SIRIUS ASTRONOMER

www.ocastronomers.org

The Newsletter of the Orange County Astronomers

September 2022 Free to members, subscriptions $12 for 12 issues **Volume 49, Number 9**

This is M44, the Bee Hive cluster, imaged by Alan Lang from a site in Wisconsin using a SkyWatcher Esprit 100 refractor and an astro-modified Canon T6i DSLR camera.

Because of the COVID-19 crisis and ongoing efforts to reduce exposure to the virus:
* **Some in-person club events are cancelled**

Please read more about how OC Astronomers has modified its activities on page 3.

Upcoming Events - free and open to the public

Beginner's class	Friday, 7 October at 7:30 to 9:30 PM ONLINE This is session 2 of the class. It covers types of equipment used to observe the night sky. Class materials can be downloaded from OCA website.
Club Meeting	Friday, 9 September at 7:30 to 9:30 PM ONLINE "What's Up?": John Garrett from Temecula Valley Astronomers Main speaker: Nicola Tomassetti from University of Perugia, Italy and the talk will be "Cosmic Rays, Antimatter, Dark Matter: Connecting the Dots"
Open Spiral Bar	Saturday, 10 September at 10:00 to 11:30 PM ONLINE Want to socialize? Grab your images, experiences, questions, or none and see your fellow Orange County Astronomers face-to-face.

Please consult the calendar on the OCA website to RSVP (required)

President's Message

By Barbara Toy

I understand that "summer reading" is a recognized phenomenon in today's world – reportedly imposed on the young with lists of specific books (probably of the "literary" variety), but more voluntary for adults. The advertising folks seem to think that summer reading for adults is light-hearted fare that's a bit of a guilty pleasure, most likely not books that would ever be considered serious literature or ever make it to "classic" status.

From my youthful days (cue the crochety voice…) I can't recall that we ever had much direction in what we should read over a summer, and despite ad campaigns, that hasn't changed much. Then (and now) we'd pretty much go by what seemed interesting without thinking much about literary merit. It doesn't seem that murder mysteries or science fiction, two genres popular with family and friends, are generally considered "good" or "serious" literature. Of course, for many of us, that's part of the draw. What's really fun though, is when you find a something in a disfavored category in unexpected places. I made such a discovery with Rudyard Kipling, whose stories and poetry cover a wide range of topics and genres - he wrote two science fiction stories.

The first, "With the Night Mail" (in "Actions and Reactions," Vol. 24 of his collected works) was written in 1909 and set in the year 2000, and it assumes a world based on dirigibles. The Aerial Board of Control (the A.B.C.), which was responsible for "the traffic and all it implies" has become the de facto government, or at least administrator, of most of the world due to world-wide commerce. The story itself is of a trip aboard an airship carrying the mail from Europe to North America, with lots of incidents along the way. He must have really enjoyed creating that world, as he followed the story with a series of advertisements, articles and other items from the publication where the story was supposedly published (in 2000), including an advice column and a "review" that explains somewhat elliptically that the Aurora Borealis powers electrical phenomena that affected the planet's "traffic" in different ways in the story. So, there is a sort of astronomical side to it…

The second is "As Easy as A.B.C," written in 1912 (in Vol. 27, "A Diversity of Creatures"), and centers on actions taken on behalf of the A.B.C. in dealing with an uprising in Illinois. In the story, representatives of the A.B.C. use various futuristic weapons based on sound and light and delivered via a navy of dirigibles to quell the uprising. He was writing long before the Hindenburg disaster (which was in 1937, a year after Kipling's death), and a sophisticated transportation system based on dirigibles seemed quite reasonable at the time. For some reason airplanes never inspired him the same way, and rockets didn't come along until long after his death.

Kipling was intelligent and had a great interest in the technology and science of his day, and it's interesting to see how someone of that period viewed the possible future. So much of what we know now about the universe was not yet known even to experts when he wrote these stories, including that we live in a galaxy that is one of billions of galaxies, and that the other planets in our solar system are other worlds but very different from each other and from Earth. At that point, Einstein's insights were several years away. Maybe knowing more about what was outside Earth's atmosphere could have inspired stories based on that information, but he did an excellent job with what he had. And, as an additional astronomical aspect to this (beyond the role played by the Aurora Borealis in his future world) there is a crater on Mercury that was named for Kipling in 2010 (per Wikipedia).

Turning to Club-Related Concerns

Sadly, the Starbecue planned for the July Anza Star Party had to be postponed due to clouds and threatened thunderstorm activity. This year's monsoon season seems to have started early and kept on going. We're hoping (as I write this – it'll all be history by the time this gets to you …) that the weather will be better for the August Star Party and that the Starbecue will occur as now planned. If you made it out there for the first-planned Starbecue, I hope you had a wonderful time.

Despite the thunderstorms, conditions remain very dry out at Anza and that is likely to continue until November, maybe longer. From forecasts I've read for what should be the rainy season this year, we're very likely to have another very dry year. If you see any condition out at Anza that might be a fire hazard, please take whatever steps you can to reduce the risk, and also let someone on the Board know about it. That applies to any condition you see out there that could be dangerous, not just to fire hazards – having many watchful eyes can help keep us all safer.

