CVA Glacier Point-Labor Day Weekend

THE OBSERVER

The Newsletter of Central Valley Astronomers of Fresno July-August 2019

Apollo 11-The Defining Event of the 20th Century-Fifty Years Later

Observer Quote of the Month-

...Houston, Tranquility Base here. The Eagle has landed."

-Neil Armstrong, a minute after the first Moon landing, July 20, 1969

In this Issue-

Central Valley Astronomers

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To all CVAers-

CVA Glacier Point Weekend

August 31-September 2, 2019

Interested?

Contact Fred Lusk

at

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Number of exoplanets found as June 2019-4,082

How many more are out there?

Tens of thousands? Hundreds of thousands?

A Commentary by the editor

Around the middle of June, about a month before the 50th anniversary of Apollo 11, a national poll indicated the public's feelings about space travel and NASA's future plans. Only about 25% felt that this country should make going back to the Moon and on to Mars a priority. A strong majority thought that issues such as climate change, the economic situation, and social problems were much more pressing and should be addressed before going into space. In a way, this is understandable. But it's also very defeatist and backwards and does not bode well for the long-term future of this country.

Perhaps the fact that the United States has not put a manned craft into space in almost eight years is part of the problem. People may have forgotten what it is like; a mentality that may end when and if Space X and Boeing begin manned flights, hopefully, later this year. But there's more to it than that. This country seems to have adapted a feeling that space exploration is no longer important or necessary, that we shouldn't be going into space because we have too many problems here on Earth. Instead of looking outward to solve its troubles, America is starting to look inward. History has shown that when a nation retreats from expanding its possibilities and visions, it is inevitably doomed to decline. England is the best example of many. From the 1600s to the early 20th century, it explored all corners of the globe, and became the leading nation on Earth. After World War I, though, it quit the world, turned inward, and never regained its prominence, slipping into a second rate position among nations. I wonder, and fear, if the U.S. is along the same path. When the Space Shuttle was retired in 2011, several 1960s astronauts, foremost among them Neil Armstrong, testified before Congress that the lack of a manned space vehicle could condemn the U.S. to second or third rate status in space. Eight years later, that may be coming true.

Many people may not like Donald Trump, and I don't agree with him on certain issues either, but he wants to see the U.S. back in space in a leadership role, and despite his recent tweets, he wants us to go to the Moon by 2024, and on to Mars by the 2030s. That's more than what a lot of other national leaders are saying. Many simply don't want to give Trump credit for it; are saying that we can't afford it, even though NASA's annual budget is only .2% of the federal budget; and we need to solve our social, economic, and environmental problems first. What they don't seem to realize is that many, not all but many, of our problems here on Earth can be solved with a strong vigorous space endeavor. This is what happened with the Apollo program in the 1960s; it can happen again, if we want it to. With the hoped-for coming of Dragon V2, Starliner, Dreamchaser, and Orion-MPCV and the Artemis Program, 2020 may be a watershed year: we can renew our commitment to be a frontier nation again, or we can turn our backs and relegate ourselves to being just another country that once did something profound but lost its will and vision. Some people don't seem to mind if that happens; I do and so do many others.

The fiftieth anniversary of Apollo 11 needs to be not only a commemoration of the past, but a banner pointing to the future. America still has much left to do. Let's do it.

-Larry Parmeter

Apollo 11-The Road to The Moon and Afterwards-Part 2

Late October 1968-Apollo managers change the next Apollo flight(8) from an Earth orbit test of the lunar module to a lunar orbit flight, based on delays with the LM, and also intelligence reports that the Russians will launch a manned circumlunar flight in December.

December 9, 1968-the Russians do attempt a manned circumlunar flight, using a Zond with one cosmonaut aboard. Fifteen minutes before launch, it is postponed due to electrical problems with the spacecraft. When it is finally launched, unmanned, in January 1969, the booster rocket explodes a minute after liftoff. Zond-right

December 21, 1968-Apollo 8 is launched with Frank Borman, Jim Lovell, and William Anders. It makes ten orbits of the Moon on December 24-25, and returns safely to Earth.

January 11, 1969-Soyuz 4 is launched with one cosmonaut. Soyuz 5 is launched the next day with three cosmonauts. The two craft dock in space, and two of Soyuz 5's crew spacewalk over to Soyuz 4 and return to Earth in it. This is a rehearsal for a lunar landing mission.

March 3, 1969-Apollo 9, with Jim McDivitt, David Scott, and Russell Scheickart, is launched. It tests the lunar module in Earth orbit, and is successful.

