



THE LOS ANGELES ASTRONOMICAL SOCIETY

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THE BULLETIN

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All members are encouraged to contribute articles of interest for publication in The Bulletin. Please send your articles and images to:

Update Your Contact Information

Please send any contact info changes to the club secretary at

secretary@laas.org.

Garvey Nights

The [Garvey Ranch Observatory](#) is open to the public on **Wednesday nights only** from 7 PM to 10 PM, weather permitting.

Masks are required inside the facilities.

Upcoming Club Events

Board Meeting: July 6th.

General Meeting: July 11th.

Family Night: July 23rd.

Dark Sky Night: July 30th.

60 and 100 Nights Schedule for 2022

Mt. Wilson Observatory



Session Schedule - 2022

The dates above are **all** scheduled on Saturday nights and are **all** half-night events:

July 23

Aug. 27

Sept. 24 -This is the only 100 Inch session.

Oct. 22

Nov. 19

The Cost per person, per session:

60 Inch Night - \$65.00

100 Inch Night - \$145.00 (Booked/Waiting List only)

There will be 20 people, per session.

How to Make a Reservation?

Please contact Darrell Dooley **BEFORE** you pay for your reservation.

*Darrell is our Mt. Wilson Coordinator and the **ONLY** contact available.*

Darrell's Email Address:

Mtwilsoncoordinator@laas.org

Darrell will answer all of your questions and concerns.

Reserve your spot by paying by credit cards or PayPal using the following link:

<https://fs30.formsite.com/LAAS/MtWilson/index.html>

Learn more about these incredible events by visiting Mt. Wilson Observatory's website:

<https://www.mtwilson.edu/60-telescope/>

<https://www.mtwilson.edu/100-telescope-observing/>

Greetings From Kingman!

By Kevin Gilchrist

Hello fellow LAAS members!

As some of you know, I'm now splitting my time between Los Angeles and Kingman, AZ. From my sister's backyard location at the northwestern edge of New Kingman-Butler, I have Bortle 5-ish skies and not too many neighbors with bright insecurity lights that bother me. The downsides that I've discovered, much to my annoyance, are that we have either lots of high, thin clouds or 25+ mile per hour wind gusts, plus I don't have a view of Polaris. Most of my attempts this past 6 months have been ruined with bloated stars, poor Polar Alignment, lost tracking, and general shaking of my rig.

To overcome a lot of the wind related issues I bought myself a Christmas present in the form of a Radian Raptor 61mm f/4.5 scope. The small size is less vulnerable to the slower gusts than my 8" f/4 Newtonian, which is just a big air scoop. Yes, a backyard observing shed/dome/clamshell would solve a lot of problems, but my view of the sky is limited to a narrow strip running east to west and would yield small returns for the expense.

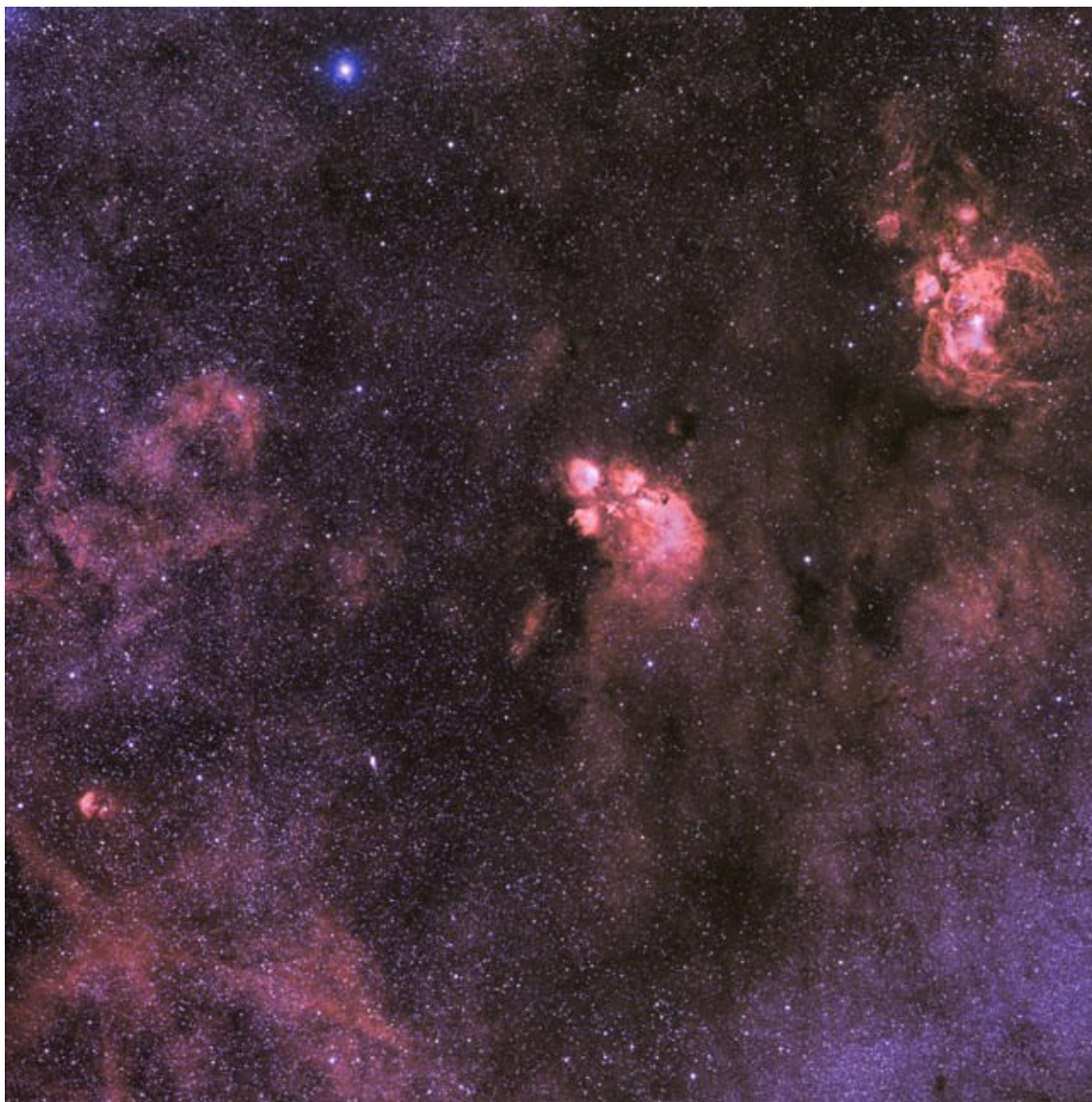
My issue of poor Polar Alignment is, at least to some extent, overcome with current technology in the form of a computerized mount (SkyWatcher AZ-EQ 5) and software that can get a fairly good Polar Alignment without seeing Polaris, even if I have to do it 2 or 3 times in a row if only to achieve so-so results. I have on occasion used my mount in Alt-Az mode and have lived with the field rotation.

