The Bays Mountain Astronomy Club Newsletter

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A Note from the Newest Reader

Adam Thanz - Planetarium Director

he times..., they are a changin'... One of which is that I'm passing on the monthly duties of newsletter editor for the Bays Mountain Astronomy Club Newsletter to Mackenzie Henley. She is smart, talented and an ideal person to take on and learn from this new adventure. I know I learned a lot about writing, language, layout, publishing and more from doing this work. I'm excited to see what Mackenzie will bring.

In my 32+ years here at Bays Mountain, so far, about 30 of those years have included being the editor. When I started, it was a five and a half-page document. (It was three pages front and back with half a page for a mailing label and a stamp.) It was black and white, included incredibly low resolution images, if any, and then photocopied on a small copier. A number of years later, I modified the front page to include a color image of the club's logo. This was a first, even with other astronomy club newsletters! (I printed the logo on a sheet, then printed the rest of that page with black ink at a separate printing.) Then, the newsletter expanded to four front and back sheets. A 33.3%

increase! Later, the whole newsletter included color images along with the black text. In February 2015, the newsletter really changed. It was created in three formats, a mailing version of twelve pages (six sheets, the limit for basic postage), a PDF version to download (26 pages) and an iBooks version that was for an iBook reader. The printed version became obsolete quickly. The iBook format ended December 2020. An early format of what we're currently using started in January 2021. Now, the newsletter runs 40-60 pages. The reason for the extended length is that the newsletter has been designed for accessibility and readability on a smartphone. The text is larger, more spaced out for easier reading, higher contrast and includes formatting structure and alt text for E-Readers for the sight impaired. Images are typically full-page for best viewing.

I expect more changes to come in the future, they always will.



How many grammatical errors can one person endure? Image of Adam in 1998 in the oh-so-tidy planetarium office.

A Note from the Newest Editor

Mackenzie Henley- Head Editor



s you can tell most likely from the last section, today marks the passing of the torch. As stated before, my name is Mackenzie Henley, and I am the new editor

of the Bays Mountain Astronomy Club Newsletter. In my first section, I figured it would be best to introduce myself for the benefit of those not familiar with me. I am an undergraduate student at the University of Tennessee Knoxville and a College Scholar there. The College Scholars program is an interdisciplinary program, established in 1973 to allow honors students to be able to combine classes from various different colleges on campus to create a major to fit their needs. My current program is titled "Next Generation Space Technologies", where I am combining engineering, physics, and planetary science to be able to create instrumentation that will go to worlds beyond ours. Outside of school, I love doing astrophotography and observational astronomy.



10 second exposure of Orion Nebula. Taken by Mackenzie Henley, taken 1/29/2025

My planetarium experience begins all the way back in August 2021(almost 4 years ago, don't you feel old now Adam & Jason). I was a junior in high school. We were still under COVID regulations, so I met Adam and Jason while masks were still on. I reached out to see if there was any volunteer work I could do in the planetarium. Hesitant, Adam and Jason met with me and everything changed from there.

I started by learning the software that the planetarium uses and then helped develop their software to be more accessible when one is giving a show. For some reason, the software had constellations listed as what they are, instead of their name (Ex: Big Bear instead of Ursa Major, Hunter instead of Orion...etc). So I worked on changing all the names as well as the borders and lines and rearranged them to be in alphabetical order. After this, I think I proved that I was a capable (yet goofy) teenager to Adam and Jason, where I was then offered a position for the 2022-2023 school year.

My senior year was mainly spent at the planetarium. I learned how to use telescopes, how to give public programs, and how to do meaningful outreach, alongside various other soft and technical skills. Some of my best memories are from spending my Saturday nights in the observatory talking to guests about the nighttime sky. At this point, I was dead set on aerospace engineering, but I enjoyed learning about astronomy so much that my mind slowly changed over my senior year. I was already committed to going to Tennessee Technological University, but as you can see from the introduction, there was a slight change in plans.