May 18, 1969-Apollo 10, with Tom Stafford, John Young, and Eugene Cernan, is launched on what is called the "rehearsal for the moon landing." Stafford and Cernan fly the lunar module to within 47,000 feet of the Moon's surface. Again, the mission is a success.

Late May 1969-shortly after the return of Apollo 10, Apollo mission mangers decide that Apollo 11 will attempt a landing on the Moon. They set the launch date for July 16, 1969.

June 30, 1969-The Russians attempt to launch their giant Moon rocket, the N-1(known in the West as the G-1). Its goal is to send an unmanned Zond into lunar orbit to photograph possible landing sites. If it is successful, and Apollo 11 fails, Russian space officials plan for a manned lunar landing mission in September 1969(even though none of the equipment has been tested in space). A few seconds after liftoff, several of the rocket's first stage engines fail, and it crashes back down on to the launch pad, destroying it and the pad.

July 13, 1969-In a last effort to steal some of the glory from Apollo 11, the Russians launch the unmanned Luna 15. Its goal is to retrieve Moon rocks and soil and return them to Earth before the Americans. It orbits the Moon for three days, then crashes onto the surface on July 20.

July 16, 1969-Apollo 11 is launched with Neil Armstrong, Edwin Aldrin, and Michael Collins. On July 20, Armstrong becomes the first person to walk on another planetary body. Aldrin is the second. NASA has eight more Moon landings, through Apollo 20, planned.

August 1969-The Russians say that they no longer have a Moon landing program. A few weeks later, they claim they never had a manned Moon landing program in the first place, and the "Moon Race" was a propaganda stunt conceived by the U.S. to divert attention from the Vietnam War and other world issues.

From p. 4-

October 1969-Starting on the 11th, the Russians launch three manned Soyuzes(6,7, and 8) on successive days, with a total of eight cosmonauts, missions which appear to have been very hurriedly planned, possibly to restore some glamor and confidence in their manned space program after losing the Moon race.

November 1969-Apollo 12 lands on the Moon-right.

April 1970-Apollo 13 suffers a major accident on the way to the Moon. The three crewmembers return to Earth safely.

Mid 1970-Apollos 19 and 20 are cancelled due to lack of funding. Apollo 18 is downgraded from a lunar landing to a lunar mapping mission.

January 1971-Apollo 14 lands on the Moon.

Mid 1971-Apollo 18 is cancelled due to lack of funding.

July 1971-Apollo 15 lands on the Moon.

April 1972-Apollo 16 lands on the Moon-right.

December 1972-Apollo 17 lands on the Moon. The end of the Apollo Moon landing program.

1970-1973-The Russians test their Moon landing spacecraft components, under the name of Kosmos, in Earth orbit. They schedule manned Moon landings beginning in mid-1974; at least four are planned.
Right-the Russian lunar lander, known as the LK.

February 1974-Vassili Mischim, the director of OBK-1, the main Russian spaceflight organization, is ousted by Valentin Gluschko, one of his main rivals. The first thing Gluschko does is cancel the manned Moon landing program, have all the equipment put into storage, and order everyone involved never to talk about it.

1993-After the fall of the Soviet Union, a group of American scientists is taken to a warehouse in Moscow, shown the Moon landing equipment, and told that the Russians did in fact have a Moon landing program.

From the Observer Archives: A word puzzle:

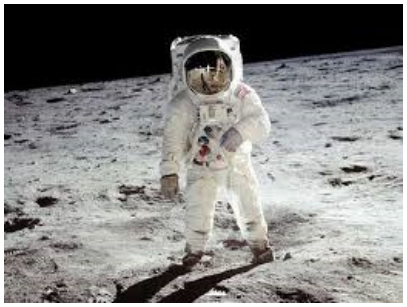
With a calendar to measure time,
Use your wits to explain this rhyme:
She was first born, then was born the other;
But the first twin born is the second twin's brother.

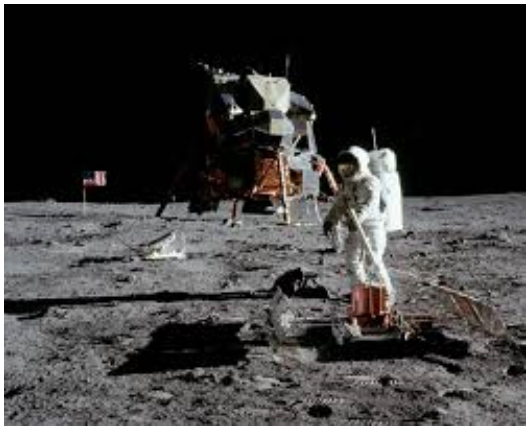
How was this possible?

