



THE LOS ANGELES ASTRONOMICAL SOCIETY

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THE BULLETIN

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Science Night is almost here! Join in the fun by stopping by the Garvey Park Ranch Observatory on Saturday, Oct. 29th for a fun-filled evening of MAD science and astronomy. Learn more about this event on pages 2-3.

Photo: Tim Thompson is the LAAS' wizard of physics and astronomy. Stop by the "Ask An Astronomer" corner to meet Tim and receive answers to any questions about the Universe.

Please send articles of interest and images to communications@laas.org

Update Your Contact Information

Please send any contact info changes to the club secretary at

secretary@laas.org.



Upcoming Club Events

Board Meeting: Nov. 9

General Meeting: Nov. 14

Dark Sky Night: Nov. 19

Garvey Nights -The Garvey Ranch Observatory is open to the public every Wednesday night from 7 PM to 10 PM, weather permitting. Masks are required inside the facilities.

You're Invited To **SCIENCE NIGHT**

A Safe Place for Space

- KIDS' COSTUME PARADE -
- HEALTHY TREATS - NASA -
- TESLA COIL - ROCKET LAUNCHING -
- SPOOKY MUSIC - TELESCOPES
- THE PLANETARY SOCIETY
- COLUMBIA MEMORIAL SPACE CENTER
- ASTRONOMY AND SCIENCE.

A special needs friendly event!

Saturday
October 29th
3PM - 9PM

**GARVEY RANCH
OBSERVATORY**

781 S. ORANGE AVE
MONTEREY PARK, 91755

FREE EVENT!!!

For More Info Call
(213) 673 7355



Hosted by The Los Angeles Astronomical Society
www.laas.org www.safeplaceforspace.org

Science Night

By Andee Sherwood

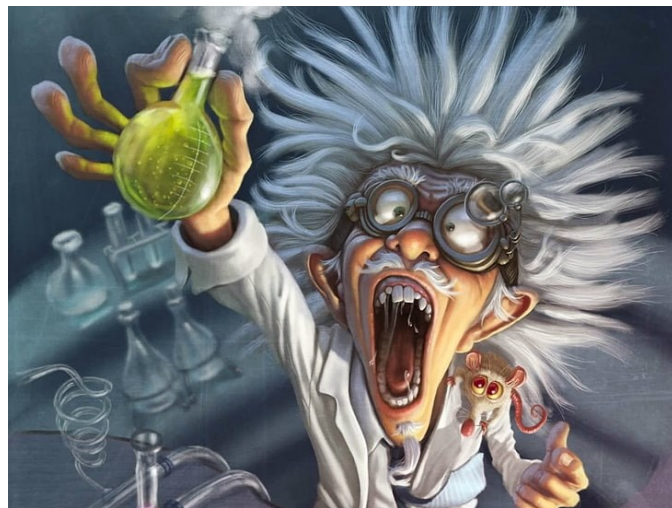
Date: Saturday, Oct. 29, 2022

Time: 3 PM - 9 PM

Location: [Garvey Ranch Observatory](#)

Science Night is an annual public event hosted by the LAAS for the local community and surrounding areas. You're all invited to attend and bring your family and friends along for a fun-filled evening of science and astronomy. As this event is held so close to Halloween, please bring your children and grandchildren dressed in costume. We will have a costume parade for the children.

This year's exhibits will be from the Planetary Society, the Carnegie Observatory, the Griffith Observatory Foundation, the Columbia Memorial Space Museum, ISS Above, the Discovery Cube from Orange County, Dr. Levin from the Juno Space mission, and GaVart (The Goldstone Array). We will have an artist creating a painting during the event and you or your children can help create an incredible piece of art. There will be rocket launches outside, weather permitting and even a LeidenFrost effect display, too! Dave P. will have a meteorite exhibit and will bring along his Tesla coil. Matt V. will be performing on a theremin throughout the night, adding amazing music for all to enjoy. Tim Thompson will host the "Ask An Astronomer" corner for all those who seek answers to the mysteries of the universe. We will also have telescopes out on the lawn for a star party. Feel free to bring along your scope!



Celestron has donated some great telescopes to raffle-off and Griffith Observatory will be raffling-off planetarium tickets for four (4). The Planetary Society will bring postcards for you to fill out which will go into Space, return to Earth and will be mailed to recipients of your choice.

Grilled hot dogs will be available, thanks to Zoly who volunteered to be the Grill Master for the evening. Healthy snacks will be provided, thanks to the generosity of our Board of Directors. Feel free to donate some healthy snack foods as a member which will be appreciated by both guests and your fellow club members.

Our event is being promoted on both the Griffith and Columbia Memorial websites. The City of Monterey Park is also promoting our event so volunteers are needed as we may have a large group of visitors this year. If you would like to help decorate or help set up, please arrive by noon. Bring along some Halloween-themed decorations to make the observatory and community center more enticing, festive, and spooky, too. We will also need a few members to help clean up so please consider this task, too. The more volunteers we have, the less work for all and more time can be spent enjoying the event rather than "working" the event. Volunteering is also one of the best ways to get to connect with other members!