For my first example, I have an image of the venerable M42, the Orion Nebula. This was imaged using the mount in Alt-Az mode, about 3 hours of monochrome with UV/IR-cut filter, distilled down to 29 minutes of stacked images, all of 4 second frames, plus 25 averaged darks and 25 averaged flats. This was not a windy night, but more than occasional thin clouds came and went that February evening.



For my next and last example of what to do when the gods won't behave themselves, is an image I created using data I obtained from the website Telescope.live which is a network of 10 robotic telescopes located in Australia, Chile, and Spain. I had used this service to obtain data of the Rosette Nebula from before the Covid-19 lockdown, but at that time I had scheduled a short run of 3 minutes as a free trial, and had OK results once I had stacked and processed the data. This data of the Cat's Paw Nebula in Scorpius came from their new service of providing one-click access to their archive of an ever-lengthening list of objects imaged on their network. The images one chooses to download come already processed with darks and flats. You need only to stack and process with your favorite software. While not as satisfying as obtaining the data oneself, in my case, having 1 hour of high quality data at hand was hard to ignore. The scope is a Takahashi FSQ-106ED, f/3.6, and the camera a FLI PL16803.

The narrowband data came as 2 ten-minute frames each for Ha, SII, and OIII. I used Dark Sky Stacker (DSS 4.2.6) to create 3 registered and stacked files. I used StarTools 1.8.527 for processing. Since DSS also created a stacked frame of the 3 NB frames, I used that for Luminance. StarTools can also synthesize luminance from the RGB/NB files, I essentially had, according to StarTools, a total of 4 hours of data. Since I don't care for the Hubble pallet, I assigned Ha to Red, SII to Green, and OIII to Blue. StarTools is a well-thought-out software package that can be used by mostly relying on the default settings, but has lots of adjustment sliders and provides near immediate previews of changes you may make to the settings. Sometimes it does have to churn for a long while and I just walk away at that point. If you don't like what you see, you can click on Cancel for that operation. A StarTools license is a reasonable \$65 Australian, something like \$48 US at the moment. As a finishing step, I ran the TIFF file through GIMP 2.10.20 to give it a little more contrast in Curves and to export the file into JPEG for sharing.



Kevin Gilchrist

May 21, 2022 LAAS Family Night

By Spencer Soohoo

This family night was attended by about 10 people. Maybe others were reluctant to attend since there was some discussion about clouds, or perhaps there were still COVID concerns. Another factor may be that the event was not well publicized as in the past. Besides me, there were 3 groups doing imaging and 2 groups doing visual. This was “first light” for my ASI AIR Plus with a Celestron 9.25 inch SCT, a field flattener/reducer, and a Celestron CGEM mount that gave me an effective focal length of about 1200 mm. This focal length is good for some galaxies such as the Whirlpool Galaxy, one of my targets for the night.

Since I've found the WiFi on the ASI AIR Plus somewhat unreliable, I hardwired it to the Ethernet port on a small WiFi router that I mounted on top of the ASI AIR plus. This lets me setup my own private WiFi network and connected my iPad to the network. The advantage of this approach is that the response and download times are much faster than with ASI AIR Plus WiFi alone.

As I started my imaging sequences, I had fun listening to some of the chatter between the folks doing visual astronomy. Someone to my left excitedly exclaimed that he had M81 and M82 in the same field of view and invited anyone within earshot to look. Further away in the darkness, another member was excited about finding M13 in his huge Dob. Later, two visual observers joined forces to find several other objects on the large Dob.

I've always wanted to capture the Milky in the Spring when it's stretched horizontally across the sky and a quick look at Sky Safari showed that would happen around 1AM, so though this would be a good chance to test out the night photograph mode on my iPhone 13. I mounted it on a tripod and took a sequence of 10 shots that I stacked with Sequator and made some minor tweaks in Photoshop.

Around 2:30AM, the temperature dropped down to about 27 degrees F, so I called it quits and retired to my warm sleeping bag in the trailer.



