May-June
2009
The International Year
of Astronomy
Volume 57
Issue 3

The Observer

The Newsletter of Central Valley Astronomers of Fresno

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NASA and Microsoft form a partnership

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Astronomical Object of the Month-M17 The Omega Nebula

The Omega Nebula in Sagittarius, also known as the Swan Nebula or the Lobster Nebula, glows in reddish emissions. It is approximately 5,000 ly away, in an area rich in nebulas and clusters. NASA image

The CVA Calendar in a Nutshell

May 2-International Astronomy Day. Star party at RiverPark

May 9-CVA meeting CSUF 7pm EE 191

May 23-Star Party at Hensley Lake

June 6-CVA meeting CSUF 7pm EE 191

June 19-21 Star party at Courtright Reservoir

June 20-Star Party at Hensley Lake

Quote of the Month:

"All the stars that o'vr sprinkle, all the heavens seem to twinkle with a crystalline delight..."

Edgar Alan Poe "The Bells"



Full Moon May 9 | New Moon May 24 | Full Moon June 7 | New Moon June 22

The Observer is the newsletter of Central Valley Astronomers of Fresno
Established 1952

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The President's Message-

Summer is coming, and with it the opportunity for great astronomical adventures. The summer skies are ablaze with hundreds of noteworthy objects in Sagittarius, Scorpio, Cygnus, and many other constellations. Globulars are bursting out everywhere, and galaxies sprinkle the heavens like diamonds. Make sure your telescopes are cleaned polished, and ready to go!

CVA will be hosting several events this summer, starting with International Astronomy Day at RiverPark on May 2. The RiverPark public starwatches have been very successful in the past, and they're sure to be so again this year. Several more PiverPark events are scheduled for June and July; see the calendar and the website for dates and times. In addition, CVA will have starwatches at Hensley Lake, always popular during the warm summer months, and also weekend watches at Courtright, along with the regular monthly meetings. Lots going on.

The U.S. and the world are going through tough economic times right now, but the International Year of Astronomy has excited people throughout the globe. Meeting are being held, more people are looking at the skies than ever, and an interest in astronomy and space sciences is taking place everywhere. As they have for ages, the heavens are once again being seen as a place of hope and wonder. At CVA, we are doing our part, making others more aware of what lies "out there," (as Captain Kirk would say), and the benefits of looking up, rather than down. The real change is in the heavens, and each summer it brings forth a renewed sense of who we are and where our destinies lie. Think about it, and enjoy the stars this summer.

Clear skies....
Steve

A number of CVA members still have not paid their 2009 dues!

Do so with the application at the back of this issue.

Be up to date with CVA- Know what's going on and get involved!

The number of extra-solar planets found, as of April 2009- 346... and counting

How many more are "out there"?

Profiles in Astronomy

William Wallace Campbell 1862-1938



Campbell, who went by his middle name of Wallace, was born and raised in Ohio, and majored in engineering at the University of Michigan. However, he always had an interest in astronomy, and taught astronomy at Michigan from 1888 to 1891. In 1890, he worked as a summer volunteer at Lick Observatory near San Jose, and in 1892 obtained a permanent position there. In 1900, he became the director of the observatory, and held that position until 1930; also, from 1923 to 1930, he was as well President of the University of California at Berkeley.

Campbell contributed to astronomy in many different ways: he did pioneering studies of binary and variable stars, did planetary observations, especially of Mars, designed and built a new type of spectrograph and discovered over 300 spectroscopic binaries with it, and discovered and observed several nebulae. He also did the first serious studies of the radial motion of stars, and studied the motion of the Milky Way galaxy in relation to its stars. His most important finding is considered to have occurred in 1922, when, while studying a solar eclipse, he helped to validate Einstein's theory that light is bent by a star's gravity.

As director of the Lick Observatory, Campbell established an office and telescope in Chile to study the southern stars. He also built Lick into a major world class institution, and was a major player in incorporating it into the University of California system(today, it is run by UC Santa Cruz). For his many achievements, Campbell was awarded the Astronomical Society of the Pacific's Bruce Medal in 1915. He was also President of the ASP for several years, and President of the American Astronomical Society as well.