If you would like to set up a science experiment or have a table of your own to exhibit something related to science or astronomy, or volunteer, please contact Geo Somoza at geo@planetarysociety.org

Download the official event flyer here: [Science Night 2022](#)

60 and 100 Nights Schedule for 2022

Mt. Wilson Observatory



Session Schedule - 2022

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

THE LAST TWO SESSIONS FOR 2022

Oct. 29

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/>

LAAS HISTORY: AN IMPORTANT DISCOVERY FROM THE 1950s

By Lewis Chilton, Club Historian

A fascinating discovery of historical importance to the LAAS was made in 1973 but didn't come to the author's attention until 2020.

Arthur W. Johnson, former Griffith Observatory guide, lecturer and LAAS president in 1972 and 1973, messaged me in April 2020 that he had recently discovered a cardboard box in his garage that contained his old college textbooks and an old 6½"x9" 3-ring binder. The well-worn clothbound binder had the following hand lettered message on its cover:

Vol #2

If found;

Return to:

The Los Angeles

Astronomical Society

c/o Director,

Griffith Observatory

Los Angeles, Cal.

1951-1960

The binder holds LAAS monthly general and board meeting minutes for the years 1951 to 1959.

Art remembered that he had discovered the binder on a bookshelf in the Griffith Observatory staff library in early 1973, several months before his move to Reno, Nevada that June where he had been selected for the directorship of the University of Nevada's Fleischmann Planetarium. He had intended to return the binder to the LAAS before his departure but forgot about it during the hectic move to Reno. (In 2001, after 28 years with the Fleischmann Planetarium, Art retired as Director Emeritus.) Upon its re-discovery in 2020, Art felt the need to return the binder to the LAAS, its rightful owner.

In an e-mail dated August 18, 2021, Art said:

This is reaching way back in the memory bank. My recollection is that I was president at the time, early 1973. The volume was most certainly on the shelf in the Griffith Observatory library. I took it back to my room at USC to read... In April I learned of the curator job at Fleischmann through Dr. Kaufmann, who suggested [that] I apply. In May I flew up for an interview and was on the ground in June. Had the earlier volume [Vol. 1] been on the shelf, I'm sure I'd have been interested in it too! I hope it may be found at the Mt. Wilson monastery. I wonder if Tommy Cragg might have brought it there...?

Art

The binder is divided into two sections. The first contains the typewritten minutes of the general meetings held in the Griffith Observatory planetarium theatre from 1951 to 1959. They are fairly complete. The second section holds the typewritten minutes of the Board of Directors meetings at Griffith Observatory for the same years. They are very incomplete.

For the years covered in the binder, 1951-1959, the recording secretaries were Mark Stolle (1951), Eugene Epstein (1952, 1954), Ivan Courtright, Jr. (1953), Russ Schnitzer (1955), Joe Miller (1956, 1957), and Leif Robinson (1958, 1959).

We can only guess how the 3-ring binder containing 9 years of LAAS meeting minutes turned up in the Griffith Observatory library a little over 13 years after Leif Robinson signed the last entry on December 14, 1959. What follows is only speculation.

In 1959, Leif Robinson, a future editor-in-chief of *Sky & Telescope* magazine, was the last LAAS recording secretary identified in the binder, although he continued to hold that office through 1960.

In 1959, Robinson was also employed at Griffith Observatory as a telescope demonstrator and in other capacities as well, so it's quite possible that he used the Observatory library to gather up and type his LAAS meeting notes, placed them into the binder and put them on a bookshelf where they would be forgotten, to await discovery by Art Johnson 13 years later.

As mentioned above, this binder is titled Vol. #2. One can only wonder what became of Vol. #1 and what years it covered. At the time of this writing, a black book rests on a shelf in the Mount Wilson Observatory monastery library. According to LAAS member, Dr. Barry Megdal, it may contain additional LAAS records. Could it perhaps be Vol. #1? Hopefully, we'll find out!

Lewis Chilton
Club Historian



LAAS members and friends take a midnite coffee and burger break at Newcomb's Ranch, a roadhouse on Angeles Crest Highway between Chilao and their star party site at Charlton Flats. Pictured are 1) Pat Lowry, 2) Mike Gardner, 3) Jim Eastwood, 4) Pat Canan, 5) Jack Eastman, 6) Lew Chilton, 7) Joe Myers, 8) Margie Locke, 9) Steve Smith, 10) Bill Stadt.

