November-December
2014
Volume 62
Issue 6

The Observer

The Newsletter of Central Valley Astronomers of Fresno

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CVA Calendar

November 1-Public Star Party at Riverpark

November 8-CVA monthly meeting at CSUF-7pm

November 22-CVA star Party of Eastman Lake

December 6-CVA monthly meeting-elect officers for 2015. CSUF at 7pm

December 20-CVA Star Party at Eastman Lake

The Brilliant Red Moon

The Lunar Eclipse of 2014, in the early morning hours of October 8, taken by CVA member Chad Quant.

The Blacked Out Sun

And a partial Sun as well-the partial Solar Eclipse of October 23-two major solar events in the same month-

This won't happen again for quite a while in the North American area

In the meantime, the total Solar Eclipse of 2017 is right around the corner-start getting geared up for it-This is the one we've been waiting for for a long time

Image-Google images

When you wish upon a star
Makes no difference who you are...
-Jimney Cricket

○ Full Moon-November 6

● New Moon– November 22

○ Full Moon –December 6

● New Moon-December 21

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

Two Good Winter Objects to View-

M78 in Orion

Often lost in the shadow of the better known Orion Nebula, M78 is still a great object to see with a small telescope.

M46 in Puppis

Another good object that is often overlooked, M46, also known as NCG 2437, includes the planetary nebula NGC 2438

Number of extra-solar planets found as of October 2014- 1,849

How many more are out there-thousands, tens of thousands?

Profiles in Astronomy

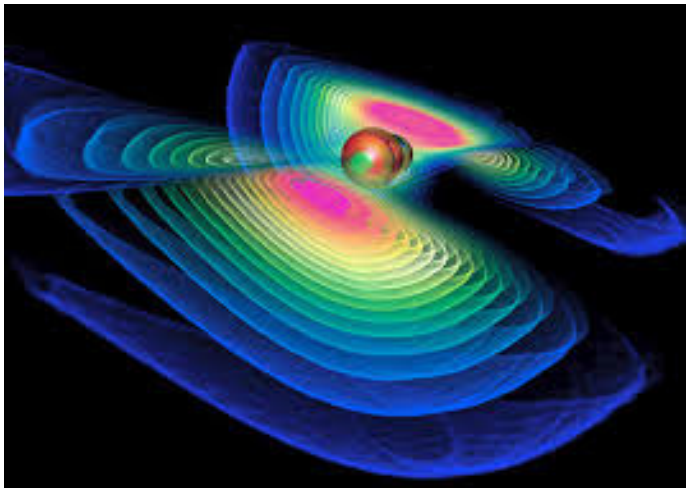
Roderick Redman 1905-1975

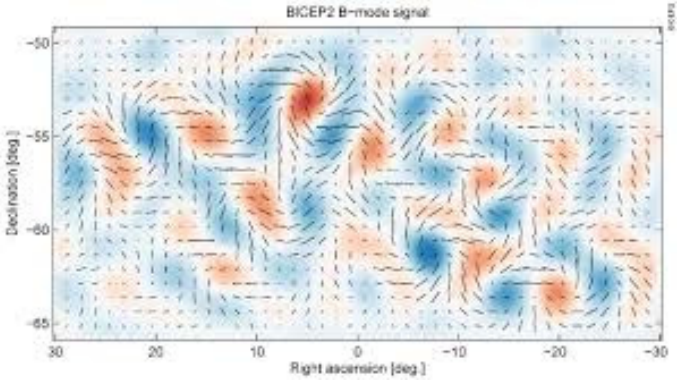
Redman was born and raised in Gloucestershire, England, and attended St. John's College, Cambridge, where he studied astronomy and mathematics, and did his doctoral thesis under Arthur Eddington, the world-renowned astrophysicist. His first major posting was at the Dominion Astrophysical Observatory in Victoria, British Columbia in Canada, from 1928-1931. He then returned to Cambridge, where he worked at the solar physics observatory. From 1939-1947, Redman was the assistant director of the Radcliffe Observatory in Pretoria, South Africa, where he did extensive studies of the southern skies. From 1947 until his retirement in 1972, he served as director of the Oxford University Combined Observatories. He was also president of the Royal Astronomical Society from 1959-1961, and a Fellow of the Royal Society.