Now, I get paid at UTK to do outreach and all the similar things that I did here at Bays Mountain. We have fantastic interns here this year, so I would recommend, with StarWatch coming up, for you to try to come out and see these students in action in March and April. If you are interested in becoming a volunteer, reach out to <u>Adam Thanz</u>, our planetarium director, and he can lead you in the right direction.



Photo submitted for my senior workplace study project. Taken by Mackenzie Henley, taken 10/7/2022.

Cosmic Reflections

Greg Penner - BMAC Chair





March is here, which means warmer weather and

time to get outside to do some observing! We had a great meeting in February with Robin Byrne giving us a presentation about the history of understanding our place in the universe. We can easily take for granted all of the knowledge we have about the universe, but there were truly some scientific giants that preceded us, and we stand on their shoulders to understand and observe the universe.

Speaking of observing the universe, our next club meeting on March 7th will be a club observing night. That will be the last club meeting before Daylight Savings Time, so the sky should be dark enough by 7pm, and we will meet out by the observatory. Please bring whatever observing equipment you would like, and if you don't have your own equipment, please come anyway. We will all look through whatever telescopes and binoculars folks bring. This will be a great opportunity to compare the views of various celestial objects through different types of equipment. Bring equipment or accessories that you think would be helpful for others to know about. If you're thinking of getting a new telescope or some accessories, this might be just the help you need to make the right buying decisions. The sky that night will be guite interesting. The Moon will be one day past first quarter and very high, almost at the zenith, situated between Jupiter and Mars. Venus and Mercury will be low in the west. Venus will be an extremely thin and large crescent. Some favorite winter objects will still be visible, such as the Orion nebula and the Pleiades. The spring constellations will be on the rise in the east, such as Leo the lion. If the weather allows, there will be plenty of planets, star clusters, double stars, and of course the Moon to keep us entertained. If we have bad weather, we will meet in the planetarium and have a "share-and-tell" night. Bring whatever equipment and accessories you would like to share. Let's try to share our knowledge and resources with each other to learn more about our astronomy hobby (addiction)!

We have not yet determined what our program will be for the April meeting. Our May meeting will be our annual student presentations. Our educators who are part of our club should be interacting with their students in preparation for that meeting. Also coming up in late April or early May will be Astronomy Day...more details on that in the future.

I'm looking forward to seeing everyone in March...until then,

Clear Skies!

BMAC Notes

BMACers Seeing Venus During the Day



urrently, Venus is so bright it is visible to be seen naked eye in the daytime. BMAC Chair Greg Penner sent in a photo of his experience from February 21st,

2025 around 5pm. We recommend you go out and view this while you still can!



Greg Penner writes: Used my iPhone 13 with my Takahashi 90mm refractor.

Sky News from the Astronomical League

Τ

he Astronomical League has a plethora of educational content to help you learn and enjoy the night sky more. The following inserts are just a tiny

bit of what they provide.

Navigating the mid March Night Sky



- 2 From Capella jump northwestward along the Milky Way to Perseus, then to the "W" of Cassiopeia. Next jump southeastward from Capella to the twin stars of Castor and Pollux in Gemini.
- **3** Directly south of Capella stands the constellation of Orion with its three Belt Stars, its bright red star Betelgeuse, and its bright blue-white star Rigel.
- 4 Use Orion's three Belt stars to point northwest to the red star Aldebaran and the Hyades star cluster, then to the Pleiades star cluster. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius. It is a member of the Winter Triangle.

Binocular Highlights

A: Between the "W" of Cassiopeia and Perseus lies the Double Cluster. **B:** Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **C:** M42 in Orion is a star forming nebula. **D:** Look south of Sirius for the star cluster M41. **E:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux. **F:** Look high in the east for the loose star cluster of Coma Berenices.



Astronomical League www.astroleague.org; duplication is allowed and encouraged for all free distribution.