(from a Kodachrome by L. Chilton)

LAAS ARCHIVE

[scanned Dec. 18, 2016]

Star Hops: Journey to M55

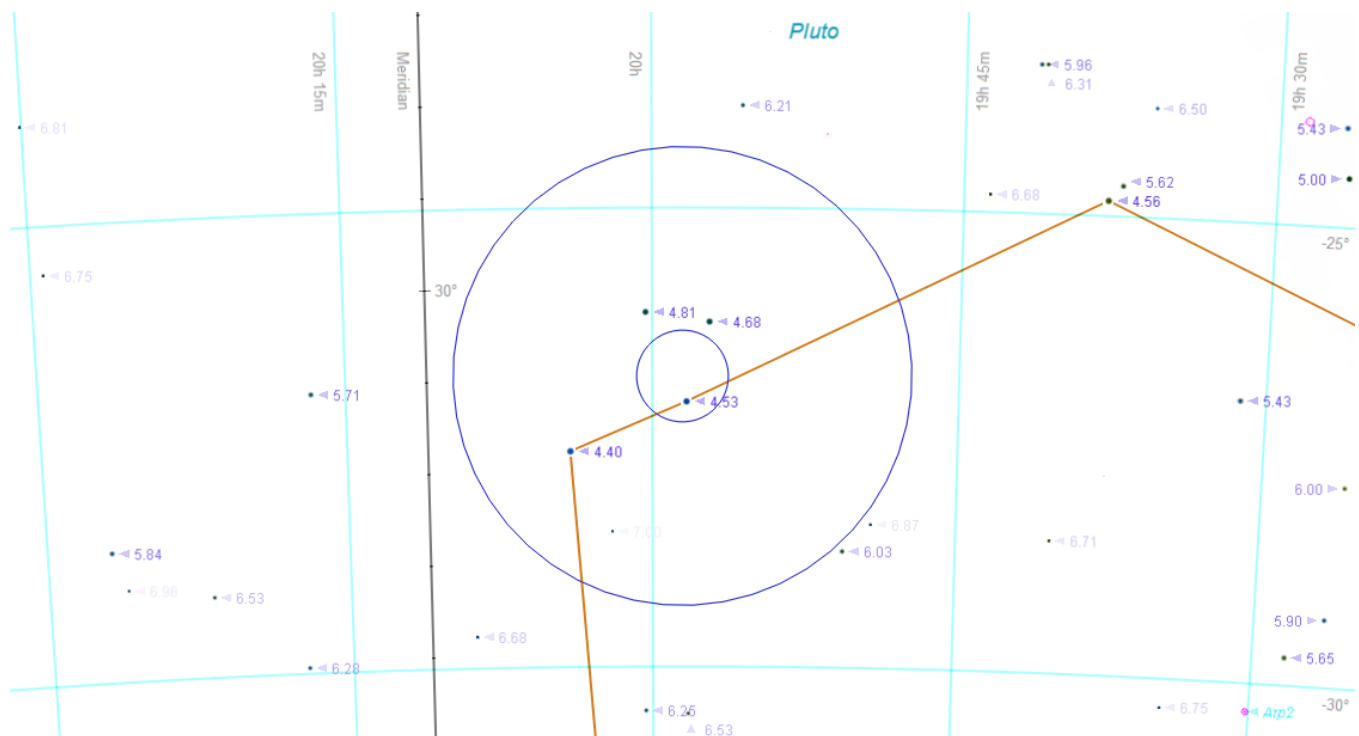
By David Nakamoto

Star hops are what you make of them. Often it's just as well to hop from where you are to where you want to go. For instance, at Garvey Ranch park's observatory, I began the night around 7:30 p.m., PDT, on Saturn. Then I wanted to image M55, the large but relatively faint Globular star cluster at the east end of Sagittarius. Now, it is always possible to hop from Saturn to M55, but to save time, I decided to begin by using the setting circles.

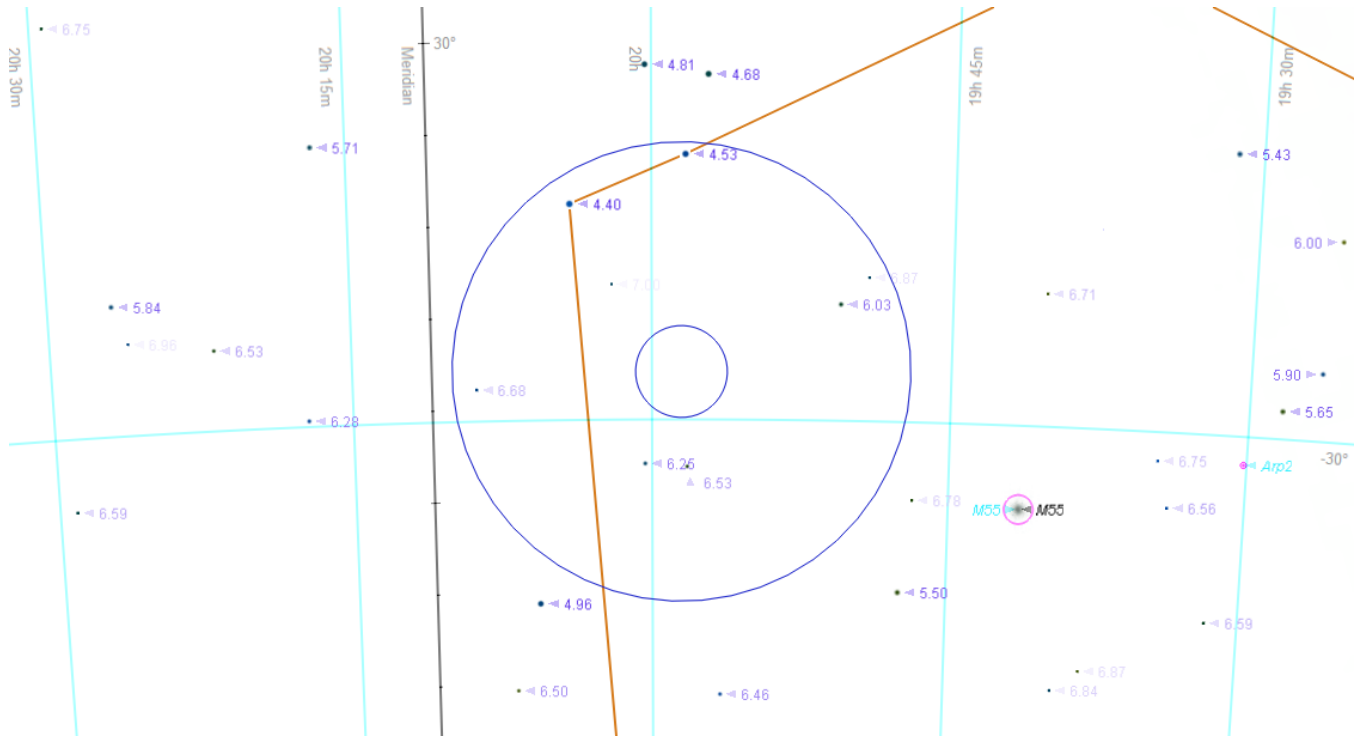
You have to remember, the observatory's mount is not controlled by a computer, so a manual hop is needed. Also, there are no digital setting circles, only the old-fashioned dial ones. Also, the mount is slightly off from polar alignment. These factors make for an error of more than a degree on any large movements of the scope, especially using setting circles, so you need to have good chart for a wide area around where you hope to wind up so you have a chance to recognize the star patterns. This is the traditional method that later got computerized and is called plate solving.

