September-October
2009
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The Observer

The Newsletter of Central Valley Astronomers of Fresno

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Sept 12-CVA Meeting CSUF 7pm

Sept 19-CVA Star-b-Que and star party

Sept 26-RiverPark star party

Oct 3-CVA meeting CSUF 7pm

Oct 17 Star party at Hensley Lake

Oct 24-RiverPark star party



Astronomical Object of the Month
The California Nebula in Perseus

After all, what other state has a astronomical object named after it? This large emission nebula glows in the autumn sky. It's difficult to find, but worth the effort. See it this Fall!

NASA image

Quote of the Month:

Man has always gone where he has been able to go. It's that simple. He will continue pushing back his frontier, no matter how far it will carry him from his homeland.

-Michael Collins, Apollo 11 astronaut
In *Carrying the Fire*

○ Full Moon Sept 4 ● New Moon Sept 18 ○ Full Moon Oct 4 ● New Moon Oct 18

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President's Message-

The club has a 20 inch club scope that Dave Artis retrofitted to make it more portable. Several members would like to have it available for star parties at Hensley Lake, RiverPark, and for school groups. Because of the travel distance involved, Dave is unable to make many of the club events. The current plan is to house the scope at my house where it can be taken to these events. The club will need to purchase an 8 foot ladder and ramps for my truck. I estimate the cost would be about $180. If everyone in the club would contribute, it won't strain out budget. If we get enough, imagine how the swan nebulae would look with a two-inch O-III filter. So if you can donate money for this, it will be appreciated.

On October 9th at 4:30 in the morning, Pacific Time, a great autumn event will happen. This has never been seen before. The Lacrosse Lunar probe will detach its 3rd stage liftoff rocket which will slam into a South Pole Lunar crater. The resulting dust cloud will have all the big "eyes" telescopes looking at it. However they will be imaging using spectrometers, looking for evidence of frozen water. Because the big scopes will not be taking normal images of the event, NASA is asking the amateur community if they would image the event and send their images to NASA.

NASA has long recognized that the amateur astronomy community has the equipment and is willing to make science discoveries. Witness the Jupiter impact this summer which was originally observed by an amateur astronomer. Astronomers have been on the leading edge of discovering comets and other stellar objects. We provide a valuable service to the science community.

This summer has also been a great time for observing. There have been good crowds at Hensley Lake and the skies and weather has been unusually cooperative. This summer Randy had the coordinates for two comets. I saw one but I don't have Steiner- Vision and while several other members saw the second one, my eyes did not. I saw one comet that Randy had the coordinates. We were also able to see both Jupiter and Neptune in the same field of view. It was exciting to think that I was looking at the most distant solar system object possible with my 10 inch scope and tired old eyes.

Randy and I also observed the Perseid Meteor Shower from Glacier Point, courtesy of Tenya Lodge. On Tuesday and Wednesday evenings it was reported that there could have been as many as 500 per hour at the peak instead of the usual 100 per hour. If you missed it, it was one of the best meteor showers since the spectacular Leonids several years ago.

I hope your summer was as stellar as mine.

"I have loved the stars too fondly to be fearful of the night." — Sarah Williams.

Steve Harness

Don't Forget!
The CVA Online Store!

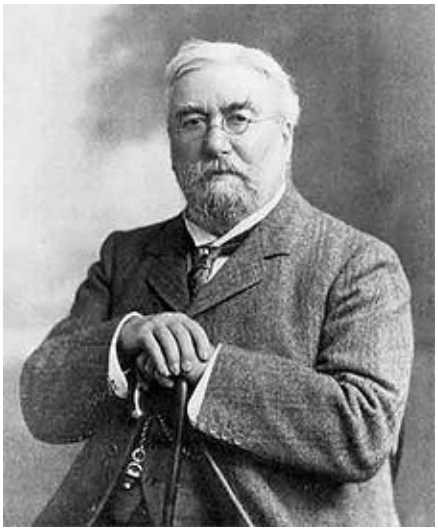
On it, we have a wide variety of merchandise with the CVA logo, including shirts, sweatshirts, hats, mugs magnets, and other mementos. Some of the clothing items come in several colors, but you have to go to the individual product pages to see them.

