July-August
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The Observer

The Newsletter of Central Valley Astronomers of Fresno

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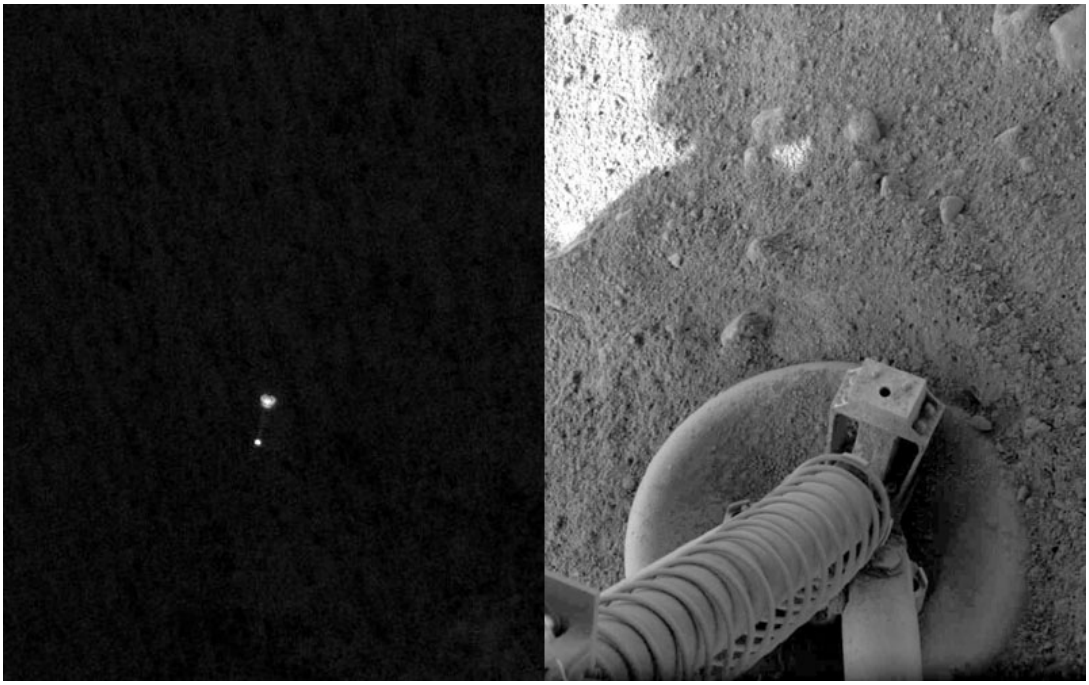
July 12-CVA Meeting CSUF 7AM

July 26-Hensley Lake Star Party

August 2-Hensley Lake Star Party

August 16-CVA Meeting CSUF 7AM

August 23-Hensely Lake Star Party



Mars Phoenix Lands Successfully!

On left, an amazing image of Mar Phoenix, its parachute unfurled, descending to the Martian surface. Taken by the Mars Reconnaissance Orbiter's long range high resolution camera. On right, one of Mars Phoenix's tripod legs on the Martian surface. Phoenix made an almost perfect landing on May 25. More on Phoenix on page 8. Both images from NASA/JPL.

Quote of the Month:

It's a great story, the modern history of the universe, and maybe it's even true. It is probably part of the human condition that cosmologists(or the shamans of any age)always think they are knocking on eternity's door, that the final secret of the universe is in reach. It may be part of the human condition that they are always wrong. Science, inching along by trial and error and by doubt, is a graveyard of final answers. But at least cosmologists are wrong in different ways, like Woody Allen, who describes the effects of increasing fame by saying that he now fails with a better class of woman.

Dennis Overbye, from *Lonely Hearts of the Cosmos*

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The President's Message

We would like to thank Dr. Wil van Breugel for his presentation at the May meeting. His presentation provided us with some of the leading research into cataclysmic destructions and origins of solar systems similar to ours. He has agreed to return next fall for another presentation.

Summertime makes for great observing, especially if you get out before the summer haze and smog hits. June 7th was the Hensley lake Star Party. The weather was picture perfect for astronomy. A light, long sleeve shirt, clear skies, and when the moon went down, dark skies. There were only about 8 of us out there, an unusually small number but we were treated to many wonderful sites. I spent most of my time looking at galaxies and nebulae around Ursa Major and Cassiopeia.