Saturn on that night was at R.A. $21^{\text{h}} 26^{\text{m}}$; Declination $-16^{\circ} 27'$. M55 is at R.A. $19^{\text{h}} 41^{\text{m}}$; $-30^{\circ} 55'$. So I set the R.A. readout ring as close to 21/26 as I could, rechecked that the Declination setting ring was at $-16/27$, then move the mount JUST in R.A. until it read 19/40, and then moved in Declination until it read $-30/55$, the double checked both R.A. and Dec and corrected them.

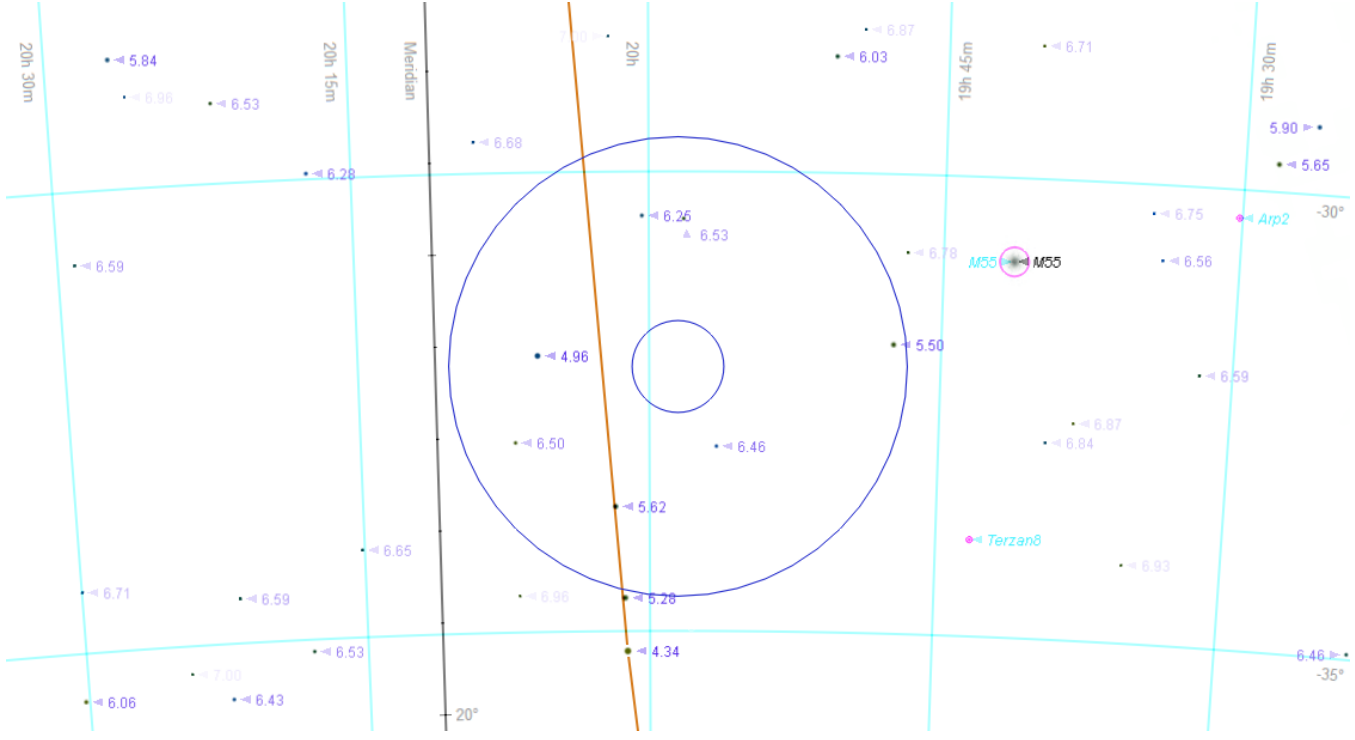
It turned out that this was the star pattern I saw through the 8x50mm finder, which has a five degree field of view (FOV). The larger circle is five degrees in width. The quadrilateral consisted of four fourth mag stars so it was easy to see them through the finder.