Redman became one of the world's foremost experts in solar spectroscopy, and used it to study both stellar populations and solar events. He was one of the first to make a detailed analysis of the sun's chromosphere, determining its spectrum and temperature structure. In addition, he made fundamental discoveries concerning solar flares and prominences. He won many honors for his work and is considered a pioneer in solar studies. An asteroid, 7886 Redman, is named after him.

Sources-Wikipedia
The International Encyclopedia of Astronomy

New Studies Cast Doubt on Gravity Wave Discovery





Ever since the joint announcement by the Harvard-Smithsonian Center for Astrophysics and the California Institute of Technology that gravity waves had been found with the BICEP2 telescope at the South Pole, controversy has ensued. Now, several other research groups are claiming that the original discovery has been biased due to interstellar gas and dust, a claim that the original discoverers are looking into and say may have some validity.

Other groups in the search for gravity waves have reported that their experiments show that large amounts of dust interfere with data that suggest evidence of such waves. They say that the BICEP2 study was thrown off by this dust, and produced false positive data that favored gravity waves. Researchers from both Cal-Tech and the Smithsonian are looking at the original data for proof that their results may have been compromised by previously undetected gas and dust. While the possibility still exists that they did, in fact, find gravity waves, the feeling now is that they may soon publish a retraction of their original announcement. But, then, that's the way science is supposed to work.

CVA Calendar November-December 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 CVA public star party at Riverpark All Saints' Day Day of the Dead
2 Daylight Savings Time ends	3	4	5	6 Full Moon ◯	7	8 CVA monthly meeting at 7pm CSUF
9	10	11 Veterans' Day Tycho Brahe's Super-nova first seen-1572	12	13 Mariner 9 orbits Mars-1971	14	15
16 Luna 17, first rover on the Moon-1970	17	18	19	20	21	22 CVA starparty at Eastman Lake New Moon ● 51st anniversary of Kenne-dy's assissination
23	24	25	26	27 Thanksgiving Day	28	29
30	December 1	2 Galileo views the Moon with his new telescope-1609	3 Pioneer 10 flies by Jupiter 1973	4	5	6 CVA monthly meeting 7pm CSUF-elect officers for 2015 Full Moon ◯
7 Pearl Harbor Day	8	9	10	11	12	13
14 Mariner 2 flies by Venus-1962	15	16 Hanukkah begins	17 Wright Brothers Day	18	19	20 CVA star party at East-man Lake
21 Winter Solstice	22 New Moon ●	23	24 Christmas Eve	25 Christmas Day	26 Boxing Day-Canada, England Kwanaza	27
28	29	30	31 New Year's Eve	Jan 1, 2015 New Year's Day	2	3

What's New in Space

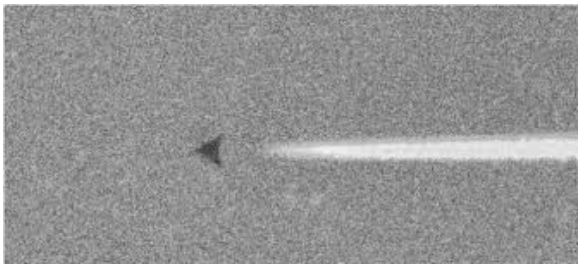
The Secrets of Groom Lake Part 2

Nothing much was said about classified aircraft until March 2006, when the trade magazine *Aviation Week* published a cover story on the Blackstar project. Blackstar, the story ran, was a top secret TSTO(Two Stage to Orbit) dual spacecraft, consisting of a large delta-shaped "mothership," and a smaller triangular craft. According to the story, the Air Force, in the wake of the Challenger disaster in 1986, grew concerned that it might not have access to spaceflight for its military missions and experiments. The Blackstar program, therefore, was started around 1989 or 1990. It consisted of two craft: a very large delta-winged plane, the "mothership;" and a much smaller winged craft. According to the article, and to aerospace experts, the large craft, called the SR-3, which they say greatly resembles the XB-70 bomber of the 1960s, would carry the smaller craft, known as the XOV or Experimental Orbital Vehicle and resembling the X-20 Dynasoar of the 1960s, at speeds approaching mach 4 up to about 100,000 feet, and then release it. It would then fire its own combined-cycle rocket engines and fly as far as low Earth orbit. When its mission was finished, it would reenter the atmosphere and land on a runway, presumably at Groom Lake. Although many dismissed this article as pure unproven fantasy, others in the know believed that there was something behind it. They pointed to the fact that a surreptitious photograph taken of Groom Lake in the mid-1990s shows three very large delta-wing aircraft outside a hanger, which closely parallel the "mothership" descriptions. Plane watchers near Groom Lake and also in the Mojave Desert of Southern California have reported seeing very large delta-wing aircraft at times. Added to that, they note, The NASP(National Aerospace Plane), which was designed to be a Single Stage to Orbit spaceplane, initiated by President Reagan in the early 1980s, was cancelled around 1987, supposedly due to its high costs and difficulty with developing the engines. Many aerospace experts now believe that the NASP simply went into the Air Force's Black World, only to emerge(sort of) years later as part of the Blackstar program. It is believed that the Blackstar program has been operational since the late 1990s, although it may have recently been replaced by the X-37 unmanned spaceplane, which is known to exist and has flown several times. What is also interesting is that the Blackstar spacecraft , or whatever it is called, could be either unmanned or manned. If so, then a number of people that only a few know about have been astronauts, or as the Air Force called them during the days of the X-20/MOL program, "aerospace research pilots."

