

Summer
2013
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Issue 4

The Observer

The Newsletter of Central Valley Astronomers of Fresno

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These are the voices of
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The Pillars of Creation
3C273

The Celestial Rose

Gemini

Rigel

$E=mc^2$

String music

Quarks

Antares

Europa

Mons Olympus

For 56 years now we have
been on voyages to hear
these voices
that beckon us outwards
and back to ourselves.
-Parmeter



CVA Yosemite Glacier Point Star Party August 2-3, 2013

This year, the Glacier Point star party will be on the weekend of August 2 and 3. These are prime dates, and, as always, the viewing should be great. CVA will be staying in the Bridalveil Creek campground during the day and starwatching at the Point at night. Reserve your space now! See details and contacts inside.

Quote of the Month-

Summer breeze, makes me feel fine
Blowing through the jasmine in my mind...

Seals and Crofts, 1972

●
July 8 New Moon

○
July 22 Full Moon

●
August 6 New Moon

○
August 20 Full Moon

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The Observer Summer 2013

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

**The President's Message-See this great object of the
month sometime this summer!**



M108 in Ursa Major-

M 108 is another one of those often overlooked objects in the nighttime sky. It was discovered by Pierre Mechain, one of Messier's assistants, in 1782, and added to Messier's catalogue of objects. It is also known as NGC 3556. It is classified as a barred spiral and is considered to be a little bit larger than our own Milky Way. Scientists have determined it to be about 40 million light years from Earth; as of recent observations, it has almost 300 globular clusters orbiting it.

The Chandra X-Ray Telescope has found large amounts of x-rays streaming from its galactic center, indications of a black hole in the nucleus. Chandra has also found over 80 other x-ray sources throughout the galaxy itself. While some scientists consider it an active galaxy, others believe that it is settling into galactic midlife.

Image-NOAO/Kitt Peak

Profiles in Astronomy

Robert Grant Aitken 1864-1951

Aitken spent almost his entire professional career with Lick Observatory, first as a staff astronomer, then as director. Although relatively unknown today, he was a pioneer in stellar studies, especially in double star, "binaries;" his catalogue of binary stars is still used today.

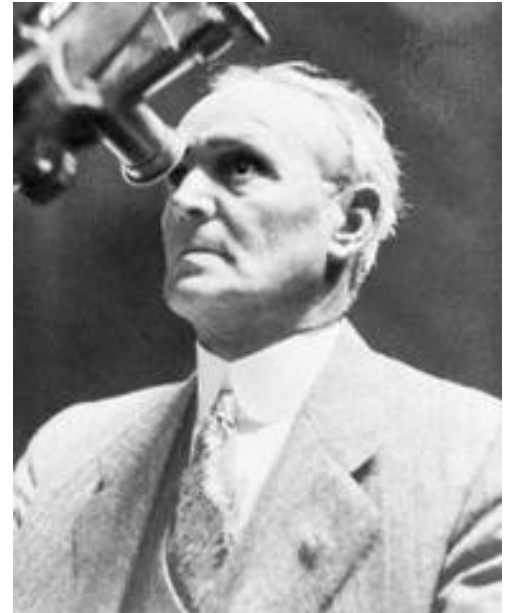
Aitken was born and raised in California, but got his college education in the East, at Williams College in Massachusetts. He then went back to California and taught high school mathematics in Livermore before returning to Williams and going graduate work. After receiving an M.A., he again returned to California, and became a mathematics professor at The College(now University) of the Pacific. He always had an interest in astronomy, and in 1895 was offered a position at Lick Observatory. He would be with Lick for the rest of his life.

Aitken made binary stars his specialty. Along with another Lick astronomer, J.J. Hussey, he observed and catalogued binaries, along with their spectral characteristics, masses, positions, orbits, and sizes. When Hussey left Lick in 1905, Aitken continued the work on his own. By 1915, he had over 3,000 binaries on his list, along with another 1,200 that Hussey had found. His binary star catalogue was officially published in 1918, although he kept adding to it for several more years. A second edition with several thousand more binaries came out in 1935.