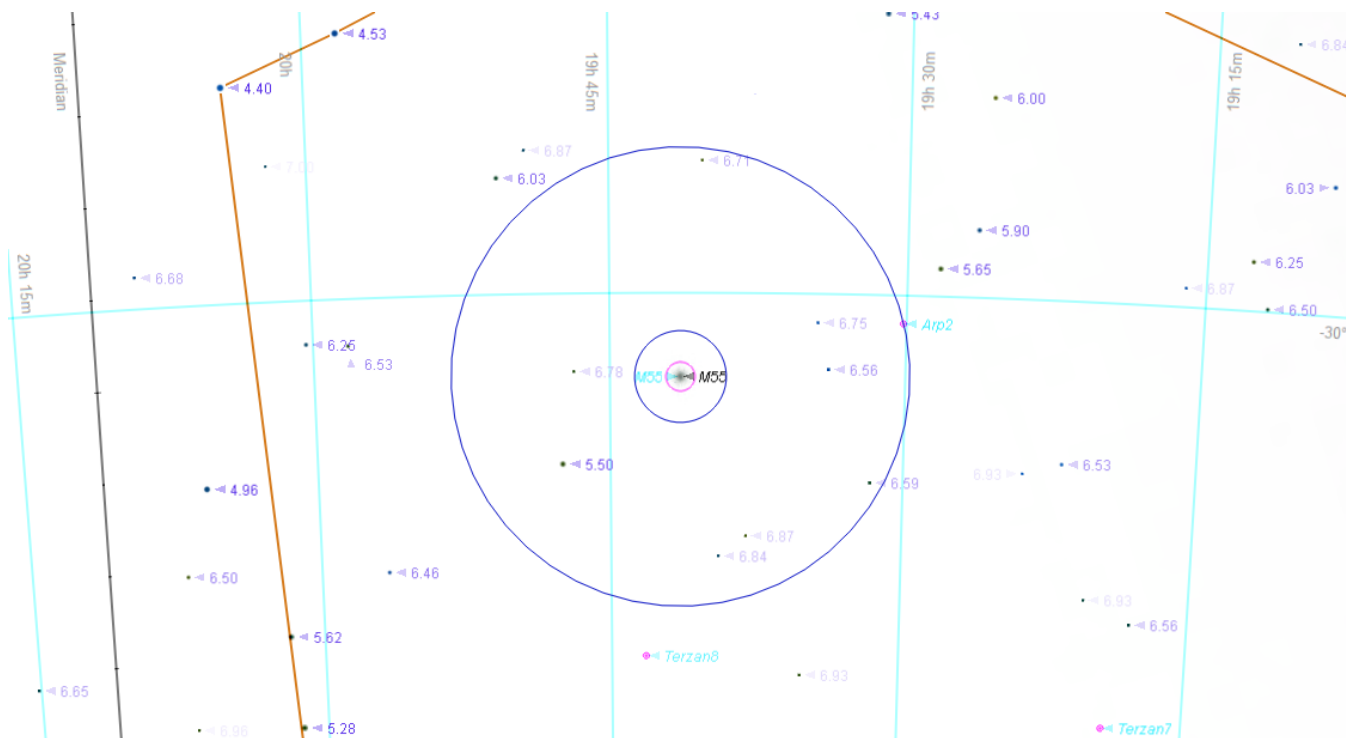
I moved south until the quadrilateral disappeared in the north. This movement also allowed me to determine which direction was south. As I moved the equipment in Declination ONLY and south, stars appear along the southern edge of the FOV. M55 starts to appear on Starry Night Pro's window.



I stopped when I saw this pattern of two widely spaced 5th mag stars at the east and west side of the FOV, shown in the image below. I verified I was on the right stars by nudging the FOV a little further south to see a line of three 5th mag stars running north-south.



Now returning to the two widely spaced 5th mag stars, I noticed M55 formed this pattern with the western star.



Star hops are tricky because a finder is rarely aligned so north is at the top of the FOV, and east is on the left side. This is why an equatorial mount is my favorite, because you can restrict the movements to R.A., east and west, or Declination, north and south. Once you're used to moving just east, west, north, or south on an equatorial mount, you'll know which direction is which in the finder, and hopping becomes easier.

Clear and steady nights !

Here's a photo of Dave's setup at a past public star party at Griffith Observatory.