The reports of the Blackstar program refocused interest in the Air Force's classified aircraft programs. From about 2007 on, a number of people have reported seeing strange looking and sounding aircraft in both the U.S. and Europe. In particular, there have been a number of sightings of silent delta-shaped aircraft which seem to float through the skies; they usually have three lights in a triangular pattern, sometimes with a fourth in the middle of their undersides. While some UFO theorists believe that these are alien spacecraft, others strongly believe they are part of the Air Force's or the intelligence agencies' stable of classified aircraft. If they are, then they are using some kind of as-yet revealed propulsion system, perhaps a gravitics system similar to the one described in Nick Cook's 2002 book *The Search for Zero Point,* which theorizes that, among other things, the military has been secretly working on what can only be called anti-gravity engines since the end of World War II.

Above and right-images of the mysterious craft with the lights on their undersides

In addition, mysterious delta or triangular shaped craft have been seen at high altitudes, especially in Texas. In 2012, such aircraft were seen over Texas, and again on March 10, 2014, when a number of people in Kansas, Texas, Oklahoma, and New Mexico saw, and photographed three triangular shaped aircraft traveling southwest in formation at very high speed. Some who have seen the 2014 images say they are simply B-2 stealth bombers. Others though, including many aircraft experts, claim that they are something completely different. After the March 2014 sightings, several people contacted Whitman Air Force Base in Missouri, where all the B-2s are stationed, and asked about their operations on the day of the sightings. They were told that no B-2s flew that day.



Left and right-two photographs of the triangular shaped aircraft seen on March 10, 2014. Left-from Wichita, Kansas; Below-from Armarillo, Texas

Some aircraft experts now believe that the Texas and other sightings were of either the SR-72 or possibly the Northrop RQ-180. Despite reports that these programs are just beginning, they wonder if they've actually been underway for some years, evolving out of earlier classified programs. In particular, they strongly surmise that the SR-72 is the unclassified version of the Aurora, that after all these years, it is finally being brought out into the open, and in fact, illustrations that Lockheed-Martin has released of the SR-72 are very similar to 1990s surmised depictions of the Aurora.

So, the mystery of what's actually at Groom Lake goes on into the 21st century. Stay tuned.

NASA Chooses Boeing and Space-X for ISS Flights

On September 12, NASA announced that the two finalists for ferrying American astronauts to and from ISS will be Boeing and Space-X. Both the Boeing CEV-100 and Space-X's Dragon M1 will be capable of holding up to seven astronauts, will make pinpoint landings, and will be reusable. NASA wants manned flights for both to be operational by 2017, when the contract with RKA, the Russian Space Agency, expires. Boeing's CEV-100 may make its first manned test flight as early as next year, while Space-X's Dragon will fly in 2016. The CEV-100 will be launched atop an Atlas 5 rocket, while Dragon will use Space-X's Falcon booster rocket. The Space-X Dragon M-1 was particularly chosen, say experts, because Space-X has its own American-made booster, the Falcon, while Boeing's Atlas rocket relies on Russia's Energia for the main engines. In the wake of the Ukraine situation, Russia has threatened to cut off supplies of the Atlas engines.