Using his impressive mathematics skills, Aitken also worked in celestial mechanics, calculating the orbits of several comets and moons of different planets. He calculated solar eclipses as well, and took part in several expeditions to study them. The board at Lick was so impressed with his abilities that it appointed him director of the observatory in 1930. He retired from the position in 1935.

Aitken was president of the Astronomical Society of the Pacific in 1899 and 1915; he also won the Society's prestigious Bruce Medal in 1928. He was as well a member of the Royal Astronomical Society, and was awarded the its Gold Medal in 1932. An asteroid and a crater on the Moon are named after him.

Source-Wikipedia.com "Robert Grant Aitken"







CVA Glacier Point Star Party Weekend

August 2-3, 2013



Contact Dave Dutton at 658-7642
or at twodocs@sierratel.com

CVA Calendar July-August 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Cassini becomes first spacecraft to orbit Saturn-2004	2	3	4 Independence Day Chinese astronomers observe Crab Nebula supernova-1054 Pathfinder and Sojourner land on Mars-1997	5 CVA star party at Courtright Lake Friday-Saturday	6 CVA Ssar party at Eastman Lake
7	8 New Moon 	9 Ramadam begins	10	11	12	13 CVA public star party at Riverpark
14 Mariner 4 takes first close-up images of Mars-1965 Comet Shoemaker-Levy 9 crashes into Jupiter-1994	15	16	17	18	19	20 First manned landing on the Moon-1969 Viking 1 lands on Mars-1976
21 52d anniversary of Gus Grissom's MR-4 flight	22 Full Moon 	23	24	25	26	27 CVA public star party at Millerton Lake Piscis Austrinid meteor shower peaks
28 Delta Aquariid meteor shower peaks	29	30	31	August 1	2 CVA starparty at Courtright Lake Friday-Saturday CVA Glacier Point star party Friday and Saturday	3 CVA star party at Eastman Lake Glacier Point star party
4	5 Persied meteor shower peaks	6 New Moon  52d anniversary of Gherman Titov's Vostok 2 flight	7	8	9	10 CVA star party at Miller-ton Lake
11	12	13	14	15	16	17 CVA public star party at Riverpark Asaph Hall discovers Phobos and Deimos-moons of Mars-1877
18	19	20 Full Moon 	21	22	23	24 Voyager 2 flies past Neptune-1989
25	26	27	28 Gamma Dorado meteor shower peaks	29	30	31

CVA Events for the Summer of 2013

June 7-8(Fri-Sat) -Star party at Courtright Reservoir

June 8(Sat)-Star party at Eastman Lake(at the boat ramp on the east side of the lake)

June 15(Sat) -Public star party at Riverpark Shopping Center

June 22(Sat) -Monthly meeting at CSU-Fresno East Engineering Building Room 191-7PM(no meetings in July and August)

June 29-(Sat)Public star party at Millerton Lake(next to the boat ramp at the campground on the west side of the lake)

July 5-6 (Fri-Sat)-Star party at Courtright Reservoir

July 6(Sat)-Star party at Eastman Lake

July 13(Sat) -Public star party at Riverpark Shopping Center

July 27(Sat)-Public star party at Millerton Lake

August 2-3(Fri-Sat) -Glacier Point Star party!

August 3(Sat)-Star party at Eastman Lake

August 9-10(Fri-Sat) Star party at Courtright Reservoir

August 10(Sat)-Public Star party at Millerton Lake

August 17(Sat)-Public star party at Riverpark Shopping Center

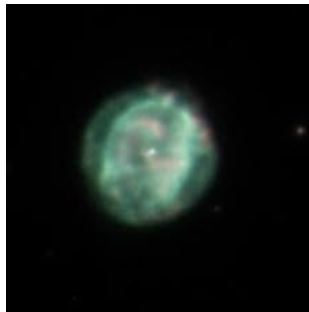
Plus-Every Friday night through July observing at the Discovery Center

Every Friday night through August observing at the Downing Planetarium

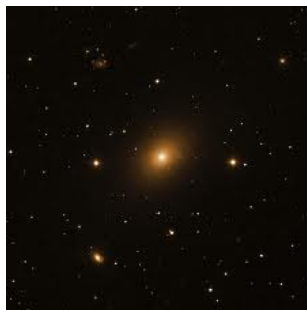
Lesser Known Summer Objects Worth Seeing

M69-Often overshadowed by its bigger and better known siblings in Sagittarius, M69 is still a beautiful globular in the lower part of the Teapot. Not far from it is M70, also a globular cluster that is overlooked.

