

# VILLAGES STAR

Newsletter of The Villages Astronomy Club

**Volume 2, Number 11**  
**November 2021**

Club Website:

<http://vlgastroclub.org/>

Facebook:

<https://www.facebook.com/groups/vlgastroclub/>

## Club Officers & Assistants

President Mark Graybill  
Vice President Ken Katta  
Secretary/Historian Burt Salk  
Treasurer Linda Meng

## Newsletter Contact

[saubdy@gmail.com](mailto:saubdy@gmail.com)

(please include TVAstro in subject line)

## UPCOMING EVENTS

**November 12th:** Starry, Starry Nights (& Day) public star party program. Lake Miona Recreation Center. Daytime, 2-5pm: Solar Walk & solar viewing on walking trail. Nighttime, 6-9pm: Telescope viewing at tennis courts.

**Nov 16th:** General Meeting, Laurel Manor Recreation Center, 6:20pm

**December 2nd:** Club Directors' Meeting, Laurel Manor Recreation Center, 8:30am.

**December 7th:** Telescope Workshop. 6:30pm  
Location announced via email list.

Calendar: <https://vlgastroclub.org/events>

## NEWS

### Elections

At the October General Meeting selection of new officers was held. Mark Graybill was elected as the new President, and Ken Katta as the new Vice President.

The Club gives warmest thanks to former President Jerry Kosarko for his continued leadership through the shutdown period, and to Warren Litavsky, who served as Vice President until circumstances forced him to step down during the pandemic.

Our secretary Burt Salk and Treasurer Linda Meng have kindly agreed to maintain their positions, which will provide our new officers and the club with experienced guidance.



### Starry, Starry Day & Night

We will be resuming our public activities! Come enjoy the Solar Walk at Lake Miona Recreation Center's walking trail on Friday November 12th from 2pm to 5pm. Then return for observation of the night sky from 6pm to 9pm.

Since we expect many attendees as this event resumes, we request that club members volunteer to assist us as guides for the Solar Walk during the day, and bring their telescopes to show the sky at night. Guides for the Solar Walk will have a basic script provided, which they can then embellish according to their personal knowledge and interests of the objects in our solar system.

Telescope owners who are able to show objects in their telescope to the public are asked to come to our evening program. If you are not able to set up and show objects in your scope without assistance yet, then please come to our Telescope Workshops held to help club members do this (see calendar above, and on the website link provided for Telescope Workshop dates.)

The telescope area for Starry Starry Nights will be the Lake Miona Recreation Center tennis courts. The layout of the lights near the rec center means that the sky to the north, northwest and northeast of the tennis courts are the darkest, making it easier to show objects in those areas.

We will have three bright planets and the Moon visible on the night of the event. Observing highlights are listed below.

**Venus** will be in the west, at just under first quarter phase (see if you can see the indent in the crescent!), setting relatively early. Near Venus will be the deep sky objects of Sagittarius and Scorpius. It may be possible to show the **Lagoon and Trifid nebulas**, but they may also be washed out by the setting sun and the first quarter Moon to the west. Better bets would be the star clusters: **M6, M7, and M22**.

East of Venus are **Saturn, Jupiter, and the Moon**, in order going west to east and in order of brightness. All should make great views for the public.

In the east lies **Uranus**. At magnitude 5.56, it won't be visible by eye, but it should be easy to get in a telescope with good contrast and/or good light collecting power (aperture.) The color varies from blue to green depending on conditions, but even at modest magnification it is clearly not a

star! Look for the moons Oberon and Titania to the left of the planet at medium powers.

**Neptune** will also be visible, but I'll leave it as a challenge to those who are up to it. It should display a nice blue disk if seen, though.

**M31, the Andromeda Galaxy** will be visible high in the sky, just north of east, and well away from the Moon. It is best viewed at low powers, and in "fast" focal ratio telescopes (f/7 or lower, preferable f/5 or lower) to see as much of the galaxy's halo as possible. Andromeda's satellite galaxies, **M110 and M32**, should also be visible as light "condensations" near M31.

Under our low contrast skies, star clusters and multiple star systems show well. Open clusters like **M39, M34, NGC 6871, and the Double Cluster (NGC 884 and 869)** should all show well. Globular clusters like **M15, M71, and M2** should also show well, and make a nice contrast to the open clusters.

