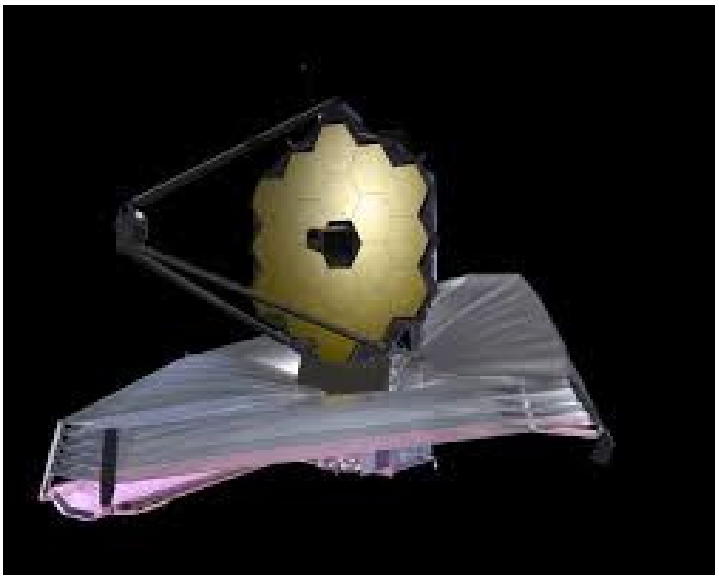
THE OBSERVER

The Newsletter of Central Valley Astronomers of Fresno May-June 2018

Webb Space Telescope Delayed-Again



A year ago, I (optimistically) wrote that the James Webb Space Telescope program, which was begun in 1997, and whose cost has ballooned to over $8 billion, would finally be launched in 2018. That was before this year, though. Since the beginning of 2018, NASA has announced launch delays twice, first in February to 2020, and now, in June, to 2021 at the earliest. NASA chief administrator James Brindenstine said that the newest delay, although regrettable, is necessary to ensure quality operation of the instrument. He expressed strong support for the project, and wants to see it launched and operational. However, he may have to go back to Congress for additional funding due to the delays. Congress killed the program once, and only reinstated it several months later with the promise that costs would be kept in line. No telling what it will do with this latest setback.

"Being an astronaut is a hard act to follow…"

Michael Collins , from *Carrying the Fire*

In this Issue

Central Valley Astronomers

Web address
www.cvafresno.org

Webmaster-Scott Davis

Officers and Board- 2018

President-
Scott Davis

1st Vice-President-
Steve Britton

2d Vice president-
Lynn Kleiwer

Secretary/Treasurer-
Steve Harness

Star Party Coordinator-
Brian Bellis

Historian/Observer Editor-
Larry Parmeter

Director-
Warren Maguire

Director-
Clarence Noell

Director-
Joe Griffin

To all CVA Members- Lot of Activities this Summer!

Join in Viewing the Skies and Bringing the Heavens to the Public!

See the list of summer events on page 7

Remember-Saturn in July and Mars in August!

Larry Parmeter is the editor of *The Observer*

He can be contacted at 559-276-8753 or at lanpar362@gmail.com

Number of exoplanets found as of June 2018-3,796 (adjusted from last time)

How many more are out there?

Tens of thousands? Hundreds of thousands?

CVA Board Meeting Plans for the Future

On June 23, the CVA board of directors met at Denny's on Blackstone to go over the club's status and make plans for the future. The first part of the meeting was dedicated to laying out the calendar of events for 2019, which involved dates for starwatches and monthly meetings. The next item on the agenda dealt with membership. President Scott Davis announced that he is working on a software program which will track members: exactly how many the club has, when they joined, and when their yearly dues are up for renewal. As of now, the club has about 40 paying members(Fred Lusk mentioned that when he joined CVA a number of years ago, the club had almost one hundred paying members), but many more who have not paid their dues for some time are still on the membership list. Scott hopes to have the program up and running by the end of the summer. The discussion about membership also brought about proposals for new members. From now on, every new member will receive a welcome phone call from a board member, and also be mailed a welcome packet containing information about CVA and astronomy.

The third item had to do with the treasurer's report. Treasurer Steve Harness reported that the club has $4,143 in its bank account. Most of this is due to donations from groups and organizations for which CVA has done star parties. Steve said that the one major yearly expense, the club's liability insurance premium, has already been paid. The club also recently had new banners printed up and will soon have business cards for board members. However, the telescopes for the Young Astronomers program(see below) have yet to be bought.

The next major item was the Dark Sky Initiative. Brian Bellis has been looking into having Manchester Center tone down its huge LED billboard along Highway 41. He learned that the advertisers will be using colored lights, which will dim the brightness somewhat, but still wants to explore positive ways to get the city to use low pressure sodium lights that point downward, greatly reducing light pollution. He will be putting together a presentation, possibly to give to the Fresno city council, on the economic advantages of such a program.