Each product includes a donation to CVA

The CVA Online Store:

Profiles in Astronomy

Joseph Norman Lockyer 1836-1920



Lockyer was born in Rugby, England, and educated at private English schools. As a young man, he traveled throughout Europe, and finally settled near London, where he worked for several years as a civil servant in the British War Office. He had always had an interest in solar astronomy, and eventually obtained a position at the solar physics observatory of the Royal College of Science in Kensington, and studied solar activity there for many years. In 1890, Lockyer became director of the observatory, and held that position until his retirement in 1911. Afterwards, he retired to Devonshire in the English countryside, established his own observatory there, and did his own studies until his death in 1920.

Lockyer is famous for his solar studies, and is best known as the discoverer of helium. In 1868, using the newly developed spectroscope, he studied the gaseous composition of the Sun, and found a series of spectral lines which were unknown. He determined that these were of a new element, and named it helium, after Helios, the Greek god of the Sun. Unknown to him, French scientist Pierre Janssen made the same discovery at about the same time. For years afterwards, supporters of the two men fought over who should be given the honors for the discovery. Today, both are given equal co-credit for the finding. Also, in 1868, Lockyer discovered that the Sun has prominences; loops of gaseous material that erupt off its surface.

In the 1870s, Lockyer concluded, after several years of solar observing, that the number and size of sunspots is related to rainfall on Earth, especially in England. This was the first notion that extra-terrestrial activity might be influencing Earth; however, the idea was dismissed at the time and ignored for many years. In the 20th century, though, strong correlations were found between sunspot activity and weather patterns on Earth, and the idea has gained increasing importance in the era of Global Warming.

In 1869, Lockyer, believing that the many disciplines of science needed to communicate with each on their studies and findings, established and became the first editor and publisher of *Nature,* today the most prominent science magazine in the world. He worked with the journal for many years before handing it over to colleagues.

Craters on both the Moon and Mars are named in his honor.

Sources

http://encarta.msn.com/encyclopedia_76150874/lockyer_sir_joseph_norman.html

http://www.naturemaster.com/encyclopedia/Joseph_Lockyer

http://en.wikipedia.org/wiki/Joseph_Norman_Lockyer

Speaking of new Elements being Found...

In June 2009, officials at the GSI Helmholtz Center for Heavy Ion Research in Darmsdadt, Germany, announced that element 112 had been discovered, and will soon be added to the periodic table of the elements. They said that the new element, which was first noted in 1996, was produced by fusing Zinc(element 30) with lead(element 82) in a high-powered particle accelerator. Like all "superheavy" elements, the new element existed for only a few microseconds before decaying into other particles. However, the scientists involved in the the discovery say they have enough collision events of the new element to justify its existence. For now, the new element is named Ununbium, the Latin term for 112; members of the discovery team are expected to come up with a formal name for it in the next few months. 112 is the sixth element that the Helmholtz team has found since 1981, elements 107 through 112.

CVA Calendar for September and October 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3 No moons visible with Jupiter	4 ○ Full Moon	5
6	7 Labor Day 30th anniversary of Voyager 2's flyby of Jupiter	8	9 California Admisison Day	10	11	12 CVA meeting CSUF 7pm
13	14	15	16	17 Uranus at opposition Saturn at conjunction	18 New Moon ● Rosh Hashanah Begins	19 CVA Star party and Star-B-Que
20	21	22 Fall Equinox	23	24	25	26 CVA star party at RiverPark
27 Yom Kippur Begins	28	29	30	October 1	2	3 Full Moon- Harvest Moon ○ CVA meeting CSUF 7pm
4	5	6	7	8	9 Draconid Meteor Shower	10
11	12 Columbus Day	13	14	15	16	17 New Moon ● CVA star party Hensley Lake
18	19	20 Orionid Meteor Shower	21	22	23	24 CVA star party at RiverPark
25	26	27	28	29	30	31 Halloween

Don't Forget!
RiverPark Star Parties
September 26 and October 24

What's New in Space

The Russian Moon Program-Conclusion

In the months following Apollo 11, the Russians downplayed any talk of a Moon "race." First, shortly after Apollo 11, they said that they no longer had plans for any Moon landing attempts; then by early 1970, they claimed that they had never had any Moon landing plans at all, and the Moon race was just a fiction on the part of NASA and American politicians. As one space expert put it, critics of the space program in the West swallowed this blatant lie hook, line, and sinker.