LAAS Members pose for group photo after Sunset Talk



M51 (Whirlpool Galaxy). Stack of 31 x 180 second



Galaxies around M86. At least 7 galaxies are seen in this view. Stack of 30 x 180 second exposures



Spring Milky Way around 1AM. Stack of 10 photos taken with iPhone 13 using night photography mode



Spring Milky Way around 2AM. Stack of 10 photos taken with iPhone 13 using night photog-

Another Look - July 2022

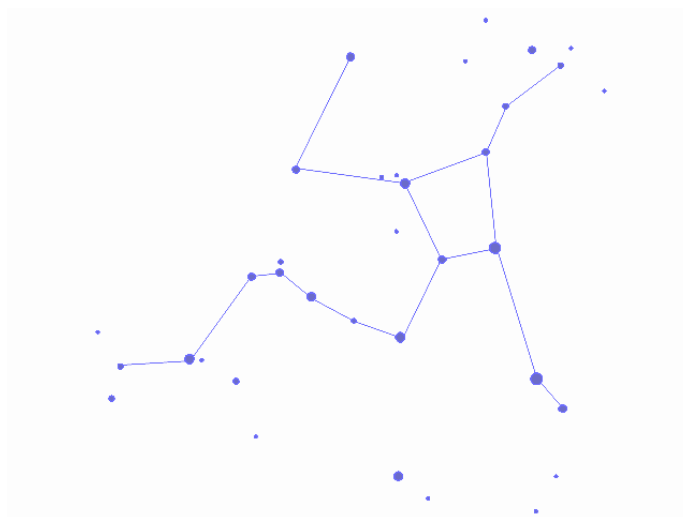
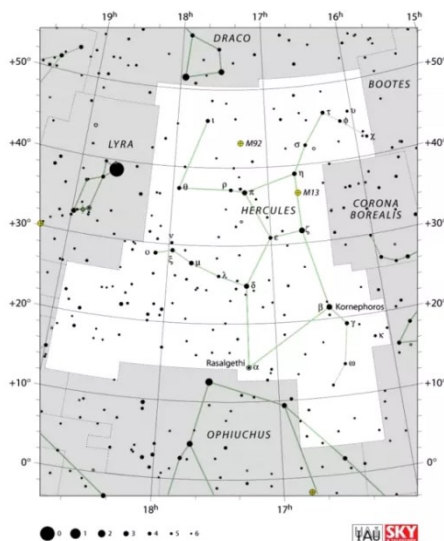
By Dave Phelps

Buck Moon - Some refer to this moon as the Thunder moon, due to the summer storms in this month. Other names include the Hay moon, after the July hay harvest.

New Moon – July 28, 0955 PDT;

Full Moon – July 13, 1038 PDT

Some Native American tribes call it Salmon Moon and Raspberry Moon. In Celtic, this Moon was known as the Claiming Moon, Wyrth Moon, Herb Moon, and Mead Moon.



I once searched for Abell 2151, the Hercules Cluster. It is way off in a corner of Hercules almost in Serpens Caput. I remember it well. It was one of those objects that I could move the Horse to, look through the Telrad and have it in the eyepiece. I nicknamed it the String of Pearls because NGC 6040 and NGC 6041 formed a curving line with NGC 6039 and other fainter galaxies. I was mesmerised. I remember counting nearly a dozen galaxies around NGC's 6040-41 and I have read that there are over 200 galaxies in the field. Uranometria shows around 20 galaxies visible to any telescope that can reach 4th and 15th magnitude, more to add to the bucket list. The Cluster is part of the larger Hercules Super-cluster and the even bigger Hercules-Corona Great Wall, none of which I have ever studied. Maybe that's a good thing. It seems the experts are disputing whether the H-C Great Wall belongs with the other recognized GW's, though; at least one reference describes it as the largest structure in the universe. [Hercules Constellation: Stars, Myth, Facts, Location... Constellation Guide \(constellation-guide.com\)](https://www.constellation-guide.com/constellation-guide/constellation/hercules/)

Not too far away from Abell 2151 is the Turtle Nebula, NGC 6210, an amorphous planetary a little brighter than 9th magnitude and not too far from Beta β Herculis. Beta's name is Kornephoros and is at the shoulder of Hercules and down from the keystone. Kornephoros is the brightest star in Hercules, a few tenths brighter than Rasalgethi, Alpha α Herculi and a decent triple star system that is tough to resolve.

M92, NGC 6341 and M13, NGC 6205 are closely matched cousins, though M13 gets all the print. They differ in magnitude by only a half, 6.3 and 5.8 and are almost the same classification, IV vs V. M92 is in the upper regions of the constellation between Hercules' legs, you will see a very sharp nucleus, while, well, you know how to find M13. Point your finder a third of the way down the right side of the keystone and there is the best globular in the north.

Up closer to the top of Hercules, actually his feet, is NGC 6229 a 9th magnitude globular that is apparently quite old and quite rich in metals. Its density class is not listed though its metallicity bimodality is designated as **GC(v)B** in the galaxy morphological classification. Not something I am competent to discuss. If you know, send an email to the editor or the chain and let us all know.

Very close to M92, about a degree north-east is a small group of 14th magnitude galaxies, the NGC 6329 group. I remember seeing four galaxies with not much detail. If you have a big enough mirror and an eyepiece that gives you a degree field of view, you can add them to your life list.

The figure of Hercules as a kneeling man goes back thousands of years. The Babylonians associated the asterism with their own legendary heroes, Gilgamesh, Nimrod and their sun-god Isdubar. Phoenicians identified it as the sea-god Melkarth and the Greeks from as early as 450 BC minted coins representing their demi-god Heraklee. Alexander the Great believed he was a direct descendant. In fact it is written that old Alex seemed to think he was his reincarnation. Funnily enough, though Hercules is the offspring of Zeus and the mortal Alceme, his name translates roughly as "glory of Hera". Bet that ticked her off.