The Young Astronomers Program is going through its final planning phases, and the applications, which will be online, will start being accepted in September. The board agreed to have the initial group, beginning in January 2019, limited to three students. Six members have volunteered to work with the students as mentors: Scott Davis, Steve Harness, Fred Lusk, Brian Bellis, Lynn Kliewer, and Larry Parmeter. Scott is finishing up the mentor instruction packet and will have it ready by the fall. Steve Harness and Larry Parmeter are looking into possible grants to help finance the telescopes that eventually will be given to the students at the end of their studies. For now, two, and possibly three, telescopes(6" Dobsonians) will be bought for use as demonstration and teaching models. Lynn Kliewer reported that Orion has agreed to sell them to the club at 10% off, but he will also contact other telescope stores to see if they can offer better deals.

Finally, Scott Davis reported that while looking through the state's database of registered non-profit organizations, he discovered that CVA was "dissolved;" he learned that this is due to the fact that it needed to renew its non-profit incorporated status every few years, something no one was apparently aware of. Scott is working on the paperwork to renew the club's non-profit status, on both the federal and state level. CVA already has a constitution, bylaws, and an elected board; that, with paperwork and fees, should resolve this issue by the end of the year.

Profiles in Astronomy

Yusuke Hagihara 1897-1979

Hagihara was born and raised near Tokyo, and did his undergraduate work at the Tokyo Imperial University. After graduating in 1921, he won a traveling scholar fellowship from the government, and did graduate studies at Cambridge, The Sorbonne, and Gottingen. Returning to Tokyo in 1925, he did further graduate studies, then went to Harvard for two years. In 1929, he completed his doctorate in astrophysics, and became a professor at Tokyo University, a position he held until 1957. He was also director of the Tokyo Astronomical Observatory for a number of years. Later in his career, he taught at Tohuko University and also at Utsunomiya University before retiring in 1967. Afterwards, he wrote and published a five volume study of celestial mechanics.

Hagihara was one of the world's foremost mathematicians, who made celestial mechanics his field of expertise. He plotted the motions of the planets and stars with a high degree of accuracy, and contributed much to the area of the radial velocity of stars. His book on celestial mechanics is now considered a standard in the field, and was based on his many years of research and teaching. He was also considered an outstanding teacher, and had a major influence on a whole generation of post-World War II physicists and astronomers in Japan. For several years, he was also the vice-president of the International Astronomical Union.

Star Stories

Arcturus

Arcturus, also known as Alpha Bootes, is the fourth brightest star in the sky, with an apparent magnitude of –.05. It is classified as a K03 star and is about 37 light years from Earth. It is estimated to be about seven billion years old, and has expanded into a red giant approximately 25 times the diameter of the Sun. It is about 110 times the brightness of the Sun.

Arcturus was well known to the ancient Greeks, and was first mentioned in a work by Hesiod, a Greek writer about the same time as Homer(c. 900BC). Its name comes from the Greek word *Arktourus*, which means "guardian of the bear." A Greek myth says that Arcas, a Greek hero, was transformed into the constellation Bootes(also called Arctophylax) to guard his mother Callisto, whom Zeus turned into a bear and placed in the sky, giving us the constellation Ursa Major. To the Arabs, Arcturus, along with Spica, was called *al-simik*, the "uplifted ones." It was also known as *haris-al-shamai*, "the keeper of the north." During Medieval times, Europeans used another Arabic name, *Alrimih*, for the star. To the Chinese, Arcturus was *Dai Jaio*, the "great horn," and to the astronomers of India, it was *Swati*, the "very beneficient one" in Sanskrit. The ancient Polynesians called Arcturus *Hokeule'a*, the "star of joy," and used it as a navigation marker in their voyages across the Pacific. Arcturus is also mentioned in the Old Testament of the Bible(the Book of Job).

Source and images for both articles:Wikipedia

What's New in Space

Space Station Hotel Planned

In March 2018, Orion Span, an aerospace company in Southern California, announced that it plans to build and orbit a luxury space station known as Aurora(image below), by 2022. Aurora, it said, will house four commercial passengers and two pilots for up to two weeks at a time. The cost for each passenger, it said, will be about $10 million, and the pilots will probably be former NASA astronauts. Orion Span will also lease parts of the space station to companies for scientific and commercial research. All passengers will undergo three months of training before launching to the station. Orion Span did not say how the crews will get to and from the space station, but it is talking to representatives from Boeing, Space-X, and Sierra-Nevada Systems(which has built the Dreamchaser mini-shuttle) for possible leasing of their spacecraft.

