Covid Situation Getting Better, but Still be Careful

THE OBSERVER

The Newsletter of Central Valley Astronomers of Fresno September-October 2022

Quote of the month-

"When one's expectations are reduced to zero, one appreciates what one has…"

Stephan Hawking, commenting on his illness, in *Lonely Hearts of the Cosmos*

James Webb Space Telescope Dazzles Scientists and the Public with First Images

NASA and the European Space Agency began releasing images from the James Webb Space Telescope about six months after it was launched on December, and scientists are in awe of them. From images of Jupiter as it's never been seen before to distant nebulas and galaxies, astronomers cannot wait to reap the information and discoveries that will result. The public as well is being enthralled with the beauty and unworldliness of the imagery. They're only a preview of what will eventually come, says NASA.

Image: NASA/ESA/CSA/ STSI/JWST

More JWST images inside this issue

In this issue-

Central Valley Astronomers

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To all CVA members

On August 6, several of us in CVA were at Riverpark to show the public the moon, and later in the evening, Saturn. We had a substantial crowd that night, and what attracted my attention about it was the large number of young families, parents with grade school children, who came to see what we were showing. At least four parents told me that they came specifically because they heard or read that we were going to be there and wanted their kids to view what we had to offer. The kids themselves were excited to look through the scopes and the oohs and aahs and the "This is awesome, " and "I've always had an interest in space," resonated throughout the evening from little eyes and mouths.

One of the provisions in CVA's charter is that we provide public outreach to educate the community on what's there above our heads, and there's no better way to do it than to engage young minds. Children are naturally curious and inquiring and to show them vistas far beyond their own everyday existence heightens their expectations and awe. Sometimes, when a child is looking through my scope, and the parent says, "Time to stop and get down," I reply, "I let children look as long as they want. If that stimulates their sense of imagination and wonder, then let them be." In a world that seems to grow more cynical and despairing every day, we need to give children that ethereal experience, that there are far-reaching and beautiful things out there that transcend their own lives, if they're given the opportunity to look up and not down. Besides, despite what seven-year-olds say, probably only a few will grow up to be scientists, but hopefully, all of them will keep that idealism in their minds and use it to create a useful and inspiring adulthood, and that can only be better for everyone in the long run.

So, every time we participate at a public event like Riverpark, let's fill the children, our future generations, with awe and have them return home dreaming of how far they can go and what they are capable of doing. Consciously or not, that's really why we're there in the first place.

Larry Parmeter
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Number of exoplanets found as of August 2022-5,071*

How many more are out there?

Tens of thousands? Hundreds of thousands?

***Exoplanets confirmed by NASA; there are over 8,000 possible planets which still need to be verified**

Profiles in Astronomy

David Gill 1843-1914

Gill was born and raised in Aberdeen, Scotland, and attended the University of Aberdeen, where his professors were James Clerk Maxwell and David Thomson. Afterwards he worked in his father's clockmaking business but sold it after a few years to spend more time in astronomy. After several years of travel to different observatories, he was recruited by Robert Innes to come to the Observatory of the Cape of Good Hope in South Africa. Gill lived and worked there for almost 30 years. When he retired, he and his wife moved back to England, where he served as president of the Royal Astronomical Society before his death in 1914.

Gill was one of the first to realize the potential of photography in astronomical research. He took the now classic image of the Great Comet of 1882. He also took the first images of stars and used them to determine their brightness and distance and was one of the originators of the famous *Carte du Ceil*(Map of the Sky) project in the late 1800s, which was intended to photograph the entire night sky.

Gill was also an outstanding mathematician and made a name for himself in measuring astronomical distances. He calculated the transit of Venus in 1874, and in 1877, measured the distance to Mars, one that would stand for many years. He also made very accurate measurements of the distance from the Earth to the Sun, as well as to a number of stars, using the parallax method. Back on Earth, he was the head of a team that measured the 30th Meridian from South Africa to Norway. It was so precise that it was used by surveyors and navigators up until the time of navigation satellites.

Gill won many honors, including the Bruce Medal of the Astronomical Society of the Pacific, the Gold Medal of the Royal Astronomical Society, and the Clark Medal of the U.S. Academy of Sciences. Craters on both the Moon and Mars are named for him.

Galileo's Jupiter Manuscript Found to be a Forgery

The University of Michigan announced on August 22 that the manuscript in which Galileo noted the four large moons of Jupiter for the first time in January 1610 has been found to be a 20th century forgery. The document, which the University library has owned for many years, was considered a "treasure" in its manuscript collection.