So far, the aquifer that provides water to the well for our Anza site has been pretty reliable. However, with the continued drought, it is likely that more water is being drawn from the aquifer than in the past by those around us even if our own use hasn't changed, and it is possible that our well could run dry at some point – hopefully not, but it's a possibility. If it does, we most likely won't see any effect until the water tank it feeds is empty, but the pump for the well could start making unusual noises if it's unable to pump any water and could burn out if it doesn't shut down automatically or isn't turned off. Of course, the well running dry isn't the only condition that can cause problems for the well pump. If you happen to be around it and hear the pump making unusual sounds, particularly if it sounds like it's overworking, please let someone on the Board know. The pump is in a little shed below the observatory levels and generally is fairly quiet, so if it starts making loud noises that would be unusual for it. Please don't try to access it (the shed is locked) or try any repairs yourself, just notify someone on the Board so it can be assessed, and we can determine the best course to take with it.

Orange County Star Parties – We're Still Looking for a Host

If you can be physically present for the Orange County Star Parties near Irvine Lake in Orange County and can handle such duties as opening and closing the gate, please consider volunteering as a host for the Orange County Star Party. Steve Mizera's current work schedule has made it impossible for him to attend the star parties himself, though he's willing to continue to handle the background administrative aspects of the coordinator's job. We need one or more people to handle the duties at the star parties themselves, and we can't get the star parties going again until we have that in place. To volunteer, please contact Steve Mizera as soon as possible (MizeraS@cox.net), or contact Alan Smallbone, Charlie Oostdyk or me. Thank you for your assistance, and thanks to Steve for his willingness to continue working to keep the Orange County Star Parties going!

G. Bruce Blair Award:

There were some technical problems with doing the presentation of the G. Bruce Blair Award to Tim Hogle at the August General Meeting. We're very happy that the award is going to Tim Hogle this year, and we expect to bring you that presentation at one of our future general meetings.

May you have good viewing despite all of the monsoonal challenges and may you and those around you all stay healthy!

Response to COVID-19 Crisis

Any use of the club's Anza site by members is at their own risk. Visitors should bring supplies to clean and sanitize surfaces they contact. When you leave, take any trash that you generate or find on site out with you. Please maintain social distancing if anyone else is out there.

Meeting in person:	Astrophysics SIG
Meeting via Zoom:	Monthly club meeting, Beginner's Astronomy class
Coming soon:	Orange County Star Parties
Cancelled until further notice:	AstroImaging SIG, in-person club general meetings
Check with Coordinator:	Outreach events

AstroSpace Update

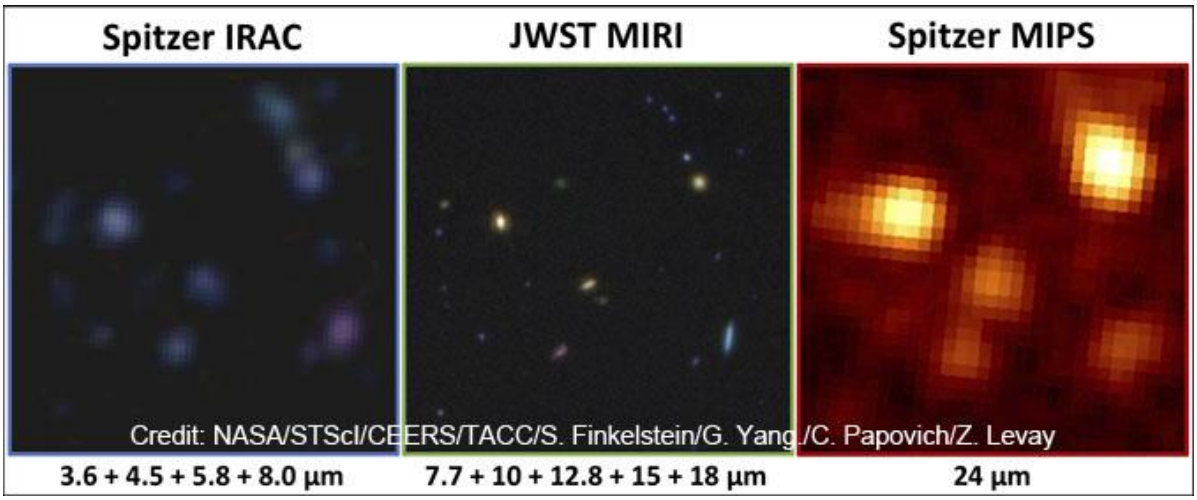
September 2022

Astronomy and space news summarized by Don Lynn from NASA and other sources

Black Widow Star – Astronomers a few years ago discovered a "black widow" star, that is, a neutron star that is gravitationally eating material from its close companion star and have recently measured its mass. Only about 2 dozen such stars are known. If such a star consumes too much material, it will collapse under its own gravitation and become a black hole. The exact mass at which collapse occurs is not known, so astronomers keep measuring masses of black widow stars to find that mass limit. A newly discovery one is the most massive yet seen, at about 2.35 times the Sun's mass, so it becomes the current best estimate of the mass limit before collapse. The newly measured star, known as PSR J0952-0607, has apparently been spun up by the material it has eaten, and is rotating 707 times per second, making it one of the fastest spinning neutron stars known. It is about 20,000 light-years away in the constellation Sextans. It has eaten so much of its companion star that the companion's mass is down to about 20 times that of Jupiter. Observations of the system with the Keck I telescope in Hawaii established the masses of the component stars.