From the September 1989 *Observer*

Apollo 11 Fifty Years Ago

So much has been said and written about the Apollo 11 mission that there's not much more that can be added to it. Suffice to say, it was arguably the most important event of the 20th century, and will be in history books for centuries to come. Here, then is more of a pictorial legacy, and what happened to the three astronauts after it was all over.





After Apollo 11, NASA didn't know what to do with Neil Armstrong(1930-2012). He eventually accepted a position as an associate administrator in its Washington, D.C. offices. In 1971, he left NASA and moved back to his home state of Ohio to be an engineering professor at the University of Cincinnati. In 1980, he left his academic post to become the CEO of an avionics software company. He served on the committee that investigated the Challenger disaster, and was later on the Columbia accident committee as well. When he moved back to Ohio in 1971, he bought a farm near his hometown, and lived on it until his death, due to complications following heart surgery, in 2012.

After Apollo 11, Edwin Aldrin(b. 1931) returned to regular military duty as director of the Air Force's aerospace research pilot's school at Edwards Air Force Base. However, he had conflicts with his superiors, and the emotional and mental problems that had plagued him for several years, which he kept hidden from the Air Force and NASA, returned, and he left the military in 1973. For a time in the late 1970s, he lived as a virtual recluse in a cabin in the San Gabriel Mountains north of Los Angeles. He divorced his first wife, remarried, then divorced again. His third wife finally stabilized him. He taught at the University of North Dakota, and also owned and managed a ranch for many years. Today he lives in Los Angeles, makes frequent public appearances, and speaks out strongly in support of the space program.

For many years after Apollo 11, Michael Collins(b. 1930), often called the "forgotten crew member," was asked if he had any regrets over not being able to walk on the Moon. He always replied, "None at all. I had an important job, too." After Apollo 11, he was offered the commander's position on a later Moon landing mission, but turned it down, and in early 1970 left NASA and the Air Force to work for the State Department. In 1973, he became the director of the Smithsonian's Air and Space Museum, and left that in 1980 to establish his own engineering consulting firm, which became very successful. Today, he is retired and lives in Washington, D.C.

What's New in Space

The Artemis Moon Landing Program Goes into High Gear

On May 13, NASA head James Brindenstine announced the details of the newly developed Artemis Program, whose goal is to return to the Moon and land Americans on it by 2024(in Greek mythology, Artemis was the goddess of the Moon and the sister of Apollo). This is a followup to Vice-president Michael Pence's announcement in February that the United States will return to the Moon with manned landings by the end of 2024. The first flight, known as Artemis 1, will be an unmanned circumlunar mission to be launched in the summer of 2020, which will use the Orion-MPCV capsule and the newly developed SLS rocket. The second mission, Artemis 2, will be a crewed Moon-orbital flight of the Orion in 2022 . Artemis 3 will be a lunar landing mission which will take place in 2024. Brindenstine also announced that Maxor, an aerospace company which has built satellites for many years, will build and put into space the first component of the Lunar Gateway space station, in 2023. The Artemis 3 crew will fly to it in the Orion-MPCV, stay aboard it, and then take a lander down to the Moon's surface. After their lunar excursion is finished, they will return to the Gateway, and take the Orion back to Earth. Brindenstine said that several companies have been chosen to develop a lunar lander; the initial landers will be based on the Lunar Module of the 1960s: a descent stage which will take astronauts to the Moon' s surface, and an ascent state which will return them to the Gateway, leaving the descent stage on the lunar surface. Later lander versions will have the entire lander as both the descent and ascent vehicle. Reports are that the first lunar landing mission will have at least one woman aboard, who will go to the Moon's surface. Later Artemis missions will not only land on the Moon, but also prepare for a semi-permanent base on the Moon's surface, as well as completing the Gateway space station, which NASA would like to have fully operational by 2026.

NASA's original plans called for completing the Gateway space station first, then having crew take the Orion to it, and eventually, around 2026-2027, making lunar landings. However, Pence's call for Americans on the Moon by 2024 may have been spurred by reports, which have been persistent for several years, that the Chinese will attempt manned Moon landings by 2025. The Chinese have not had a manned space mission in almost three years, and indications are that they are planning a major step forward in their space program, perhaps a permanently manned space station as a jumpoff point for Moon landings or the beginnings of a manned moon program, bypassing the space station. Whether or not Brindenstine's announcement will spur the Chinese to speed up their space program plans, whatever they may be, is anyone's guess.