The manuscript, part of a letter that Galileo allegedly wrote to the Doge of Venice in 1610, was supposedly authenticated in 1930 by Roman Catholic Cardinal Pietro Maffi(1858-1931), who compared it to two other Galileo manuscripts that he owned. It was sold at an auction in 1934 to Tracy McGregor, a wealthy art collector, who donated it to the Michigan library in 1938. However, Maffi's Galileo manuscripts were eventually found to be forgeries. In 2021, Nick Wilding, a history professor at Georgia State University, examined the manuscript, strongly suspected it, too, was fabricated, and the Michigan library began a formal investigation. It found a watermark which identified an Italian paper company that did not exist until 1770, and the ink used was of a much later date as well. Much more telling was the fact that the manuscript could not be traced back any earlier than 1930. Investigators now believe that the manuscript, based on other unquestionably authentic Galileo documents, was fabricated in the late 1920s. They even think they know who did it: Tobia Nicotra, a well-known con man who forged documents and signatures of famous people in the 1920s and 30s. It is now believed that he also forged Maffi's other two Galileo documents..

August 2022 CVA Board Meeting

On August 13, the CVA board of directors met at Fresno State for its annual meeting; present were Ryan Ledak, Fred Lusk, Lynn Kleiwer, Hubert Cocetti, and Larry Parmeter. The meeting began at 2 pm.

Most of the meeting dealt with laying out dates for 2023 activities. The board set meeting dates for Riverpark public events, Millerton Lake events, and monthly CVA starwatches. A discussion ensued concerning the Eastman Lake star party site designation. Over the past year or so, most CVA members have gone to Big Stump parking lot near Grant Grove for the monthly star party, even though Eastman Lake is listed on the calendar and the website as being the official site. This has caused the public to sometimes show up at Eastman Lake with only a few or no CVA members present and wonder why. The suggestion was made to make Big Stump the official monthly star party site. However, it was decided to keep Eastman Lake the official site for several reasons; CVA already has an agreement with the Corps of Engineers to hold star parties there; many CVA members who go to Big Stump do so to do astrophotography away from the public; and CVA, a private organization, officially inviting the public to a star party in a national park might create legal issues. The board talked about two other possible star party sites for the future: Big Meadows in Sequoia National Forest, and Tamarack, north of Shaver Lake. It was noted that Glacier Point will be closed through 2023 and possibly longer.

The other major topic for discussion had to do with the Young Astronomers Program, which has been in limbo due to the Pandemic. The board's consensus was to keep it suspended through 2023 or at least until the Covid situation stabilizes. Also, when it does revive, to allow only 2-3 students at the most per year. The board discussed integrating the Young Astronomers curriculum with the Boy Scouts' Astronomy merit badge program(also with the Girl Scouts Space Sciences badge); it was noted that several CVA members have been astronomy merit badge counselors in the past and this could be another way to attract young people into the organization.

The meeting adjourned at 3:05 pm

CVA Calendar for 2023

Monthly Star Parties- Eastman Lake	Monthly Meetings	Riverpark Public Star Parties
January 21	January 7	April 29
February 18	February 4	May 27
March 18 and 25*	March 4	June 24
April 15 and 22*	April 3	July 22
FSU Vintage Days-April 15	May 6	August 26
May 20	June 3	September 23
June 17	July– no meeting	October 21
July 15	August-no meeting	November 18
August 12 and 19*	Board meeting August 5	
September 9 and 16*	September 30	Millerton Lake Public Star Parties
October 14	October 28	
November 11	November-no meeting	June 10
December 9	December 16	July 8
*New moon falls in middle of the week		August 5

What's New in Space

Two Major Stories on the Russian Space Program
Roscosmos Chief Rogozin Fired

On July 15, the Russian news service announced that Demetri Rogozin, the outspoken head of Roscosmos, the Russian Space Agency, had been relieved of his duties and will be given a new assignment, although it didn't say what that assignment will be. Rogozin, a close ally and friend of Russian President Vladimir Putin, had been head of the space agency since 2018, and in recent months, especially since the Russian invasion of Ukraine, had been in conflict with the U.S. and ESA over the International Space Station program. In March, Rogozin threatened to end Russia's cooperation in ISS unless the U.S. stopped supplying the Ukrainians; he also threatened to strand U.S. astronaut Mark Vande Hie aboard ISS, and his latest attack came the day before his firing when he proposed that the U.S. and the Europeans not be allowed to use the new Russian robotic arm aboard the space station. He also instigated an ongoing feud with Elon Musk, criticizing Musk for using Starlink internet satellites to help the Ukrainians and complaining about Russia's giving the U.S. rides to ISS for almost ten years, saying that the U.S. had nothing but "broomsticks" for rockets. Musk tweeted back the next day, showing an image of a Space-X Dragon launching the day before and saying, "Here's our broomstick!" Russian news said that Yuri Borisov, a former deputy prime minister, will be the new head of Roscosmos.

Russia to Leave ISS After 2024-But then, Maybe Not

On July 25, new Roscosmos head Yuri Borisov announced that the Russian Space Agency will officially end its participation in the international Space Station at the end of 2024. The announcement was posted on the Kremlin website and while no reason was given, it is widely believed that it was due to the ongoing U.S. and international sanctions over the Russian invasion of Ukraine. The announcement did not say so, but speculation is that Russian President Vladimir Putin made the decision to end ISS participation. The announcement also explained that Russia will work on building and launching its own national space station by the mid or late 2020s.

