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The Observer

The Newsletter of Central Valley Astronomers of Fresno

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CVA Calendar

May 5-CVA meeting 7pm
CSUF

May 19-Star party Eastman
Lake

May 25-Public Star Party
at RiverPark

June 2-CVA meeting 7pm
CSUF

June 9-Star party Miller-
ton Lake

June 16-Star party East-
man Lake

June 25-Star Party
RiverPark

Astronomical Object of the month: M81

The galaxy M81, seen here with its companion, M82, is one of the most familiar objects in Ursa Major. It is also known as NGC 3031, or sometimes as Bode's Galaxy, named after Johann Bode, a German scientist who was actually the first to see it in 1774; Charles Messier saw it five years later and put it on his famous list of objects. M81 is 12 million light years from Earth, and is a prototypical spiral. It is now believed to have a massive black hole at its center

Image-NASA/HST

Quote of the month-

In astronomy, observations are not to be believed until they are confirmed by theories.

Arthur Eddington-English astrophysicist



Full Moon-May 5



New Moon-May 20



Full Moon-June 4



New Moon-June 19



Full Moon-July 3

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The President's Message

Hello everyone-

Fundraising efforts are in full swing this month and next as two major astronomical events take place. Our goal is to sell lots of solar glasses and raffle tickets. We purchased 350 pairs of glasses from Rainbow Symphony. As of the April River Park Public moon and planet party, we have about 100 pairs left to sell at The Discovery Center (TDC) Solar Eclipse event Sunday, May 20 and Venus Transit, Tuesday June 5th.

We sold around 60 raffle tickets before the River Park event 28April. We plan on selling many more by the time of the raffle drawing on 25August at River Park.. We already have sold enough to pay for the telescope and some of the glasses.

For your information, CVA is celebrating its' 60th year with a raffle drawing and sale of solar glasses. We plan to raffle an Orion 8" Classic Dobsonian telescope, as well as many other prizes, including club memberships, and exclusive club viewing parties for other winners. The grand prize telescope winner receives extensive instructions from the club on the use and what to view and when to look with their telescope.

The winner and their family are also our special guests at the Eastman Lake star party and Star BQ this September. I would like to extend an invitation at this time to ALL CVA MEMBERS to attend this year. We will serve a celebratory cake in honor of our 60th Diamond Anniversary celebration. More announcements and reminders will be forthcoming in the months ahead.

Before I go on, I would like to acknowledge the hard work in setting up and implementing the raffle and solar glasses fundraising by our board. A great big and loud shout out and much thanks goes to Clarence Noell. He sold dozens of pairs of glasses and lots of raffle tickets.

Also, thank you to his grandson Casey Chumley, our club secretary, for creating and printing raffle and solar glasses flyers and posters. Thank you to Dave Artis for updating our Plasma Meteor cards and special logo stickers to seal the glasses envelopes.

Thanks to all who helped make this a successful ongoing endeavor for the club and fundraising revenue.

Some CVA members plan on being at the Discovery Center 20May for the (Annular) solar eclipse. Fred Lusk is going to Redding and I have planned for Lovelock, NV to visit my older brother and his family for a couple of days. Brian Bellis will be at the Downing Planetarium with Dr. White. If you are not making any special plans, we would welcome your telescopes at TDC if you have solar viewing capabilities.

June, will see the Venus Transit event. The last time, Greg Morgan and his family traveled all the way to Boston to photograph the rare astronomical event. Our June CVA calendar has a great picture Greg made of the Transit and boat in wide-field view in 2004. We are fortunate in being able to witness the eclipse from right here, although the Sun will set that evening before final contact across the other side occurs. This will be the last Venus Transit until sometime in 2100, over a hundred years from now! Don't miss this rare event. We will again be at TDC for this event. They are preparing for a media type event and many visitors and guests to watch this rare apparition visible from nowhere but Earth.