NGC 6822-This is a barred irregular galaxy(below left), also in Sagittarius. It is often called Bernard's Galaxy, after its discoverer, Edward Bernard, who found it in 1881. At 1.6 million light years away, it is one of the closest large galaxies to our own Milky Way. Nearby is **NGC 6816**, the Little Gem(below right), a planetary nebula discovered by William Herschel in 1787. It, too, is well worth seeing.

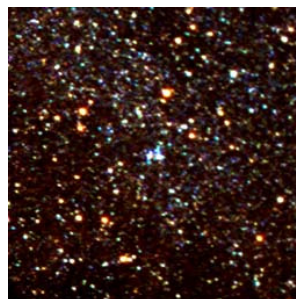


NGC 5838, 5846, 5850, and 5813-These are all galaxies in Virgo, which, like their globular counterparts Sagittarius, are lost in the glare of the large Messier galaxies, such as M87. All are very close to M5, the huge globular in Virgo. 5846 and 5850 are above at far right, 5838 is below at left, and 5813 is at below center. They are all within 2° of each other.



NGC 6543(above right) is a beautiful planetary nebula that stands off by itself in Draco. It is often called the Cat's Eye Nebula, for obvious reasons.

Finally, two wonderful open clusters that are often overlooked in the search for the more familiar Messier clusters. One is **NGC 6633** in Ophiuchus(below left), and the other is **NGC 6709**(below right)in Aquila. Try to find both this summer!



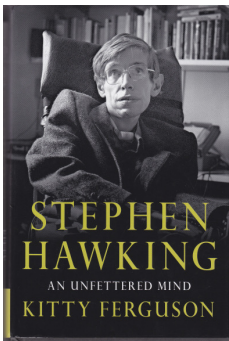
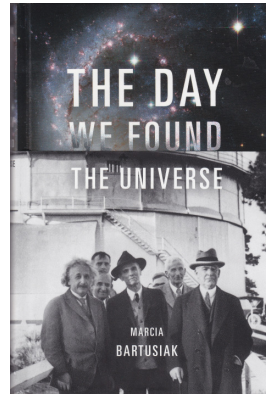
Good Astronomical Summer Readings

Three tomes that I, an English teacher, would definitely recommend for summer reading. Two about the great men and events of our time, and the third, well, a quirky little novel about time itself.

The Day We Found the Universe by Marcia Bartusiak Pantheon Books, 2009. 269 pages

The day we found the universe was on January 1, 1925. That was the day that, at the annual meeting of the American Association for the Advancement of Science in Washington, D.C., that Edwin Hubble's paper on his finding of Cepheid Variables in the Andromeda Nebula was announced and read. Hubble was not at the meeting, and the paper was read by the secretary of the conference. It was the first official recognition that the known universe extended far beyond the Milky Way, far into the infinite depths of time and space. It was the end of a quest that began in ancient Greece and extended all the way to the great telescopes that were built in California in the late 1800s and early 1900s, of the battle between Lick and Mt. Wilson Observatories over the size and depth of the universe, of great men like Heber Curtis, who was originally a linguistics professor who was fluent in eight languages; of Harlow Shapley, Curtis' nemesis, who had all the right data, but came to the wrong conclusions; of James Keeler, who might have found the Cepheids if he hadn't smoked too much and died early from lung cancer; and finally of Edwin Hubble, who got it right with the right data.