The third company in the running, Sierra-Navada, with its Dreamchaser mini-shuttle, was considered a long shot, given NASA's problems with its own space shuttle during its 30 year operational history. Despite its advanced design and new safety features, as well as being launched on top of an Atlas rocket, instead of being strapped to its sides, the Dreamchaser was just too much of a PR risk for NASA if anything went wrong. S-N now hopes to find other customers in the expected commercial spaceflight boom starting in the 2020s.

RKA, the Russian Space Agency, has already told NASA that it will not extend the contract to fly Americans to ISS past 2017. In addition, RKA now plans to pull out of the ISS project no later than 2022. Earlier this year, RKA signed an agreement wit the Chinese Space Agency for "future space joint space missions," which may include a space station in the 2020s, as well as a possible joint moon landing program. Russia has already announced that it wants to land men on the moon by 2030.

Hubble Maps the Temperature and Water Vapor on an Extreme Exoplanet

A team of scientists using NASA's Hubble Space Telescope has made the most detailed global map yet of the glow from a turbulent planet outside our solar system, revealing its secrets of air temperatures and water vapor. Hubble observations show the exoplanet, called WASP-43b, is no place to call home. It is a world of extremes, where seething winds howl at the speed of sound from a 3,000-degree-Fahrenheit "day" side, hot enough to melt steel, to a pitch-black "night" side with plunging temperatures below 1,000 degrees Fahrenheit.

Astronomers have mapped the temperatures at different layers of the planet's atmosphere and traced the amount and distribution of water vapor. The findings have ramifications for the understanding of atmospheric dynamics and how giant planets like Jupiter are formed. "These measurements have opened the door for a new kinds of ways to compare the properties of different types of planets," said team leader Jacob Bean of the University of Chicago.

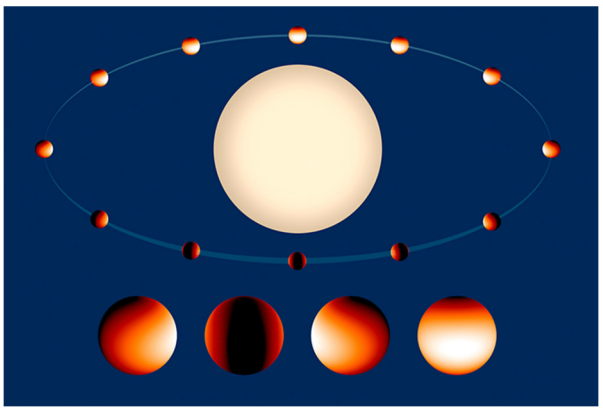
First discovered in 2011, WASP-43b is located 260 light-years away. The planet is too distant to be photographed, but because its orbit is observed edge-on to Earth, astronomers detected it by observing regular dips in the light of its parent star as the planet passes in front of it. "Our observations are the first of their kind in terms of providing a two-dimensional map on the longitude and altitude of the planet's thermal structure that can be used to constrain atmospheric circulation and dynamical models for hot exoplanets," said team member Kevin Stevenson of the University of Chicago.

As a hot ball of predominantly hydrogen gas, there are no surface features on the planet, such as oceans or continents that can be used to track its rotation. Only the severe temperature difference between the day and night sides can be used by a remote observer to mark the passage of a day on this world.The planet is about the same size as Jupiter, but is nearly twice as dense. The planet is so close to its orange dwarf host star that it completes an orbit in just 19 hours. The planet also is gravitationally locked so that it keeps one hemisphere facing the star, just as our moon keeps one face toward Earth. This was the first time astronomers were able to observe three complete rotations of any planet, which occurred during a span of four days. Scientists combined two previous methods of analyzing exoplanets in an unprecedented technique to study the atmosphere of WASP-43b. They used spectroscopy, dividing the planet's light into its component colors, to determine the amount of water and the temperatures of the atmosphere. By observing the planet's rotation, the astronomers also were able to precisely measure how the water is distributed at different longitudes.

Because there is no planet with these tortured conditions in our solar system, characterizing the atmosphere of such a bizarre world provides a unique laboratory for better understanding planet formation and planetary physics. "The planet is so hot that all the water in its atmosphere is vaporized, rather than condensed into icy clouds like on Jupiter," said team member Laura Kreidberg of the University of Chicago.