Please join us for these special times this month and next. The last solar eclipse for Fresno was in June 2002, and after 10 years, they're baack!

-Randy

Profiles in Astronomy

Eduard Heis 1806-1877

Heis was born and raised in Germany. He was educated at the University of Bonn, and began a career as a mathematics teacher in Cologne. In 1832, he took a position at Aachen University, and stayed there until 1852, when he was appointed a professor, then rector at the University of Munster. He would remain at Munster until his death in 1877.

Heis had exceptionally good eyesight, and used it to do naked eye observations of stars and constellations over a period of some forty years. In particular, he observed and calculated the luminosity of stars, the zodiacal light, the Milky Way, and also auroras. With his students, he observed, calculated, and recorded over 15,000 "shooting stars," and determined that many of them were periodical. In addition, he calculated and plotted a number of historic solar and lunar eclipses dating back to ancient times, and also plotted the orbit of Halley's Comet. During the day, where there were no stars to be observed, he studied sunspots, and also determined that they were periodical. On top of all that, he had a special interest in variable stars, and discovered and calculated the positions of a number of them over the years (for his variable star work, he did use a telescope; his eyes were good, but not *that* good).

Heis was a prolific writer as well, and recorded all of his observations in several volumes, the most famous of which is the *Atlas Coelestis*(1872). He was honored by many leading institutions before his death, and much of his research and observations are still relevant today.



Glacier Point 2012

August 24 and 25, 2012

Sign Up Now!



Contact Dave or Bonnie Dutton at
658-7642

Or twodocs@sierratel.com

CVA Calendar May-June 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		May 1	2	3	4	5 CVA monthly meeting CSUF 7pm Full Moon 
6	7	8	9	10	11	12 Partial solar eclipse in Canada and U.S.
13 Mother's Day	14	15	16	17	18	19 Star party Eastman Lake Armed Forces Day
20 New Moon 	21	22	23 Riverside Tele- scope Maker's Con- ference begins-runs through May 28	24	25	26 Public star party RiverPark
27	28 Memorial Day- legal holiday	29	30	31	June 1	2 Monthly meeting CSUF 7pm
3	4 Full Moon 	5	6 Transit of Venue	7	8	9 Millerton Lake star party
10	11	12	13	14 Flag Day	15 Courtright Star party-Fri-Sat	16 Star party Eastman Lake
17 Father's Day	18	19 New Moon 	20 Summer Solstice	21	22	23 Public star party RiverPark Courtright star party Sat- Sun
24	25	26	27	18	29	30

What's New in Space

Space-X's Dragon-ISS Mission Delayed

On April 20, NASA and Space-X announced that the launch of Falcon-Dragon to the International Space Station has been delayed at least a week and possibly longer. The launch, which had been scheduled for April 30, now has its earliest launch date on May 7 and may be delayed beyond that. The Dragon-ISS mission is a major test of Space-X's Dragon spacecraft; it will be launched unmanned into orbit, and then rendezvous and dock with ISS, and, after about a week, undock and return to Earth. The craft will carry supplies to ISS, but NASA emphasized that there is nothing critical aboard in case the mission is not successful. If the mission is successful, Dragon will start regular supply runs to ISS in the fall of

2012, at least four a year, according to a contract that Space-X has signed with NASA.

At the same time, Space-X also announced that NASA has given it funding to develop a rocket escape system to save the Dragon spacecraft in the event of a rocket failure. This is a step towards developing a manned version of Dragon, which it plans to have operational by 2015. Space-X hopes to get a NASA contract to taxi astronauts to and from ISS; it has stiff competition, however, from other commercial spaceflight companies, especially Boeing and Sierra-Nevada, which also plan to have manned spacecraft operational at about the same time.