The Russian people were stunned by the American moon landings; again, it was government propaganda that the USSR would be first on the Moon. On the day of Apollo 11's moon landing, Soviet TV played a two minute videotape of the Moon walk, and spent the rest of the day showing patriotic movies and musicals. The cosmonaut corps sent a telegram of congratulations to the Apollo 11 crew, but, years later, many of them acknowledged that they were shocked and saddened by the event. It was said that Alexi Leonov, in particular, was furious over the failure of the Russians to get to the Moon first, and blamed it on bureaucratic mismanagement and political interference.



Nevertheless, Mischim(on right) continued with the Moon program. There were two more unmanned Zond circumlunar flights, in August 1969 and September 1970. Also, the Lunar Lander was tested in Earth orbit on four occasions between November 1970 and August 1971. The N-1 launch pads were rebuilt, and the "Superbooster" was launched again in June 1971 and November 1972. Both of these were failures as well, but Mishim felt that the rocket was sound, and ordered more test flights(he also thought that the N-1 would make a good heavy lift vehicle for the space station program). He planned to have manned Moon landing flights starting in 1975, to show that the Russians were seriously interested in the long term study and habitation of the Moon, not just "one shot" efforts like the Americans.

However, in early 1974, Mischim entered a hospital for treatment of various health problems. When he was released a month later, he learned that his longtime rival, Valentin Glushko, had taken over OBK-1. On his first day back at work, Mischim was told to turn in his security pass and clean out his desk. Mischim, who had seen Korolev's health destroyed by bureaucratic wars, decided not to fight it, and took a teaching position with the Moscow Aviation Institute. He died in 2001.

The first thing Glushko(below) did as head of OBK-1 was cancel the Moon landing program. He ordered all equipment, including the lunar landers and the LOK Soyuzes, put in a warehouse in Moscow, and told everyone in the program never to say a word about it. He also had the remaining N-1 rockets dismantled. Glushko then embarked on two horrendously expensive projects, the Energia heavy lift rocket and the Buran space shuttle, because he was convinced that the American space shuttle was a thinly disguised military craft designed to drop nuclear bombs on the Soviet Union from space. The result of this estimated $12 billion program was one Energia launch in early 1988, and one unmanned Buran flight later that year.



Glushko ran the Russian space program with an iron hand from 1974 to 1989. His death that year, coupled with Soviet leader Mikhail Gorbechev's policy of *Glastnost*, or "Openness," encouraged people to start speculating about, among many other things, the Russian space program. In the late 1980s, a number of Russian magazines and newspapers did investigative stories on the Moon program, and brought some of it out into the open. The fuller story, however, was not revealed until after the fall of the Soviet Union in 1991. After that, Western correspondents and space experts were allowed to examine space program documents and records. The major breakthrough came in 1993, when a group of American scientists was taken, without prior notice, to the warehouse in Moscow, and shown the Moon program equipment, which by then was dusty and falling apart. At the same time, Russian space authorities acknowledged that their country did in fact have a Moon landing program whose purpose was to beat the U.S. to the Moon by 1970.

40 years later...

The original Moon race is long over, and the U.S. and Russia have shown unprecedented cooperation in space activities, most notably with the international space station. But a new Moon Race has begun, this time, not over national prestige, but natural resources. As of 2009, the U.S. , which has not gone beyond Earth orbit since 1972, is planning to land astronauts on the Moon with the Orion-Ares program by 2020, with a permanent base at the lunar south pole(where water is suspected to exist) by 2025. China has announced that it may send men to the Moon by 2018. In 2006, RKA, the Russian Space Agency, announced that it wants to put men on the moon by 2025, and have a permanent base by 2032. Some say a new Moon race has started. That may be so, but at least this time, it will be done in the open, and all the major space powers will have a stake in seeing that each other makes it safely. This is how much the world has changed in the last 40 years, and the way it should have been done all along.

NASA's Constellation Program Under Fire

As part of President Obama's compressive review of the manned space program, members of the NASA committee set up to examine it have been hearing testimony from, among others, former astronauts and spaceflight experts, and they have been getting an earful. A number of space authorities have denounced the Constellation Program; that is, NASA's Orion CEV and Aries program to take the U.S. back to the Moon by 2019 and Mars by 2025; as too expensive, wasteful, and straying from its goals. Several have said that the U.S. should form a partnership with the Russians or the Chinese to go to the Moon, while others have advocated skipping the Moon altogether to send manned missions to Mars, which is the ultimate goal.