Sources-
http://www.phys-astro.sonoma.edu/BruceMedalists/Campbell/Index.html

http://www.nndb.com/people/771/000168267/

"Campbell, William W." ed. Patrick Moore. The International Encyclopedia of Astronomy. New York: Orion Books, 1987. P. 87.

Central Valley Astronomers of Fresno, established 1952

Our goals:

- Provide a place for those interested in astronomy to come together to share and enjoy their hobby;
- Share the wonders of astronomy with the public;
- Be a source of astronomy education and information for our schools, the public, and the media.

Our interests:

- To learn about astronomy and related topics;
- To enjoy the night sky with unaided eye, telescope, and binocular;
- To learn from others and share what we know about astronomy with others.

CVA Calendar for May and June 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				April 30 International Astronomy Week Begins	1 May Day Phi Bootid meteor shower	2 International Astronomy Day CVA at RiverPark
3	4 Eta Aquarid meteor shower	5 Cinco de Mayo 48th anniversary of First Am spaceflight -MR3	6	7	8 Anniversary of Victory in Europe Day	9 ○ Full Moon CVA meeting at CSUF 7pm
10 Mother's Day	11	12	13	14	15	16 Armed Forces Day
17	18	19	20	21	22 Riverside Telescope Maker's Conference Begins	23 RTMC CVA star party at Hensley Lake
24 ● RTMC New Moon	25 Memorial Day RTMC	26	27	28	29	30
31	June 1	2	3 Tau Herculid meteor shower	4	5 CVA at RiverPark Scorpid meteor shower	6 CVA meeting at CSUF 7pm 65th anniversary of D-Day
7 ○ Full Moon	8	9	10	11	12	13
14 Flag Day	15	16 Lyrid meteor shower	17	18	19 CVA star party at Courtright	20 CVA star party At Hensley Lake
21 Father's Day Summer Solistice	22 ● New Moon	23 Pluto at opposition	24	25	26	27
28	29	30 Draconid meteor shower	July 1	2	3	4 Independence Day

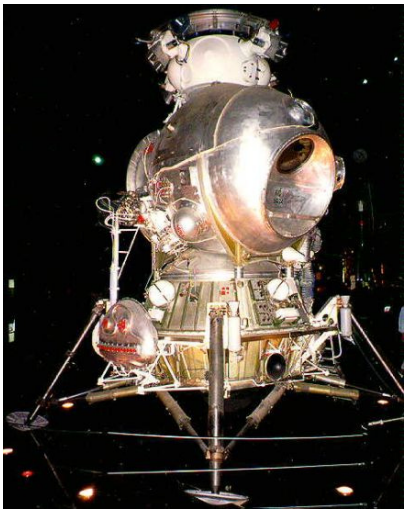
What's New in Space

The Russian Moon Landing Program Part 2-

By the summer of 1967, a group of cosmonauts had been chosen for lunar flyby and landing missions, and were deep into training. At the June 1967 Paris Air Show, cosmonaut Pavel Beleyev told American astronauts Michael Collins and David Scott that cosmonauts were training in helicopters; he also indicated that he expected to make a circumlunar flight within a year. Even in the wake of Soyuz 1, stories were coming out of Moscow during the summer and fall of 1967 that the Russians were preparing for a major space effort that would involve lunar flybys and possible landings. Russian scientists did nothing to dispel these rumors.

The fact is that, even while Soyuz was being redone, the moon program was still alive. Actually it was two completely separate programs. Mischim's OKB-1 bureau was working on three different manned spacecraft. The first was the Soyuz, which would be used for Earth orbit missions. The second was the LOK(Russian for Lunar Orbital Craft), which would be for the lunar landing missions. This was a "heavy" Soyuz, with a highly modified orbital module and a much larger service module that held extra fuel tanks and fuel cells for electrical power. Mischim's bureau was also working on a lunar lander, known as the LK. Although it was the same concept as the American Lunar Module, it was far simpler and cruder; it was basically a Soyuz orbital module on top of two engine modules. The moon landing program was designated L-3. At the same time, General Vladimir Chemoloi's OKB-52 bureau had control of the Zond program, known as L-1. Zond, which was essentially Soyuz without the orbital module, would make manned circumlunar and lunar orbiting flights, but could not be used for the landing missions. This split would lead to bureaucratic fights, lost time, and chaos in planning and carrying out the Moon program.