Navegando por el cielo nocturno de Marzo



Liga Astronómica www.astroleague.org/outreach; Duplicación permitida y fomentada para toda distribución gratuita Traducción al español por Dr. Salvador Aguirre

ASTRONOMICAL LEAGUE Double Star Activity









The Moon slides through a total eclipse

In the hours just after midnight on March 14, the brilliant full moon slides into Earth's shadow.

Even though the partial umbral eclipse begins at 12:09 am CDT, darkening might not be noticed for another 5 minutes.
When totality is reached, the full moon's brilliance is gone, allowing the stars to appear. Can you see that the moon lies mid-way between Regulus to the upper right and Spica to the lower left?

- At mid eclipse, what color is the moon? How red is it?
- During the partial phases, can you notice that the shadow's edge is not straight, but curved?



Evening Earthshine

aka "The old moon in the new moon's arms"



In a very strange sense, Earthshine is the reflection of Earth on the moon.



Older than 4 day-old moon:

Distinguishing Earthshine with the unaided becomes harder with each passing evening. However, the moon's night side can still be seen through a telescope for a few more nights.



Stellar Observations

Greg Penner

The Lion of Spring

Τ

he month of March is a time of transitions. Days are getting longer and warmer, and the way we keep time is "shifted" via the beginning of Daylight

Savings Time on March 9th. Flower buds are appearing on the redbud, cherry, and pear trees. Spring will officially begin on the March 20th equinox. In the night sky the familiar winter constellations such as Taurus, Orion, and Gemini will be drifting away into the west, while the spring constellations will be rising to take their place. Just as the shape of Orion is so easily recognizable and dominant in the winter sky, Leo the Lion is the king of the spring night sky. Leo's star pattern is easy to identify with the forward section made of the distinctive "sickle" (or reverse question mark) anchored by the bright star Regulus, and the rear section a triangle anchored by the bright star Denebola. Since this part of the sky is away from the plane of the Milky Way and its crowded stars and dust clouds, there is an opportunity to see objects outside of our own galaxy, meaning we can look at other galaxies. Leo contains some very nice

galaxies for viewing with backyard telescopes, especially the larger aperture dobsonians. Galaxies are not the only targets though, some interesting stars await as well.



Leo seen in the Southeastern sky, rising in the East. Taken using Stellarium.

Our first target is the variable star R Leonis (R Leo), a red giant Mira-type variable star. These types of stars are named after Mira in the constellation Cetus. Their variability is a result of pulsating surfaces that increase and decrease the star's brightness over periods ranging from 80 to more than 1,000 days. R Leo varies in brightness from about magnitude 5.5 to 10.5 over a period of 312 days. If you're new to variable star observing, this is a great starting point. R Leo is one of the brightest long period variables and is easily found about 5 degrees west of Regulus, within ½ degree of 6th magnitude stars 18 and 19 Leonis. As of the first half of February, the star was around magnitude 6 (visible in binoculars) and is a nice red color. On the AAVSO (American Association of Variable Star Observers) website, you can create a finder chart used to locate the star and estimate its brightness against comparison stars.



Closer look at Leo, using Stellarium, annotated by Greg Penner.

Next we will take a look at a couple of gorgeous double stars that are key components of the Lion. Regulus is the 21st brightest star shining at magnitude 1.3 at the base of the "sickle". About 3 minutes to the northwest of Regulus is a 7.7 magnitude dwarf companion star. The companion star should be visible in binoculars, although a small telescope should give a nicer view of the pair. Do you detect a color difference between Regulus and the companion? These stars lie about 85 light years from us, close neighbors on the astronomical scale. The other standout double star in Leo is found in the neck of the lion. Algieba (Gamma Leonis) appears to the naked eye like a second magnitude star, but through a telescope you will see a 2.2 magnitude primary with a 3.5 magnitude secondary star separated by only 4.5 arcseconds. The close companion was discovered by William Herschel in 1782. The primary has a deep yellow or orange color and the secondary is a pale yellow. Some people see the secondary as a greenish color, but that could be an optical illusion due to the proximity of the two stars. What

do you see? No matter how you see them, two stars so close together is always a beautiful sight in a telescope.