Speaking of Star Parties, you get your choice on June 27th-28th. There are three events, Courtright Reservoir, Glacier Point, and Hensley Lake. I hope that everyone can make it to one of them. If the skies remain haze-free, it will make for great viewing.

This spring it was decided to take our telescopes to at least one public place where a larger number of people would have the opportunity to see the Moon, planets and a few other things through our scopes. It will also promote astronomy and our club. This is similar to San Francisco's Sidewalk Astronomers. I worked with the River Park property management for almost two months ironing out the details. We are set to do three events. June 14th, July 11th or 12th (haven't decided yet) and August 9th. These evening are closest to the first quarter moon. Everyone enjoys looking at the moon and if the planets are out there, they will provide an added bonus. I hope that several of you will join with me as we venture into the masses.

In the world of astronomy many events are happening. We say goodbye to Ulysses, the solar observatory whose mission extended three times longer than the most optimistic astronomer would have imagined. The thousands of observations have increased our knowledge of the sun's atmosphere. We then say hello to Phoenix whose picture perfect hard landing was the first since the Viking missions in 1976. It is already providing astronomers with stunning pictures and is demonstrating its talent of problem solving by trying to put the Martian soil into it's ovens for testing.

Enjoy your summer. I hope to see you at the star parties.

Steve Harness

Profiles in Astronomy

Bengt Stromgren
1908-1987



Stromgren was born and raised in Gothenberg, Denmark. His father was a professor of astronomy at the University of Copenhagen and director of the Copenhagen Observatory. As such, he grew up surrounded by science. He worked with his father at the observatory, met scientific luminaries such as Neils Bohr and Enrico Fermi, and published his first scientific paper at age 14. He graduated from the University of Copenhagen at 19, and two years later earned a doctorate in astrophysics.

For the next 40 years, Stromgern moved between Europe and the United States doing astronomy. In 1936, he went to the University of Chicago to do research under Otto Struve. He returned to Denmark in 1938 to take over his father's position at Copenhagen, and while there during the war years, built and directed a new observatory at Brorfelde. In 1951, however, discouraged at the lack of post war funding for science, he returned to the U.S and became director of the Yerkes and McDonald Observatories. In 1957, he became a professor at the Institute for Advanced Study in Princeton, taking over Einstein's position. In 1967, he returned to Denmark to take over Neils Bohr's position at the University of Copenhagen. It was his last major travel; he would stay at Copenhagen until his death.

Stromgern made a number of major discoveries that increased science's understanding of the heavens. His most famous came in the 1930s when he discovered so-called "Strongren Spheres," shells of ionized gas around very hot stars. On doing so, he found a relationship between the density of the gas and the luminosity of the stars. He also did pioneering work in measuring HII regions of the Milky Way galaxy, and on stellar atmospheres. In addition, he worked on the abundance of elements in the Sun and other stars, and found it to be about 70% hydrogen and 27% helium, along with 3% of other elements. For his stellar and gas studies, Strongren pioneered photoelectric photometry and turned it into a valuable tool for astrophysicists. He won many awards for his work, and at his death, was lauded as one of Denmark's greatest scientists.

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"Gengt Stromgren". Wikipedia. http://en.wikipedia.org/wiki/Bengt_Strongren

"Strongren, Bengt." Patrick Moore(ed). International Encyclopedia of Astronomy. New York:Orion Books, 1987

The Bruce Medalists. The Astronomical Society of the Pacific. http://www. asp.org

Don't Forget!
Glacier Point Weekend June 27-28-29!
Bring your telescope to Glacier Point-Yosemite!