Discovery Takes its Last flight

On April 18, the space shuttle Discovery made its last flight, on top of a 747, from the Kennedy Space Center to Washington D.C., where it will become an exhibit in the Smithsonian Air and Space Museum. The 747's pilot flew the combined craft over the Capital building and the Washington Monument while thousands watched from the ground. Many later said that they felt like crying, realizing that it really was the end of the shuttle era. Later this year, the shuttle Atlantis will be flown to New York, and the shuttle Endeavour will go to the Johnson Space Center in Houston to be displayed.



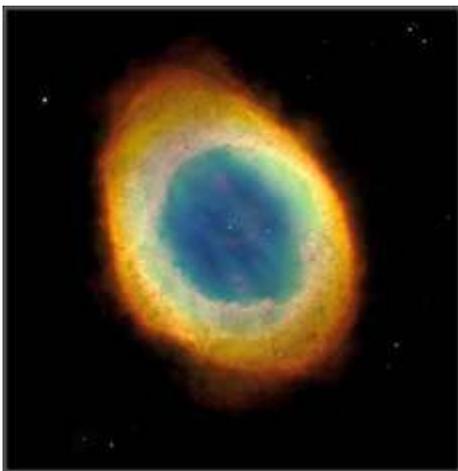
Six Great Objects to See in the Summer Sky



Above-M8, also known as NGC 6523, the Lagoon Nebula in Sagittarius



Right-M13-the great globular cluster in Hercules

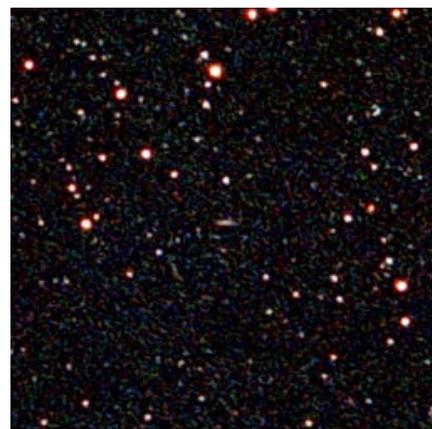


Left-M 57, the ring Nebula in Lyra, always a nice object to view

Right-M87 or NGC 4486, the great elliptical galaxy in Virgo, widely believed to be one of the largest galaxies in the known universe



Left-M17-the Omega Nebula, also in Sagittarius



Right-the galaxy cluster in Canes Venatici-contains hundreds of galaxies, including M 100, M 98, M 85, M 91, and M 88

Dawn Spacecraft Sends Back New and Exciting images of Vesta

NASA's Dawn spacecraft has revealed unexpected details on the surface of the giant asteroid Vesta. New images and data highlight the diversity of Vesta's surface and reveal unusual geologic features, some of which were never previously seen on asteroids.

Vesta is one of the brightest objects in the solar system and the only asteroid in the so-called main belt between Mars and Jupiter visible to the naked eye from Earth. Dawn found that some areas on Vesta can be nearly twice as bright as others, revealing clues about the asteroid's history.

"Our analysis finds this bright material originates from Vesta and has undergone little change since the formation of Vesta over 4 billion years ago," said Jian-Yang Li, a Dawn participating scientist at the University of Maryland, College Park. "We're eager to learn more about what minerals make up this material and how the present Vesta surface came to be."

Bright areas appear everywhere on Vesta but are most predominant in and around craters. The areas vary from several hundred feet to around 10 miles across. Rocks crashing into the surface of Vesta seem to have exposed and spread this bright material. This impact process may have mixed the bright material with darker surface material.

While scientists had seen some brightness variations in previous images of Vesta from NASA's Hubble Space Telescope, Dawn scientists also did not expect such a wide variety of distinct dark deposits across its surface. The dark materials on Vesta can appear dark gray, brown and red. They sometimes appear as small, well-defined deposits around impact craters. They also can appear as larger regional deposits, like those surrounding the impact craters scientists have nicknamed the "snowman."

"One of the surprises was the dark material is not randomly distributed," said David Williams, a Dawn participating scientist at Arizona State University, Tempe. "This suggests underlying geology determines where it occurs."