Orion Span is the latest company to come out with a proposed space hotel. Several other aerospace firms including Bigelow Aerospace of Las Vegas and Axiom Space of Huston, have plans for private commercial space stations in the early 2020s. Bigelow wants to put an inflatable space station into orbit by 2021, while Axiom will start sending commercial passengers to ISS in 2021, and plans to have its own orbiting space station by 2024

Another Space Pioneer Passes On

Alan Bean 1932-2018

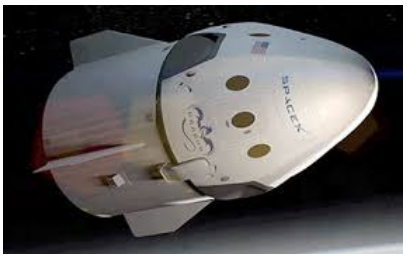
Alan Bean, one of the original 1960s astronauts, and the fourth man to walk on the moon, died on May 26, 2018. He was 86 years old.

Bean was born and raised in Texas and graduated from the University of Texas with an engineering degree before joining the Navy in 1955. He attended flight school and then test pilot school, where one of his instructors was Pete Conrad, who would be his commander on Apollo 12. In 1963, Bean was accepted into NASA as a member of the third astronaut group in 1963. His first space flight was aboard Apollo 12 in November 1969, where he and Conrad made the first pinpoint landing on the Moon, and brought pieces of the Surveyor spacecraft back to Earth. He flew in space again as the commander of the Skylab 2 mission in 1973, which spent 59 days in Earth orbit. He was also the backup commander for the Apollo-Soyuz Test Program (ASTP) in 1975. Bean resigned from the Navy in 1975, but stayed with NASA as a civilian until 1981, when he left the space agency. He then embarked on a career as an artist, something he said he always wanted to do. His paintings of the space program, and especially of the Moon missions, sold for thousands of dollars each, and several are now displayed in the Smithsonian Institution. In recent years, Bean traveled widely, speaking out on supporting the manned space program and America's leadership role in it.

Why all the Delays-The Answer Has Come Out-and It's Not Optimistic

Over the past few years, I have written several times about the seemingly endless delays by NASA in getting an American manned craft back into space. This has become even more urgent in view of the fact that, after 2019, NASA will have no way to get Americans to the International Space Station; its contract to send astronauts via the Russian Soyuz program runs out at the end of next year. In the meantime, the two companies chosen to provide space transportation; Boeing and Space-X, have announced one delay after another. Originally, Boeing was to have its manned spacecraft operational by 2017, then it was pushed back to 2018; now indications are that the first unmanned test flight will be late 2019 at the earliest, and maybe not until 2020 or even 2021. What it comes down to(and this has come out in a series of articles in recent months) is that NASA is petrified with fear over another possible Space Shuttle type accident, and has made the safety requirements for American manned spacecraft so high that some say they may be impossible to meet. Even though recent acting administrator Robert Lightfoot and newly installed chief administrator James Brindenstine emphasize that risk is always a part of space flight, the legacy of Challenger and Columbia hangs over the agency like a noose, influencing every decision it makes. The result, many say, is an agency in paralysis, and afraid to make any manned spaceflight commitment. According to officials, NASA has set the risk factor for a manned spacecraft accident at 1 in 275 launches. Lightfoot said earlier this year that if this safety standard was in place during the 1960s, the Apollo Moon missions would have never been flown. Some in NASA are now saying that the only way to achieve this new standard is to give up manned spaceflight altogether. This would be a tragedy for the American space program, and for the world as well.

Space-X does not accept that, and still wants to launch the first unmanned test flight of the Dragon V2 in August, and the first manned flight in December, but currently is battling with NASA over a controversial fueling procedure for the Falcon booster rocket. Over the past few months, this dispute has spewed out into the public arena in a series of articles and Congressional hearings. Space-X insists that the procedure is safe and will take all precautions, but NASA(and some members of Congress) are skeptical about it. Many see Space-X as being like NASA in the 1960s-bold, optimistic, having a "can do" mentality, and a feeling that anything is possible. Boeing, being much older and more traditional, is much more hesitant to try new and innovative ideas. NASA itself is 60 years old this year, and, far from its lean and vigorous beginnings, has grown into a bloated and entrenched bureaucracy, whose main goal seems to be to avoid anything embarrassing or dangerous. Maybe it's time for NASA to step aside and let Space-X or another young enthusiastic aerospace company take over the manned space program.



America has always been a frontier nation, pushing the boundaries of what is known and what is possible. NASA seems no longer capable of doing that, at least with manned space flight. If anything, Brindenstine has a tough job ahead, convincing the nay-sayers that America must retake the lead in manned space exploration, and the risks are simply part of that adventure into the unknown. It was done in the 60s; it can be done again. The time to start doing it is now.

[redacted]

CVA Members Speak Out

This month's question-Who do you think is/was the most important astronomer/space scientist?