The proposed Aries rocket has increasingly come under heavy criticism. Many aerospace engineers consider it underpowered and ill-suited to carry the Orion CEV capsule, and have testified to that affect. In particular, they note that the Aries 1 cost has soared from $26 billion to almost $44 billion. In June, former astronaut Edwin "Buzz" Aldrin, testifying before the committee, said that the Aries should be scrapped and the U.S. use the already existing Atlas 5 or Delta 4 to put the CEV into Earth orbit. Later that month, another NASA engineer went even further and said that the space agency should also get rid of the Aries and use a modified version of the Shuttle solid rocket and liquid fueled rocket system to launch the Orion and the moon lander. This idea, which was first proposed as an unmanned heavy lift vehicle in the 1990s, would save time and money, he claimed. The shuttle system has already been developed, and NASA's launch complex 39 at the Kennedy Space Center would not have to be modified for the Aries.

The committee is scheduled to finish its work in August, and a recommendations report will be given to (presumably) chief administrator Charles Bolden and President Obama by September 1. What will happen after that is anyone's guess, although the President has indicated in the past that he is a strong supporter of the space program and wants it to go forward.

Editor's Note-

I have followed the space program almost from its inception in the 1960s, and was briefly a part of it when I was involved in the Teacher in Space Program in the 1980s. I am strongly in favor of going back to the Moon and on to Mars, which, actually, the U.S. should have done years ago. But later is better than never. When NASA announced the Constellation Program in 2004, I said to my self, "Horray! We're on the right track once more" But now I wonder if NASA is bungling it again.

Ever since the end of the Apollo Moon landings, NASA seems to be lost, wondering what to do and, mostly, how to go about doing it. In particular, why does NASA have to keep reinventing the wheel for every new program? I agree with the Constellation Program's critics: we have technology and hardware that already exists. Let's use it! The Aries rocket should be scrapped and the Atlas 5 or Delta 4 should be used to launch the Orion CEV into space. Both are proven and reliable booster rockets that would save NASA billions of dollars and years of design and development. After all, one of the reasons that the Russian manned space program is so steady and successful is because it uses updated versions of Sergei Korolev's R-7 rocket, which was originally developed in the 1950s. Unlike the U.S., the Russians don't throw away useful technology; they simply improve on it. Why can't NASA do that?

My other concern is NASA's timeframe. The space agency has had almost six years so far to establish a new manned spacecraft system before the end of the Shuttle program in (supposedly) 2010. Yet it is now 2009, and the Orion CEV doesn't seem any further along in development than it was several years ago. I wonder if NASA understands the importance of keeping people in space on a constant basis, or it is simply willing to accept the fact that there may be no American manned spacecraft for almost five years, like in the 1970s. The target date of the first Orion CEV launch was scheduled for 2014; then, under pressure, it was moved up to 2012(which is where it should have stayed); then it was set back to 2014 again. Now, the earliest is 2015, and NASA's attitude seems to be to shrug its shoulders and say, "well, that's just the way it is." Where is the sense of urgency and commitment? There doesn't seem to be any; all NASA seems to be good at is making excuses for setting back launch dates time after time after time.

I hope that the space agency can get its act together and put the Orion CEV into space, the sooner the better. I have faith that when Charles Bolden takes over as chief administrator that he'll light a fire and get people thinking straight and moving. After all, a Marine Corps general and a veteran astronaut is a pretty powerful no-nonsense combination that should be able to propel NASA back into space, to the Moon, and beyond.

Number of extraterrestrial planets found so far-
360
How many more are out there?

Astronomical Trivia

Last issue's astronomical trivia question:

Last issue's question, what was the official name of the 1905 paper by Albert Einstein that introduced to the world the Theory of Relativity?

Again, Chris Denny came up with the correct answer-The official title was "On the Electrodynamics of Moving Bodies."

This issue's astronomical trivia question-

What was the original name that the ancient Greeks gave to the star cluster that we today know as the Pleiades?

