

March-April
2010
Volume 58
Issue 2

The Observer

The Newsletter of Central Valley Astronomers of Fresno

In this Issue:

Profiles in Astronomy-
Jacques Quetelet, astronomer
and everything else

Pluto's true colors

Farewell to the American
Space Program?

Old Books, New Ideas

Mt. Wilson at 104

Mars Spirit is going No-
where

Mars Phoenix, call home



Astronomical Object of the Month

Uranus, the first "modern" planet, was discovered by William Herschel in March 1781. It is now known that it is tilted almost 90° relative to the ecliptic, and has a complex ring system and over 20 moons. Herschel would be amazed and pleased by all the things that have been learned about his planet since he first found it over 200 years ago. Voyager II took this image as it flew by Uranus in 1986. Image from NASA

CVA Calendar

March 13-Messier Marathon at Hensley Lake

March 20-Public star party at RiverPark

March 27-CVA meeting CSU Fresno, 7pm

April 10-Starparty at Hensley Lake

April 17-Messier Marathon #2 at Hensley Lake

April 22-Starwatch at Le-moore NAS

April 24-Public star party at RiverPark

Quote of the Month:

In answer to why it happened, I offer the modest proposal that our Universe is simply one of those things which happen from time to time.

-Edward Tyron



New Moon March 15



Full Moon March 29



New Moon April 14



Full Moon April 29



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

Web Address:
www.cvafresno.org
Webmaster
Aaron Lusk 559-332-3102
admin@caservers.net

Officers and Directors for 2010:

President
Steve Harness 559-292-2753
sharness@sbcglobal.net

Vice-president
Dale Lohrman 559-260-9992
dlohman@digisolaz.com

2d Vice-president
Fred Lusk 559-436-1833
Fel3@pacbell.net

Treasurer
Bryon Spicci 559-594-4936
quizzler2@netscape.net

Secretary
Casey Chumley

Star Party Coordinator
Brian Bellis 559-264-2645
pandb91@comcast.net

Historian
Larry Parmeter 559-276-8753
lanparmeter3@h0tmail.com

Director
Lynn Kliewer 559-251-3656
lelliottk@att.net

Director
Steve Britton 559-897-4529
sbritton@cvip.net

Director
Clarence Noell 559-271-9304
xmascn@sbcglobal.net

Director
Dave Artis 559-658-8016
dave.artis@direcpc.com

Director
Greg Morgan 559-348-1160
gmorgan@oldstarlight.com

Director
Randy Steiner 559-252-0130
astrigeo@cvip.net

Director
Sharon Barrett

The Observer March-April 2010

President's Message-

2009, the International Year of Astronomy was a good year, and 2010 promises to be even better. As CVA heads into the Spring, lots of things going on. We'll have our monthly meetings and starwatches at Hensley Lake. Public starwatches at RiverPark Shopping Center will continue, and there's a chance that we'll do some starwatching at Eastman Lake as well. The Messier Marathon this year will be in both March and April(see calendar), and Glacier Point has just been announced for the weekend of July 16 and 17. Much thanks to Dave and Bonnie Dutton for their many years of organizing it.

Thanks, too, to Dale Lohrman, for standing in at January's meeting, when I was not able to attend. This organization would not be what it is without his efforts and that of many others who help make it work. Thanks, too, to Brian Bellis for his work with the star parties. Good leaders are an essential part of any good organization, and we're fortunate to have them.

In two short years, CVA will be 60 years old, a remarkable age for any local club. It's a credit to the officers and many members over the years that have made it successful. Start thinking of some things we can do in 2012 to celebrate the Big 60. It'll be more than worth it.