The famous keystone of Hercules is one of the most recognizable in the spring, summer and autumn skies and usually one of the first things I look for along with Lyra and Cygnus. Hercules has dozens of variable, double and multiple stars and star systems. One of the finest is Alpha α , a large orange giant with a companion of "emerald green". (Mary Proctor, *"Evenings with the Stars"*) *"Evenings with the stars";: Proctor, Mary: Amazon.com: Books*

Alpha is an interesting star. As its magnitude varies from 3rd magnitude to 4th magnitude, it pulsates, ie: its size varies also. For now, imagine it from the center of the solar system to the orbit of mars, but even more, it has an envelope that extends almost 1000 AU. Alpha's temperature averages 2500 degrees Kelvin. Its density must be about the same as a hard vacuum. I wonder how far we could travel inside that star in our 100th generation starliner. (Do you remember a "Mote in God's Eye"?) https://en.wikipedia.org/wiki/Ramus_Pomifer#/media/File:Bode_cerberus.jpg



Cerberus et Ramus

Serpens Serpens held by Ophiuchus, as depicted in *Urania's Mirror*, a set of constellation cards published in London c. 1825. Above the tail of the serpent is the now-obsolete constellation *Taurus Poniatovii* while below it is *Scutum*.

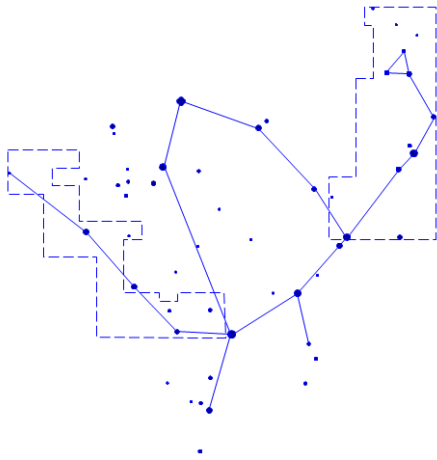
<https://en.wikipedia.org/wiki/Serpens>

Ramus Pomifer, the latin for apple branch **was a constellation between Hercules and Lyra**. It was depicted in the form of a branch held in Hercules' left hand. The also obsolete constellation of Cerberus made up of much the same stars *became combined with it in later depictions, with the name "Cerberus et Ramus"*.



Ophiuchus is the odd shaped hexagon south of Hercules that holds some of the more interesting objects in the sky along with his brother constellations Serpens Cauda and Serpens Caput. The area has represented snakes or serpents or even maybe dragons since Babylonian time. The Greeks, though, put a pin in it. Generally Ophiuchus represents Aesculapius, (many variable spellings), mythologically a son of Apollo who learned how to bring back someone from the dead. Serpens is the snake that showed Aesculapius how to do it by bringing another snake to life by dropping herbs on it. The story I remember from my Bullfinch's is that Aesculapius was raised by the Centaur Chiron, for whom, apparently we have the constellation of the centaur. It was Chiron who taught him the art of healing. It is said that Zeus killed him with a thunderbolt because he was afraid he would make all men immortal..

The name of the large constellation Ophiuchus means "serpent-bearer" in Greek. The ancient astronomer Ptolemy included *Ophiuchus* in his list of 48 constellations which he documented in the 2nd (Constellations except Zodiac, Northern and Southern - Vector stencils library) century. (It used to be referred to as *Serpentarius*, which is Latin and has the same meaning.) It is one of the 88 modern constellations.

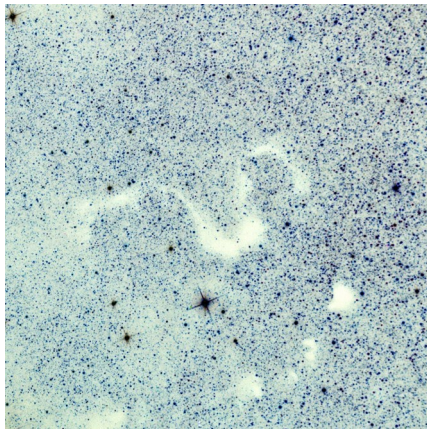


In Greek myth, *Ophiuchus* was said to depict the god Apollo wrestling the snake guarding the Oracle of Delphi. Although the myth changed many times over the years, it was always associated with a man wrestling a serpent.

Serpens has two Messier's M5 and M16. Ophiuchus has seven Messier's M9, M10, M12, M14, M19, M62 and M107. A happy hunting ground for you marathoners. *Pipe Nebula (astrosurf.com)*

There are also two Palomar Globulars Pal 15, really tough at 14th magnitude, and Pal 6, possible at 11.5 magnitude. The Palomar Cluster catalog would be a challenge for any experienced amateur with some decent equipment. They are just difficult to see. I can remember the first time I saw Pal 6, it was small and dim and very exciting. It is located down not too far from the galactic center amid all that munge of star clouds, clusters and dark nebula.

As you're looking south, it is just below the Pipe Nebula, the biggest(?) dark nebula in the sky and holder of several Barnard numbers, Barnard 59, 65–67, and 78. Just up from the Pipe is my favorite dark nebula, the Snake B72. By *en:user:Friendlystar - English Wikipedia, CC BY 3.0, https://commons.wikimedia.org/w/index.php?curid=4986855; https://en.wikipedia.org/wiki/Snake_Nebula#/media/File:Snake_Nebula.jpg*