The dark materials seem to be related to impacts and their aftermath. Scientists theorize carbon-rich asteroids could have hit Vesta at speeds low enough to produce some of the smaller deposits without blasting away the surface.

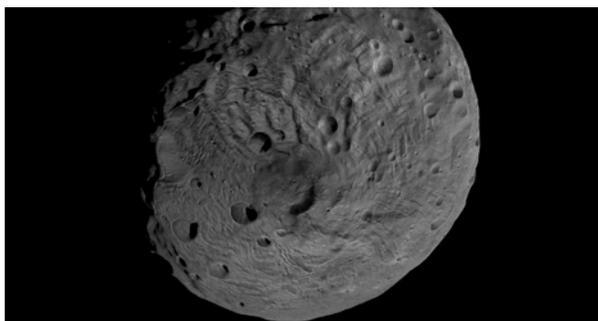
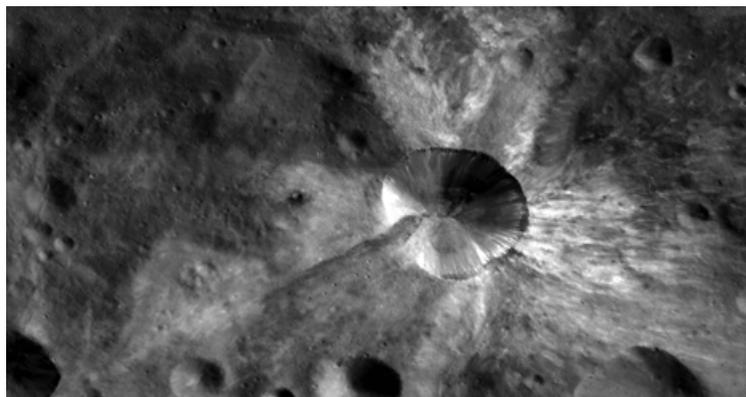
Higher-speed asteroids also could have hit the asteroid's surface and melted the volcanic basaltic crust, darkening existing surface material. That melted conglomeration appears in the walls and floors of impact craters, on hills and ridges, and underneath brighter, more recent material called ejecta, which is material thrown out from a space rock impact.

Vesta's dark materials suggest the giant asteroid may preserve ancient materials from the asteroid belt and beyond, possibly from the birth of the solar system.

"Some of these past collisions were so intense they melted the surface," said Brett Denevi, a Dawn participating scientist at the Johns Hopkins University Applied Physics Laboratory in Laurel, Md. "Dawn's ability to image the melt marks a unique find. Melting events like these were suspected, but never before seen on an asteroid."

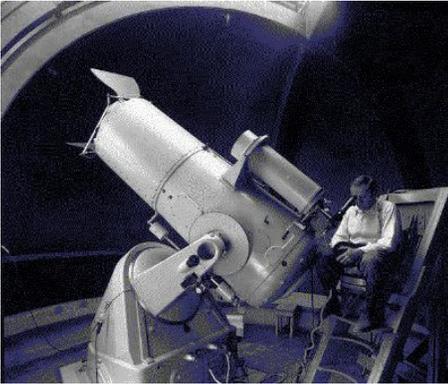
Dawn launched in September 2007. It will reach its second destination, Ceres, in February 2015.

"Dawn's ambitious exploration of Vesta has been going beautifully," said Marc Rayman, Dawn chief engineer at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, Calif. "As we continue to gather a bounty of data, it is thrilling to reveal fascinating alien landscapes."