When you're exploring Leo from a fairly dark site on a moonless night, our next objects should be high on your list. Amateur astronomers are familiar with the famous list of Messier objects. Leo has no shortage of galaxies from this list within its borders. But first, we'll take a look at a galaxy that could have made the list but didn't. NGC 2903 is a 9th magnitude barred spiral galaxy that is around 31 million light-years away and is easily found about 1 ¹/₂ degrees south of the 4th magnitude star Alterf. In 4" - 6" telescopes this galaxy is a bright oval smudge. But, in larger 8" - 12" telescopes an observer should be able to make out some mottling with bright and dark patches. The view of this galaxy can easily rival some of the better-known galaxies in Messier's list.



Next, we will visit a nice group of galaxies located just below the lion's midsection. The galaxy trio of M95, M96 and M105 can be found by first pointing at the star 52 Leonis, which is a little more than halfway from Regulus to Theta Leonis. Then move southward about 2-3 degrees, and you should easily see these 3 ninth magnitude galaxies. If you're using a wide-angle eyepiece, you might see all 3 in the same field of view. All three of these galaxies are part of the same group (the M96 subgroup of the Leo 1 galaxy group) located about 31 million lightyears away. M95 and M96 are both spiral galaxies, with M96 being slightly brighter. In larger telescopes a circular halo with texture should be visible surrounding a brighter core. M105 is an elliptical galaxy that appears as a bright halo with a more concentrated core.



The final galaxy group we will explore is located just below the lion's rear section. The trio of M65, M66 and NGC 3628 (often referred to as the Leo Triplet) can be found by pointing at Theta Leonis, then moving directly south to the 5th magnitude star 73 Leonis. Just a degree to the east of that star, you will see this trio in a wide-angle field of view. All three of these galaxies are part of the same group (the M66 sub-group of the Leo 1 galaxy group) located about 31 million light-years away, just like the previous group. M65 appears as a bright, elongated halo with a bulging core that narrows at the ends. In larger telescopes some patchy mottling should be seen. M66 is the brightest of the trio and shows some mottling like M65, but larger telescopes might also be able to see some of the spiral structure. The edge-on spiral NGC 3628 is the largest, but faintest, of the trio of galaxies. In small to medium telescopes a thin, elongated halo can be seen. Nicknamed the Hamburger Galaxy, in large apertures and photos you can see why, as a prominent dust lane is "sandwiched" between brighter halves.



Leo Triplet, image by Chuck Ayoub.

March is a great time to "dust off" the equipment after the cold winter months and get outside to kick off the spring observing season. Do some exploring around Leo the Lion and you will be roaring with delight!

The Queen Speaks

Robin Byrne

Happy Birthday Jean-Baptiste Chappe d'Auteroche

his month, we celebrate the life of an astronomer who helped determine the size of the solar system. Jean-Baptiste Chappe d'Auteroche was born March 23, 1722 in Mauriac, Cantal, France. There is little known about his early life, but it is known that Chappe likely became a Jesuit priest while also pursuing astronomy as a career. He was named the assistant astronomer at the Royal Observatory, and was elected into the Royal Academy of Sciences in 1759.



Portrait of Jean-Baptiste Chappe d'Auteroche. This is a derivative work of **File:Jean Chappé d'Auteroche. Line engraving by J. B. <u>Tilliard, 1 Wellcome V0001066.jpg</u>** with cropping by Yapparina.

One of the foremost problems of the time was the quest to determine the actual distance between the Earth and the Sun. At this time, the size of the solar system was known only in terms of relative distances compared to the Earth-Sun distance, such as the distance from the Sun to Mars is 1.5 times the distance between the Sun and Earth. But how far Earth is from the Sun was not known. The best way to determine that distance would be by observing Venus transit across the Sun from different positions on Earth. Knowing the timing of the observations, and the precise coordinates of the observation locations would allow astronomers to triangulate the distance between Earth and Venus, which would then lead to knowing the values of all the solar system distances.