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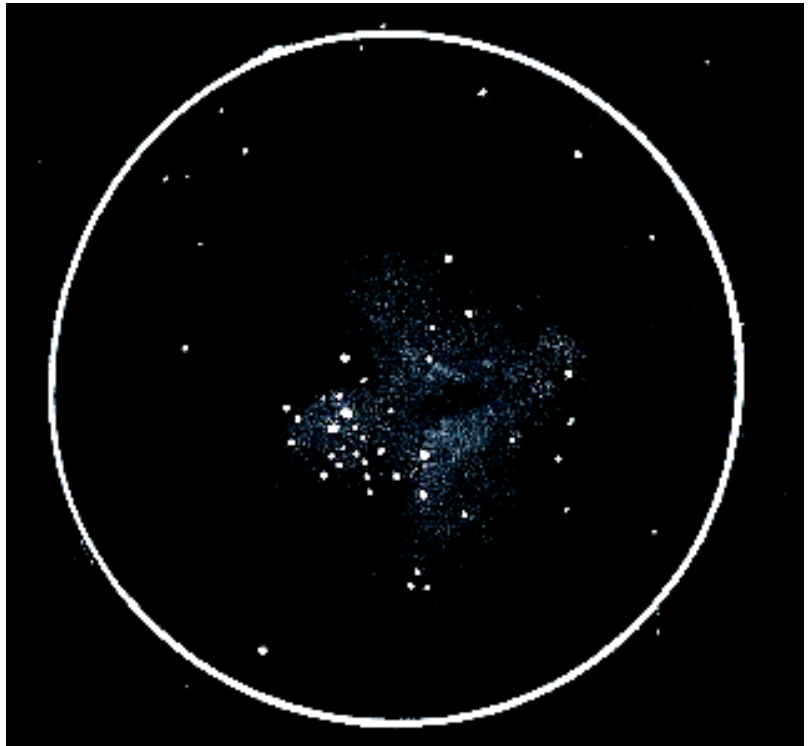
If you decide to search for Pal 15, you will need a strong star chart like Uranometria to do the search. You will find it near the center of Ophiuchus, near M10 and M12. I believe I only saw a glimpse of it back then. Hopefully when I can get some telescope time I can search for it again. If you find yourself intrigued, there are two more Palomar's close – Pal 5 at 12th magnitude and Pal 7 at 11th. Pal 7 is down in the left hand corner by Nu v where Ophiuchus and S. Cauda meet. Pal 5 is tougher, its up in S. Caput very close to M5. The Palomar cluster catalog can be found at <http://www.deep-sky.co.uk/observing/palglobs/palglobs.htm>. *Good luck and Good Hunting.*

As you know this region of the sky is among the richest. The Milky Way, nebula, clusters, Barnard's and constellations abound. So let me return to a suggestion I made months ago: get a decent planisphere and look at the sky. Like some of you, I was also guilty of tunnel vision. Focusing on some faint and fuzzy while staring at my setting circles. If you can't point out the six stars that make up the body of Ophiuchus and the four stars that make up the head of Serpens Caput, you could use a refresher course on using your eyes.

Lets slip over to the "Cauda" side of Ophiuchus next and find Barnard's star; it's only six light years away and has the largest proper motion recorded. It's a red 9th magnitude star. Its history is sorta cool, E.E. Barnard, a great double star hunter noticed that his star had significant movement when he compared photo-plates twenty-two years apart back in 1916. Since then he (she, shim?) has been immortalized in the literature of Douglas Adams, Arthur C. Clark and others.

You will find Barnard's star close to Beta Ophiuchi and surrounded by lots of fun stuff. NGC 6572 is a bright planetary nebula of 8th magnitude. Very near is IC 4665 a very open star cluster. Barnard's star is between IC 4665 and Mel 186. If you thought 4665 was spare wait till you try to identify Mel 186. There is just a ton of stuff in this area, enjoy you star hopping.

Between M16 and Barnard's star, Aquila, Scutum and Serpens Cauda, is one of the richest square degrees of sky we have, laying there along the edge of the Milky Way. Look in from our solar system in the Perseus arm of our galaxy to the Sagittarius arm, next arm in. Then slip you telescope down the corner where Serpens meets Scutum, and there you have it... Open Cluster NGC 6611. If you put a nebular filter in your eyepiece you will pick up IC 4703, a strong star forming region. Burnham call this object the "Star Queen" nebula because he imagined a throne in the dark notch at the center of IC 4703. He had the virtue of using some big professional instruments in his career as well as access to Mt. Wilson and Palomar plates. Then came the Hubble. You won't see the pillars, they are the back of the Queen's throne, but you can imagine and it would be pretty awesome to see what one of these new hybrid instruments could do. I've inserted an image that should give you an idea of what to *your backyard telescope*. *The Horse did a great job especially with a nebular filter but*



nothing like we see you astrophotographers doing today. I recommend that you go to the OCA web site and look at this image. It is very well done though not attributed. Emission nebula M16 (Eagle Nebula) in Serpens. - Orange County Astronomers (ocastronomers.org) While in the region, there is Barnard Dark Nebula galore within just a few degrees of the Eagle. Look for B92 and B93 close at hand, B312, up by the Swan, B103, Lynds 443, B97, B95 and B314 nearer to M11 and up there north of Scutum and into Aquila is B111, B119, Lynds 557, 564, 582 and 617.

Dark Skys

Dave Phelps

Find Hercules and His Mighty Globular Clusters

By David Prosper

Hercules is one of the standout heroes of Greek mythology, but his namesake constellation can be surprisingly hard to find - despite being one of the largest star patterns in our night skies! Once you find the stars of Hercules, look deeper; barely hidden in the space around his massive limbs and “Keystone” asterism are two beautiful globular star clusters: M13 and M92!

Since the constellation itself is relatively dim but bordered by brighter constellations, you can find the stars of Hercules by looking between the bright stars Vega and Arcturus. They are fairly easy to identify, and we have tips on how to do so in previous articles. Vega is the brightest star in the constellation Lyra and one of the three stars that make up the Summer Triangle (*June 2020: Summer Triangle Corner: Vega*). Arcturus is the brightest star in the constellation Boötes, and can be found by “arcing to Arcturus” from the handle of the Big Dipper (*May 2021: Virgo’s Galactic Harvest*). You may be able to Hercules’s “Keystone” asterism first; this distinct pattern of four stars is traditionally shown as the torso of the great hero, though some illustrators prefer marking the Keystone as the head of Hercules. What pattern do you see in the stars of Hercules?