Cepheus: A House Fit for a King

By David Prosper

Sometimes constellations look like their namesake, and sometimes these starry patterns look like something else entirely. That's the case for many stargazers upon identifying the constellation of **Cepheus** for the first time. These stars represent Cepheus, the King of Ethiopia, sitting on his throne. However, many present-day observers see the outline of a simple house, complete with peaked roof, instead – quite a difference! Astronomers have another association with this northern constellation; inside its borders lies the namesake of one of the most important types of stars in modern astronomy: Delta Cephei, the original **Cepheid Variable**.

Cepheus is a circumpolar constellation for most observers located in mid-northern latitudes and above, meaning it does not set, or dip below the horizon. This means Cepheus is visible all night long and can be observed to swing around the northern celestial pole, anchored by Polaris, the current North Star. Other circumpolar constellations include Cassiopeia, Ursa Major, Ursa Minor, Draco, and Camelopardalis. Its all-night position for many stargazers brings with it some interesting objects to observe. Among them: the “Garnet Star” Mu Cephei, a supergiant star with an especially deep red hue; several binary stars; several nebulae, including the notable reflection nebula NGC 7023; and the “Fireworks Galaxy” NGC 6946, known for a surprising amount of supernovae.

Perhaps the most famous, and certainly the most notable object in Cepheus, is the star **Delta Cephei**. Its variable nature was first discovered by John Goodricke, whose observations of the star began in October 1784. Slightly more than a century later, Henrietta Leavitt studied the variable stars found in the Magellanic Clouds in 1908 and discovered that the type of variable stars represented by Delta Cephei possessed very consistent relationships between their luminosity (total amount of light emitted), and their pulsation period (generally, the length of time in which the star goes through a cycle of where it dims and then brightens). Once the period for a Cepheid Variable (or **Cepheid**) is known, its luminosity can be calculated by using the scale originally developed by Henrietta Leavitt, now called “Leavitt’s Law.” So, if a star is found to be a Cepheid, its actual brightness can be calculated versus its observed brightness. From that difference, the Cepheid’s distance can then be estimated with a great deal of precision. This revolutionary discovery unlocked a key to measuring vast distances across the cosmos, and in 1924 observations of Cepheids by Edwin Hubble in what was then called the Andromeda Nebula proved that this “nebula” was actually another galaxy outside of our own Milky Way! You may now know this object as the “Andromeda **Galaxy**” or M31. Further observations of Cepheids in other galaxies gave rise to another astounding discovery: that our universe is not static, but expanding!

Because of their importance as a “standard candle” in measuring cosmic distances, astronomers continue to study the nature of Cepheids. Their studies revealed that there are two distinct types of Cepheids: Classical and Type II. Delta Cephei is the second closest Cepheid to Earth after Polaris, and was even studied in detail by Edwin Hubble’s namesake

The stars of Cepheus are visible all year round for many in the Northern Hemisphere, but fall months offer some of the best views of this circumpolar constellation to warmly-dressed observers. Just look northwards! Image created with assistance from Stellarium: stellarium.org.



