COVID restrictions still in place-See the CVA website for information

THE OBSERVER

The Newsletter of Central Valley Astronomers of Fresno January-February 2022

James Webb Space Telescope Launched on Christmas Day-Finally!!!

On December 25, 2021, the James Webb Space Telescope was successfully launched atop an Ariane 5 rocket from the French Guiana Space Center in South America. When the project was started in 1995, it was estimated to cost $1 billion and scheduled to be launched in 2008. However, costs skyrocketed and the launch date kept being ushed back. At one point, Congress killed the program altogether, but a concerted effort by scientists revived it. It was rescheduled for launch in 2015, then 2017, then 2019, each time being delayed for technical reasons, All the while the cost kept rising, eventually to over $9 billion. Now, with the initial launch out of the way, the telescope still needs to reach its orbital point, a stable "L" area beyond the moon, where it will go into a halo orbit and (hopefully) be operational for at least ten years. There, it will be able to image the earliest stars and galaxies and provide answers to the formation of the early universe. It will also directly image exoplanets to determine if conditions for life exist on them. The JWST was originally a NASA project, but along the way, the European Space Agency, the Canadian Space Agency, and the Japanese Space Agency all became partners in the program.

Quote of the month-

"Thirty days of terror…"

A JWST scientist, referring to the time it will take for the telescope to reach its orbit and get set up for operating

In this Issue-

Central Valley Astronomers

Web address
www.cvafresno.org

Webmaster-Scott Davis

Officers and Board- 2022

President-
Ryan Ledak

1st Vice-President-
Steve Britton

2d Vice president-
Scott Davis

Secretary/Treasurer-
Steve Harness

Star Party Coordinator-
Brian Bellis

Historian/Observer Editor-
Larry Parmeter

Education Coordinator-
Scott Davis

Director- Warren Maguire

Director-Fred Lusk

Director-Hubert Cecotti

Director-Lynn Kleiwer

The President's Message

Fellow astronomers!

What a year it has been! From Covid, to a comet to James Web, it has been a big year and especially for astronomy. I hope these holidays are finding you well and you are able to rest and get ready for another exciting time ahead as we ring in a new year.

As far as the club is concerned, we are doing well given the circumstances. The same board was reelected to serve another year and I look forward to serving as your president through 2023. With our membership high and hopefully being able to get back to our outreach events sooner rather than later, it's an exciting time to be in the club.

Again, I look forward to this new year with optimism and excitement and hope to be able to get together as a club in one shape or another in due time.

Happy holidays and clear skies!

Ryan A. Ledak

The Pleiades are a familiar sight in the winter sky, and easily the most beautiful-Why not feature them at the beginning of this year?

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 December 2021-4,878

How many more are out there?

Tens of thousands? Hundreds of thousands?

Maybe millions?

A Better Name for JWST

By Larry Parmeter

Now that the James Webb Space Telescope has been successfully launched, scientists can finally breathe a sign of relief that it's on its way to open up the universe, the most important scientific instrument since the Hubble Space Telescope. There's still come controversy about it; gay and lesbian groups are still demanding that the name be changed, charging that Webb was complicit in a purging of gays from the State Department in the 1950s. An investigation by NASA head Bill Nelson has found no evidence to support those accusations, but the name remains a source of dispute. From another perspective, I have to agree with a growing number of scientists who say that the telescope should have been named after a notable scientist, not a politician or bureaucrat. I can just imagine legislators demanding that a piece of scientific hardware be named after their favorite political star as a condition for funding. A Hillary Clinton Earth climate change satellite or a Donald Trump communications satellite, or, heaven help us, the next generation Bernie Sanders space telescope. It'll happen eventually, I'm sure. Nope, satellites need to be named after pioneering scientists, because that's what they do: pioneer science. So, get rid of the Webb name and give it to someone who actually deserves it. I recommend one of two names; the first is Hans Bethe, the German-American physicist who fled from Nazi rule to the United States in the 1930s and did groundbreaking work in stellar fusion, which eventually won him the Nobel Prize. The other is Beatrice Tinsley, originally from New Zealand, whose work in cosmology led to today's widely accepted theory that the universe will expand forever. Tragically, she died in 1981 from cancer at a relatively young age(40). Either designation will bring dignity and honor to this worthy successor to the Hubble Space Telescope.