Bartusiak's main question is: why Hubble? How and why was he able to figure it all out when so many others were so close and also had so much evidence? Why this man from rural Missouri who turned himself into an upper class Englishman and hobnobbed with the old money aristocrats of Pasadena while looking for the secrets of eternity and infinity? These are the questions that Bartusiak sets out to answer, and she answers some of them with the ending fact that Hubble was just an ordinary person like the rest of us: he died in the front seat of his car in the driveway of his home in San Marino in 1953, exactly 60 years ago.



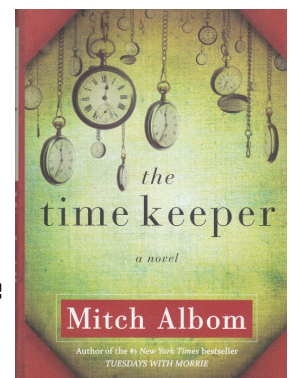
Stephen Hawking: An Unfettered Mind by Kitty Ferguson St. Martin's Press, 2011. 270 pages

This book reads like a gossip magazine article, and the author's name certainly implies that, but it is in fact a good deal more than that, and even more than a biography. Stephen Hawking is one of the most original minds of our time; many have compared him to Einstein, which is really unfair, since there's so many other brilliant people around today, but there's no denying that he has shaped and influenced modern physics like no one else but the shaggy haired one. This book traces Hawking's life from his infancy to his university years, when he first learned he had ALS, commonly called Lou Gehrig's Disease, to his seminal work on black holes and time to his later years as a media and literary superstar, all the time being able to communicate with only two fingers on a computer sensor button. It also talks about his stormy personal life and his two marriages.

This book isn't a Nobel Prize winner(which is the only major honor that Hawking hasn't yet been awarded), but it's a good look at an extraordinary man who has conquered just about everything, and maybe even time and space itself(he's rumored to be one of the passengers on the first Virgin Galactic SS2 commercial flight at the end of this year or next year).

The Timekeeper by Mitch Albom Hyperion books, 2012 222 pages

Mitch Albom, a former sportswriter for the Detroit *Free-Press*, is best known for books such as *Tuesdays with Morrie* and *The Five People You Meet in Heaven*, both of which will probably become standards in high school English classes. In this latest novel, *The Timekeeper*, he tells the story of the beginnings of timekeeping and how it eventually traps three people: an ancient Mesopotamian who decides to measure the workings of the sun and stars, a gazillionaire dying from cancer, and a brainy teen girl who hates herself. All three eventually end up together in the same situation, and the revelations they encounter change each of their lives. It's not a totally happy ending, but a positive one that leaves the reader with a feeling of well done, that life is worth living, and time is, well, just something to be endured. Pick it up and read it on a quiet Sunday after church and then think about everything that is good and worthwhile in this world. That's *The Timekeeper*.



Eight Good Astronomical or Related Places to visit this Summer

Lick Observatory-east of San Jose on Mt. Hamilton Road. Drive to the top of Mt. Hamilton and you're there. This was the first major observatory in California, before Mt. Wilson and before Palomar. Established in 1888 by James Lick (who is buried under the 36" refractor), it still does world class scientific research with the 120" Shane Reflector and several other smaller scopes. Today, it is managed by UC-Santa Cruz. About 4 driving time hours from Fresno. Right-Lick Observatory



The Chabot Space and Science Center in Oakland. This place has a great planetarium, and number of astronomical and space travel exhibits, and, since it is up in the Oakland Hills, a spectacular view of the Bay Area. Well worth visiting. About 3 hours from Fresno



Ames Research Center-in Sunnyvale, California, off of Highway 101 just west of San Jose. This is where NASA has and still uses the world's largest wind tunnel, as well as host of smaller ones. A tour also includes the historic blimp hangers, and a very nice space museum under an inflatable dome. About 3 hours drive from Fresno. Left-the large wind tunnel at Ames

The Exploratorium-Near the Presidio on the way to the Golden Gate Bridge in San Francisco. This is housed in the old Palace of Fine Arts, the only remaining structure from the 1915 World's Fair. It is now a hands-on science museum and discovery center. Great for kids, and fun for adults as well. About 4 hours from Fresno.