New JWST Images – James Webb Space Telescope (JWST) scientists have continued to release new images. Among them is a mosaic covering about 8 times the sky area of the Webb deep field image released in July. The mosaic was made for the CEERS program, which is surveying a fraction of 1 square degree of sky with JWST in various infrared wavelengths. Like the JWST deep field, it is full of galaxies, some of them extremely distant.

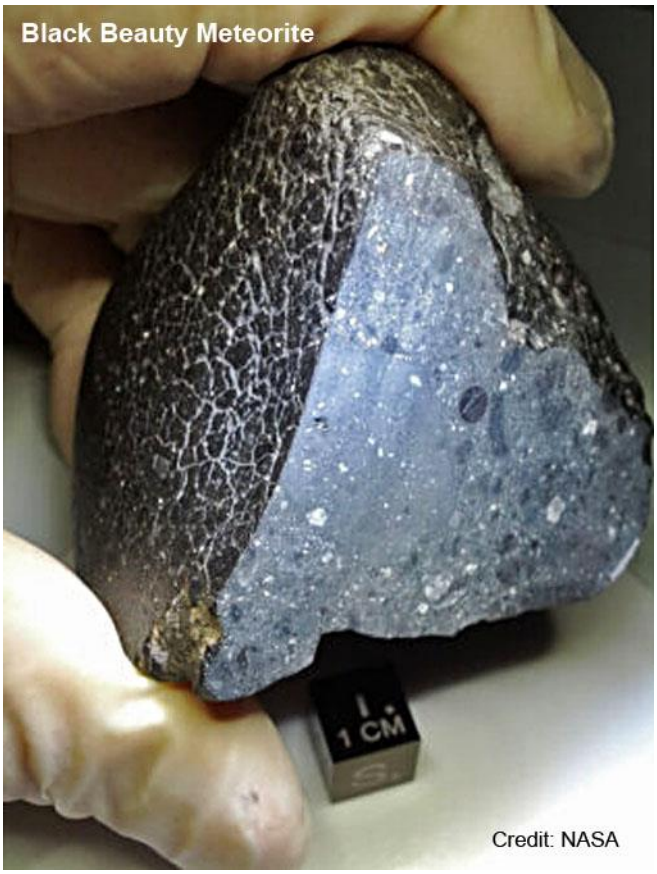
This illustration shows a portion of a new JWST image, comparing it to images of the same area taken by two cameras on the Spitzer Space Telescope, the previous best infrared space telescope. The increased resolution and sensitivity are obvious.



Farthest Galaxy (Again) – A galaxy, designated CEERS-93316, was observed by the James Webb Space Telescope and it has set a new record for the farthest object ever seen. The record it broke was only a few months old. CEERS-93316 is so distant that the light observed left there only 235 million years after the Big Bang. This measurement is preliminary and will have to be confirmed with a spectrum. The redshift of the galaxy was estimated at 16.7, which means that the expansion of the Universe has stretched light from the object so that its wavelength is 17.7 times what it was when emitted. Theoretically Webb should be able to see galaxies whose light left as little as 100 million years after the Big Bang, if galaxies had indeed formed by then. So likely this record will be broken often by new Webb data. In fact, there is a galaxy suspected of having redshift of 20 in the latest images.

GRB in Millimeter Light – When a neutron star merges with its binary companion star, it emits a short gamma-ray burst (GRB), which, though lasting only a fraction of a second, contains more energy than a star gives off in its lifetime. In types of light other than gamma rays, the event is followed by a much longer-lasting afterglow, which is caused by jets interacting with surrounding gas. For the first time, such an afterglow has been detected in millimeter light, a form between radio and infrared. The radiotelescope array ALMA, located in Chile, made this observation. The event occurred when the Universe was 40% of its current age, but the light took this long to get here due to the object's great distance. This event was also detected in radio and X-rays. The ALMA observations pinpointed exactly which galaxy was host to the GRB. That host galaxy was observed in visible light and infrared. The data gathered allowed astronomers to calculate the angle of the cone shape that the jets occupy. This angle helps astronomers understand the fraction of such events that are observable, the total energy of the events, and the density of material around the events. The energy determined for this event made it one of the most powerful GRBs known.

Gas in a Circumplanetary Disk – Astronomers recently discovered just the third confirmed circumplanetary disk. This disk is likely forming moons about a forming gas giant planet. The circumplanetary disk was found in a gap in the protoplanetary disk about a star known as AS 209. The first detection of gas in any circumplanetary disk was just made using the ALMA radiotelescope array observing this system. The forming planet is orbiting surprisingly far from its star, more than 200 times the Earth's distance from the Sun. This star is estimated to be only 1.6 million years old, so planet and moon formation is in its early stages. The star and its forming planetary system are located about 395 light-years away in Ophiuchus. Webb Telescope observations are planned to confirm the forming planet.