Star Stories

Mirfak

Mirfak, known as Alpha Persei, is the brightest star in the constellation Perseus. It is part of a cluster of stars known as the Alpha Persei Cluster, or by its catalogue designation of Melotte 20. It is an F5 supergiant in its last stages of evolution, with an apparent magnitude of 1.8 and an absolute magnitude of -5.1. Scientists estimate it is 8.5 times the mass of our Sun and has a diameter of 60 times that of our Sun. It is about 510 light years from Earth.

In 2010 evidence was presented that Mirfak has a planetary companion. Studies show that this object is about 6 times the size of Jupiter and has an orbital period of 128 days. Some scientists, though, question this and believe that it might be due to irregularities in the star's rotation rather than an actual planet.

Mirfak's name comes from Arabic and means "elbow." At times in history, it has also been given the Arabic name of Algenib, which means "shoulder," a reference to the shoulder area of the Perseus mythic hero. To the Chinese, it was named *Tian Chuan*, which means "celestial boat," part of an asterism that made up a boat in the sky.

Profiles in Astronomy

Radhagobinda Chandra 1878-1975

Radhagobinda Chandra was born and raised in Jessore province in Bengal in what was then British India. He attended local schools, but even though he proved to be of extreme intelligence, because of his varied interests, he never passed the exam to graduate from secondary school and subsequently never attended college. But he had a strong interest in astronomy from childhood on and while working as clerk in the Bengal government administration, pursued his studies and observations in astronomy. He eventually built his own observatory and studied the skies well into his seventies.

Chandra's main interest was in variable stars, and by the 1950s he had observed and catalogued over 37,000 of them. Part of his success with variable stars was that he was one of the few dedicated optical astronomers in India at the time. He is also well known for his observations of Halley's Comet in 1910, being possibly the first person in India to document its return. He also observed and documented several other comets. He is best known, however, for his discovery of Nova Aquila-3 in 1918. As a result of this finding, he corresponded with and became friends with Edward Pickering, then the director of the Harvard Observatory, who encouraged him in further observations and had him become a member of the American Association of Variable Star Observers, its second international member. Also, Pickering arranged for Harvard to give Chandra a 6" refractor telescope, which became his primary telescope for the rest of his life.

Besides the AAVSO, Chandra eventually became a member of a number of astronomical organizations, including the British Astronomical Association, the American Museum of Natural History, and France's Association Franciase des Observateurs d'Etolles Variables.

Image-Chandra with his telescopes. The larger one in the background is the 6" Harvard refractor

From the Observer Archives

Ach du Lieber-German-American Trivia

Daniel Boone spoke Pennsylvania Dutch(a dialect of German) fluently and was said by some to be German because his real name was Bohne
Babe Ruth and Lou Gerhig were the sons of German immigrants
Johan Schwarzendorf invented the martini
The first man to fly an airplane has been proven not to be the Wright Brothers but a Gustav Weisskopf on August 19, 1901. His plane's second and last flight covered eight miles*
When our country voted as to what the official language would be, there was a one vote difference between English and German
The Germans brought the Christmas tree and other holiday traditions to this country
(There is a full page of these in the issue, but I gave a representative sample here)

From the March 1989 Observer
***See article elsewhere in this issue**

What's New in Space
The Hole-in-the-Soyuz Saga Goes On

Another twist in the Soyuz hole controversy has reared its head. In August 2018, sensors detected air leaking from ISS; a search by astronauts and cosmonauts found a tiny hole in the Soyuz MS-09 spacecraft that had taken a crew of three to the space station only about two weeks earlier. It was very quickly patched up by the cosmonauts and did not cause any problems afterwards. An investigation was inconclusive; the Russians deny it, but all evidence pointed to an error during the manufacture of the spacecraft. A technician probably accidently drilled the hole, then covered it up with putty, which decayed while in space and caused the leak. As time went on, the incident essentially faded away. Then, on August 14, 2021, a story in *Tass,* the official Russian government newspaper, charged that an American astronaut, Serena Aunon-Chancellor, deliberately drilled the hole because she was depressed and homesick and wanted to return to Earth. Although there is absolutely no evidence to support this theory, the Russians insist this is what happened(among other things, the *Tass* story claimed that the Soyuz onboard cameras, which would have caught the perpetrator in the act, were disabled at the time; all other cameras aboard ISS show that none of the Americans aboard were anywhere near the Soyuz at the time that the hole was allegedly drilled). NASA has strongly rejected this idea, and a number of space experts say that the Russians are using it to deflect criticism from the Nauka thruster incident on July 29, where thrusters from the newly arrived module accidently turned on, causing the space station to go out of control and flip over before regaining stability. Also, in an incredible breach of medical ethics, the Tass article reported that Aunon-Chancellor was treated for a heart condition upon her return to Earth(NASA, citing medical confidentiality, refuses to confirm or deny this) and claimed that this might have been the reason she "drilled the hole."