Clear skies....
Steve

Central Valley Astronomers of Fresno, est. 1952

Our Goals:

- Provide a place for those interested in astronomy to come together and share 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 nights sky with the unaided eye, telescopes, and binoculars
- To learn from others and share what we know about astronomy from others

Glacier Point 2010

July 16-17, 2010

Contact Dave or Bonnie Dutton for reservations

559-658-7642

Or e-mail to twodocs@sierratel.com

Give your name, address, phone#, and number in party

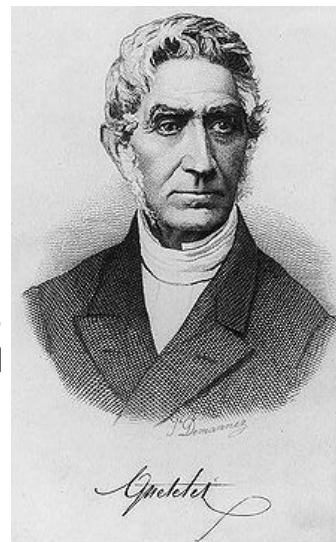
Profiles in Astronomy

Lambert Adolphe Jacques Quetelet (1796-1874)

Quetelet, who went by his middle name of Adolphe, was born and raised in Ghent, Belgium, attended the prestigious Lycee, and then the University of Ghent, where he received a doctorate in mathematics in 1819. As a young man, he persuaded the Belgian government to establish an observatory in Brussels, and then later founded the Royal Observatory of Belgium, in which he was involved for the rest of his life.

Quetelet was a true polymath who distinguished himself in many areas: he was a brilliant mathematician, one of the world's leading statisticians, a pioneering social reformer and philosopher, a meteorologist, historian, physicist, and a criminologist who was the first to use statistical analysis to solve crimes and also explain their relationship to social conditions. He wrote over twenty books on various subjects, and was a consultant to leading experts throughout Europe. He is often considered the father of modern sociology.

As an astronomer, Quetelet made meteor showers his specialty. For over 30 years, he amassed data on meteor showers, noting their dates, radiants, and intensities. He used statistical analysis to determine intensities and periodicities; he was the first to predict the yearly August occurrence of the well-known Perseid shower. As well, he determined the radiants and dates for many other meteor shower events. He eventually wrote an atlas of meteor showers, which became a standard in the field for many years afterwards.



Sources:

"Quetelet, Jacques Adolf" International Encyclopedia of Astronomy, ed. Patrick Moore. New York: Orion books, 1987. p. 344.

http://en.wikipedia.org/wiki/adolphe_quetelet.html





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:
<http://www.cafepress.com/CVAFresno>

CVA Calendar for March and April 2010

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	March 1	2	3	4	5 Voyager I flies past Jupiter in 1979	6
7	8	9 Discovery of active volcanoes on Io in 1979	10	11	12	13 Messier Marathon at Hensley Lake Uranus discovered in 1781
14 Pi Day Daylight Savings Time begins	15 The Ides of March New Moon 	16	17 St. Patrick's Day	18 First spacewalk in 1965 by Alexi Leonov	19	20 Public star party at Riverpark Spring Equinox
21	22	23 Comet Shoemaker-Levy 9 discovered	24	25 Titan, largest moon of Saturn, discovered in 1655	26	27 CVA meeting at CSUF 7pm
28 Palm Sunday	29 Passover begins Full Moon 	30	31	April 1 April Fool's Day	2 Good Friday	3
4 Easter Sunday	5	6	7	8	9	10 Star party at Hensley Lake
11	12 First space shuttle launch in 1981 First manned space flight-Vostok I with Yuri Gagarin-1961	13	14 New Moon 	15 Vintage Days at CSUF begin Tax Day	16	17 Solar observing at Downing Planetarium Messier Marathon #2 at Hensley Lake
18	19 Astronomy Week begins	20	21	22 Earth Day Star party at Le-moore NAS	23 Soyuz 1 tragedy -1967	24 Public star party at Riverpark
25 Hubble Space Telescope deployed into Earth orbit 1990	26	27	28 Full Moon 	29	30	May 1
2	3	4	5	6	7	8