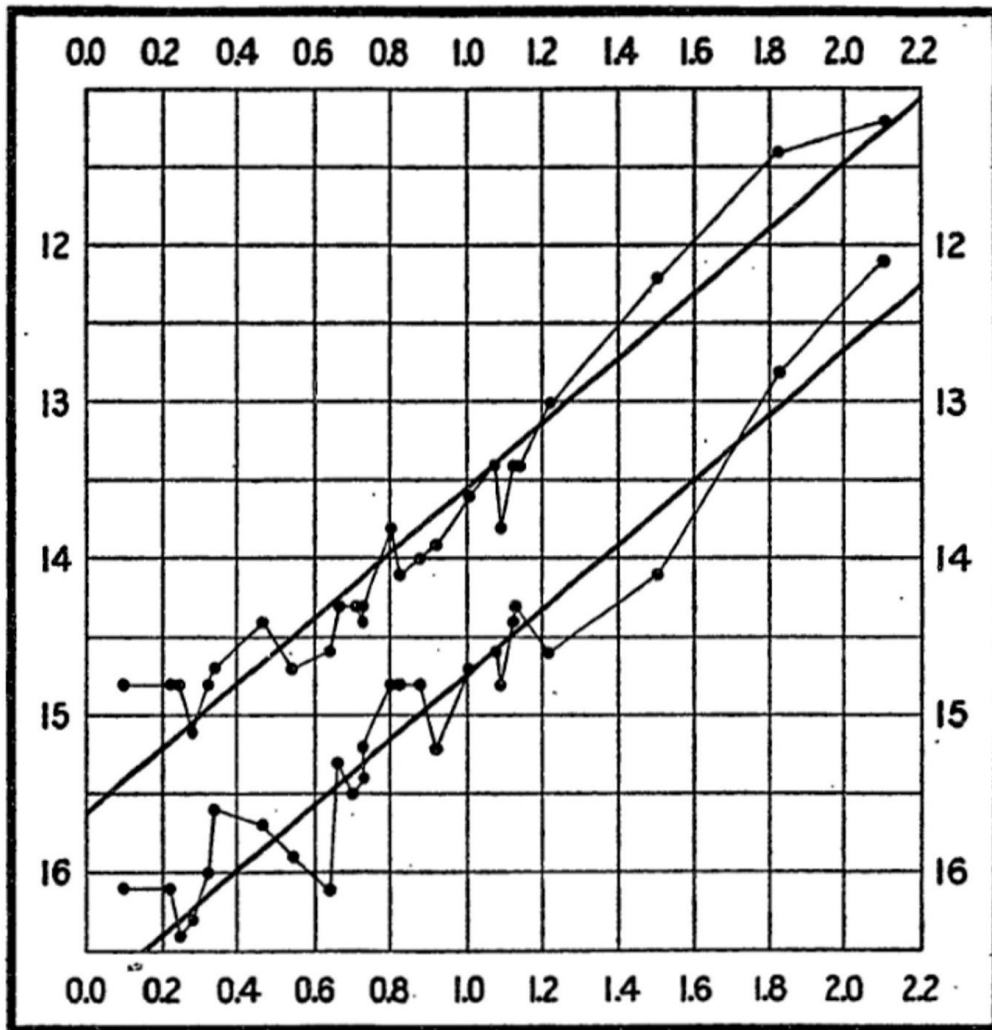


FIG. 2.

This historical diagram from Henrietta Leavitt's revolutionary publication shows the luminosity of a selection of Cepheid Variables on the vertical axis, and the log of their periods on the horizontal axis. The line drawn through these points shows how tight that relationship is between all the stars in the series. From Henrietta Leavitt and Edward Pickering's 1912 paper, "Periods of 25 Variable Stars in the Small Magellanic Cloud," a copy of which can be found at: <https://ui.adsabs.harvard.edu/abs/1912HarCi.173....1L/abstract>



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

By Dave Nakamoto

The days continue to get shorter and the nights longer as we head to the Winter Solstice in December. Don't forget that Daylight savings Time ends on Sunday Nov 6th at 2:00 a.m. when you set your clocks back one hour.

The Leonid meteor shower peaks on the morning of the 18th. The waning moon will be 36-percent illuminated and will interfere a little with observations.

The moon is full on the 8th, at last quarter on the 16th, will be new on the 23rd, and at first quarter on the 30th.

A total lunar eclipse will occur during the morning of Tuesday, November 8. The moon enters the penumbra at 12:02 a.m., PST. The moon enters the umbra, the darkest part of earth's shadow, at 1:09 a.m., PST, and is fully within the umbra at 2:17 a.m., PST. Greatest eclipse occurs at 3:00 a.m., PST. The moon starts to leave the umbra at 3:42 a.m., PST, and finally leaves the umbra completely at 4:49 a.m., PST. The moon fully exits the penumbra and the earth's shadow at 5:56 a.m., PST.

Mercury is within ten degrees of the sun almost all month long and is unavailable for observations. On the 30th, the sun sets at 4:44 p.m., PST, and Mercury sets at 5:24 p.m., PST. You'll need a telescope with a magnification of 150x to see the planet's disk. **DO NOT** observe any planet when it comes close to the sun, for the danger to the eyes is great.

Venus is within ten degrees of the sun all month long and is too close to the sun to be safely observed. Again, **DO NOT** observe any planet when it comes close to the sun, for the danger to the eyes is great.

Mars is in Taurus the Bull. It rises at 8:35 p.m., PDT, on the 1st with a disk that is 94-percent illuminated and 15 arcseconds in width. Mars increases in brightness and diameter as it approaches opposition with the sun on December 7. On the 30th, Mars rises at 5:08 p.m., PST, and its disk is 100-percent illuminated and 17 arcseconds in width. A telescope with a magnification of 100x is needed to see its diminutive disk. Along with Jupiter and Saturn, the three outer planets are available for observation all night long.

Jupiter is in Pisces the Fishes. It sets at 4:10 a.m., PDT, on the 1st and at 1:13 a.m., PST, on the 30th. Jupiter's disk is 46 arcseconds wide. The Red Spot is visible with a magnification of 50x. The four bright Galilean moons move back and forth, roughly in a line centered on Jupiter.

Saturn is in Capricornus the Sea Goat. The planet sets at 12:50 a.m., PDT, on the 1st and at 10:02 p.m., PST, on the 30th. The rings and Saturn's largest moon Titan may be seen with a small telescope with a magnification of 50x.

Uranus is in Aries the Ram. Uranus sets at 7:59 a.m., PDT, on the 1st and at 4:59 a.m., PST, on the 30th. On the 15th, Uranus is located at Right Ascension 2^h 57^m 10^s and declination +16° 27' 20". The disk of Uranus is 3.8 arcseconds in width, and so a magnification of 150x is needed.

Neptune is in Aquarius the Water Bearer. Neptune sets at 3:39 a.m., PDT, on the 1st and at 12:43 a.m., PST, on the 30th. On the 15th, Neptune is at Right Ascension 23^h 35^m 15^s and declination -3° 59' 41". Neptune's disk is 2.3 arcseconds in width, and so a magnification of 150x is needed to show it.

The Southern Taurid meteor shower peaks in the early morning of the 5th, producing five meteors per hour at the peak. The waxing moon will be 87-percent illuminated and will interfere with observations.