Globular star clusters appear “fluffy,” round, and dense with stars, similar to a dandelion gone to seed, in contrast to the more scattered and decentralized patterns of open clusters. Open clusters are generally made up of young stars that are gradually spreading apart and found inside our Milky Way galaxy, while globular clusters are ancient clusters of stars that are compact, billions of years old, bound to each other and orbit around our galaxy. Due to their considerable distance, globular clusters are usually only visible in telescopes, but one notable exception is M13, also known as the Great Cluster or Hercules Cluster. During very clear dark nights, skilled observers *may* be able to spot M13 without optical aid along the border of the Keystone, in between the stars Zeta and Eta Herculis - and a bit closer to Eta. Readily visible as a fuzzy “star” in binoculars, in telescopes M13 explodes with stars and can fill up an eyepiece view with its sparkling stars, measuring a little over half the diameter of a full Moon in appearance! When viewed through small telescopes, globular clusters can appear orblike and without discernable member stars, similar in appearance to the fuzzy comae of distant comets. That’s why comet hunters Edmund Halley and Charles Messier discovered and then catalogued M13, in 1714 and 1764 respectively, marking this faint fuzzy as a “not-comet” so as to avoid future confusion.

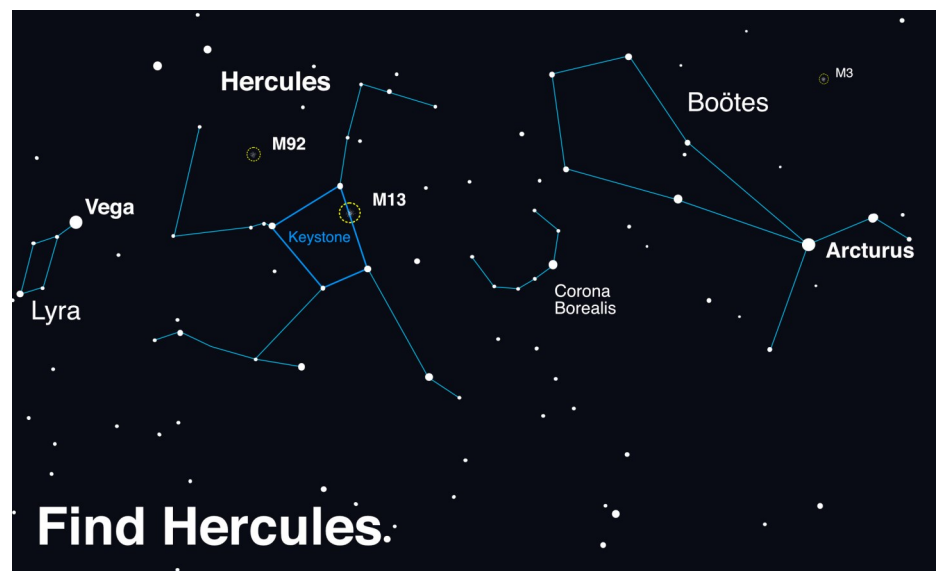
While enjoying your view of M13, don’t forget to also look for M92! This is another bright and bold globular cluster, and if M13 wasn’t so spectacular, M92 would be known as the top celestial sight in Hercules. M92 also lies on the edge of naked-eye visibility, but again, binoculars and especially a telescope are needed to really make it “pop.” Even though M92 and M13 appear fairly close together in the sky, in actuality they are rather far apart: M13’s distance is estimated at about 25,000 light years from Earth, and M92’s at approximately 27,000 light years distant. Since M13 and M92 appear so close together in our skies and relatively easy to spot, switching between these two clusters in your scope makes for excellent star-hopping practice. Can you observe any differences between these two ancient clusters of stars?

Globular clusters are closely studied by astronomers for hints about the formation of stars and galaxies. The clusters of Hercules have even been studied by NASA's space telescopes to reveal the secrets of their dense cores of hundreds of thousands of stars. Find their latest observations of globular clusters - and the universe - at [nasa.gov](https://www.nasa.gov).



Composite image of the dense starry core of M92 imaged in multiple wavelengths. While your own views of these globular clusters won't be nearly as crisp and detailed, you might be able to count some of its member stars. How far into their dense cores can you count individual stars? Credits: ESA/Hubble & NASA; Acknowledgment: Gilles Chapdelaine. Source: <https://www.nasa.gov/feature/goddard/2017/messier-92>

Look up after sunset during summer months to find Hercules! Scan between Vega and Arcturus, near the distinct pattern of Corona Borealis. Once you find its stars, use binoculars or a telescope to hunt down the globular clusters M13 and M92. If you enjoy your views of these globular clusters, you're in luck - look for another great globular, M3, in the nearby constellation of Boötes. Image created with assistance from Stellarium: stellarium.org



This article is distributed by NASA's Night Sky Network (NSN). The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

Monthly Sky Report for July and August

By Dave Nakamoto

In the June article "The Night Sky" I erroneously reported that the sun moves from Leo the Lion into Virgo. That happens in September. From July through August, the sun moves from Gemini the Twins to Cancer the Crab, then into Leo the Lion. Days are gradually shorter as the sun approached the Autumnal equinox in September. All times are in PDT.

Sunrise Sunset Length of day

July 1st 5:45 a.m. 8:09 p.m. 14 hours, 26 mins.

Aug 1st 6:05 a.m. 7:54 p.m. 13 hours, 49 mins.

Aug 31st 6:25 a.m. 7:20 p.m. 12 hours, 55 mins.

In July, the moon's phases are

First quarter Full Last quarter New
6th 13th 20th 28th.

In August, the moon's phases are

First quarter Full Last quarter New
5th 11th 18th 27th.

Here are the times the planets start appearing in the night sky. Notice that Mercury transitions from the morning sky in July to the evening sky in August. All times are PDT.

July 1st Aug 1st Aug 31st

Mercury Rises 4:33 a.m. Sets 8:47 p.m. Sets 8:15 p.m.

Venus Rises 3:44 a.m. Rises 4:20 a.m. Rises 5:18 a.m.

Mars Rises 1:30 a.m. Rises 12:31 a.m. Rises 11:32 p.m.