What's New in Space

More Funding, but No More NASA Moon Program

On January 28, the White House announced that President Obama had approved an additional \$6 billion to keep the International Space Station operating through 2020. At the same time, however, the ISS funding confirmed that NASA's plans to put Americans back on the Moon by 2019 were all but dead. The President agreed with the constellation Commission report that the space agency's program to have a permanent Moon base by 2025 is just too expensive. The Aeries program, which was started in 2004, has cost NASA \$9 billion so far, and is barely out of the planning stage. Instead, the commission recommended, and the President is expected to approve, that the space agency have a private company develop a commercial spaceship for missions to ISS after the shuttle is retired. The commission also recommended that, rather than the moon, NASA set its sights on a manned mission to an asteroid, a Martian moon, or brief "one shot" Moon landings. The President is expected to officially announce his decision when he released his 2011 budget in February.

The End of the Road for Mars Spirit



After ten months of trying to unstuck Mars Spirit from a sand bank, engineers at the Jet Propulsion Laboratory have given up. The hardy rover, which has been exploring the Red Planet for six years now, will become a stationary scientific platform. During its years, it traveled more than five miles from its landing spot and took more than 120,000 images. JPL believes that, if it survives the upcoming Martian winter, it will be good for more research. As of this time, JPL is preparing to put it into sleep mode, and hope that its batteries and solar panels can provide enough power to get it through the winter. In the meantime, its twin, Opportunity, continues to work, having traveled some ten

miles over the Martian surface and taken over 130,000 images. JPL believes that it will be able to function for at least another year or two.

In the meantime, JPL is hoping to contact the Mars Phoenix lander, which is currently near the Martian north pole. It is using the Mars Odyssey orbiter to try to pick up signals from the lander, although it is admitted that the craft, which landed on May 25, 2008, and sent back data and images for five months, was not expected to survive the Martian arctic winter.

Another Space Pioneer Passes on: Konstantin Feokistov 1926-2009

Konstantin Feokistov, one of the early cosmonauts as well as a spacecraft designer and engineer, died at the age of 83 in December 2009. He was born and raised in Voronezh, and served in the Soviet Army during World War II. Afterwards he went to engineering school, and eventually received a doctorate in physics. During the 1950s, Feokistov worked with Sergei Korelev's spacecraft design bureau, and helped to design and build the Sputnik, Korbal, and Vostok spacecraft. In 1963, when Korelev was ordered by the Soviet political leadership to put a multiman craft into space, Feokistov came up with the idea of a modified Vostok that could hold three people, and volunteered to be one of them. He flew in Voskhod I along with Vladimir Komarev and Dr. Boris Yegorev in October 1964, the world's first multi-man flight. Afterwards, Feokistov headed the engineering team on the Salyut I space station(it was said that he wanted to be one of the cosmonauts on the first mission to it, but the Soviet Space Commission refused to let him go). He went on to work on succeeding Salyuts and Mir during the 1970s and 80s. In 1990, he left the space bureau to become a professor of engineering at the Moscow Aviation Institute.



Tranquility Base Urged as a National Historic Site

A number of states, including California, and individuals as well, are urging Congress to declare Tranquility Base, the Apollo 11 Moon landing site on July 20, 1969, as a National Historic Site, and are also urging the United Nations to declare it a World Heritage Site. A commission which was set up to look at future historic sites believes it to be one of the most important events and sites of the 20th century, and wants both Congress and the U.N. to act on it. Space historians and experts say that what is there; the lower part of the lunar module and about 300(earth) pounds of tools and equipment left behind; constitutes an invaluable historical record of man's first foray into the universe. But don't expect tourists to be visiting it or getting their national parks stamp for it anytime soon.

Commentary by the Editor-

I've followed the manned space program pretty much since it began in 1961, even though I was young at the time. I've kept records of all manned spaceflights, rockets, achievements, and recognitions. I've been awed by what America has done in space. I cheered, along with the rest of America, when Eagle landed on the moon on July 20, 1969; cheered again while watching space shuttle landings at Edwards Air Force Base in the 1980s, and cried, along with the rest of the country, at the news of Challenger and Columbia. Today, 2010, I can't help but feel that it's coming to an end.

