\\_e.html](http://www.hia-ihc.nrc-cnrc.gc.ca/cu/astr_e.html)

The Centre of the Universe was part of a project called "**Cosmic Quest**" developed by the Virtual Museum of Canada. This online exhibit highlights many aspects of astronomy from the basics of our solar system to the astronomers working in observatories around the world. To check out the "Cosmic Quest" exhibit, please visit:

[http://www.virtualmuseum.ca/Exhibitions/Cosmos/index\\_en.html](http://www.virtualmuseum.ca/Exhibitions/Cosmos/index_en.html)

### **The Sky This Month: January 2004**

January 1	New Year's Day
January 3	Mars Exploration Rover "Spirit" lands on Mars
January 4	Earth at Perihelion
January 7	Full Moon
January 14	Last Quarter Moon
January 21	New Moon
January 24	Mars Exploration Rover "Opportunity" lands on Mars
January 29	First Quarter Moon
All times and dates local to Victoria, BC. Canada.	

Happy New Year! The Red Planet will be back in the spotlight this January with the arrival of several space crafts as the Earth makes it closest approach to the sun!

January 4th marks this year's perihelion for the Earth, or the day that the Earth is the closest to the Sun, 147.1 million kilometres. The orbit of the Earth around

*Continued on page 11*

*Osoyoos Aurora*

Season Greetings from Osoyoos!

We thought you'd like this aurora picture that Jean took at the end of October. I hope you can see the weird "pillars" coming out of the clouds at the bottom of the photo.

*Cheers, H el ene*



And check this out!

Steve Barnes passed this URL to the National RASC email list:

<http://www.belplasca.de/Aurora201103/html/7487-7519g.html>

It's an amazing video clip of aurora moving across the sky.

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*Congratulations*

Guy's truss Dob is featured in February's Sky & Telescope magazine!

*The Space Place Continued*

star-forming clouds. The shapes of galaxies, their history and fate =8A they're all connected by star formation.

Even life hinges on star formation, because stars make heavy elements for planets and organic molecules.

"Our measurements of UV radiation will tell us both the rate at which stars are forming in galaxies and the distances of the galaxies," says Friedman.

How did we get here? GALEX will show the way.

Find out more about GALEX at [www.galex.caltech.edu](http://www.galex.caltech.edu). For children, visit The Space Place at [spaceplace.nasa.gov/galex\\_make1.htm](http://spaceplace.nasa.gov/galex_make1.htm) and make a beautiful galactic mobile while learning about some of the different shapes galaxies can take.



This image of Messier 101 (M101), aka the "Pinwheel Galaxy," was taken in two orbits of GALEX on June 20, 2003. M101 is 20 million light years away

*Dr. Tony Phillips*

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

*The Night Sky*

**January 11 to January 17**

Gear up for a spring of planets. Mars might be fading but we've got lots more to enjoy and a LOT more to look forward to. I'll give you a hint—May evenings will be the time to enjoy our view overlooking the solar system's plane.

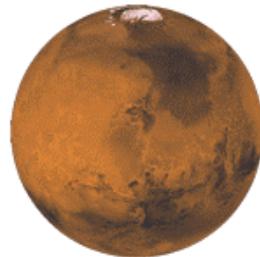
Saturn serenely presents its open rings for us to enjoy. Those two bright stars nearby are Castor and Pollox. Saturn's light takes just over an hour to reach us; the light from Castor and Pollox takes 45 years and 34 years respectively. Saturn isn't too far away from the part of the sky where Pluto was discovered in 1930 and where Uranus was discovered in 1781

Mercury is now high in the sky in the early morning. Get out of bed and add this quicksilver planet to your list of has-seens.

AND, you couldn't possibly miss Jupiter in the morning sky! Hog-tie your busy moments and take the time to watch Jupiter's moons playfully bounce around the stately planet.

**January 18 to January 24**

Mars might be fading, but it's an outstanding object in a dimly lit part of the sky. You don't need a telescope to take part in planetary observing. Take a piece of paper and pencil out and sketch the stars nearby. Mark Mar's location. Keep doing this every clear night and you'll trace the planet's path from Pisces to Aries and then on below the Pleiades. By May, Mars is on Taurus' turf. Try comparing Mar's glow to the brighter stars nearby and see if you can guesstimate his brilliance. Now you are an astronomer!



Now that you're feeling smug about finding Mercury, have a look on the 19<sup>th</sup> when the crescent Moon hovers nearby.

**January 25 to January 31**

The Moon and Venus make a pretty pair in the evening sky on the 24<sup>th</sup>. Enjoy. If you have a telescope, try to pick out Venus' changing crescent shape. Now try animating Venus by sketching her changing shape over the next couple of months. She truly is a living goddess.

The Moon snuggles close to Mars on the 27<sup>th</sup>. The Moon is ½ degree across. Can you estimate the angular distance between the Moon and Mars? Don't cheat.

*Continued on page 8*

*The Night Sky Continued*

**February 1 to February 7**

Get out and take a look at Saturn high in the sky with the Moon nearby and even higher on the 2<sup>nd</sup>.

Cruise below Saturn and take in the sights in Orion. This constellation hovering in the western evening sky is in the next arm out and we're looking towards our galaxy's suburbs and away from its urban summer crowds. The belt stars lie about 800 to 1300 light years away. Below and beyond, the Orion Nebula (M42) lies 1400 light years away. Compare the brightness of the other four stars that you can easily identify as being part of this constellation. Remember that the further away a star is, the fainter its light will be. But a very luminous star can be further away than a less luminous star yet appear much brighter. Compare Saiph (left knee) at 720 light years away and Rigel (right knee) at 770 light years away—both are about the same distance away. Does their brightness differ? Add Bellatrix (right shoulder) into the mix. Bellatrix is only 245 light years away. Now add Betelgeuse (left shoulder) at 450 light years away. If all the stars were the same distance away, which one would be the faintest?

**February 8 to February 14**

It's nine a.m. on the 8<sup>th</sup>. Can you find the Moon? Can you find Jupiter? Keep your binoculars handy, strain your eyes and see if you can see those pesky moons hovering like flies around Jupiter.

**February 15 to February 21**

Between February 21 and 25, the crescent Moon waxes as it rises out of the sunset murk and soars past Venus and then Mars. Get your sketch pad or camera ready for some nice solar system portraits.

**February 22 to February 28**

The 23<sup>rd</sup> brings another chance to enjoy Venus and the Moon in Pisces' fishy paradise. I hope you've taken the initiative and have added Venus to your Mars sketch—you're watching Mars trace a path on a track outside of ours and Venus trace a path inside. We're all moving at different rates at different distances from the Sun. Dizzy yet? Add plots of Saturn and Jupiter and maybe Mercury. Could you figure out what's *really* happening or are you like the ancients and perceive yourself as the still one and the other planets as loopy, can't make up their minds, wandering stars? Keep sketching—maybe you'll win the prehistoric Nobel Prize.

Not a prize winner? Well, you can keep trying. But do take a break and check out the Moon and Mars on the 25<sup>th</sup>.