Mt. Wilson Observatory-North of Pasadena in the San Gabriel Mountains overlooking the Los Angeles basin. This is where Edwin Hubble discovered the expansion of the universe, and where equally talented men such as Walter Baade and Alan Sandage made equally important discoveries as well. The 100" Hooker Telescope, which Hubble used, was shut down for a time, but is again doing serious scientific research. Other, smaller, scopes are equally interesting to see. About 6 hours from Fresno. Right-Mt. Wilson



Jet Propulsion Laboratory-Off of I-210 in Pasadena. Since 9-11, security has tightened quite a bit, but tours are still available. This facility, run by Caltech, is where NASA builds and manages its deep space probes. Von Karman Hall, which is named after JPL's founder, has a life sized model of Voyager 1 hanging from the ceiling. About 5 hours from Fresno

Griffith Park Observatory-in Griffith Park, off of Highway 101 in North Los Angeles. Besides having a beautiful view of the entire Los Angeles basin, especially at night, the observatory is a wonderful space museum and hands-on science center. If you go on a weekend, get there early; the parking lot fills up quickly, and you have to park way down the road that leads up to the observatory. Nearby is the Los Angeles Zoo, which is also well worth seeing. About 5 hours from Fresno. Right-Griffith Park Observatory



Continued on next page

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Deadline for articles submission for the
September-October
Observer
August 25

Please submit articles in Microsoft Word format

Continued from previous page-
Somewhat Farther Away-

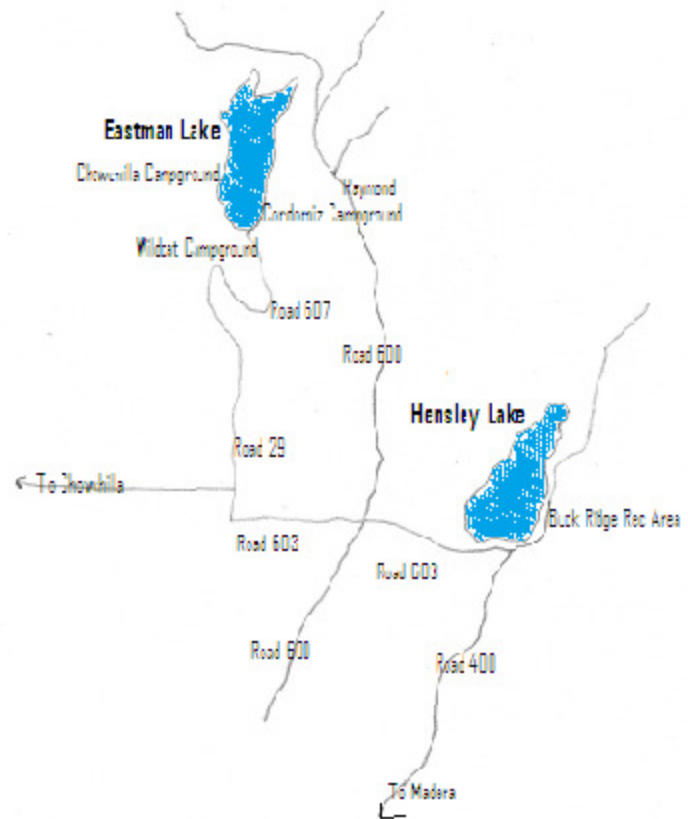
Palomar Observatory-Between Orange County and San Diego near Oceanside. People who go to Palomar go there to see the 200" Hale Telescope, but also find out that several other telescopes are part of the complex as well, among them the 48" Schmidt camera, the largest in the world; and the 60" Oscar Meyer Telescope(yes, named after the hot dog maker; Oscar Meyer liked astronomy). The trip to Palomar is a long one, but well worth it. About 8 hours from Fresno.



Above- the 200" Hale Telescope at Palomar

On top right -the 48" Schmidt Camera

On bottom right-the 60" Oscar Meyer Telescope



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.