Scott Davis-Charles Messier

Warren Maguire, Larry Schwab-Edwin Hubble

Fred Ringwald, Dan del Campo, Ian Clark-Galileo

Louis Mendoza-Carl Sagan

Shawn Clark-William Herschel

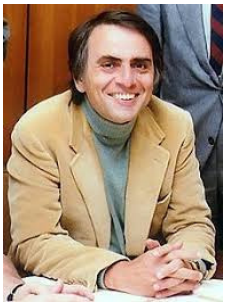
Fred Lusk-Isaac Newton

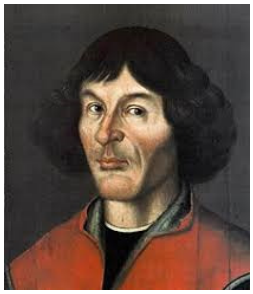
Herbert Cecotti-Copernicus

Clarence Noell-Neil deGrasse Tyson

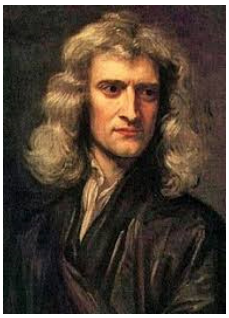
Larry Parmeter-Henrietta Levitt

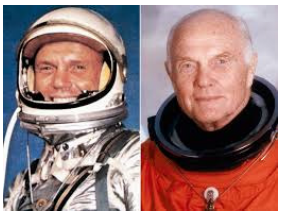
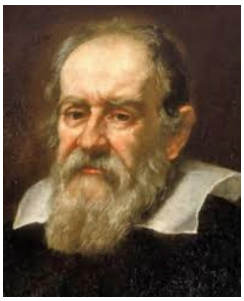
Joe Griffin-John Glenn









CVA Activities for the Summer

July 7-Millerton Lake public starwatch

July 13-14-Glacier Point starwatch, Courtright starwatch

July 14-Eastman Lake starwatch

July 21-Riverpark public starwatch

August 4-Millerton Lake public starwatch

August 10-11-Courtright starwatch

August 11-Eastman Lake starwatch

August 12-Perseid meteor shower peaks

August 18-Riverpark public starwatch

September 7,8,9-Dark Sky Festival at Sequoia and Kings Canyon National Parks

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

The Lulin Observatory in Taiwan

The Lulin Observatory is the main observatory on the island nation of Taiwan. It is situated near the summit of Mount Lulin in Xinyi Township, Nantu County, at 9,400 feet. It was established in 1999, is operated by the astronomy department of the National Central University in Taiwan, and is used by both professional astronomers and graduate students. The official name of the observatory is Lulin Tainwantai, which means "Deer Forest Astronomical Observatory."

The observatory currently has six telescopes: a 1m Cassegrain telescope, which is its main observing instrument; a .4m Richey-Chreitien telescope; and four robotic .5m telescopes which are used for an ongoing program known as TAOS(Taiwinese-American Occulation Survey) to find objects in the outer solar system and the Kuiper Belt.

The main emphasis of the Lulin Observatory is on solar system studies. In 2007, the comet C/2007-C3, known as Comet Lulin, was discovered by scientists at the observatory. It was found to be unique in that it had a retrograde orbit. Also, dwarf planet 147918 Chaiyi was discovered at the Lulin Observatory in 2006. The observatory has also discovered a number of asteroids and near-Earth objects.

Right-the Lulin Observatory. The largest building houses the 1m telescope

Source and image-Wikipedia

From The Observer Archives

"Hi gang." What's shakin'? Hasn't it been exciting lately? We may yet have beachfront property in Fresno. It'll be the new Malibu! I just finished reading 'Waiting for the Big One,' a fascinating article in the July issue of *Discover* magazine. Part of the subtitle says, 'It could happen in the year 2036. It could happen next year.' The lengthy article discusses what is known about earthquakes(not much), and about predicting them(even less). What does this have to do with astronomy? NOTHING! How many of you remember the big flap about the 'Jupiter Effect' a few years back? That much-touted planetary lineup was supposed to generate widespread earthquakes and volcanos and other miscellaneous mayhem. And what happened? NOTHING! And there was not so much a whisper about a cosmic connection to our current crop of quakes. So, you may wrap your scope in a mattress and ride them out, but unwrap it for our annual August visitors, the Perseids."

By Pat Daniels
From the August 1986 *Observer*

In the 32 years since this was written, scientists have made great progress in understanding earthquakes, but predictions will never be exact. Experts have been forecasting the "Big One" in California for almost a hundred years now, but all the forecasts certainly don't seem to have swayed the millions who have moved to California, especially to the Bay Area and the Los Angeles basin, the two areas most vulnerable to earthquakes. On the other hand, if the Big One does hit, maybe it'll be a wakeup call to radically change the priorities of this state, and perhaps lead to darker skies among other things. And that's something we could all use.