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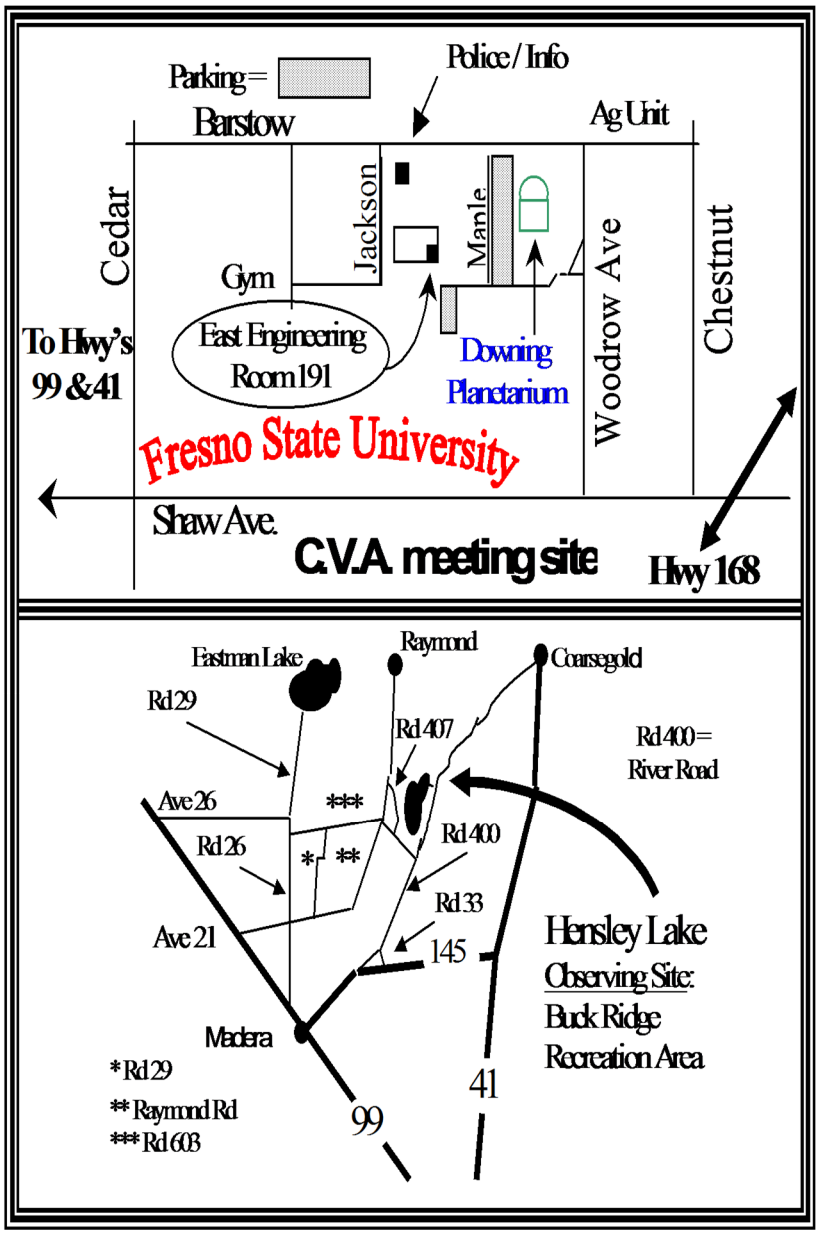
Deadline for articles submission for the November-December 2009 issue-

October 17

The issue will be mailed

On October 27

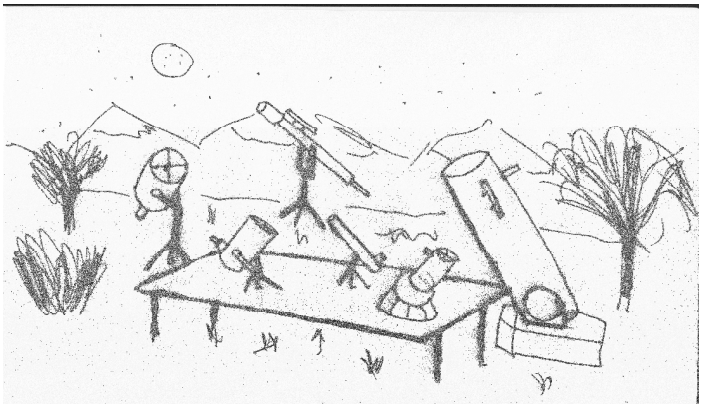
Please submit articles in Microsoft Word format