During 1967 and into 1968, work progressed on two huge launch pads at the Baikonur Cosmodrome in Central Kazakhstan. These were the N-1 pads; they were expected to be operational by the summer of 1968. They were closely observed by American spy satellites, and the information was passed on to NASA head James Webb. As well, work was progressing satisfactorily on the new D-1(known in the West as Proton, it was also built by Chemoloi's bureau) rocket, which was powerful enough to launch Zond spacecraft into circumlunar trajectories. All intelligence information indicated that by the summer of 1968, the Russians were getting ready to make a major move in the race to the Moon.

It came in September 1968 when Zond 5 was launched. It was the first spacecraft to circle the Moon and then return to Earth, making a pinpoint landing in the Indian Ocean. It was unmanned, but carried animals and plants. It also tested communications and life support systems. The success of Zond 5 is believed to have been the impetuous for NASA to change the Apollo 8 mission from an Earth orbit to a lunar orbit flight. It was convinced that a Russian manned lunar flight might soon follow. In fact, veteran cosmonaut Gherman Titov, the pilot of Vostok 2, was at the Mexico City Olympics that month, and while there, he told reporters that the Soviet Union would make a manned circumlunar flight before the end of the year.

On October 25, Soyuz 2 was launched unmanned, and the next day Soyuz 3 with cosmonaut Georgi Beregovoi aboard was launched. He rendezvoused with Soyuz 2, but did not dock with it, as had been expected. Nevertheless, he flight-tested the redesigned craft, and it exceeded all expectations. He landed safely on November 30. Ten days later, Zond 6 was launched. This, too, was a circumlunar flight with animals aboard. It too looped around the moon and made an almost perfect landing near Baikonur. With the success of Zond 6, the Russians began discussing a manned circumlunar flight in early December, before the already announced mission of Apollo 8.

All evidence is that the Russians did, in fact, attempt a manned Zond mission, on December 8, 1968, and that the cosmonaut aboard was reported to be Valeri Bykovsky. According to sources, the countdown proceeded smoothly, then halted about 15 minutes before launch, due an electrical problem in the spacecraft. The launch was postponed for several days, which dragged into weeks, and, after the launch of Apollo 8, was cancelled. When it was finally was launched in January 1969, it was unmanned, and the Proton rocket exploded about a minute after liftoff. If a cosmonaut had been in the spacecraft, he would have been killed.

Apollo 8 was the first of two major shocks for the Russian people. They had been led by their government to believe that the Soviet Union would be the first to the Moon. They knew nothing about the years of bureaucratic infighting, the delays, the many lost opportunities. General Nikoli Kamanin, the supervisor of the cosmonaut corps, wrote in his diary on December 21, 1968, the day Apollo 8 was launched, " For us the holidays are darkened ...with sadness that today the men flying to the Moon are named Borman, Lovell, and Anders, and not Bykovsky, Popovich, or Leonov."

...to be continued

Bolden Leading Candidate to be NASA Head



Since NASA head Michael Griffin's abrupt departure in January, President Obama has not yet named a new chief administrator of the space agency. However, sources say that he will do so soon, and the leading name is that of former astronaut and retired Marine Corps general Charles Bolden. Bolden, a Marine pilot and graduate of the U.S. Naval Academy, was chosen for the astronaut corps in 1980, and flew four Shuttle missions in the 1980s and 90s. Afterwards, he returned to regular military duty, and eventually retired as a major general in 2003. He is still active with the space program as a member of several NASA advisory committees. Bolden is being strongly pushed by Florida Senator William Nelson, the chairman of the Senate space committee, and himself a former astronaut.