Martian Meteorite Source – Scientists have pinpointed which impact crater on Mars launched debris into space, a piece of which fell to Earth and became known as the Black Beauty or NWA 7034 meteorite. A study using computer search of all the impact craters on Mars found that only one, named Karratha, matched the age the meteorite was launched from Mars, the magnetic field strength, the potassium and thorium content, the crater size for the energy to launch debris into space, the age of crater ejecta previously covering the area of Karratha matching the age of other meteorite material, and more criteria. It is hoped that similar techniques may discover the sources of other Martian meteorites or lunar meteorites.

Asteroid Fracturing – Scientists studying close-up images of asteroid Bennu taken by the OSIRIS-REx spacecraft found that the Sun's heat repeatedly applied as the asteroid rotates causes rocks to fracture in time scales of 10,000 to 100,000 years. Scientists previously estimated such rock fracturing would take millions of years. Images of more than 1500 rock fractures on Bennu were used in the study. The predominant direction of fractures indicates they were caused by the Sun's heat. The rotation period of Bennu, that is the length of its day, is 4.3 hours. The daytime surface temperature reaches about 260° F.

Interstellar Object – In 2014 an object estimated to be half a meter wide was tracked to a crash in the ocean off the coast of Papua New Guinea. The best estimates of its speed indicate that it came from outside the Solar System. Scientists believe that they know the impact point within a 6 mile square, so efforts are being made to promote an expedition to try to find the object or its fragments on the ocean floor. Because objects from outside the Solar System are so rare, finding this object and studying it would add greatly to our knowledge of conditions in other stellar systems.

Comet Hunter Passed Away – Amateur astronomer and comet discoverer Don Machholz succumbed to COVID in August at age 69. He had the most comets bearing his name (12) of any living person who used visual discovery, rather than imaging. He spent nearly 9000 hours since 1975 scanning the sky for comets. He is considered a co-inventor of the Messier Marathon, the attempt to see all of the Messier objects in a single night. He wrote a book on it and completed 50 of those Marathons over the years. That book inspired me to organize the first few Messier Marathons held by OCA and Machholz gave me helpful advice on doing so. He will be missed by the astronomy community.

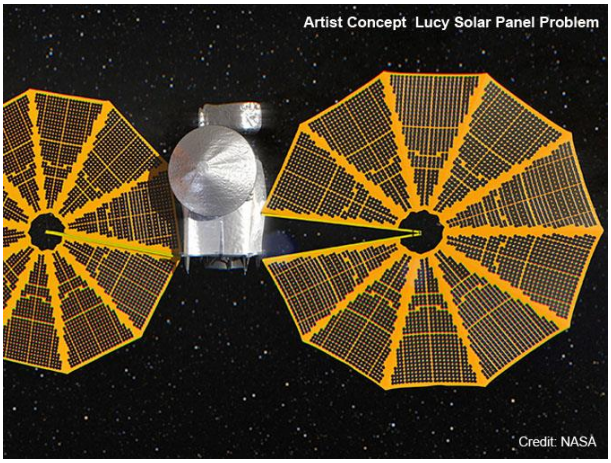
Mars Sample Return – NASA has completed the system requirements for returning samples from Mars. The rover Perseverance is now collecting those samples. So far it has sealed up 11 rock/soil samples and one atmospheric sample. NASA had planned to send another rover in a few years to gather the samples from Perseverance or wherever Perseverance stored them, but the new system requirements have Perseverance itself, aided by two newly planned Mars helicopters, gather the samples and place them on the to-be-developed Mars Ascent Vehicle, which will launch the samples into Mars orbit. The samples will then be transferred to another rocket that will be parked orbiting Mars, known as the Earth Return Orbiter, using its robotic arm. The latter rocket then returns the samples to Earth by 2033. These spacecraft are to be supplied by NASA and the European Space Agency (ESA).

Danuri – South Korea launched its first lunar spacecraft, named Danuri, which means "enjoy the Moon". The launch rocket was a SpaceX Falcon 9. It is scheduled to move into lunar orbit mid-December. A planned year-long mission will search for landing spots for future missions, map lunar resources, and test space technologies.

SLS To Launch – As I write this, the first Space Launch System (SLS) rocket is on its launch pad in Florida preparing for its Artemis 1 mission. This involves orbiting the Moon for most of its 42-day flight, then returning to Earth. Three test dummies, named Moonikin, Helga and Zohar, are in the Orion capsule atop the rocket, but no humans. The next flight of an SLS rocket will be the Artemis 2 mission, which will take humans around the Moon for the first time since 1972. Artemis 3 will land humans near the lunar south pole, now scheduled for 2025. SLS is the largest, most powerful rocket ever.

Spent Rocket Falls – The first stage of the Long March 5B rocket that launched another module of the Chinese Tiangong space station in July fell to Earth uncontrolled nearly a week later, somewhere near Borneo. Normally such rocket stages are safely flown under control into an empty area of ocean. Possibly it was intended to do so, but something failed. NASA condemned the lack of control and lack of information as irresponsible. The 5B first stage is about 100 feet long and weighs over 20 tons, so could do considerable damage if it hit something or someone.

Lucy – Soon after launch of Lucy, the mission to the Trojan asteroids, it was commanded to spread its two huge circular solar panels. But only one of them latched into the fully spread position. Investigation showed that on the troubled panel the lanyard that pulls the panel open had apparently tangled on a spool. After much study, it was decided to power on both the panel deployment motor and its backup motor at the same time. This sort of worked. The panel is at least 98% opened now, and though not latched, is held so stiffly that it should suffice for the entire mission. Lucy will flyby the first of its 9 asteroid targets in 2025 and the last in 2033.