Astronomical Short-

In February 1929, a young Clyde Tombaugh was at the Lowell Observatory in Flagstaff, Arizona, looking for "Planet X." One afternoon, he was using the blink comparator in a room just down the hall from the office of Lowell's director, Vesto Slipher. A blink comparator is operated by putting two photographs in frames next to each other, then visually comparing them with a lens. As the lens is switched from one image to the other, it makes a distinct clicking sound. Slipher, in his office, kept hearing the clicks, and was pleased that Tombaugh was at work. Then the clicking suddenly stopped and did not resume. Slipher walked out of his office and down the hall to tell Tombaugh to get back to work. As he neared the room, Tombaugh ran out of it, saw him, and exclaimed, "I found it!" "It," of course, was the planet(now dwarf planet) Pluto, which was officially announced a few weeks later.

Telescope Talk by Parmeter

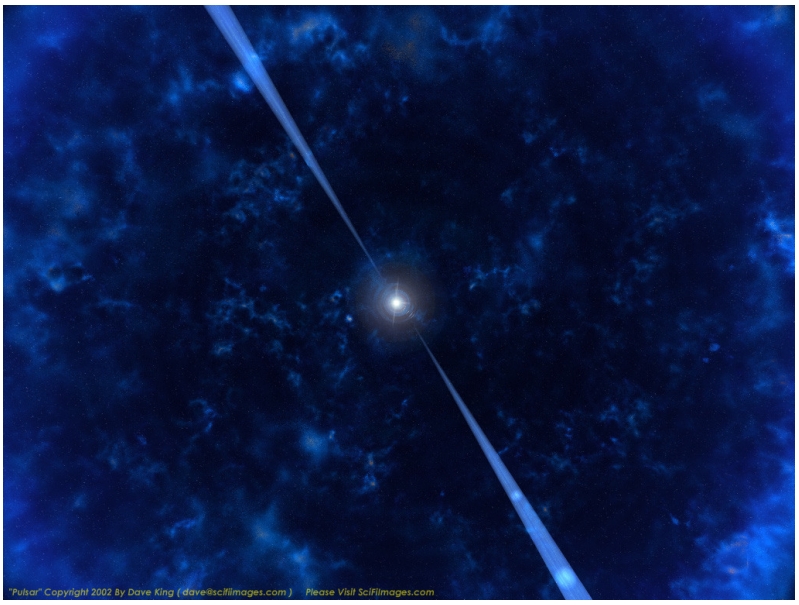


"Looks like Jack has the kids this weekend"

NASA'S FERMI TELESCOPE PROBES DOZENS OF PULSARS

From NASA

With NASA's Fermi Gamma-ray Space Telescope, astronomers now are getting their best look at those whirling stellar cinders known as pulsars. In two studies published in the July 2 edition of Science Express, international teams have analyzed gamma-rays from two dozen pulsars, including 16 discovered by Fermi. Fermi is the first spacecraft able to identify pulsars by their gamma-ray emission alone.
A pulsar is the rapidly spinning and highly magnetized core left behind when a massive star explodes. Most of the 1,800 cataloged pulsars were found through their periodic radio emissions. Astronomers believe these pulses are caused by narrow, lighthouse-like radio beams emanating from the pulsar's magnetic poles.



"Fermi has truly unprecedented power for discovering and studying gamma-ray pulsars," said Paul Ray of the Naval Research Laboratory in Washington. "Since the demise of the Compton Gamma Ray Observatory a decade ago, we've wondered about the nature of unidentified gamma-ray sources it detected in our galaxy. These studies from Fermi lift the veil on many of them."

The Vela pulsar, which spins 11 times a second, is the brightest persistent source of gamma rays in the sky. Yet gamma rays -- the most energetic form of light -- are few and far between. Even Fermi's Large Area Telescope sees only about one gamma-ray photon from Vela every two minutes.

"That's about one photon for every thousand Vela rotations," said Marcus Ziegler, a member of the team reporting on the new pulsars at theUniversity of California, Santa Cruz. "From the faintest pulsar we studied, we see only two gamma-ray photons a day." Radio telescopes on Earth can detect a pulsar easily only if one of the narrow radio beams happens to swing our way. If not, the pulsar can remain hidden.