Obama's advisors say, that, although the president is preoccupied with the economy and the war on terrorism, he will name a new NASA head soon, perhaps by the end of May. Recently, a group of Congressmen, aerospace industry leaders, former astronauts, and space scientists sent a joint letter to the president, urging him to name a new head as soon as possible, citing the need for strong leadership in NASA as it goes into the post-shuttle era and a possible hiatus in U.S. manned flights for three to four years.

North Korean, Iranian Satellite launches worry the West

Within two months in early 2009, two events in the international space competition have given Western powers cause for alarm. The first was the successful launching by Iran of a satellite into low earth orbit on February 3. Although the Iranians claim that the satellite was for communications purposes, and the launch had only peaceful concerns, American and European rocket experts believe it was also a test of a long range ballistic missile which could carry a nuclear warhead. Iran does have a nuclear program, and, despite Iranian denials, experts are convinced that it is trying to build a nuclear weapon.

On April 5, North Korea attempted the launching of a low earth orbit satellite from a military facility near the capital of . According to western experts, the launch was unsuccessful, with the second stage of the three stage rocket failing to ignite, and the missile and its satellite payload falling into the Pacific Ocean east of Japan. Nevertheless, North Korea hailed it as a great step forward and a success. Again, western experts strongly believe that North Korea, an isolated outlaw Communist nation, is attempting to perfect a long range ballistic missile capable of carrying a nuclear warhead, one that may have the ability to reach the west coast of the U.S. Both countries are being closely watched by the new Obama Administration.

The Sacred Seven Celebrates its Golden anniversary

Among many other anniversaries this year is the 50th of the selection of the first Mercury astronauts, the "Sacred Seven," as they are called. According to stories, only six were to be chosen, but two(it is believed to be Cooper and Grissom) tied in the testing and so both were included. The seven; Scott Carpenter, Gordon Cooper, Virgil "Gus" Grissom, John Glenn, Donald "Deke" Slayton, Wally Schirra, and Alan Shepherd, were officially announced at a press conference at NASA headquarters in Washington, D.C. in April 1959. Six of the seven flew the Mercury spacecraft; three flew aboard Gemini, and two flew on Apollo. Only one, Shepherd, eventually went to the Moon, on Apollo 14. Slayton, who was grounded for several years due to a heart problem, finally went into space with the Apollo-Soyuz Test Project(ASTP) in 1975. Of the seven, only Glenn, now 87, and Carpenter, 84, are still alive today.



Webb Space Telescope Progresses

In April 2009, NASA announced that the first segment of the mirror of the James Webb Telescope had been completed. If it is successfully tested, other segments will be completed in rapid order. The Webb Telescope is the successor to the Hubble Space Telescope, and is now scheduled to be launched in 2013. Its mirror will be made of 18 hexagonal segments and, once completed, will have a diameter of 6.5 meters(almost 22 feet). The telescope will be put into a solar orbit at what is known as the L2 point, a stable area where the Sun and the Earth will be behind it at all times. It will have four infrared imagers which will probe the universe and provide clues to its beginnings.

An Erratic Black Hole Regulates Itself

New results from NASA's Chandra X-ray Observatory have made a major advance in explaining how a special class of black holes may shut off the high-speed jets they produce. These results suggest that these black holes have a mechanism for regulating the rate at which they grow.

Black holes come in many sizes: the supermassive ones, including those in quasars, which weigh in at millions to billions of times the mass of the Sun, and the much smaller stellar-mass black holes which have measured masses in the range of about 7 to 25 times the Sun's mass. Some stellar-mass black holes launch powerful jets of particles and radiation, like seen in quasars, and are called "micro-quasars". The new study looks at a famous micro-quasar in our own Galaxy, and regions close to its event horizon, or point of no return. This system, GRS 1915+105 (GRS 1915 for short), contains a black hole about 14 times the mass of the Sun that is feeding off material from a nearby companion star. As the material swirls toward the black hole, an accretion disk forms.