Ten Years on Mars – The Curiosity Mars rover celebrated 10 Earth years on the Red Planet in early August. It has driven nearly 18 miles and ascended about 2050 feet exploring Gale Crater. It has analyzed 41 rock and soil samples. Although a few parts have broken, notably cracks in its wheels, it is operating well enough that NASA authorized 3 more years of budget to continue roving. Its observations showed that Gale Crater long ago held a lake that persisted for a long time.

Liquid-Mirror Telescope – India completed construction and achieved first light of a 4-meter telescope on a mountain in the Himalayas that uses liquid mercury as the primary reflecting surface. The primary is spun at such a speed to shape the liquid into a paraboloidal shape of the correct focal length. It can point only straight up, but it has a wide field produced by a multi-lens corrector system. As the sky drifts across the field of view, the image on the detector is electronically drifted to compensate, allowing long exposures. It is a joint project with Belgium and Canada and is known as the International Liquid Mirror Telescope, or ILMT.

Another Look

Dave Phelps, September 2022

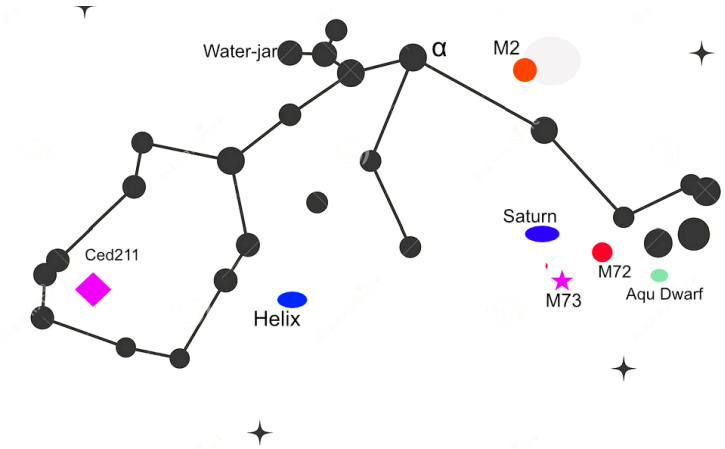
New moon Aug 27 (Astronomical twilight 2049 PDT), Full moon 10th
First day of Autumn: Thursday, September 22, 2022, at 6:03 pm PDT

September Full Moon this year (25th) will be the Harvest Moon since it is the full moon nearest the equinox. Traditionally the full moon in September is the Corn Moon, while Celtic and Old English names are Wine Moon, Song Moon, and Barley Moon.

The Age of Aquarius

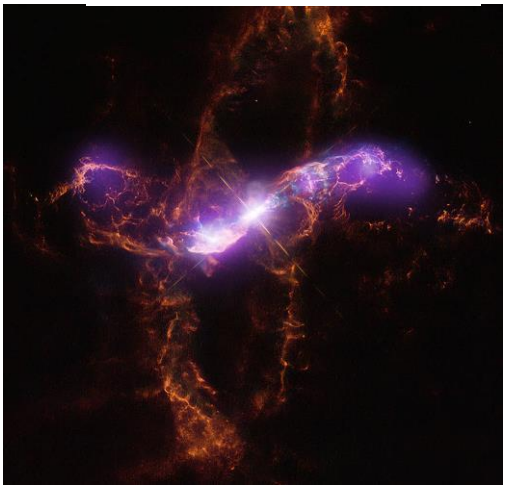
The Reverend T. W. Webb, edited by Margaret Mayall, describes Aquarius as "a dull looking-constellation, but well repaying telescopic research" from ***Celestial Objects for Common Telescopes Thomas William Webb, 1859.*** No time like the present to take a look for ourselves.

Beta Aquarii β, is a visual multiple star that was used as test for the early achromatic lenses. The b and c component are 11 and 12 magnitude and under a minute from their 2nd magnitude primary, making it tough to see. Beta has a very old history, its name is Salalsuud, meaning luck of lucks from the Arabic. The Chinese called it and its neighbors the First Star of Emptiness. The Hindus pointed to that area as the mansion of the "Deities of Earthly Abundance" and very far back along the Euphrates, it was called the Star of Mighty Destiny. This earliest name may be what led to the early modern Latin: *Lucida Fortunæ Fortunarum* which translates to *the brightest of luck of lucks.* (***https://en.wikipedia.org/wiki/Beta_Aquarii***)



Aquarius Dwarf galaxy Credit: HST

Aquarius contains another famous supergiant star: Sadalmelik, (Alpha Aquarii α), and a number of notable deep sky objects: the globular clusterαs Messier 2 and Messier 72, the asterism Messier 73, and the Aquarius Dwarf Galaxy. The Aquarius Dwarf is 14th magnitude and very diffuse. It can be found only six minutes of arc east of M72 and a half a degree south. Its notable because in this era of an expanding universe, the Aquarius dwarf has a blue shift and is coming our way. Thank you to ***https://en.wikipedia.org/wiki/Aquarius Dwarf*** for the Hubble Space telescope image above.