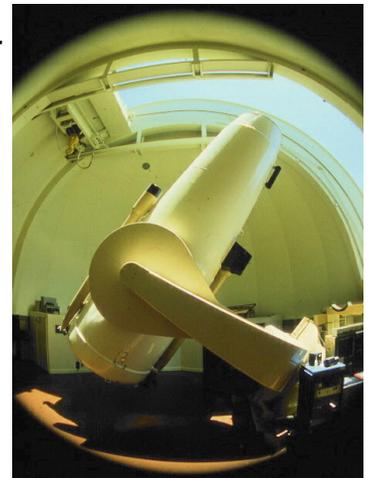
The Many Eyes of Palomar

People who visit Palomar Observatory, about halfway between Los Angeles and San Diego, go mainly to see the justifiably famous 200" Hale Telescope, and are surprised to find that the mountain is home to several telescopes, not just one. And the Hale Telescope, dedicated in 1948, isn't the oldest one on the mountain, either. There are actually seven telescopes on Palomar Mountain; they are all owned and managed by CalTech, and used by CalTech astronomers and partners in the observatory administration, which includes Mt. Wilson Observatory and Cornell University. They are:



The 18" Schmidt Camera-this was the first telescope on the mountain, built and dedicated in 1936. It is known as "Little Eye." In its early years, it was used extensively by CalTech astronomer Fritz Zwicky(see Astronomy Short) for pioneering studies in supernovas , In the 1970s and 80s, it was used by Gene and Carolyn Shoemaker to find comets and near-Earth asteroids. The 18" does not refer to the diameter of the mirror, but to the diameter of the optical corrector plate at the front of the telescope. The 18" Schmitt is rarely used nowadays due to outdated equipment and a building that leaks in the rain. Left-Fritz Zwicky at the 18" Schmidt Camera c. 1940

The 48" Schmidt Camera, also known as the Samuel Oschin Telescope. This instrument was finished and dedicated in 1948, the same year as the 200", so it has always been in the shadows of its bigger cousin. Mt. Wilson astronomer Walter Baade was the driving force behind its design and construction, and Edwin Hubble used it extensively before he died. It was used for the Sloan Sky survey in the 1950s, and is still active in an ongoing digital sky survey today. Right-the 48" Schmidt Camera



The 200" Hale. The "Big Eye," This is one of the best known and most famous telescopes in the world. It was also the largest operational telescope in the world from 1948 to 1995. Even though there are larger telescopes today, it still does groundbreaking work, with updated electronics and optics, over 60 years after it saw first light.

The 60" Oscar Meyer Telescope. The funding for this telescope, built and dedicated in 1970, was provided by the family of the hot dog magnate, who had an amateur's interest in astronomy. It is used for everything from planet observing to quasar hunting.

The Palomar Testbed Interferometer. This device was built and started operation in 1995. IT is used to study the sizes and shapes of stars using high resolution imagery. As of this time, it is inactive.

The Palomar Planet Search Telescope. This telescope was built in 2003 to work in conjunction with other telescopes around the world in the search for extrasolar planets. It is currently inactive as well.

The 24" Robotic Planetary Telescope. This telescope was built and began operation in 2006. It is used to monitor Saturn's largest moon Titan, and also to do other planetary work.