The amount of water in the giant planets of our solar system is poorly known because water that has precipitated out of the upper atmospheres of cool gas giant planets like Jupiter is locked away as ice. But so-called "hot Jupiters," gas giants that have high surface temperatures because they orbit very close to their stars, water is in a vapor that can be readily traced. "Water is thought to play an important role in the formation of giant planets, since comet-like bodies bombard young planets, delivering most of the water and other molecules that we can observe," said Jonathan Fortney, a member of the team from the University of California, Santa Cruz.

In order to understand how giant planets form astronomers want to know how enriched they are in different elements. The team found that WASP-43b has about the same amount of water as we would expect for an object with the same chemical composition as our sun, shedding light on the fundamentals about how the planet formed. The team next aims to make water-abundance measurements for different planets.



This is a temperature map of the "hot Jupiter" class exoplanet WASP 43b. The white-colored region on the daytime side is 2,800 degrees Fahrenheit. The nighttime side temperatures drop to under 1,000 degrees Fahrenheit.

Article and image from NASA/ESA

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Deadline for articles submission for the January-February 2015 issue

December 20

Please submit articles in Microsoft Word format

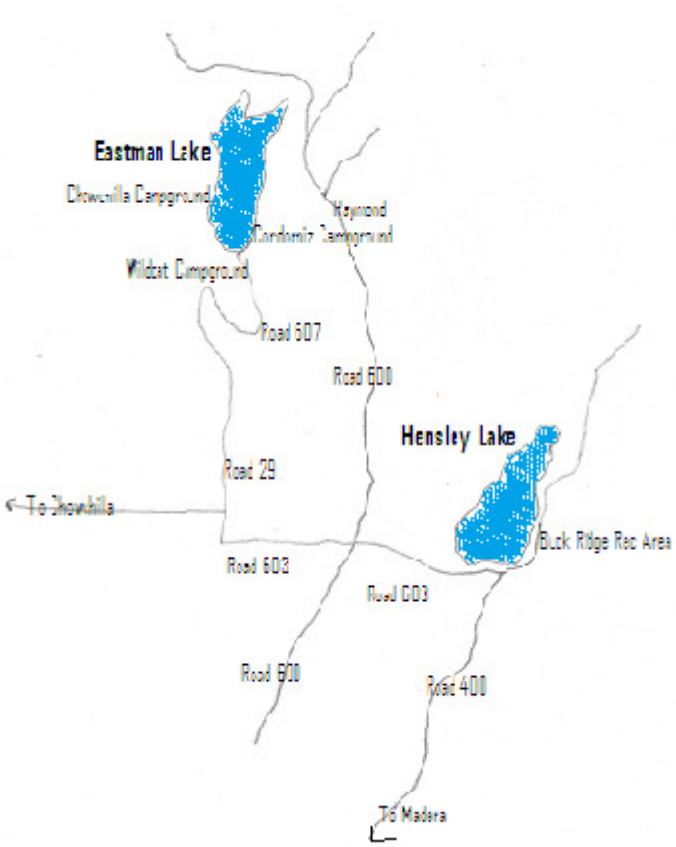
Konkoly Observatory in Hungary

Part of a continuing series on lesser known, but still important, observatories throughout the world

Konkoly Observatory was established in 1899, when Miklos Konkoly Thege donated his small private observatory, which he had built in 1871, to the government. The observatory gew and flourished over the years, eventually making up three different facilities. The original observatory, in Budapest, consistd of a .5m reflector. This facility closed in 2013. The observatory's main operations are now at Piszkesteto Mountain, which consists of four telescopes-a .5m Cassigrain, a 1m Richey-Chretien telescope, another .4m Richey-Chretien, and a .6m Schmidt camera. A third facility is the Heliophysical facility at Debrechen, which, as the name implies, does research in solar studies. Together, the three facilities are known as the Astronomical Institute of the Hngarian Academy of Sciences. Administration of the observatory is through Etovos University in Budapest

Konkoly has had a long and illustrious history in the study of variable stars. Many famous discoveries involving variable stars have been achieved there over the years. The observatory publishes a monthly journal focused on variable star research and findings. In addition, Konkoly is also involved in stellar, planetary, asteroid, and comet studies. In recent years, the observatory has focused on extra-solar planets, and has also done important research on gamma-ray burst events.

Konloky remains the premier astronomical institution in eastern Europe, and will no doubt continue to make substantial findings in the years to come.



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.

Konkoly Observatory's Heliophysical Institute at Debrechan

Right-the Schmidt camera at The Pliszkesteto Mountain facility

Information and images from www.konkoly.hu