On December 1, 2021, RKA announced that it had completed its investigation of the hole incident and was turning over its information to a prosecutor in the Moscow legal office with the indication that it may seek a criminal indictment against Aunon-Chancellor for sabotage. Again, experts see this as a ploy to divert criticism from Russia's November 14 anti-missile test incident in which debris from a deliberately destroyed satellite almost hit ISS. NASA head Bill Nelson strongly defended Aunon-Chancellor and said that he would make the Soyuz hole controversy a major topic of discussion when he goes to Moscow in January for meetings with RKA.

According to Russian experts, there are two reasons for this preposterous and fabricated scenario. The first is that RKA is desperately short of money, especially now that NASA doesn't need more Soyuz flights (at $85 million a seat) to take Americans to and from ISS. At the Moscow meeting, RKA head Demetri Rogozin will possibly tell Nelson that the Soyuz incident may be dropped if NASA comes up with more funding for Russia's participation in the space station program. This is essentially blackmail, but it's the way that Russia plays politics. The second reason is far more reaching. The U.S. has imposed crippling economic sanctions on Russia due to its abysmal human rights record and its shooting down of a Malaysian airliner over the Ukraine in 2014. In an interview with CNN in September, Rogozin hinted that if the sanctions were eased or dropped altogether, the Soyuz hole incident, as well as some other points of friction between the two countries could be eliminated. Given this, many believe that the Soyuz incident is actually being directed out of Russian President Vladimir Putin's office. Putin is known to feel that the U.S. is getting in the way of his expansionist agenda and wants to minimize cooperation with it. The sanctions issue is, of course, far beyond NASA, something that would require President Joe Biden to decide one way or the other. For now, life aboard ISS goes on and the cosmonauts and astronauts live and work together regardless of the fireworks on Earth.

Above right-Serena Aunon-Chancellor aboard ISS in 2018. She doesn't look depressed or homesick.

NASA Awards Grants for Possible Successors to ISS

On December 3, NASA announced that it is awarding $400 million in grant funding to three aerospace companies to develop private commercial space stations and have them operational by the time it abandons the International Space Station. Blue Origin, one of the awardees, is heading a consortium that includes Boeing and Sierra Space Systems (formerly Sierra-Nevada Systems), has proposed the Orbital Reef, a modular station that can hold up to eight people at a time and will be serviced by Sierra Systems' Dreamchaser mini-space shuttle. The second company is Nanoracks, partnering with Voyager Space Systems and Lockheed-Martin, which will build Starlab, a space station that will use inflatable modules and can also hold up to eight people. The third grant was given to Grumman, which is partnering with Dynetics, and will also build a modular station based on its Cygnus uncrewed supply craft, which currently services ISS. Grumman is said to have an advantage since its proposal largely uses already existing hardware. NASA stresses that the stations must be operational by 2028, the date that it is now giving for pulling out of ISS, in order to avoid a "space gap" in crewed orbital facilities. Blue Origin has said that Orbital Reef can be in place by 2027. Also, NASA's astronaut crews will have first priority aboard the new commercial stations. In 2020, NASA awarded a contract to Axiom Space Systems to develop several modules which will initially be attached to ISS, then detached to form their own independent space station by 2028. In addition to the four mentioned already, several other companies, including Space-X, are also developing space stations on their own which may be operational by 2030. To sum up things, 2030 may see as many as six or seven operational space stations in low Earth orbit, with as many as 40 to 50 people at a time in space working aboard them.

Top right-The Orbital Reef; bottom left-Starlab

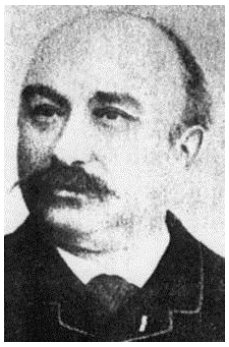
Top left-Illustration of the Axiom modules attached to ISS. Top right-the free-floating Axiom space station. The first Axiom module will be delivered to ISS in 2024.