Below-two views of the 200" Hale Telescope



Larry Parmeter is the editor of
The Observer

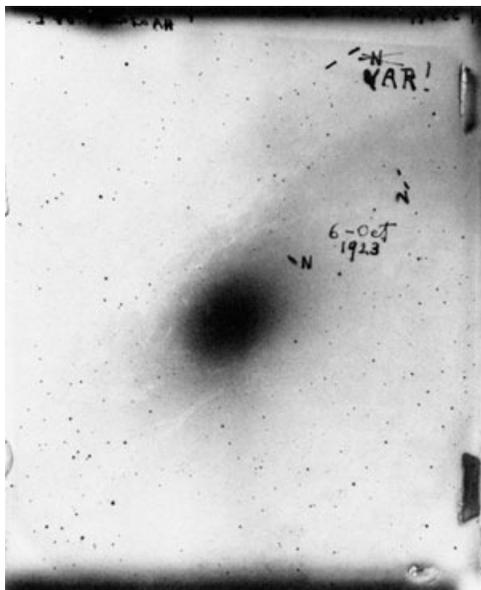
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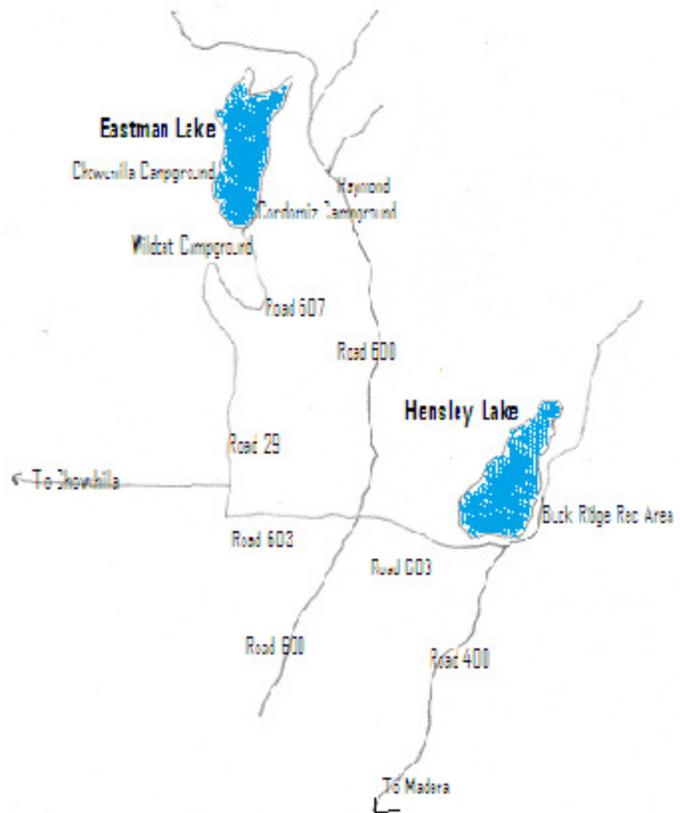
Deadline for articles submission for the
July–August 2012 issue
June 20

Please submit articles in Microsoft Word format

An Image for the Ages



A black-on-white photo of the Andromeda Galaxy, M 31, taken by Edwin Hubble in the 1920s, probably with the 100" Hooker Telescope at Mt. Wilson. In the upper right hand corner, Hubble has marked "Var!", indicating that he found a Cepheid Variable star in Andromeda. With this discovery, Hubble was able to calculate the distance to M31, and establish that the "nebulae" were actually galaxies in their own right, "island universes" that stretched as far as the telescope eye could see, and that the universe was far vaster than anyone had previously imagined. It was this discovery that made Hubble's name known throughout the world.



To Hensley and Eastman Lakes-Star party sites. The Eastman Lake starwatching site is at the boat ramp at the end of Road 29, just past the Cardinez campground.

Astronomy Short-

Like other fields of science, astronomy has had its share of colorful characters over the years, and one of the most colorful in recent times was Fritz Zwicky(1898-1974). Zwicky was born in Bulgaria, the son of a Swiss father and a Czech mother. After being educated in Europe, he came to CalTech as a graduate student in 1925, rose to a professorship, and stayed in Pasadena for the rest of his life. One of his most famous episodes occurred in the CalTech faculty dining room, when, during a formal luncheon one day, he dropped to the floor, started doing one-armed pushups, and challenged any other faculty member to best him. On another occasion, while using the 200" Hale telescope at Palomar, he had an assistant take a rifle and fire shots through the viewing slit of the dome, on the premise that they would break up the air and allow for better seeing. The seeing did not get better, and Zwicky was temporarily banned from using the Hale. Despite his antics, he was a pioneer in supernova research, and, in the 1930s, theorized that most of the universe was made up of unseen matter, something that was not taken seriously at the time, but was confirmed by studies of "missing matter" in the 1970s.