A pulsar's radio beams represent only a few parts per million of its total power, whereas its gamma rays account for 10 percent or more. Somehow, pulsars are able to accelerate particles to speeds near thatof light. These particles emit a broad beam of gamma rays as they arc along curved magnetic field lines.

The new pulsars were discovered as part of a comprehensive search for periodic gamma-ray fluctuations using five months of Fermi Large Area Telescope data and new computational techniques.

"Before launch, some predicted Fermi might uncover a handful of new pulsars during its mission," Ziegler added. "To discover 16 in its first five months of operation is really beyond our wildest dreams." Like spinning tops, pulsars slow down as they lose energy. Eventually, they spin too slowly to power their characteristic emissions and become undetectable .

But pair a slowed dormant pulsar with a normal star, and a stream of stellar matter from the companion can spill onto the pulsar and increase its spin. At rotation periods between 100 and 1,000 times a second, ancient pulsars can resume the activity of their youth. In the second study, Fermi scientists examined gamma rays from eight of these "born-again" pulsars, all of which were previously discovered at radio wavelengths.

"Before Fermi launched, it wasn't clear that pulsars with millisecond periods could emit gamma rays at all," said Lucas Guillemot at the Center for Nuclear Studies in Gradignan, near Bordeaux, France. "Now we know they do. It's also clear that, despite their differences, both normal and millisecond pulsars share similar mechanisms for emitting gamma rays."

NASA's Fermi Gamma-ray Space Telescope is an astrophysics and particle physics partnership, developed in collaboration with the U.S. Department of Energy, along with important contributions from academic institutions and partners in France, Germany, Italy, Japan, Sweden, and the U.S.

From-http://www.nasa.gov/fermi

THE NIGHT CVA SAW TWO BARES ON HALF DOME

By Fred Lusk

KIDS, COVER YOUR EYES

First the moral to the story:

If you plan to get naked to celebrate your accomplishment of hiking to the top of Half Dome, please don't do it on a Friday or Saturday evening. That's when the Glacier Point Star Party series occurs (has been every summer weekend since 1973). Before it gets dark the amateur astronomers use their telescopes to show the tourists the sights, and that includes the top of Half Dome. Also, if you're built like Barney Fife, don't do body builder poses.

One final point. You may be 2.5 miles from Glacier Point and think nobody can see you. However, at 75x it's as if you're 176 feet away, and at 200x it's more like 66 feet. Our eyepieces easily give us these magnifications.

Here's what happened:

We started setting up telescopes at the Glacier Point Amphitheater around 6:15 p.m., which was more than 2 hours before sunset. There was a wedding just getting started at the bottom of the amphitheater. Actually, by the looks of the couple's little girl, the wedding should have happened about 3 years ago, but I digress.

After I set up my telescope, I showed various tourists such things as the top of Nevada Falls, some climbers on the face of Half Dome, hikers on top of Half Dome, hikers on North Dome, Cathedral Peaks, Mount Hoffman, etc. Other CVA members were doing the same thing. During breaks in the tourist traffic, I attached my Olympus E-1 DSLR and took photos of many of the same things. Right after I took the last photo, I removed the camera and reinstalled my 27 mm Panoptic eyepiece. The camera gives me 81x and this eyepiece gives me 75x, so the views are almost identical except that the image is much clearer through the eyepiece than through the camera's focusing screen.

Just as I put my eye to the eyepiece I saw the girl pull off her shirt and drop her shorts. Her male hiking partner was just a moment behind. I couldn't believe it, so I called Dale over. His reaction was "Oh my God, there are nudists on top of Half Dome." A couple of the other scopes were already on the same scene, but Dale and I were first to react. Now, of course, the rest of the scopes focused away from the climbers and on to the exhibitionists. The tourists got a big kick out this, and we all kept their kids away from the scopes. This will certainly be their most memorable star party ever.

One of my fellow CVA'ers jokingly suggested I get a photo, but I declined. Even though it might have made a striking cover for our annual wall calendar, that's not the look I was after.



Editor's note-We'll probably have a record turnout of CVA astronomers and telescopes at Glacier Point next year. Also, it appears that CVA got good views of heavenly bodies this year, and not all of them were in the sky.

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Caption describing picture or graphic.