President's Obama's 2010 federal budget effectively ends the Constellation Program, NASA's effort to return Americans to the Moon by 2020. It also ends the development of the Orion CEV, the next generation American manned spacecraft. That, coupled with the impending retirement of the space shuttle; its last flight is supposed to be this year, but it will probably extend into early 2011; means that American space travelers are now dependent on Russian Soyuzes(at a time when the relationship between the U.S. and Russia is frayed) or as of yet unproven commercial spacecraft. At any rate, the U.S. will soon be without a manned spacecraft at a time when spaceflight will be opening up in a major way: The Russians and Chinese have already announced plans to send manned missions to the Moon, and possibly several other countries are not far behind. The fate of ISS has been extended until 2020, but there are no plans to replace it once funding runs out. NASA is making the best of this situation, talking about partnerships with other countries, encouraging development by private spacecraft companies, and proposing eventual trips to Mars, but the essential truth is that the U.S. will drop out of the manned spaceflight market for at least the next five to ten years and possibly longer, possibly for good.

It's that last statement that bothers me. The specialness of the U.S. is that it has always been on the cutting edge of not only what is advanced, but also what is the best and the right thing to do. All of its technological achievements have not only pushed science forward, but have been done in the best interests of humanity reaching out for something better, more hopeful and enlightening. The American manned space program has been the epitome of this philosophy, dating back to when President Kennedy told America that the U.S. was going to be on the moon by 1970, "not because it is easy, but because it is hard." Yes, the federal deficits are a real concern, and the Aeries booster is flawed and way over budget, but do they mean that the U.S. is going to give up on space exploration, that the grand journey is over, that we withdraw from the music of the cosmos? I like to think not, but I believe more and more that's going to be that way. And it'll be sad.

In my classroom, I have a banner over the front board; it says: What are Your Priorities? What are America's priorities in space right now? I don't know, and I'm not sure if anyone else does, either. I just don't want things to be that all we can look forward to is memories, not adventures, and that we will again, somehow, find our place in the universe.



About Old Books

By the editor, Larry Parmeter

Lately, I've been going through my book shelves and reading a couple of books that I've had for a while. They're from the *Life* Nature Library series, which came out in the 1960s and early 70s. One is on Early Man, which I originally bought for a college anthropology class in my freshman year in 1970. The other is titled *The Universe*, copyrighted dated 1962, given to me by a student when I first started teaching in the early 1980s. They're both fun to read, even if they're way out of date.

More than that, they make me realize how far we've come in science, and how shortsided we've been over the years. The *Early Man* book stops around 1963; Australopithecus and Homo Habilis have been discovered, and humanity has been traced back only to about 2 million B.C. There's no mention of the great fossil finds at Lake Turkana or Hadar or Laetoli, no A. Afarensis, A. Amenimesis, or, more recently Ardipithecus Ramidus, all of which have pushed human ancestry back several million more years. All of that would be in the future of paleoanthropology.

Likewise, *The Universe* talks about Edwin Hubble as if he had died only a few years previously (which he had); and of Walter Baade, and Milton Humanson, both of whom were still alive at the time. The most distant object known was Minkowski's Galaxy, speeding away at 37% the speed of light on the red shift scale. Quasars and pulsars, whose discoveries shortly thereafter would forever change astronomy, were not mentioned. Inflation referred to price hikes, not cosmological birth bursts. Dark matter was the wild child of an eccentric named Fritz Zwicky. Black holes were not mentioned, nor was dark energy. 1962 was the quiet year before all hell broke loose, in astronomy, as well as politics, society, and almost everything else. The world, and certainly the writers and editors of *Life*, didn't know it but revolution was in the making.