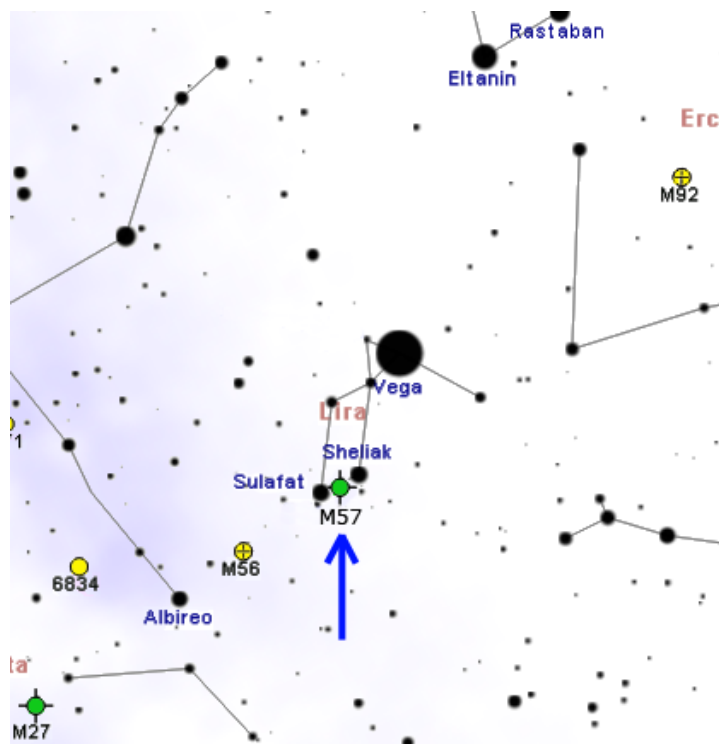


**Globular Cluster M2 (Messier 2) in Aquarius.**  
Image Credits: NASA, ESA, STScI, and A. Sarajedini (University of Florida)

Bright stars include the members of the **Summer Triangle: Altair, Vega, and Deneb**. Each marks its respective constellation: Altair,

**Aquila the Eagle; Vega, Lyra the Harp; Deneb, Cygnus the Swan.** In Lyra, there is the **Double Double (Epsilon Lyra, or 4 Lyra)**. Seen at medium powers, it shows as a double star. At medium-high power, each of the two stars reveals a companion, making it a double double star!

Also in Lyra is **M57, the Ring Nebula**. This planetary nebula has a high surface brightness, and should be visible in telescopes from 6" and up with good contrast even under our conditions!



**Finder Chart for M57, the Ring Nebula**  
Image by Roberto Mura.

If you can make out the form of the Swan in Cygnus, the head star is **Albireo (Beta Cygni)**. Albireo is a double star with two stars of strongly contrasting color. One is blue, the other amber. The richness of the amber color varies a bit, but it is always a striking contrast to its companion, and viewable in any size telescope. Also in Cygnus is **the Red, White, and Blue Triple Star, Omega 2 Cygni**. Any scope will show the triple at medium magnification. The strength of the colors will depend on the telescope and observing conditions.

**Perseus and Casseiopeia** will be well placed for observation from Lake Miona Recreation Center, and contain many interesting objects for observation. Aside from the previously mentioned Double Cluster, lying almost midway between the two (officially in Perseus), there are also **M103, the Alpha Persei Moving Group**, a group of bright yellow stars that are spread across a wide area of sky near (and including) Alpha Persei that are similar to the Beehive Cluster in brilliance and brightness, and a number of other bright double stars.

**Herschel's Garnet Star** is a star that appears deep red to rich amber, depending on the telescope used to observe it. It is actually more deeply colored in a small telescope than a large one! It is in Cepheus the Charioteer, below the "house" asterism formed by the main stars of the constellation.

Further potential objects for this event are included in the "Cheat Sheet" that forms the last page of this month's newsletter. Print it out and bring it along to the event!

### Telescope Workshop

December's telescope workshop will be an informal get together at 5:00pm at the Truman Recreation Center's pavilion area, behind the pool. Bring your telescope and questions. This area provides good views to the south and east, sky conditions permitting, for those wishing to remain for viewing after the workshop. The early hour is the result of our change back to Eastern Standard Time.

### IN THE SKY THIS MONTH

**Please see the notes for Starry Starry Nights above, or the "Observer's Cheat Sheet" on the last page of the newsletter for observing highlights.**

## Observer's Cheat Sheet for 12 November, 2021

### Solar System Objects:

**1. Moon** The same side always faces the Earth. It lies one quarter light seconds away.

**2. Venus** is about 80 million miles away, the planet is just under half lit tonight. Try to see the crescent!

**3. Jupiter** is the largest planet in the solar system, its diameter is 11 Earths wide. It rotates about its axis in 10 hours. Its four brightest moons would be visible by eye if Jupiter wasn't so bright that it washes them out of sight.

**4. Saturn** is one of the most beautiful objects in the sky. Though it is almost twice as far away as Jupiter, its rings are about the same diameter in our view as the disk of Jupiter. Its bright moon Titan is visible as a star to the left of Saturn.