CVA Calendar for July and August 2008

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2 New Moon	3	4 Independence Day	5 Star Party at Hensley Lake
6	7	8	9 Jupiter at Opposition	10	11 Friday night observing at planetarium and Discovery Center	12 CVA meeting-CSUF 7pm
13	14	15	16	17	18 Full Moon	19
20 39th anniversary of first Moon landing-Apollo 11	21	22	23	24	25	26 Star party at Hensley Lake
27 Moon grazes M45	28	29	30	31	August 1 New Moon-Total solar eclipse in Greenland, Russia, China	2 Star party at Hensley Lake
3	4	5	6	7	8 Pioneer 13 -first spacecraft to land on Venus-1978	9
10	11	12 Perseid meteor shower peaks	13	14	15 Neptune at Opposition	16 Partial lunar eclipse Full Moon CVA meeting-CSUF
17	18	19	20	21	22	23 Star party at Hensley Lake
24	25	26	27	28 Moon crosses M44	29	30 New Moon
31						

Ulysses mission coming to a natural end

Ulysses, the mission to study the Sun's poles and how it affects the solar system weather will soon end. Launched from a space shuttle in 1990, more than 17 years ago, its mission was supposed to end around 1995. But again NASA built a space craft better than expected. Ulysses was placed in one of the harshest environments for a space craft. A joint mission between the European Space community and NASA, Ulysses observed the environment above and below the poles. The data collected has forever changed the way scientists look at the Sun and the space around it.

Ulysses is in a six year orbit around the Sun. Its path went around the Sun then out beyond Jupiter then back again. As it approaches Jupiter its temperature drops in the cold reaches of space. When the cold temperatures reach 2°C the space craft's hydrazine fuel will freeze. In the past this has not been a problem because Ulysses carries heaters that maintained a working temperature. The power for the spacecraft uses heat from the decay of a radioactive isotope and over time its power has been decreasing. The spacecraft does not have enough power to run all of its instrumentation, heaters and communications simultaneously

To delay its demise, ESA-NASA decided to temporarily turn off the transmitter to save power and only use it intermittently. Great idea. This would extend the mission even further. Unfortunately after testing the idea, the power supply failed to turn back on. If the power supply cannot be accessed, then the extra power can't be used for the other instruments.

MISSON OBJECTIVES

Investigate the solar wind as a function of solar latitude.
Study the Sun/ Solar wind interface
Study the heliospheric magnetic field
Record solar bursts, plasma waves, solar X-rays, cosmic rays, interstellar and neutral gas and dust
Study Jovian magnetosphere
Detection and triangulation of comic gamma ray bursts.
Search for gravitational waves

NEW OBJECTIVES

Remote and close observations of solar wind fields in combination with other spacecraft and earth observations
Study Coronal Mass ejections (CMEs)
Construct a 3-D solar model

What's New in Space

The Gagarin Stories Part 2



Yuri Gagarin regained active flight status with the cosmonaut corps in late 1965. At that time, the Soviet manned space program was in limbo. The last Soviet manned space mission, Voskhod 2, had taken place in March of that year, and Sergei Korelev, the chief designer, had suspended all future manned spaceflights to work on the Soyuz program. Soyuz was the Soviets' second generation manned spacecraft; it was originally designed to send cosmonauts around the Moon, and onto the Lunar surface itself. When he returned, Gagarin was assigned to be the backup pilot for the first L-1 flight. This would use a modified Soyuz called Zond, which would carry a single cosmonaut into space, loop around the Moon, and return to Earth. The L-3 program, using a "heavy" Soyuz carrying two cosmonauts, would be the Moon landing missions.

For several years, the Soyuz program had been in a tug-of-war between Sergei Korelev and General Vladimir Chelomei. Korelev eventually gained control of the entire program, but it cost him three years of time, and also his health; he died during cancer surgery in January 1966. His assistant, Vassili Mischin, took over the program, and quickly realized that Soyuz was not anywhere near manned flight status. Unmanned test flights showed serious problems with the heat shield, the thruster control systems, and the electrical systems. Nevertheless, by late 1966, Mischin was under heavy pressure from the Soviet political leadership to stage a space spectacular involving two or three manned Soyuzes, to offset the American Gemini program. Mischin insisted that Soyuz would not be ready for manned missions until 1968, but was ordered by the Soviet Politburo to put cosmonauts into space by early 1967. He planned a dual manned Soyuz mission involving rendezvous, docking, and cosmonaut transfer. Veteran cosmonaut Vladimir Komarov, the prime pilot for the L-1 program, agreed to fly one Soyuz(some accounts say that Gagarin was originally assigned to pilot the first Soyuz craft, but Komarov volunteered to take his place, allegedly telling people, "if something goes wrong, the country can afford to lose me, but it can't afford to lose Yuri."). Boris Volynov, Yevegni Khrunov, and Aleski Yeliseyev were chosen for the second spacecraft.