However…

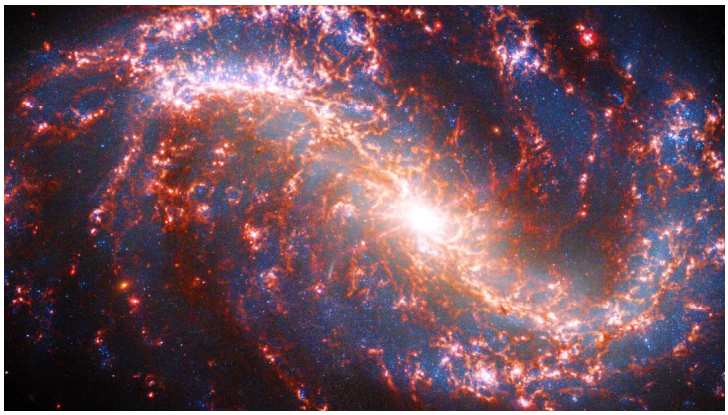
The next day, July 26, Roscosmos announced that Russia will stay in the ISS program until at least 2028, and possibly longer. This came from Anatoli Solovyov, a veteran cosmonaut and now the director of Roscosmos' ISS program. Speculation is that Roscosmos realized that if it quits ISS in 2024, it has nowhere to go in space for at least four to six years; many in the West believe that ROSS(Russian Orbital Space Station), as it's now being called, will not be operational until at least 2030. It's also speculated that a power struggle is growing between Russian politicians, who want Roscosmos to end its association with the United States over the Ukraine and other issues, and the Roscosmos cosmonauts, scientists, engineers, and administrators, who see ISS as a great benefit to the space program and the country, and want to continue it as long as possible.

Space Short-

In the U.S.'s Mercury program, the next flight after John Glenn's Friendship 7 in February 1962 was scheduled to be Deke Slayton in the capsule that he designated Delta 7, but Slayton was grounded due to a heart condition and was replaced by Scott Carpenter, who flew in Aurora 7 in June 1962.

First James Webb Space Telescope Images-Sights to Behold

The Cartwheel Galaxy



NGC 7496

NGC 3324

Stephan's Quintet

The Southern Ring Nebula

A cluster of the most distant galaxies known

All images by NASA/ESA/CSA/STSI/JWST

But always remember-Hubble is still going strong!

Star Stories

Denebola

Denebola is the beta star in the constellation Leo, the Lion, sometimes known as Beta Leonis. It is a type A main sequence star with an apparent magnitude of 2.1 and an absolute magnitude of 1.93. The latest satellite parallax measurements indicate that it is 37 light years from Earth. Research also shows that it is about 400 million years old and is most likely a pulsating Delta Scuti type variable, meaning that its brightness varies over a period of only a few hours.

Satellite observations show that Denebola is about three times the size of the Sun and is slightly oblate due to its high rate of rotation. Research has also shown that it has a disc of dust and rock debris encircling it, possibly indicating that a planetary system is being formed.

The name Denebola comes from the Arabic term *Deneb Al-said,* referring to the Tail of the Lion(the meaning of Deneb in Cygnus comes from the same term). The Arabs also gave it the name of *Al Sarfaf,* the "Changer," a reference to it being seen during the change of the seasons and the weather. The Chinese named it *Wudizou-yi*, the "First Star of the Seat of the Five Emperors," and the Hindus referred to it as *Uttara Phalguni,* the "Second Red Star."(since it's not red, why this term would be used is unknown).

Another in a continuing series on lesser known-but still important-observatories throughout the world

Class of 1951 Observatory

Although it sounds odd, there's a reason for this observatory being named what it is. It is the observatory of Vassar College in Poughkeepsie, New York. Although it was established in 1997, its history actually begins with the Maria Mitchell Observatory, named after the famous astronomer and Vassar professor Maria Mitchell, which was founded in 1865 and was considered one of the premier observatories in the U.S. in the late 1800s. The Maria Mitchell Observatory was operational until the 1980s, when it was declared obsolete. At its 45th reunion in 1996, the Vassar Class of 1951 donated money for a new observatory, and it was designed and built the next year. The original Maria Mitchell Observatory building, which still stands, was declared a National Historic Landmark in 1991, and today is used as classrooms and offices for the physics and astronomy department.

The new observatory has two telescopes; a 20" reflector, which is used mostly for public outreach, and a 32" reflector, which the professors and students use for research. The observatory also has a 5" Coronado solar telescope. The Maria Mitchell Observatory's original 8" refractor has been moved to the new facility and is still used on occasion.

Top right-the Class of 1951 Observatory Bottom left-The Maria Mitchell Observatory's 8" refractor. Maria Mitchell is seated on the left

CVA Summer Events

Auberry Library July 19

Millerton Lake-July 23

Riverpark-August 6

Above image by Alan Englund