Jupiter Rises 12:35 a.m. Rises 10:38 p.m. Rises 8:36 p.m.

Saturn Rises 10:40 p.m. Rises 8:35 p.m. Rises 6:30 p.m.

Uranus Rises 2:24 a.m. Rises 12:27 a.m. Rises 10:29 p.m.

Neptune Rises 12:04 a.m. Rises 10:02 p.m. Rises 8:02 p.m.

Mercury travels to the far side of its orbit during July and August, so while it is in a gibbous phase, it is small, so a telescope with magnification of 100x or larger is needed to see its disk.

Venus is also travelling to the far side of its orbit, so a telescope with a magnification of 100x or more is needed to see its disk, which will show a gibbous phase.

Mars is still very small, so a telescope capable of magnifications of 100x or more will be needed to see its small disk.

Jupiter's disk and the four Galilean moons are visible in telescopes with magnifications of 50x or more.

Saturn's disk is half the size of Jupiter, but the rings make it appear as large, so telescopes with a magnification of 50 or more will show the disk and rings, and its largest moon Titan.

Continued on following page

Uranus and Neptune are very small and always are, so a telescope with magnification of 150x or more will be needed to show their disks.

Here are their coordinates on the indicated dates.

Date R.A. Declination

Uranus July 15th 3^h 2^m 29^s +16° 50' 16"

Aug 15th 3^h 4^m 53^s +16° 59' 54"

Neptune July 15th 23^h 43^m 42^s -3° 3' 53"

Aug 15th 23^h 41^m 57^s -3° 16' 48"

Two meteor showers peak in July, one in August.

The Southern delta Aquariids peak on the night of July 29th. The radiant is in the southern part of the sky, so rates are low, and their meteors are usually faint.

The alpha Capricornids peak on the night of July 30th. This shower produces low rate, 5 per hour, but does produce bright fireballs.

During August, the Perseids peak on the night of August 11th. While they are quite famous, and while the rates are holding at about 50 per hour, they are usually faint with occasional fireballs.

The comet named C/2017 K2 (PanSTARRS) might be bright enough to be visible in binoculars or a small telescope.

Rise time R.A. Declination

July 1 5:34 p.m. 17^h 26^m 05^s +01° 54' 39"

July 15 5:34 p.m. 16^h 57^m 08^s -03° 33' 18"

Aug 1 5:34 p.m. 17^h 26^m 05^s +01° 54' 39"

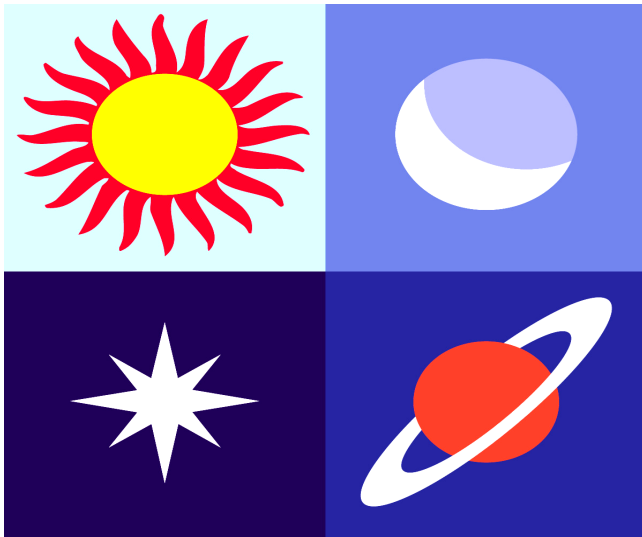
Aug 15 5:34 p.m. 16^h 57^m 08^s -03° 33' 18"

Aug 31 3:13 p.m. 16^h 28^m 41^s -10° 19' 49"

David Nakamoto has been observing the heavens through various scopes since he was in the 5th grade. You can contact Dave by email at:

dinakamoto@hotmail.com.





Almanac

July 13 - Full Moon, Supermoon. The Moon will be located on the opposite side of the Earth as the Sun and its face will be fully illuminated. This phase occurs at 18:38 UTC. This full moon was known by early Native American tribes as the Buck Moon because the male buck deer would begin to grow their new antlers at this time of year. This moon has also been known as the Thunder Moon and the Hay Moon. This is also the second of three supermoons for 2022. The Moon will be near its closest approach to the Earth and may look slightly larger and brighter than usual.



Curious about the objects in tonight's sky? Click on the link below to learn more.

<https://www.timeanddate.com/astronomy/night/usa/los-angeles>

July 28 - New Moon. The Moon will be located on the same side of the Earth as the Sun and will not be visible in the night sky. This phase occurs at 17:55 UTC. This is the best time of the month to observe faint objects such as galaxies and star clusters because there is no moonlight to interfere.

July 28, 29 - Delta Aquarids Meteor Shower. The Delta Aquarids is an average shower that can produce up to 20 meteors per hour at its peak. It is produced by debris left behind by comets Marsden and Kracht. The shower runs annually from July 12 to August 23. It peaks this year on the night of July 28 and morning of July 29. This is a great year for this shower because the new moon means dark skies for what should be an excellent. Best viewing will be from a dark location after midnight. Meteors will

Source:

<http://www.seasky.org/astronomy/astronomy-calendar-2022.html>

Free Online Astronomy Education Videos

The LAAS has many beginners in the club. A fun way to gain basic astronomy knowledge is use some of the many free resources found online. There are videos, lectures, and even classes to be discovered which you can enjoy at home.

Here are a few links which may be of interest to you.