The world now knows of the Soyuz 1 disaster. Komarov was launched on April 23, 1967, and almost immediately things started going wrong. One of the two solar panel wings did not unfold, causing problems with the electrical systems. Also, the reaction and thruster systems malfunctioned; at one point it was reported that Soyuz 1 was tumbling out of control in orbit. The second Soyuz launch was cancelled, and Mischim decided to bring down Soyuz 1 as soon as possible. During reentry, the parachutes failed as well, and the craft crashed into the Russian steppes. Komarov was killed instantly.

The cosmonaut corps was saddened over Komarov's death, and upset that the flight was forced on them for political reasons. Gagarin in particular was incensed; Komarov had been a good friend and a highly respected and skilled pilot. Ironically, Komarov's tragedy may have played a role in Gagarin's own death as well.

Shortly afterwards, Gagarin was once again taken off active flight status. The Soviet leadership felt that, in the wake of Soyuz 1, he was just too valuable to be risked in another spaceflight. Gagarin was furious at this, and made it known to top space and party officials. He started speaking openly about incompetence and politics pervading the Soviet space program, and led a campaign, along with several other cosmonauts, to get Vassili Mischim fired. As well, according to some, he began drinking heavily and womanizing again, and was allegedly involved in a drunk driving accident. Also, according to various Russian sources, at a party in Moscow in June(some say July) 1967, attended by Leonid Brezhnev, he called the Communist Party leader a disgrace to the Soviet Union and unfit to lead the country, for sending Komarov to his death. As a final insult, Gagarin threw his glass of wine in Brezhnev's face and stalked out of the room. Brezhnev reportedly demanded that Gagarin be arrested and sent immediately to the gulags; however, his aides talked him out of it, because of Gagarin's popularity and iconic status.

Gagarin continued trying to regain his cosmonaut flight status and at the same time keep up his piloting proficiency. Since Vostok 1, he had done very little flying. On March 27, 1968, wanting to requalify for solo flying in the MIG-15, he and a pilot instructor, Vladimir Seregin, went up in a two seat trainer version of the fighter jet. Shortly after takeoff, the MIG crashed in a field outside Moscow and both men were killed. Gagarin was given a state funeral, and his ashes were interred in the Kremlin wall.

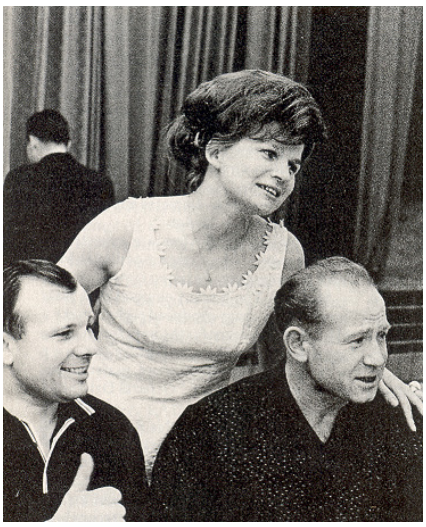
Exactly what caused the crash has never been determined. The Soviet Air Force undertook two investigations; both were inconclusive. Some sources say that Gagarin was doing "hotdog" flying when he lost control. Cosmonaut Alexi Leonov, who was piloting a helicopter nearby at the time of the crash, believes that Gagarin's craft got caught in the wake of another jet that was in the area. Others reports say that the MIG had mechanical problems. Another story claims that Gagarin was drunk or hung over the day of the flight. Still another says that he forgot to close a cockpit vent valve, and he and Seregin passed out at high altitude. The Air Force reports noted that the weather was bad that day: very cloudy and windy, which may have been contributing factors.

What has endured is that rumors have abounded since the day of his death that Gagarin was a marked man. Some say that it was personal; Brezhnev vowed retribution for the incident at the party. Others believe that the entire Soviet leadership was embarrassed by his drinking and philandering. Even more so, it is reported that they were worried about Gagarin's increasing outspokenness and his challenges to authority. According to some accounts, the old men in the Kremlin feared that Gagarin was establishing his own cult of personality; he was enormously popular with the Soviet people and much of the Communist Party membership, and if there was ever a showdown between him and them, they could only imagine who would win.