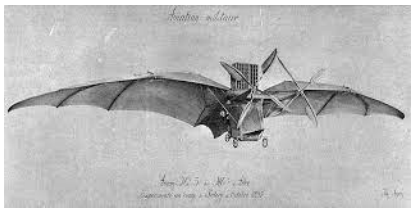
Spaceflight Short-

On December 6, NASA announced ten new astronaut candidates chosen from over 12,000 applicants-the Class of 2021. One of the ten is Navy lieutenant commander Jessica Wittner, a fighter test pilot who was born and raised in Fresno and calls Clovis her hometown.

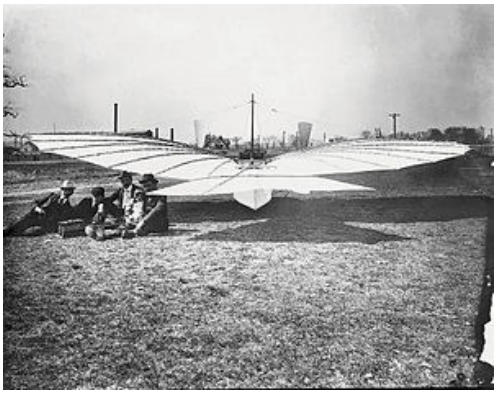
Who Flew First?

Popular history, at least in the United States, says that the Wright Brothers flew the first motorized aircraft at Kitty Hawk, North Carolina, on December 17, 1903. Yet, who really flew the first airplane and for how long is a subject of controversy. Part of it depends on the definition of an airplane flight, which is generally ascribed as a motorized controlled flight with a pilot. The Wright Brothers' flights are heavily documented and, with some exceptions, few people doubt them. But evidence now shows that others may have flown before them.

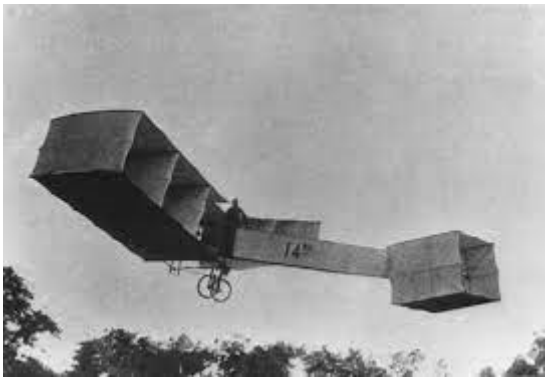




During the late 1800s many people in several parts of the world were attempting controlled motorized flight. One of the earliest was a French naval officer, Felix du Temple de la Croix, who built an aircraft in 1874 that was powered by a steam engine and may have flown for short distances after being launched by a ski-lift type pully device. In 1884, Alexander Mozhayski, a Russian military officer, built a motorized aircraft which reportedly flew using a ramp for take-offs. In 1890, another French inventor, Clement Alder(left) built a steam engine-powered aircraft which allegedly flew over 200 yards.(above right-Alder's plane) However, in 1897, a test for the French military ended with the plane not really flying at all, so his claim is in dispute. In 1899, an American, Augustus Herring, flew a glider which was lofted into the sky by an air compressed engine. Aviation historians consider it more of a glider flight than a true powered airplane.



A serious competitor to the Wright Brothers was a German who immigrated to the United States. Gustav Weisskoff, who changed his name to Gustave Whitehead, built a flying machine powered by a steam engine, and according to supporters, flew it successfully as early as 1899. It is also claimed that he flew a gasoline engine-powered aircraft for almost eight miles on August 14, 1901, over two years before the Wright Brothers(right-Whitehead's 1901 plane). Documentation on his flights is lacking; however, a replica of his 1901 aircraft was built and successfully flown in 1997. As such, some historians say it is possible that he flew before the Wright Brothers. Another German who lived and worked in Hanover, Karl Jatho, built a gas-engine powered aircraft, and according to supporters, successfully flew it on brief flights in November 1903(left). These flights have some evidence to support them but are still disputed. It is known that Jatho refined his aircraft and flew it successfully from 1905 to 1909. Still another person, Burrell Cannon, a Protestant minister from Texas, built an aircraft based on "Ezekial's Wheel" in the Bible. According to supporters, this craft was successfully flown in 1902 by one of his assistants. There is, however, no independent evidence to support this claim, and the aircraft is now in a museum in Texas.