This system shows remarkably unpredictable and complicated variability ranging from timescales of seconds to months, including 14 different patterns of variation. These variations are caused by a poorly understood connection between the disk and the radio jet seen in GRS 1915. Chandra, with its spectrograph, has observed GRS 1915 eleven times since its launch in 1999. These studies reveal that the jet in GRS 1915 may be periodically choked off when a hot wind, seen in X-rays, is driven off the accretion disk around the black hole. The wind is believed to shut down the jet by depriving it of matter that would have otherwise fueled it. Conversely, once the wind dies down, the jet can re-emerge.

"We think the jet and wind around this black hole are in a sort of tug of war," said Joseph Neilsen, Harvard graduate student and lead author of the paper appearing in the journal Nature. "Sometimes one is winning and then, for reasons we don't entirely understand, the other one gets the upper hand."

The latest Chandra results also show that the wind and the jet carry about the same amount of matter away from the black hole. This is evidence that the black hole is somehow regulating its accretion rate, which may be related to the toggling between mass expulsion via either a jet or a wind from the accretion disk. Self-regulation is a common topic when discussing supermassive black holes, but this is the first clear evidence for it in stellar-mass black holes. "It is exciting that we may be on the track of explaining two mysteries at the same time: how black hole jets can be shut down and also how black holes regulate their growth," said co-author Julia Lee, assistant professor in the Astronomy department at the Harvard-Smithsonian Center for Astrophysics. "Maybe black holes can regulate themselves better than the financial markets!"

Although micro-quasars and quasars differ in mass by factors of millions, they should show a similarity in behavior when their very different physical scales are taken into account. "If quasars and micro-quasars behave very differently, then we have a big problem to figure out why, because gravity treats them the same," said Neilsen. "So, our result is actually very reassuring, because it's one more link between these different types of black holes."

The timescale for changes in behavior of a black hole should vary in proportion to the mass. For example, an hour-long timescale for changes in GRS 1915 would correspond to about 10,000 years for a supermassive black hole that weighs a billion times the mass of the Sun.

"We cannot hope to explore at this level of detail in any single supermassive black hole system," said Lee. "So, we can learn a tremendous amount about black holes by just studying stellar-mass black holes like this one."

It is not known what causes the jet to turn on again once the wind dies down, and this remains one of the major unsolved mysteries in astronomy.

"Every major observatory, ground and space, has been used to study this black hole for the past two decades," said Neilsen. "Although we still don't have all the answers, we think our work is a step in the right direction."

From NASA-http://www.nasa.gov/mission_pages/chandra/news/09-020.html



Right-the microquasar 1915+105, taken by the Chandra X-Ray Telescope

NASA and Microsoft to make a Universe of Data Available to the Public

NASA and Microsoft Corp. announced have announced plans to make planetary images and data available via the Internet under a Space Act Agreement. Through this project, NASA and Microsoft jointly will develop the technology and infrastructure necessary to make the most interesting NASA content -- including high-resolution scientific images and data from Mars and the moon -- explorable on WorldWide Telescope, Microsoft's online virtual telescope for exploring the universe.

This collaboration between Microsoft and NASA will enable people around the world to explore new images of the moon and Mars in a rich, interactive environment through the WorldWide Telescope," said Tony Hey, corporate vice president of Microsoft External Research in Redmond, Wash. "WorldWide Telescope serves as a powerful tool for computer science researchers, educators and students to explore space and experience the excitement of computer science."

Also available will be images from a camera aboard NASA's Lunar Reconnaissance Orbiter, or LRO, when publicly released starting this fall. Scheduled to launch this May, LRO will spend at least a year in a low, polar orbit approximately 30 miles above the lunar surface collecting detailed information about the lunar environment. "NASA is excited to collaborate with Microsoft to share its portfolio of planetary images with students and lifelong learners," said S. Pete Worden, director of Ames. "This is a compelling astronomical resource and will help inspire our next generation of astronomers."