On May 15, anticipating Brindenstine's announcement, Jeff Bezos' Blue Origin unveiled its long awaited lunar lander, named Blue Moon. Blue Moon was originally conceived to be an unmanned payload carrier intended to land up to four(Earth)tons of equipment or experiments on the lunar surface, but Bezos has told NASA that if it can come up with development and construction money, about $1.6 billion, Blue Origin can have a modified version of Blue Moon ready for human landings by 2024. Blue Origin's heavy lift rocket, New Glenn, will presumably take it to the Moon.

From CVA Members

Two good images, one of the Moon and the other of Jupiter, taken in June 2019 by member Jill Nichols

CVA Members Respond-From the June 2019 CVA meeting

What was your reaction to the Moon landings(then or Today)?

"...it was the greatest thing in the world."'-Joe Griffin

"I was amazed then and I'm still amazed." Warren Maguire

"One of the best things humanity has ever done." Ryan Ledaf

"Great Job." David Hartford

Do you think the Apollo Moon landings were worth it, in terms of cost; effort, social, political importance, and so on?

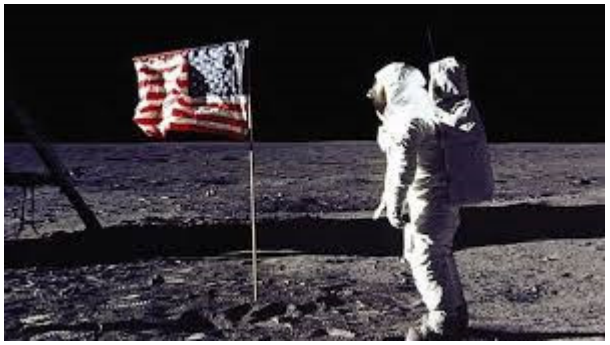
"Worth the effort for the development of new technologies with an impact on daily life"-Herbert Cecotti

"I think so because of the Elon Musks of today who are so inspired to innovate."-Kristin Green

"I thought, historically, it would be universally remembered, but it was soon forgotten." Garrett Weimer"

"Definitely worth it." Scott Green

More Moon Landing Information



To answer a question(actually two questions)

One of the responses to the questionnaire about the Apollo Moon landings was "...(in the images) why didn't the stars shine and how did the flag 'stand'"? The answers are actually simple and straightforward. The stars didn't "shine" in the sky in the moonwalk images because all the photographs were very short time exposures(On Earth, taking images of stars requires exposures of at least a few minutes with even the best cameras-and in the pre-digital era the Apollo astronauts were using the best-specially made Hasselblad cameras with Zeiss lenses). As to why the flag "stood," it's because, and I remember the commentator on TV mentioning this the night the astronauts walked on the Moon, metal wires inside the fabric held it up. Deniers and conspiracy theorists cite these two instances as "prime evidence" that the Moon landings were faked, but in reality they're very easily and factually explained.

Speaking of Stars-Star Stories
Mira

Mira is the well-known star in Cetus, the Whale. It is actually a binary system, a giant red star, known as omicron Ceti A with a small white dwarf star, o. Ceti B, as its companion, orbiting it. Mira A, as it is also sometimes called, is a red M class giant, a long period variable star, whose bright to dim phase lasts anywhere between 80 and 1,000 days. As such, it has given its name to a whole class of giant red variable stars, known as Mira variables. Its companion, Mira B, orbits about 70 AUs from it, and is slowly drawing gaseous material off the larger star. Recent observations show that a protoplanetary disc surrounds Mira B, and could eventually form planets. Mira's magnitude obviously varies, but on average has an apparent magnitude of 6.5, and an absolute magnitude of .99. The distance to Mira is not known with certainty, but recent measurements using both the Hubble and Chandra space telescopes puts it at about 300 light years from Earth.

Although it is said that observers in ancient Greece and China knew of and studied Mira, these claims are disputed. So far, there is no written evidence that Mira was observed until 1596, when the German scientist David Fabricius studied it while using it as a reference star for the planet Jupiter. He was also the first to note that it varied in brightness. In succeeding years, a number of other astronomers also observed and recorded it. The Name "Mira" was first used for the star by the Polish astronomer Johannes Hevelius in 1662, when he listed it in his now famous stellar catalogue. The word *Mira* means "wonderful" or "amazing" in Latin, which Hevelius chose as a reference to its variable properties.

Source:Wikipedia