The most serious challenge to the Wright Brothers comes from Alberto Dumont-Santos*. Born in Brazil in 1873, he developed a number of lighter-than-air ships, gliders, and also powered craft. He made his first motorized airplane flight on October 23, 1906 (right) in Paris, France, where he lived most of his adult life. This would have been almost three years after the Wright Brothers, but Dumont-Santos and his supporters claim that it was the first true powered aircraft flight. They say the Wright Brothers' flight was not a true flight because the Wright Flyer used a catapult-like device to get off the ground and the 1903 flights were not made in front of

the public. Dumont-Santos took off from a runway and several hundred people saw him fly. Part of it was also that most Europeans at the time had a very anti-Wright and anti-American mentality; that a pair of upstart and secretive+ Americans simply could not have beaten the more experienced and superior Europeans into the air. This feeling lasted a long time afterwards. Even today, in parts of the world and in some history books outside the U.S., credit is given to either Alder, Jatho, or Dumont-Santos for having invented motorized flight as well as saying that the Wright Brothers' 1903 flight claims are questionable. At the 2016 Summer Olympics in Rio de Janeiro, the opening ceremonies hailed the Brazilian-born Dumont-Santos as making the first true airplane flights.

As to the Wright Brothers themselves, after the 1903 flights, which ended with the Model 1 Flyer being wrecked due to high winds, they went back to Dayton, Ohio, and built a second plane, the Model 2. In 1904 and 1905, they made numerous long distance flights with it from a field outside Dayton. In 1906, they built a third model, which was even more successful, with some of the flights lasting over half an hour and covering up to twenty miles(left-an image of one of the 1906 flights). All of these flights are now well documented. In 1908, Wilbur Wright took the Model 3 Flyer to Europe and stunned crowds with its precision and control (right-one of the 1908 flights in Le Mans, France). Before this, many in Europe, wanting a European to be the first in the history books, denounced the brothers as frauds and their flights as possible fabrications. The 1908 exhibition flights silenced their critics; the Model 3 Flyer was far superior to anything then flying in Europe or anywhere else.++ In 1909, the brothers formed the Wright Airplane Company. Wilbur died from typhoid fever in 1912. At about the same time, Orville and the Wright Company fell into a dispute with Samuel Langley, the Director of the Smithsonian Institution, who had built his own planes at the turn of the century and attempted to fly them without success. ^Not until 1948, the year of Orville Wright's death, was the dispute settled and the original Wright Model 1 Flyer was given to the Smithsonian, where it has been displayed ever since.

While some aviation historians now acknowledge that others may have flown before December 1903, they are firm in the belief that the Wrights were the true pioneers of human airflight. They mastered the science of aerodynamics and lift and the mechanics of stability and maneuverability, and invented the three-axis control system and other engineering innovations that are still used on aircraft today. They were American originals, leading the way for many others to follow.

***In some accounts, his name is given as Dumont-Santos; in others it is Santos-Dumont.**

+Much of the reason that recognition of the Wright Brothers' achievements came slowly was that they were secretive, almost paranoid, about the technical details of their aircraft, especially the unique "wing-warping" maneuvering system and the three-axis control system, which they invented as early as 1898. They did not want anyone, other than themselves and their assistants, to witness or photograph it for fear that it might be copied and used by others before it was patented, which it was in 1906. Even then, they ended up suing several other airplane builders for patent infringement in the early 1900s.

++By 1908, at least a couple of different airplanes had been built and successfully flown, both in Europe and the United States. But none of them demonstrated anything close to the stability, maneuverability, and control that the Wright Flyer did. When Wilbur Wright flew the Model 3 Flyer in France in 1908, European newspapers reported that the French aviation community, including the already famous Louis Bleriot, who in 1911 would be the first person to fly across the English Channel, was awed by the abilities of the Wright plane.