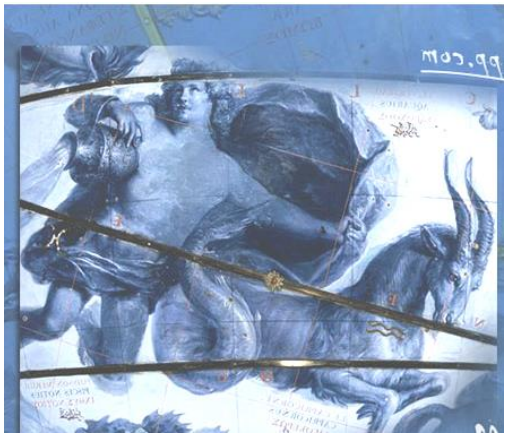
In the eastern region of Aquarius is Variable star R Aquarii. R is a red giant that changes brightness between 5th and 12th magnitude, a cycle that takes over a year. R also has a companion. A white dwarf whose shared orbit is about 44 years, but its a ghost, it can't be seen.

Sven Cederblad was a Swedish astronomer who published his catalogue of "bright diffuse galactic nebulae" as a thesis in 1936. He listed two hundred and fifteen nebulas in his catalog. R is surrounded by Cederblad 211. Ced 211 is an emission nebula probably caused by a nova explosion from the dwarf that we think was recorded by the Japanese in 903AD.

Image Credit: X-ray: NASA/CXC/SAO; Optical: NASA/STScI, Palomar Observatory, DSS; Radio: NSF/NRAO/VLA; H-Alpha: LCO/IMACS/MMTF

The history and mythology around Aquarius go back thousands of years to the civilizations that grew up around the Euphrates and the Nile. The Babylonians had a god who was depicted holding a vase. The Egyptians imagined Aquarius pouring water from his jar flooding the Nile in the Spring. Rain meant life, the rivers flooding brought new soil and new life to the fields.

Flooding and its relationship to new life are found in history from back in the eras of Gilgamesh, Nimrod, through early Egypt and the Pharaohs, into Greece and in Judaeo-Christian writings.



Our most recent tie to Aquarius goes back only a few thousand years to the Greeks.

Aquarius portrays Ganymede, a young man stolen by Zeus and taken to Mt. Olympus to serve as his cupbearer, ie: slave. Zeus did this by changing himself into an Eagle, represented by Aquila. The day came when Ganymede had enough and stole all his wine and water and poured it out, flooding the earth and giving the world rain**.**

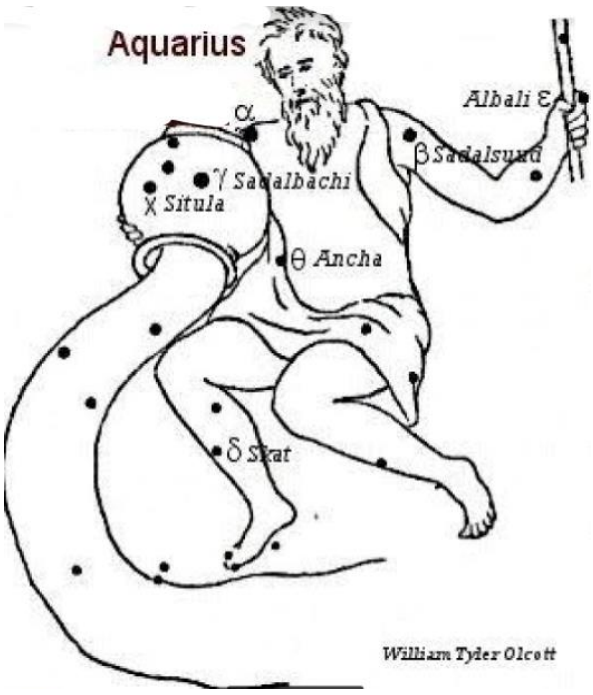
The Abduction of Ganymede (c. 1650), by Eustache Le Sueur (Ganymede (mythology) - Wikipedia***)***

The other image is from a rare globe made by Vincenzo Coronelli in the late 1600's. The title is ***Globe Céleste de Coronelli*** and I copied it from ***https://www.wallhapp.com/urano/globe-celeste-de-coronelli-1683.***

We talked about Ced 211 and the Dwarf, but another curious case in Aquarius is M73. It makes me wonder about the quality of the seeing in 18th century Paris as well as the quality of the optics Charles Messier commonly used. His main telescope was a 4" doublet but his favorite was a 7.5" Gregorian. Long focal lengths were common in that era to mitigate the realities of silver coatings, metal mirrors and less than ideal figuring by pin hole and gas light. Messier's original description of M73 was a star cluster surrounded by nebulosity. In later observations using his much larger telescope, Herschel did not find any nebulosity nor a cluster to identify. New measurements have found that the stars of M73 have differing proper motions and distances from us and are not conjoined, leaving M73 as a fairly famous asterism.

Both M73 and M72 are 9th magnitude but you will find that M72 is a nice class IX globular.

Closer to the center of Aquarius is NGC 7009 (Caldwell 55) nicknamed the Saturn Nebula. It's an 8th magnitude planetary with ansae (protruding handles on either side). ESO has a terrific image of it as does APOD which closed out 1997 with a wonderful show of planetaries. N7009 was Dec. 30 of that year.