Although transits of Venus across the Sun don't occur very often, Chappe happened to live in a time when two such transits would occur: one in 1761 and the other in 1769. Astronomers around the world made coordinated arrangements to observe the transits from as many locations as possible, especially from locations at latitudes far to the north and south, to provide the widest angles needed to increase the accuracy of the triangulation.

Chappe was given the assignment to travel to Tobolsk in Siberia (one of the most northern possible locations) in order to observe the June 6, 1761 transit. Chappe left Paris in November of 1760 and arrived in Tobolsk in May of 1761, which was just in time to observe a total lunar eclipse. That observation allowed him to calculate an accurate longitude for his observing site, which would be vital for the transit data to have any value.

For this trip, Chappe traveled in the company of an interpreter, as well as someone to maintain the working mechanisms of the clocks that were to be used for all of the measurements. Precise times were vital for accurate determinations of longitude, as well as for the timing of the transit itself.

For their stay in Tobolsk, Chappe and his team built an observatory on top of a hill outside of town. The telescope used for the observations was an incredible 19 feet long, and was unlike anything the people of the town had ever seen before. While Chappe and company were in Tobolsk, a severe flood occurred, which was blamed on this foreign man who was using bizarre equipment to bother the Sun. Chappe employed armed Cossacks for protection, and he slept in the observatory to be sure the locals didn't try to tear it down.

On June 6, the day began cloudy, but fortunately, the skies cleared just in time for Chappe to observe the entire transit. Afterwards, Chappe wrote, "I truly enjoyed the completion of my observation, and was delighted with the hopes of its being useful to posterity when I have quit this life." Chappe returned to France in August of 1762, and published his observations of the transit in 1763.

Chappe kept a detailed diary of his travels through Russia, which he published in a book titled "A Journey Into Siberia," published in 1768. This was the first book to describe life in Russia to the outside world. It was not very flattering, with less than appetizing descriptions of some of the local foods, and demeaning illustrations of the people and how they lived. A pamphlet, written as a counterargument to his book, quickly appeared, in which the author extolled how wonderful Russia was. While published anonymously, some speculated that it may have been written by Catherine the Great.

For the Venus transit of June 3 1769, Chappe was once again given an assignment to observe from an extreme latitude, but this time he was headed south to the southernmost tip of Baja California at the Mission of San José del Cabo. Chappe and his team arrived without too much difficulty, especially compared to his Russian trip, and they were able to get very good observations of the transit. However, as they were preparing for their return to France, the entire group became ill with what might have been yellow fever. At first, Chappe was unaffected, so he tended to the sick. But, eventually, he too was stricken, and succumbed to the disease on August 1, 1769. Ultimately all but one member of the expedition team died. The lone survivor made his way back to France with Chappe's observations and personal diary. Chappe's diary of the journey was published

posthumously by one of his colleagues, César Cassini de Thury, as a book titled "A Journey to California to Observe the Passage of Venus Across the Disk of the Sun."

Knowing the distance between Earth and the Sun seems so fundamental today, and is certainly a vital value to know for all space travel, whether manned or unmanned, to the other bodies in our solar system. From Pioneer and Venera missions in the early 1960's to the Europa Clipper currently en route to Jupiter, none of it would have been possible without the early observations made by astronomers like this month's honoree, Jean-Baptiste Chappe d'Auteroche.

References:

Jean-Baptiste Chappe d'Auteroche - Wikipedia

Image of Jean-Baptise Chappe d'Auteroche - Wikipedia

Siberia in the 1700's: What a French Astronomer Witnessed in Russian by Amos Chapple, March 24 2024, Radio Free Europe

The Space Place MASA Nightski

Metwork

.By Kat Troche

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Messier Madness



arch is the start of spring in the Northern Hemisphere; with that, the hunt for Messier objects can begin!