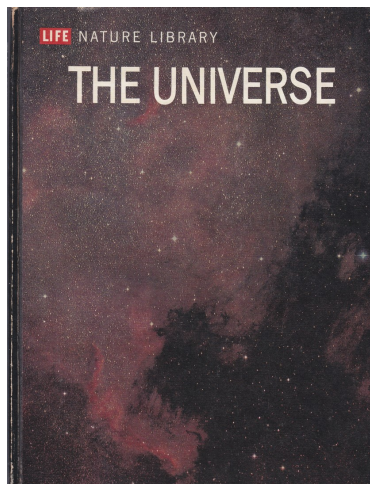
Things would never be the same afterwards.

I think of what's been done since 1962, in addition to all of the above. Over 400 people have been in space; ISS is almost finished; the Hubble Space Telescope has found things beyond imagination; exoplanets have been discovered, spacecraft have been to; or are going to, every planet in the solar system (including one that may not be a planet anymore); the big Bang has been more or less confirmed; the universe has been pretty much found to be open, not closed; and its age has been settled, as scientists like to say, to a factor of ten. We feel pretty good about what we've done, and probably consider it the best and the most correct in astronomy and space sciences.

And, of course, we could be completely wrong. Societies throughout the ages have had a tendency to consider their achievements the last word in time and space, at least their time and space. We have no idea what's going to come in the next fifty years, just as in 1962, *Life* had no idea what would happen in the next fifty. Already, cosmologists are talking about the possibility of superseding relativity theory with something new to explain black holes and dark energy. There's indications that if the speed of light can't be broken, then maybe it can be bypassed. String theory and branes may be how the universe is structured, or maybe not. We don't know and we won't until it happens, or doesn't.

In *Lonely Hearts of the Cosmos*, Dennis Overbye talks about how when scientists are wrong, at least they're wrong in ways that advance science. We learn from our mistakes and keep pushing on, and that's the best that can be expected. *The Universe* and *Early Man* from fifty years ago tell us how wrong we were then; the editions of 2060 will tell us how wrong we are now, and how far we've gone beyond that. And science will be all the better for it.

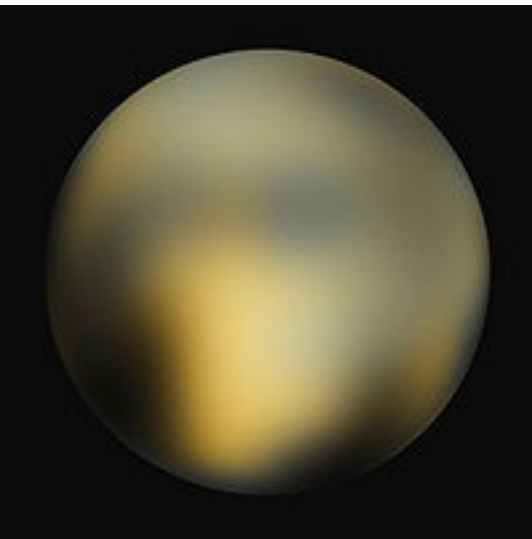
Another book I have is one my grandmother gave me many years ago. It's an American history textbook, dated 1880. The most recent events in it are about the contested election of 1876, and the removal of Union troops from the South following Reconstruction. And on the back page, handwritten in faded ink, is a paragraph of the shooting of President James Garfield in 1883. He was apparently still alive at the time of the entry; the writer had no idea what would come next. Today, 2010, we still don't.



PLUTO'S WHITE, DARK-ORANGE AND CHARCOAL-BLACK TERRAIN CAPTURED BY NASA'S HUBBLE

NASA has released the most detailed and dramatic images ever taken of the distant dwarf planet Pluto. The images from NASA's Hubble Space Telescope show an icy, mottled, dark molasses-colored world undergoing seasonal surface color and brightness changes. Pluto has become significantly redder, while its illuminated northern hemisphere is getting brighter. These changes are most likely consequences of surface ice melting on the sunlit pole and then refreezing on the other pole, as the dwarf planet heads into the next phase of its 248-year-long seasonal cycle. Analysis shows the dramatic change in color took place from 2000 to 2002.