**5. Uranus** was the first discovered planet. Tonight is it magnitude 5.56, bright enough to see by eye from a dark site. But it was not discovered until after the invention of the telescope.

### Bright Stars:

**6. Capella** is a bright star in the northeast. The name means "She-goat." Near it is a narrow equilateral triangle of stars of medium brightness, these are known as "the Kids", i.e. baby goats following mother across the fields of the sky.

**7. Vega** is a blue star, 26 LY away, 5x bigger than the Sun, 160x as luminous as the Sun.

**8. Altair** is only 16LY away. It has 4x the mass of our Sun, but is 25x larger, and 115x as luminous.

**9. Deneb** is a "super star", 1,600LY away, 60x bigger than the Sun, and 60,000x as bright!

**10. Arcturus** 37LY away, 25x bigger than the sun, 115x as bright. "Arc" from the handle of the Big Dipper.

### Multiple Stars:

**11. Albireo** double star, 385LY away, stars are 50 solar systems apart. Head of the Swan.

**12. Epsilon Lyra (Double Double)** 162 light years away, double stars, each with another companion, making each a double on its own.

**13. Alcor/Mizar** Naked-eye double, used as a vision test by many ancient cultures. 88LY away.

**14. Cor Caroli** "Charles' Heart", brightest star in The Hunting Dogs, under the curve of the Big Dipper's handle. 2 stars, 110LY away.

**15. Omega 2 Cygni "Red, White, and Blue Triple"** A patriotic group of stars in The Swan.

### Colorful Stars:

**16. Herschel's Garnet Star** Mu Cephei, depth of color varies. Color is from carbon in the atmosphere of the star.

**17. T Lyra** Red star in The Harp is a variable that goes from mag. 7.5 to 9.1. Carbon star.

### Galaxies:

**18. Andromeda, M31** Nearest full galaxy to ours. 2.5 million LY away. Companion galaxies M32 and M110 are visible nearby. Often cited as the only galaxy that can be seen by eye, though M33 is also visible by eye.

**19. Triangulum, M33** "Pinwheel" galaxy, a face on spiral. Visible by eye under excellent circumstances. It has a low surface brightness because it is face on and covers a large area of our sky. 2.7 million LY away.

### Open Star Clusters:

**20. M6 Butterfly Cluster** near the tail of Scorpius, hot blue stars at 1600LY away. About 100M years old.

**21. M7 Iris Cluster**, yellow stars at 900LY distance, about 220M years old.

**22. M29** Open cluster, 7200LY away, about 15LY across.

**23. M34** Open cluster, 1500LY away, about 200M years old.

**24. M39** Open cluster, about 1000LY away, about 280M years old, about 200x the sun's mass.

**25. NGC 6871** Open cluster, 5,100LY away, only about 9 million years old!

**26. Double Cluster** Includes both NGC 869 and NGC 864. About 7,200LY away. Visible by the naked eye under good conditions, it spans about twice the width of the full Moon.

#### **Globular Clusters:**

**27: M2** is a huge globular cluster in Aquarius. The 150,000 stars in it are held together by their mutual gravity, like a mini galaxy. It orbits the center of the Milky Way. It is 175LY across, and about 55,000LY distant. At almost 14 billion years old, it is one of the oldest objects in the universe.

**28. M15** is a large globular cluster in Pegasus. It is about 170LY across, and 33,000LY away. It holds about 100,000 stars. It is one of the densest globular clusters, and a double neutron star has been detected in it.

**29. M22** at less than 11,000LY away, M22 "The Arkenstone" is one of the nearest globular clusters to Earth. It holds about 70,000 stars, and is one of the few globulars known to contain a planetary nebula (star remnant from formation of a white dwarf star.)

**30. M30** is about 27,000LY away, and is in a retrograde orbit around our galaxy, suggesting that it was captured from another galaxy that was consumed by our own in a galactic collision.

**31. M71** is about 12,000LY away and spans about 27LY, making it a modest-sized globular cluster. Its age is about 9 billion years, making it a young globular cluster.

#### **Planetary Nebulas (stellar remnants)**

**32. M57 (Ring Nebula)** is a stellar remnant about 2,700LY from Earth. It was formed when a Red Giant's core collapsed, wafting its atmosphere off into space, leaving behind an Earth-sized white dwarf. It is thought that our own sun will follow this course in several billion years. The ring is about 1.2LY across.

**33. NGC 7009 (Saturn Nebula)** is a planetary nebula that is shaped similar to Saturn, with two "handles" sticking out. It is bright green in color, and once found stands out strongly in the telescope in medium powers. The core is a hot blue dwarf star. It is about 3000LY from Earth, less than half a light year across. The central star is about 20x brighter than the Sun.



#### **The Saturn Nebula**

Image by Tom Wildoher