Whatever the reason(s), many in Russia believe that the Soviet political leadership eventually decided that Gagarin had to be silenced. Most stories say that it was done through the KGB, or possibly the GRU, the KGB's military counterpart. According to different accounts, the MIG was tampered with in various ways(three days before the crash, it underwent a complete maintenance check and was certified for future use) ; Soviet military officials were bribed to set up a crash involving the "other jet;" even that he was drugged or gotten drunk the day of the crash(this one is hard to believe). It is now known that Brezhnev tried to suppress the first Air Force investigation report(in 1968; the second was in 1986), and ordered officials not to talk about it.

On the other hand, a number of people who were close to Gagarin, and were also involved in the investigations, say that the crash was a genuine accident, and there was never a conspiracy to eliminate him. Even some of them, though, admit that the facts probably lie deep in the files of the KGB, which, even today, keeps its own secrets. It may be that the full truth about Gagarin's death will never come out.

Over the years, the Soviet government resisted efforts to reopen the investigation. When the Soviet Union fell in 1991, advocates felt that their time had come, and urged the new Russian government to take another look at Gagarin's case. It has continually refused to do so, even under heavy pressure from pro-Gagarin groups and some legislators. The most recent refusal came in August 2007. Whatever may be learned in the future, Yuri Gagarin's place in Russian, and world, history is secure, and he will forever be remembered by Russians as their great timeless hero and icon.

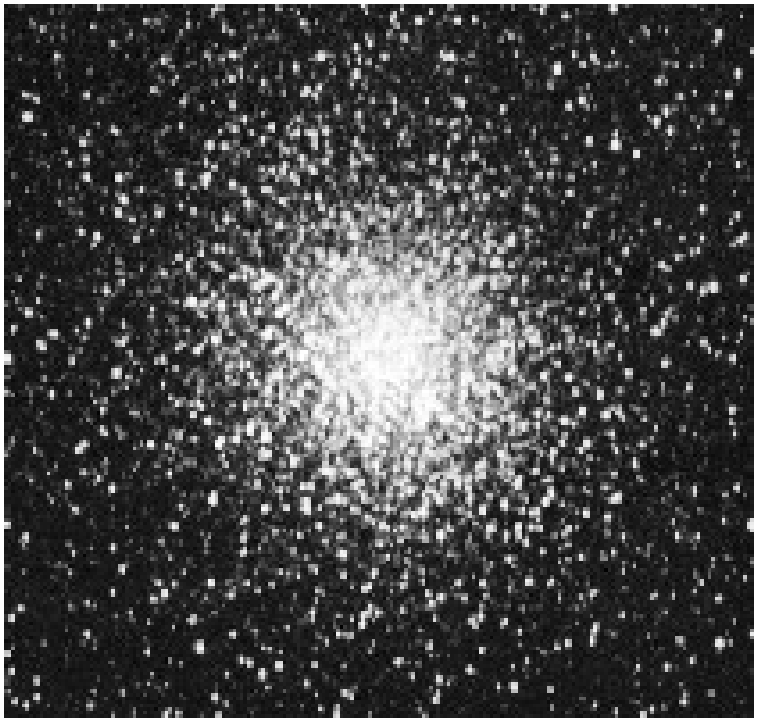


Right-a rare photo, taken in 1967, of Gagarin(left), Valentina Tereschkova, and Alexi Leonov

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1. "Gagarin" http://www.astronautix.com/astros/gagarin.htm
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3. Osbourne, Andrew."Yuri Gagarin, Soviet Icon:How Did He Die? The Mysterious Death Of." The (London)Independent, July 28, 2005.
4. "Russia Still Starstruck over Gargarin" http://www.guardian.co.uk/science/2001/apr08/spaceexploration.theobserver
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7. "Time and Space:The life and Death of Yuri Gagarin" http://www.thothweb.com/article.print.2802.html
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10. "Yuri Gagarin: His Life in Pictures" http://www.abamedia.com/rao/gallery/gagarin