Star Lore of All Ages; a Collection of Myth, Legends, and Facts …
By William Tyler Olcott, 1911

Saturn, M72 & M73 and the dwarf are grouped together - sorta - near the hand of Aquarius: Epsilon ε and Mu μ. Further up, north of Beta β you will find M2, third magnitude and class III, a big, bright, really nice globular and a helpful finder to the three stars that make up the Waterjar: Pi π, Zeta ζ, and Gamma.γ. Alpha α (Sadalmelik), marks the right shoulder of Aquarius and lies between the Water Jar and M2.

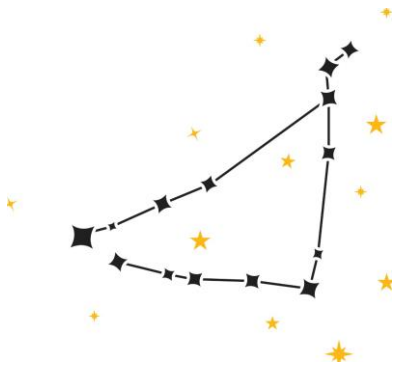
On the other side of Aquarius, are a couple of objects worthy of your time. Firstly, is the Helix Nebula, NGC7293, Caldwell 63. Similar in size and appearance to the Ring. It is bright at 7th magnitude and has a lot of structure.

Over by Ced 211 is a peculiar 11th magnitude galaxy, NGC 7727. About 3 degrees north of Ced 211, N7727 has two nuclei, both hosting black holes. Burnham gives its size as 2.7'x2.7', considerably smaller than the Internet's 4.7'x3.5'. It would be interesting to see which matches up visually.

The story of Capricornus goes back over 3000 years to the Sumerians, the Babylonians, the Greeks, Romans and to Ptolemy in the 2nd century. The oldest records depict it as a "goat-fish". It was a very important constellation since it marked the winter solstice, the first day of winter. The Greeks kept the goat theme alive connecting Pan, their pipes playing horned god with the goat legs with Capricornus. He got his fish tail escaping Typhon, a winged and snake footed monster by hiding in the Nile River.

Capricornus has a couple of deep sky objects to check out. M30 is a 7th magnitude Class V globular cluster with a dense, collapsed core and NGC 6907 is an 11th magnitude spiral galaxy with two prominent arms giving is a pronounced "S" shape.

https://www.wikiwand.com/en/Messier_30



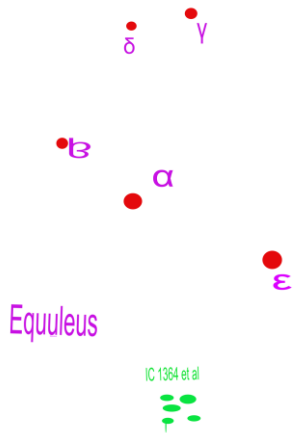
The brightest star in Capricornus is Delta Capricorni. Delta's δ name is Deneb Algedi, meaning Tail of the Goat. On the other side of Capricornus is Beta β, named Dabih, the Butcher. Then we have Alpha α, near Dabih named Algedi meaning the Goat. Nu ν is one of the last two named stars, Alshat meaning the sheep and Nashira Gamma γ, meaning "Bearer of Good News"

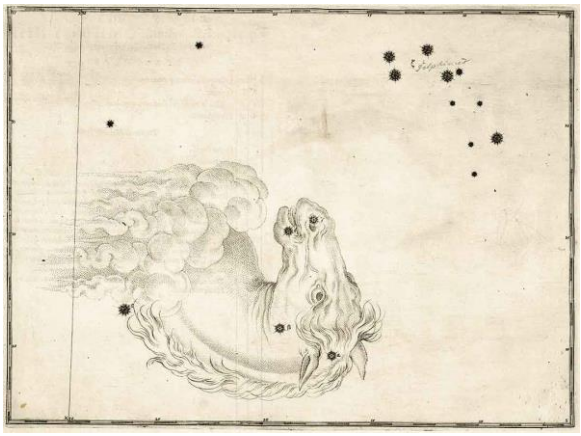
There are also a couple multiple star systems of interest. Alpha has two stars not physically related, and each star has a companion. Alpha 2 is variable from 3.5 to 11, something to look for. Beta is also a double with contrasting colors. Per Burnham, Beta 1 is a spectroscopic triple with a 13th magnitude pair (mag. 13 & 13.4) between the two bright stars.

Quoting Webb, he reports: "Minute pair between them. Very fine large field. Barnard doubled Beta 2".

Palomar 12 is a tough globular. Its 12th mag and is pretty big, 17+ minutes of arc. The books say its about 30% younger than most globular clusters in the Milky Way.

Palomar 12 Hubble.jpg





18-Bayer-Uranometria-1603.jpg (1078×800) (wallhapp.com)

Equuleus is the 2nd smallest constellation. It is one of Ptolemy's original 48 and its origin as a constellation is steeped in pre-history. Of course, the Greeks had something to say about it, the usual seductions and searches. It has no deep sky objects except for galaxies in the 12, 13 and fainter magnitudes. It has a few interesting multiple stars and a nice globular cluster, M15, right over it's border. Look for Epsilon ε Equulei, visual about 5th magnitude. It has 4 members ranging from 5.5 to 12.5 magnitudes. You can also try Beta β, a much more difficult triple system with magnitudes of 5-13, and 11. If you check the border between Equuleus and Aquarius you will find a small group of 12, 13 and 14 magnitude galaxies of all types and descriptions.