Showing a large portion of M66, this Hubble photo is a composite of images obtained at visible and infrared wavelengths. The images have been combined to represent the real colors of the galaxy. Credit: NASA, ESA and the Hubble Heritage (STScI/AURA)-ESA/Hubble Collaboration; Acknowledgment: Davide De Martin and Robert Gendler

What Are Messier Objects?

During the 18th century, astronomer and comet hunter <u>Charles</u> <u>Messier</u> wanted to distinguish the 'faint fuzzies' he observed from any potential new comets. As a result, Messier cataloged 110 objects in the night sky, ranging from star clusters to galaxies to nebulae. These items are designated by the letter 'M' and a number. For example, the Orion Nebula is <u>Messier 42</u> or **M42**, and the Pleiades are <u>Messier 45</u> or **M45**. These are among the brightest 'faint fuzzies' we can see with modest backyard telescopes and some even with our eyes.

Stargazers can catalog these items on evenings closest to the new moon. Some even go as far as having "Messier Marathons," setting up their telescopes and binoculars in the darkest skies available to them, from sundown to sunrise, to catch as many as possible. Here are some items to look for this season:



M44 in Cancer and M65 and 66 in Leo can be seen high in the evening sky 60 minutes after sunset. Credit: Stellarium Web

Messier 44 in Cancer: The Beehive Cluster, also known as Praesepe, is an open star cluster in the heart of the Cancer constellation. Use Pollux in Gemini and Regulus in Leo as guide stars. A pair of binoculars is enough to view this and other open star clusters. If you have a telescope handy, pay a visit two of the three galaxies that form the Leo Triplet - M65 and M66. These items can be seen one hour after sunset in dark skies.



Locate M3 and M87 rising in the east after midnight. Credit: Stellarium Web

<u>Messier 3</u> Canes Venatici: M3 is a globular cluster of 500,000 stars. Through a telescope, this object looks like a fuzzy sparkly ball. You can resolve this cluster in an 8-inch telescope in moderate dark skies. You can find this star cluster by using the star Arcturus in the Boötes constellation as a guide.

Messier 87 in Virgo: Located just outside of Markarian's Chain, M87 is an elliptical galaxy that can be spotted during the late evening hours. While it is not possible to view the <u>supermassive</u> <u>black hole</u> at the core of this galaxy, you can see M87 and several other Messier-labeled galaxies in the Virgo Cluster using a medium-sized telescope.



Locate M76 and M31 setting in the west, 60 minutes after sunset. Credit: Stellarium Web.

Messier 76 in Perseus: For a challenge, spot the Little Dumbbell Nebula, a planetary nebula between the Perseus and Cassiopeia constellations. With an apparent magnitude of 12.0, you will need a large telescope and dark skies. You can find both M76 and the famous <u>Andromeda Galaxy</u> (M31) one hour after sunset, but only for a limited time, as these objects disappear after April. They will reappear in the late-night sky by September.

Plan Ahead:

When gearing up for a long stargazing session, there are several things to remember, such as equipment, location, and provisions:

- Do you have enough layers to be outdoors for several hours? You would be surprised how cold it can get when sitting or standing still behind a telescope!
- Are your batteries fully charged? If your telescope runs on power, be sure to charge everything before you leave home and pack any additional batteries for your cell phone. Most people use their mobile devices for astronomy apps, so their batteries may deplete faster. Cold weather can also impact battery life.

- Determine the apparent magnitude of what you are trying to see and the limiting magnitude of your night sky. You can learn more about apparent and limiting magnitudes with our <u>Check Your Sky</u> <u>Quality with Orion</u> article.
- When choosing a location to observe from, select an area you are familiar with and bring some friends! You can also connect with your
 <u>local astronomy club</u> to see if they are hosting any Messier Marathons. It's always great to share the stars!

You can see all 110 items and their locations with NASA's <u>Explore the Night Sky interactive map</u> and the <u>Hubble Messier</u> <u>Catalog</u>, objects that have been imaged by the Hubble Space Telescope.

This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit <u>nightsky</u> to find local clubs, events, and more!