Astronomical Object of the Month-
M22, the Great Globular in Sagittarius



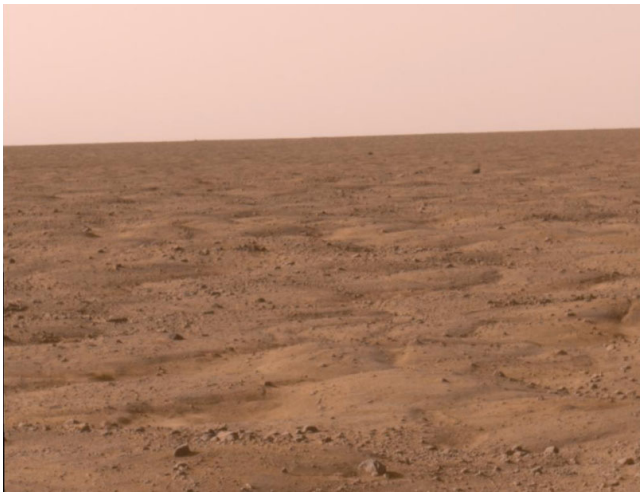
M22, one of the best known globulars in the summer sky, is also one of the largest and closest to Earth. It was also the first globular to be found by astronomers.

M22 was definitely first seen in 1668, although some astronomers say it may have been observed before that. At 10,500 light years away is it the closest known globular. It contains an estimated 100,000 stars, many of which are red type M, indicating that they are very old. This follows a pattern with other known globulars: most are made up primarily of old M stars, indicating that they may have been formed with the Milky Way itself.

In Sagittarius, M22 stands out among the many other globulars, nebulas, and other objects which populated the area around the constellation. Since Sagittarius is in the center of the Milky Way, and is full of such objects, M22 is special, and well worth viewing on a warm summer night.

Mars Phoenix makes a Bullseye Landing near the Martian North Pole!

On May 25, the Mars Phoenix spacecraft successfully landed near the Martian North Pole, where it will spend the next three months surveying the area and looking for possible signs of life. It made an almost perfect landing, settling down on the Martian surface at 4:53 PST. NASA repositioned the Mars Reconaissance Orbiter and the Mars Odyssey Orbiter so that both would be almost directly overhead when Phoenix landed plunged into the Martian atmosphere. As such, they provided uplink with Phoenix all the way to the surface. The European Space Agency also redirected its Mars Express Orbiter to provide backup support for the entry and landing. Although they weren't counting on anything, NASA engineers had the MRO take images of the landing area during Phoenix's descent. MRO's camera caught extraordinary pictures of Phoenix descending to the surface under its parachute(cover image), the first time a spacecraft has been imaged while landing on another planet. Shortly after landing, Phoenix took an image of its surroundings(right), the first taken of the Martian polar surface. It was later revealed the Phoenix was sitting on a sheet of ice; the landing rockets blew away the soil and dust, exposing the icy material. The images also show distinctive soil patterns, which are similar to ones seen in Earth's arctic regions.



Phoenix will spend the next three months taking more images and studying the soil of the area with a long shovel-like scoop. Unlike the Mars Spirit and Opportunity rovers, which are still going strong after almost four years, it will probably not survive the Martian boreal winter.

Astronomical Trivia

Last issue's astronomical trivia question:

Two of the 20th century's most famous astronomers were both born and raised in Missouri. Who were they, and at what institution were they colleagues?

Chris Denny got the right answer almost immediately: Edwin Hubble and Harlow Shapley. Both were born in Missouri, and both worked at the Mt. Wilson Observatory in Southern California in the 1920s. Eventually, though, they became bitter rivals, and, as a result, Shapley moved to Harvard in 1927, where he spent the rest of his career. Hubble stayed at Mt. Wilson until his death in 1953.