The WorldWide Telescope is a Web 2.0 visualization environment that functions as a virtual telescope, bringing together imagery from ground- and space-based telescopes for a seamless, rich media guided exploration of the universe. Through WorldWide Telescope and Microsoft technology, people will be able to pan and zoom in on these images and the most interesting locations on Mars and the moon without distorted views at the poles. Attracting millions of users since its release last spring, WorldWide Telescope provides a base for teaching astronomy, scientific discovery and computational science. Tours with narration, music, text and graphics create interactive learning experiences that allow people to search, explore and discover the universe in a new and unique manner. Additional information and a free download of WorldWide Telescope can be found at http://www.worldwidetelescope.org

To further integrate the planetary data into WorldWide Telescope, Ames is developing a suite of planetary data processing tools. These software tools convert historic and current space imagery data into a variety of formats and images of the moon, Mars and other planetary bodies readily available for easy browsing and use by the general public, enabling the creation of enhanced educational tools for students and teachers.

"NASA has a wealth of images and data, from the Apollo and Lunar Orbiter missions to Mars Reconnaissance Orbiter and the Mercury Messenger flybys," said Chris C. Kemp, chief information officer at Ames. "This collaboration makes it possible for NASA to leverage exciting new Microsoft technologies to make NASA's data -- and America's space program -- more accessible to the public."

From nasa.org

Central Valley Astronomers Membership Form for 2009

Name_____

Address_____

_____

Phone #_____

E-mail address_____

Send to: Bryon Spicci, CVA Treasurer
30669 Hamilton Drive
Exeter, Ca 93221

Make out check to Central Valley Astronomers, Inc.

Membership Categories

_____ Student $15
_____ Regular $25
_____ Family $30
_____ Supporting $35-49
_____ Sustaining $50-74
_____ Sponsor $75-up

Reduced Rate Magazine subscriptions
_____ For *Astronomy* add $34
_____ For *Sky and Telescope* add $32.95

Astronomical Trivia

Last issue's trivia question-What do Galileo, Newton, and Stephen Hawking have in common, had no winners. What was the answer? Galileo died in 1642. Newton was born on Christmas Day later that year(although some purists say that ,due to the switch from the Julian to the Gregorian calendar, he was actually born on January 3, 1643). Hawking was born in 1942, the 300th anniversary of Galileo's death and Newton's birth.

This issue's trivia question-

Galileo is, of course, known for his many discoveries. What was recently found in his notebooks, that, if he had recognized them, would probably have been his two biggest discoveries of all?

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Deadline for articles submission to July-August 2009 ***Observer*** will be June 5 and the issue will be mailed on June 15

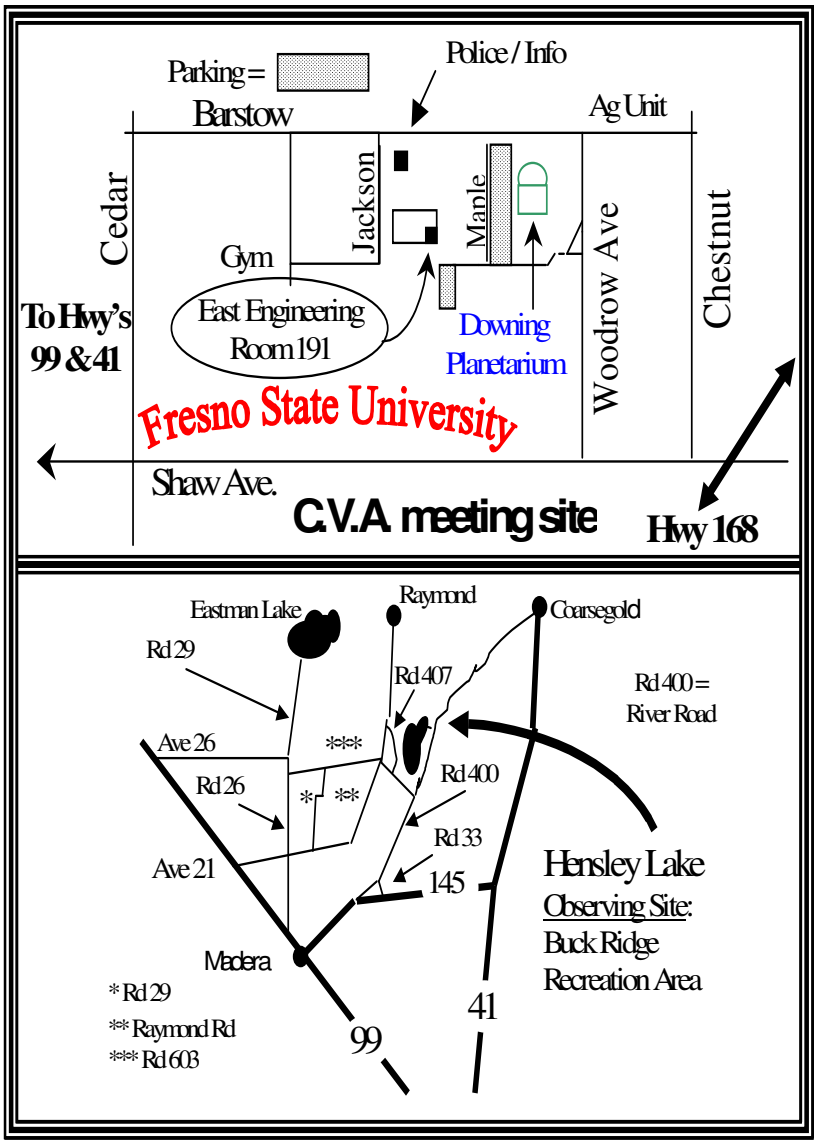
Please submit articles in Microsoft Word format