The Hubble pictures confirm Pluto is a dynamic world that undergoes dramatic atmospheric changes not simply a ball of ice and rock. These dynamic seasonal changes are as much propelled by the planet's 248-year elliptical orbit as by its axial tilt. Pluto is unlike Earth, where the planet's tilt alone drives seasons. Pluto's seasons are asymmetric because of its elliptical orbit. Spring transitions to polar summer quickly in the northern hemisphere, because Pluto is moving faster along its orbit when it is closer to the sun.



Ground-based observations, taken in 1988 and 2002 show the mass of the atmosphere doubled during that time. This may be because of warming and melting nitrogen ice. The new Hubble images are giving astronomers essential clues about the seasons on Pluto and the fate of its atmosphere.

When the Hubble pictures taken in 1994 are compared to those of 2002 and 2003, astronomers see evidence that the northern polar region has gotten brighter, while the southern hemisphere darkened. These changes hint at very complex processes affecting the visible surface. The images will help planetary astronomers interpret more than three decades of Pluto observations from other telescopes.

"The Hubble observations are the key to tying together these other diverse constraints on Pluto and showing how it all makes sense by providing a context based on weather and seasonal changes, which opens other new lines of investigation," says principal investigator Marc Buie of the Southwest Research Institute in Boulder, Colo. These Hubble images, taken by the Advanced Camera for Surveys, will remain the sharpest view of Pluto until NASA's New Horizons probe is within six months of its flyby during 2015. The Hubble images are invaluable for picking the planet's most interesting hemisphere for imaging by the New Horizons probe. New Horizons will pass by Pluto so quickly that only one hemisphere will be photographed in detail. Particularly noticeable in the Hubble images is a bright spot that has been independently noted to be unusually rich in carbon monoxide frost. It is a prime target for New Horizons. "Everybody is puzzled by this feature," Buie said. New Horizons will get an excellent look at the boundary between this bright feature and a nearby region covered in pitch-black surface material.

The Hubble images surface variations a few hundred miles across that are too coarse for understanding surface geology. But in terms of surface color and brightness, Hubble reveals a complex-looking world with white, dark-orange and charcoal-black terrain. The overall color is believed to be a result of ultraviolet radiation from the distant sun breaking up methane present on Pluto's surface, leaving behind a dark and red-carbon-rich residue.

"This has taken four years and 20 computers operating continuously and simultaneously to accomplish," Buie said. Buie developed the special algorithms to sharpen the Hubble data. He plans to use Hubble's new Wide Field Camera 3 to make additional observations prior to the arrival of New Horizons.

Astronomical Trivia

Last issue's trivia question- Who encouraged Issac Newton to organize his papers and findings into the book that would eventually be known as the *Principia*? -was, again, correctly answered by Chris Denny. It was Edmund Halley, Newton's friend and England's Astronomer Royal.

This issue's trivia question-

Today, we know the constellation commonly called the Big Dipper in the northern skies. But it has gone by other names to peoples in other cultures. What are some of the other names it has been called over the years?