The Webb society has a great image of IC 1365 and NGC 7046. It's a nice little group. The Polish Wikipedia lists 10 close-in members. See ***https://webbdeepsky.com/galaxies/object/IC1365***

I wish you

Dark Skys

Dave Phelps

Advertisements

Buy, Sell or Trade some of your gear? This is where club members can place advertisements. Please contact the editor at newsletter@ocastronomers.org to place an advertisement or to learn more about placing one. There is no cost to club members for non-commercial advertisements in the newsletter.

For Sale contact Ron Choi rongrace2@cox.net

- Orion StarShoot AutoGuider — further reduced price — $ 200

For Sale contact Rick Hull hull3hull3@yahoo.com 949-636-2920 cell

- QSI 6120C OSC CCD camera with Mechanical Shutter — further reduced price — $ 1700 +sh

This unit was built before the ATIK acquisition, so you know it was built to QSI quality standards.
Camera body is the "-s" version with mechanical shutter. The front end can be replaced to have an integrated OAG and/or filter wheel. Unlike more economical cameras using only desiccant, QSI 6xx series have a sealed chamber, purged and filled with a noble gas.

Built around the Sony ICX834 with EXview HAD CCD II technology, this 12M sensor is perhaps the best CCD by Sony before ending CCD production - high in sensitivity, low in noise. Pixels are 3.1um for high resolution and image array is 8.8x13.2mm in size. The 3.1um pixels are nearly ideal for those using focal lengths of 600 - 1200mm desiring to achieve maximum resolution, as seeing permits. I believe the Bayer mask is superior to most found on CMOS sensors which are designed for consumer cameras, providing less overlap of the color channel band-passes.
I can provide a few images taken at 770mm focal length out at Anza. Contact me by email.

New, this camera is now $4200, and the ATIK 4120C which is a basic lower-end cousin, is $3K.
On CN I am asking $1750, any OCA member may purchase it for $1700 plus shipping.
Please feel free to contact me with any questions.

For Sale contact Jerry Floyd jlfloyd720@gmail.com

- Denkmeier Binoviewer II — reduced price — $ 800 or make offer

Complete with SCD holders, Power X Switch, Newtonian spacer tube, 2" nosepiece, 2" Multipurpose OCS cell, 2x14mm Denkmeier eyepieces, but does NOT have 1.25" nosepiece.

For Sale contact Bill Prats b.bill.p@gmail.com

- QHYCCD PoleMaster Camera Adapter for Losmandy GM811xx Mount, IEQ30/IEQ45 # 020038 — $ 30
  3 Pieces, Bright red finish, no scratches
- Bushnell Red Dot Finder 1X30RD with mounting rail, Green & RED variable intensity LED. — $ 30
  1:1 magnification, end caps, precision, like new
- Bushnell type Red Dot Finder made by Comunite 1X30RD with mounting rail. Almost exactly like — $ 20
  the Bushnell, Green & Red variable intensity LED. 1:1 magnification, end caps, precision, like new.

.
Contact Bill Prats b.bill.p@gmail.com Shipping is extra. All items can be picked up in Huntington Beach.

For Sale contact Michael Newman mnewman2112@gmail.com

- Pad lease for LP-12 in Lower Pads section and the pier upon it — $1250

It includes a pier that is very nicely aligned and can support a C-8 up to a C-14 I believe although the new owner may need to drill new holes.

For questions and to express your interest in the pad, please contact me via email.

Carpooling OC to Anza contact Gene Kent kenthouse@cox.net 714-604-8396

I'm Gene Kent, a long time OCA member. I live in Tustin, CA. I'm looking to find someone to share the drive to and from Anza. I have a Chevy Trail Blazer. It will hold all the astronomy stuff for 2 people. I usually set up on the ball field below Anza House. If you have a pad or an observatory, I can drop you and your gear off there.

From the Editor

Sirius wants photograph submissions from club members

Sirius doing okay for pictures but still wants more! Please send pictures to me along with a brief description of the subject, where the image was taken, and the equipment used.

Ideas for Future articles

The newsletter includes articles from members or about subjects suggested by our members. We seek ideas and writers to cover them. To contribute an article or work with the editor to produce one, please contact me at newsletter@ocastronomers.org .

Due dates for submission of articles, pictures and advertisements

Issue	Due date
October	17 September
November	21 October
December	19 November

Setting the Record Straight

The August Sirius referred to our Kuhn telescope as a Ritchey-Chrétien configuration of reflector. It is a classical Cassegrain design.

Hope For the Future

With imagination, adaptation, innovation, inspiration, cooperation, and a positive outlook…

This moves us forward to wonders not yet seen,

For Earth and beyond,

For our ancestors and for future generations …

We are part of and live in a much bigger ecosystem, on a galactic scale.

We are a small droplet in a cosmic ocean.

All are connected, no matter the distance, and we are part of the whole and are still together.

Jennifer Sheahan
Science Enthusiast

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