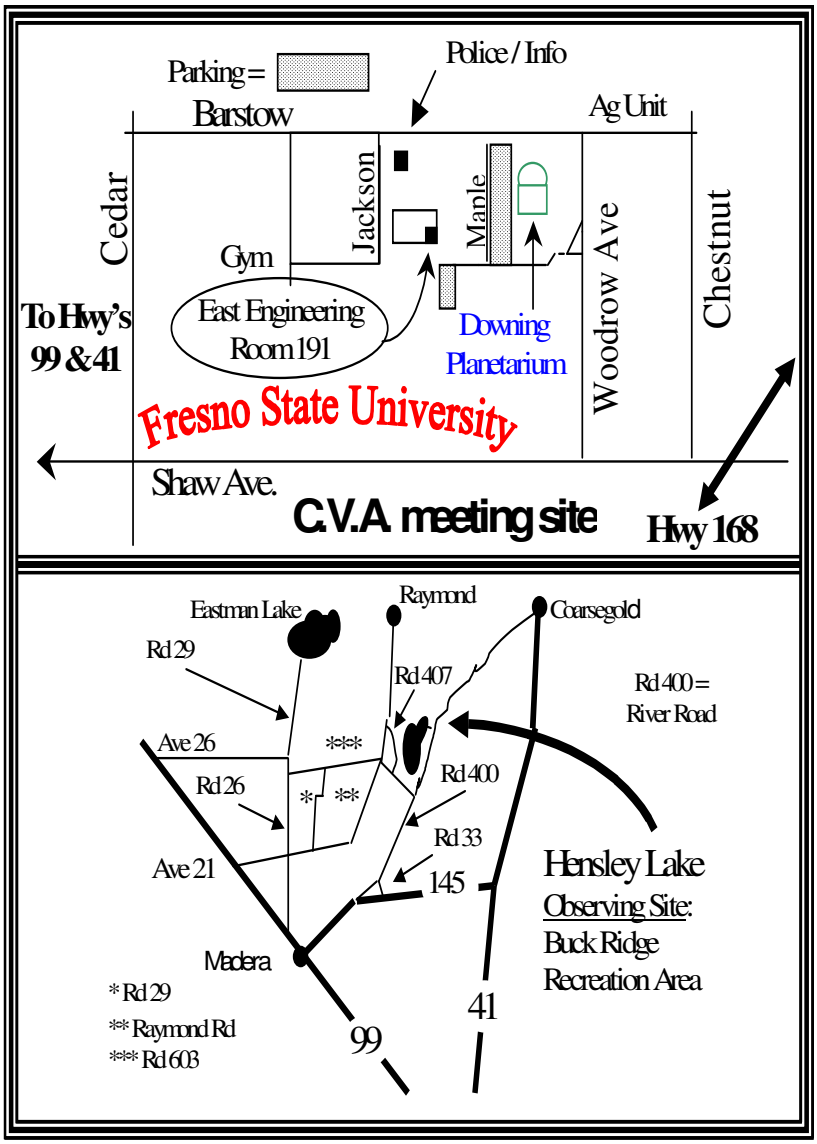
This issue's astronomical trivia question:

What was the name that Johannes Kepler gave to his third law of planetary motion?

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Deadline for articles submission to The September-October ***Observer*** will August 15 and the issue will be mailed on August 25

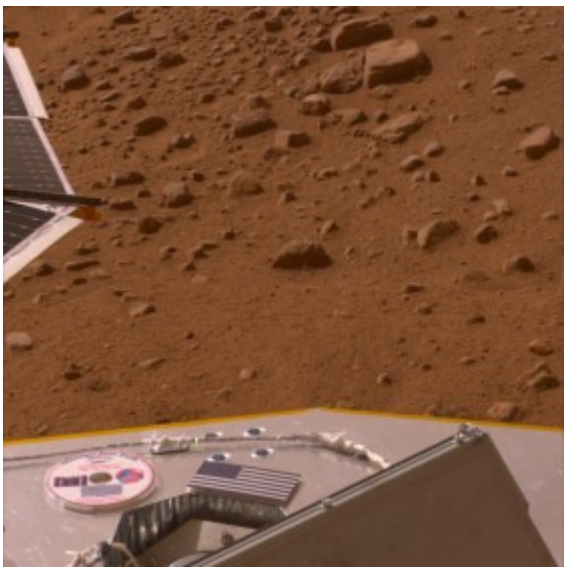
Please submit articles in Microsoft Word format



Astronomical Joke

How many astronomers does it take to screw in a lightbulb?

Ten-one to affix it, and nine to measure its luninosity and redshift.



Another Mars Phoenix image, showing the Martian surface, the spacecraft's American flag, and a CD disc containing the history of the project and the names of the people who worked on it.

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.

This would be a good place to insert a short paragraph about your organization. It might include the purpose of the organization, its mission, founding date, and a brief history. You could also include a brief list of the types of products, services, or programs your organization offers, the geographic area covered (for example, western U.S. or European markets), and a profile of the types of customers or members served.

It would also be useful to include a contact name for readers who want more information about the organization.

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.