1. [Astronomy 101](#)
2. [Lectureonline](#)
3. [FreeSchool](#)—Learn about the Constellations
4. [EyesOnTheSky](#)
5. [UALR College of Science](#)

July 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4 	5	6 Board Mtng Garvey Night	7	8	9
10	11 General Meeting	12	13 Garvey Night	14	15	16
17	18	19	20 Garvey Night	21	22	23 Family Night 60 Inch Night
24	25	26	27\ Garvey Night	28 Outreach San Dimas	29	30 Dark Sky Night Outreach- Santa Ana
31 Outreach Santa Ana						

Meet The New Members

Welcome to the LAAS!



Keith Campbell

Luis Sinibaldi

Angela Chung

Kevin Uy

Kevin Fry

Matthew Walker

Peter George

Eric Yaras

Lorenzo Pedroza

Ozan Yildirim

Christian Rose

LAAS Board Meetings

.Due to the pandemic, all Board Meetings are now held online, live on Zoom. Please check the information posted in the IO Group Forum for any current news related to these meetings. If you wish to attend a board meeting, please send a request to secretary@laas.org for a link to Zoom.

Volunteer Opportunities

Every LAAS member is a volunteer at some point. Some members volunteer to share telescopes with the public, while others tackle administrative duties, help out at our community and public events, or join a club committee. Taking photos at our events and writing articles about events for our club newsletter are great ways to volunteer and become more involved in the LAAS as a member.

HOWEVER, due to Covid-19 restrictions in our area, all outreach events have been cancelled until further notice.

Volunteers are always welcome to write articles for our monthly newsletter or share images captured of the night sky. Members are also welcome to come up with new ideas and future activities for the membership which can be shared in Board meetings. If you are artistic and enjoy creating posters or flyers, or printable astro-educational handouts for further star parties, please let us know.

Time To Renew Your Membership?

Please remember to renew your membership once you receive notice from the Club Secretary in your email inbox. The secretary will send you a link to a form created just for you for your renewal.

Please send any new contact information to the club secretary at secretary@LAAS.org.



LAAS Outreach Program

The mission of LAAS is to promote interest in and advance the knowledge of astronomy, optics, telescope making and related subjects. In furtherance of its mission, LAAS conducts public star parties and other outreach events that are intended to enhance the public's understanding of astronomy and its enjoyment and appreciation of the beauty and wonders of our universe.



We provide outreach events at local schools, Griffith Observatory, Mt. Wilson Observatory, various state and county parks, and community events.

Join our Outreach team of volunteers today.

Contact Heven Renteria, our Outreach Coordinator at Outreach@LAAS.org



Want to include astronomy outreach at your school's science night or open house? Follow the link below to access the request form:

https://nightsky.jpl.nasa.gov/club-eventrequest.cfm?Club_ID=1344

LAAS Club Swag

LAAS T-SHIRTS, HOODIES, MUGS, AND MORE!

To find new merchandise from our store, please use the following link: <https://www.laas.org/store>

Please note all prices listed are subject to change and include all shipping and handling costs. All items will be shipped directly to the address you provide on your order form.



Please remember all LAAS Outreach activities are postponed due to the Covid-19 pandemic.

Amazon Smiles

The LAAS is now listed on Amazon Smiles. When you purchase any goods on Amazon.com, Amazon will donate a small percentage of the funds they receive from you, back to the LAAS. Here's some information to help bring in funds for our club projects:

What is AmazonSmile?

AmazonSmile is a simple and automatic way for you to support your favorite charitable organization every time you shop, at no cost to you, with the added bonus that Amazon will donate a portion of the purchase price to your favorite charitable organization., such as the LAAS!

Learn more by following this link:

<http://smile.amazon.com/>



Disclaimer: The Los Angeles Astronomical Society, Inc. is a public charity, as defined by Internal Revenue Code Section 501(c)(3) and all contributions to the Society are deductible for Federal and State Income tax purposes. **The Society does not endorse Amazon.com or any of its business practices**, but we are registered with Amazon Smile and will accept contributions from that program. If you are an Amazon customer and would like to have part of the proceeds from your purchase returned to the Society as a contribution, please go to <https://smile.amazon.com/> when you are shopping on Amazon and select Los Angeles Astronomical Society under the caption: "Or pick your own charitable organization." A percentage of your purchases will be donated to the Society to fund its educational and outreach programs.

John O'Bryan, Jr.

Astronomy Magazine Discounts

Discounts for astronomy magazines can be found on the internet. Look for the best deals possible. Send a copy of your LAAS membership card with your check or payment to receive a club member discount.

Astronomy
magazine

As a member of the Night Sky Network, you may use the above link to renew your Astronomy Magazine subscription (or enter a new subscription) at the club discount rate. If this is a renewal, Astronomy Magazine will match your entered name and address and extend your subscription. For inquiries, please contact Astronomy Magazine customer service & sales at 1-800-533-6644.

[Click here to subscribe to Sky and Telescope Magazine.](#)



Join the Astronomical Society of the Pacific and help support the cause of advancing science literacy through engagement in astronomy. Member benefits include a **subscription to the online Mercury Magazine**, published quarterly, and **Astronomy Beat**, a monthly on-line column written by "insiders" from the worlds of astronomy research and outreach.

Subscribe or renew to the McDonald Observatory's StarDate Magazine and receive a special discount. Go to this page and press "Add to Cart" under the kind of subscription you want: <http://stardate.org/store/subscribe> Then, on the Checkout form, enter "network" in the Coupon Code box.



Club Contact Information

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Club Communications: Andee Sherwood

communications@laas.org

Mt. Wilson Coordinator: Darrell Dooley

mtwilsoncoordinator@laas.org

Bulletin Editor: Andee Sherwood

communications@laas.org



Find astronomy outreach activities by visiting NASA's Night Sky Network:

<https://nightsky.jpl.nasa.gov/about.cfm>

Club Contacts

Club Phone Numbers

LAAS Message Phone:

213- 673-7355 (Checked daily)

Griffith Observatory:

213-473-0800

Sky Report:

213-473-0880



Follow us on social media by clicking on one of the icons below:



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