Larry Parmeter is the editor of

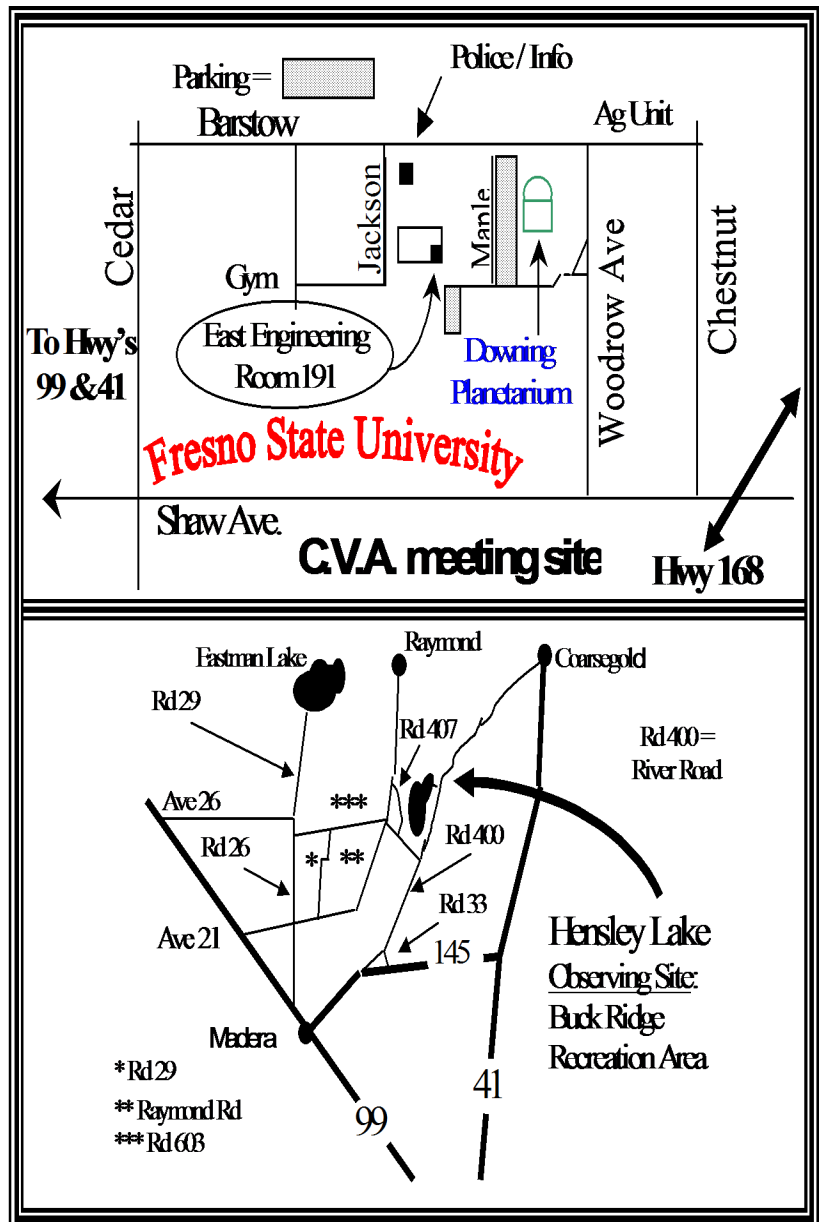
The Observer

phone # 559-276-8753

E-mail lanparmeter3@hotmail.com

Deadline for articles submission for the
May-June 2010 issue-
April 15

Please submit articles in Microsoft Word format



Mount Wilson-Still Going Strong after 106 years

Few people realize it, but southern California's Mount Wilson Observatory is over 100 years old. Founded by George Ellery Hale, the observatory, sitting 5100 feet about the LA skyline, still has some of the largest telescopes around and excellent viewing opportunities. Hale's original 60" scope is now the largest publicly accessible telescope in the world; the 100" Hooker telescope, which Edwin Hubble used to find the expansion of the universe, is still used for scientific studies, and the solar telescopes are still actively gathering data as well.

Mount Wilson was established in 1904 by Hale, who wanted a place to do solar observing. His father, a wealthy Chicago businessman, donated the funding for the 60", and John Hooker, a Los Angeles entrepreneur, paid for the 100". The observatory was run in conjunction with the Palomar Observatory until 1979, when the two were split up; the 100" telescope was shut down in 1986 due to light pollution, but reactivated in 1992. Today the observatory is jointly run by the Carnegie Institution and the Mount Wilson Institute, a private non-profit group.

Right-the 100" Hooker Telescope