Astronomical Jokes

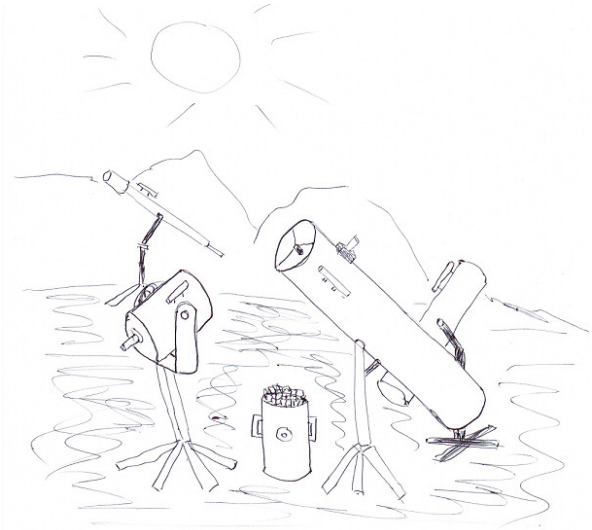
When was Heisenberg born?
It's uncertain

How does the Solar System hold up its pants?
With an asteroid belt

Why did the robot cross the road?
Because he was carbon bonded to the chicken



Telescope Talk by Parmeter



"Over the phone I distinctly heard you say,'bring an ice bucket,' not a light bucket."

Organization

Business Name

Primary Business Address
Your Address Line 2
Your Address Line 3
Your Address Line 4

Phone: 555-555-5555
Fax: 555-555-5555
E-mail: someone@example.com

Your business tag line here.

We're on the Web!
example.com

Back Page Story Headline

This story can fit 175-225 words.

If your newsletter is folded and mailed, this story will appear on the back. So, it's a good idea to make it easy to read at a glance.

A question and answer session is a good way to quickly capture the attention of readers. You can either compile questions that you've received since the last edition or you can summarize some generic questions that are frequently asked about your organization.

A listing of names and titles of managers in your organization is a good way to give your newsletter a personal touch. If your organization is small, you may want to list the names of all employees.

If you have any prices of standard products or services, you can include a listing of those here. You may want to refer your readers to any other forms of communication that you've created for your organization.

You can also use this space to remind readers to mark their calendars for a regular event, such as a breakfast meeting for vendors every third Tuesday of the month, or a biannual charity auction.

If space is available, this is a good place to insert a clip art image or some other graphic.



Caption describing picture or graphic.