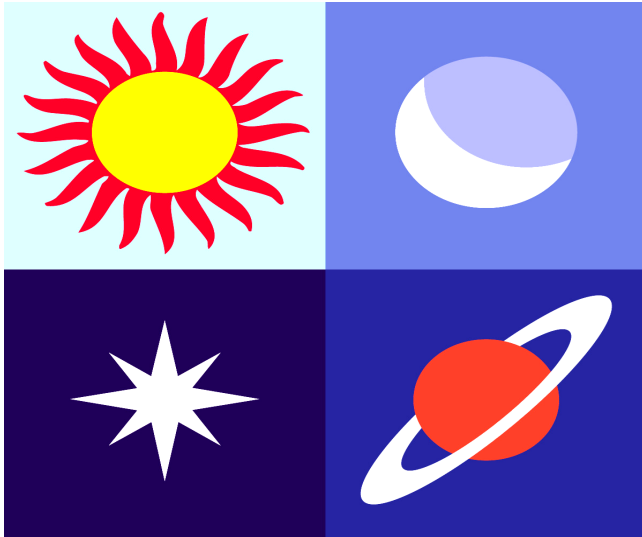
The Northern Taurid meteor shower is much like Southern Taurids as far as the rate is concerned. It peaks in the early morning hours of the 12th. The waning moon will be 88-percent illuminated and will interfere with observations.

Garvey Ranch Park Observatory is open every Wednesday night from 7:30 p.m. to 10:00 p.m. The telescope is open for public viewing if the sky is clear. It is manned by volunteers from the Los Angeles Astronomical Society. Admission and viewing through the telescope are free.

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

November 4, 5 - Taurids Meteor Shower. The Taurids is a long-running minor meteor shower producing only about 5-10 meteors per hour. It is unusual in that it consists of two separate streams. The first is produced by dust grains left behind by Asteroid 2004 TG10. The second stream is produced by debris left behind by Comet 2P Encke. The shower runs annually from September 7 to December 10. It peaks this year on the night of November 4. This year the nearly full moon will block out all but the brightest meteors. But if you are patient, you may still be able to catch a few good ones. Best viewing will be just after midnight from a dark location far away from city lights. Meteors will radiate from the constellation Taurus, but can appear anywhere in the sky.

November 8 - Full Moon. 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 11:03 UTC. This full moon was known by early Native American tribes as the Beaver Moon because this was the time of year to set the beaver traps before the swamps and rivers froze. It has also been known as the Frosty Moon and the Dark Moon.

..



November 8 - Total Lunar Eclipse. A total lunar eclipse occurs when the Moon passes completely through the Earth's dark shadow, or umbra. During this type of eclipse, the Moon will gradually get darker and then take on a rusty or blood red color. The eclipse will be visible throughout eastern Russia, Japan, Australia, the Pacific Ocean, and parts of western and central North America. ([NASA Map and Eclipse Information](#))

November 9 - Uranus at Opposition. The blue-green planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. It will be brighter than any other time of the year and will be visible all night long. This is the best time to view Uranus. Due to its distance, it will only appear as a tiny blue-green dot in all but the most powerful telescopes.

November 17, 18 - Leonids Meteor Shower. The Leonids is an average shower, producing an average of up to 15 meteors per hour at its peak. This shower is unique in that it has a cyclonic peak about every 33 years where hundreds of meteors per hour can be seen. That last of these occurred in 2001. The Leonids is produced by dust grains left behind by comet Tempel-Tuttle, which was discovered in 1865. The shower runs annually from November 6-30. It peaks this year on the night of the 17th and morning of the 18th. The second quarter moon will block many of the fainter meteors this year. But the Leonids can be unpredictable so there is still potential for a good show. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Leo, but can appear anywhere in the sky.

November 23 - 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 22:58 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.

Source: [Sea And Sky Reference Guide 2022](#)

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

[Time & Date - Los Angeles, CA.](#)

November 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2 Garvey Night	3 Outreach- East LA	4 Outreach- Playa del Rey	5
6	7	8	9 Garvey Night Board Meeting	10	11	12
13	14 General Meeting	15	16 Garvey Night	17	18 Outreach- Malibu	19 Dark Sky Night 60 Inch Night
20	21	22	23 Garvey Night	24	25	26 Dark Sky Night
27	28	29	30 Garvey Night	1 Outreach- Pasadena		

Meet The New Members

Welcome to the LAAS!



Dolores Chavez	Victoria Fegen	Jung Kim	Janardhanan Selvaraj
Tara Brown	Corrina Fuller	Anne Lorenzo	Gingger Shankar
Vanessa Alarcon	Ryan Hajek	Oscar Madrigal	Aaron Tecosky
Karla Ayala	Joanna Hoang	Pete Palacios	Leslie Wolgamuth
Nicholas Daniels	Yee Ie	Andi Parmelee	
Jason DeBolt	Mark Johnson	Jan Paulshus	

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.

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 for more information.



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

[Outreach Request Form](#)

LAAS Club Merchandise

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

To find new merchandise from our store, please use the following link: [Shop Here](#)

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.



LAAS Hoodie



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/>



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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

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