^Langley began working on airplanes as early as 1887. In 1896, one of his scaled-down unmanned models, powered by a small steam engine, flew over 3,000 feet after being launched off a houseboat in the Potomac River, a feat which he claimed to be the first airplane flight. However, in 1903, a full scale airplane piloted by one of his assistants failed to fly, twice plunging into the Potomac shortly after takeoff. He gave up on flight attempts afterwards. Langley died in 1906. In 1912, his plane, called the Aerodrome, was put into the Smithsonian, and in 1925 the Smithsonian asked Orville Wright to donate the Model 1 Flyer as well, but insisted that the Langley Aerodrome be given the designation of being the first plane to fly. Wright refused and instead "loaned" the Flyer to the London Science Museum in England. There, it was on display for almost 20 years(during World War II, it was stored at a secure facility in the English countryside). In 1948, shortly after Orville's Wright's death, the Smithsonian settled the dispute with the Wright estate; the Flyer was subsequently returned to the U.S. and put on display at the Washington, D.C. museum, where it has been ever since.

A note from the editor-

In 2008, the last time I visited the Air and Space Museum in Washington, D.C.,(it has been closed for almost five years due to renovations and the Covid Pandemic and is now scheduled to reopen in the summer of 2022), I sat in on a talk on the history of the Wright Flyer given by a docent. During the question and answer period afterwards, I asked him about stories concerning the possibility that others flew powered airplanes before December 17, 1903. He asked me, "Is there any solid evidence that those flights actually took place?" I said, "Not that I know of," and he replied, "Well, that's it, then. There isn't any evidence." Apparently there is now.

Sources for the Who Flew First? Article:

"Gustave Whitehead" https://en.wikipedia.org/wiki/Gustave_Whitehead

"History Faceoff: Who was the First in Flight?" https://www.history.com/news/history-faceoff-who-was-first-in-flight. December 13, 2016

Miss Cellania. "Who Flew Before the Wright Brothers?"www.mentalfloss.com/article/16814/who-flew-wright-brothers. August 14, 2007

"Santos-Dumont versus the Wright Brothers: Who Really Invented the Airplane?" https://aviationoiloutlet.com/blog/who-really-invented-airplane/ October 16, 2020

"Wright Brothers" https://en.wikipedia.org/wiki/Wright_brothers

Astro Gear for Sale-

1 1/2 - 2-inch eyepiece adaptor
Celestron tele extender (threaded both ends, female threads are about 34mm dia., the male threads are about 42 mm dia.)
T adaptor fits older Canon
Orion straight-through finder, with bracket
Celestron Nexstar reflector, Bird-Jones type, for parts only
Celestron 25mm eyepiece, unmarked type
And I also have a set of Celestron anti-vibration pads. I'd like $10 for those.

Contact Greg Lewis at gregl@mail.fresnostate.edu

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

The Astronomy Centre

The Astronomy Centre is not a scientific research observatory as such, but a facility used by dedicated amateur astronomers throughout England. It is located in West Yorkshire in northern England in the Pennines Mountain range near the town of Burnley and was established in 1982 by a group of amateur astronomers. It is at an altitude of about 2,500 feet. It is used by local astronomy groups, schools, student researchers, and community organizations. However, since the beginning of the Covid Pandemic, it has been closed to the general public.

The Centre has several permanently mounted telescopes, the largest being a 30″ Dobsonian. It also has 20″, 17″, 12″, 16″, and 8″ reflectors. It has a 42″ unfinished mirror blank; once the Pandemic is over, local astronomers hope to be able to finish it and mount it in a framework, which will be one of the largest amateur telescopes in the British Isles. The Centre has two amateur radio telescopes and is working on restoring a 15″ refractor which was donated to it. For those who want to bring their own telescopes, the Centre offers several slabs with electrical outlets and other astronomical amenities.

The astronomers who use the Centre are not professional scientists, but a number have done research on the planets, especially Mars; asteroids; meteor showers; comets; and variable stars and multiple star systems. The Centre has also become one of the main facilities for amateur astrophotography in England.

Above-one of the radio telescopes at the Astronomy Centre. Upper right-an overall view of the facility. The large dome in the center houses the 15″ refractor

Astronomy Short

Giuseppe Pazzini(1746-1826) of Italy is given credit for discovering the first asteroid(now classified as a dwarf planet) in 1801; he gave it the name Ceres, after the goddess of grain(an important source of food) in ancient Rome. What is less known about him is that he was a Catholic Theatine priest who had a life-long interest in astronomy. He later compiled a well-known star catalogue and was the founder and first director of the Palermo Observatory.

Astronomy (bad-but thoughtful) Joke

If you're in a vehicle going the speed of light, what happens when you turn on the headlights?
(Actually, thinking about something like that is how Einstein came up with the Theory of Relativity)

From *Science Jokes* angelo.edu