BMAC Calendar & More

Calendar:



MAC Meetings:

- Friday, March 7, 2025 7p Club Member Observation Night at Bays Mountain. If poor weather, meet in the planetarium.
- Friday, April 4, 2025 7p Topic TBA.
- Friday, May 2, 2025 7p Topic TBA.
- Friday, June 6, 2025 7p Topic TBA.
- Friday, August 1, 2025 7p Topic TBA.
- Friday, September 5, 2025 7p Topic TBA.
- Friday, October 3, 2025 7p Topic TBA.
- Friday, December 5, 2025 7p Topic TBA.
- Friday, February 6, 2026 7p Topic TBA.



- Every clear Saturday & Sunday 3p-3:30p March-October By the Dam
 - View the Sun safely with a white-light view if clear.; Free.
 - You must have completed the Park Volunteer Program in order to help with the public program. If you have, and have been trained, please show up at least 30 minutes prior to the official start time.



tarWatch:

- March 1 & 8, 2025 7p
- March 15, 22 & 29, 2025 8p
- April 5, 12, 19 & 26, 2025 8:30p
 - View the night sky with large telescopes at the observatories. If poor weather, an alternate live tour of the night sky will be held in the planetarium theater. Free.
 - You must have completed the Park Volunteer Program in order to help with the public program. If you have, and have been trained, please show up at least 30 minutes prior to the official start time.



S

• Astronomy Day - ?, 2025 - 12p-3p; 8:30p-9:30p

• Come help share the fun of astronomy with the public. There will be tables with different themed topics plus solar and night viewing.

• Annual Club Picnic - July 2025

 Date and site location will be sent directly to full BMAC members.
 BMACers and their families are welcome to enjoy an evening of astronomy-themed games and activities along with a potluck dinner and observing.

• StarFest 2025 - November 7-9, 2025

- Our 40th annual astronomy convention / star gathering for the Southeast United States. Three days of astronomy fun, 5 meals, 4 keynote speakers, unique T-shirt and more!
- Pre-registration by Oct. 16, 2025 with full payment is mandatory for attendance. Sorry, no walk-ins nor "visits."
- Link for all the StarFest info including registration and hotel reservation links.

• BMAC Dinner - January 2026

• This event is for members and their families. Look for an e-mail in January with all the information.

Regular Contributors:



Greg Penner



Robin Byrne



Mackenzie Henley

reg Penner is a semi-retired architect living in the Tri-Cities area since 2018. He has enjoyed astronomy since childhood when he received a "department store telescope" and viewed Saturn for the first time. He has been a member since 2018.

obin Byrne has been writing the science history column since 1992 and was chair in 1997. She is an Associate Professor of Astronomy & Physics at Northeast State Community College (NSCC).

ackenzie Henley is our new head editor of the Bays Mountain Astronomy Club newsletter, her first issue beginning March of 2024. She is an undergraduate student at the University of Tennessee Knoxville.

Connection:



- 853 Bays Mountain Park Road; Kingsport, TN 37650
- (423) 229-9447 Park Site Club Site
- Newsletter edited by Mackenzie Henley



- Dues are highly supplemented by the Bays Mountain Park Association and volunteerism by the club. As such, our dues are kept at an extremely low cost.
- \$16 / person / year
- \$6 / each additional family member
- Note: if you are a Park Member (which incurs a separate, additional fee), then a 50% reduction in BMAC dues are applied.
- Dues can be paid in many ways. The easiest way is to pay via the CivicRec online portal. If you are a current member, please log in with your e-mail address and reset your password if you have not already done so. You can then update your membership. Here's the direct <u>link</u>. If you want to add family members, then add them via the internal link. You can also pay at the gift shop, by mail or over the phone.

Chapter Background Image Credits:

- Cover image of Southern Milky Way by Adam Thanz.
 - Sony A7ii with Zeiss Batis 2.8/18 lens, f/2.8, 8 sec., ISO 6,400, August 9, 2020.
- Table of Contents image of Comet NEOWISE (C/2020 F3) by Adam Thanz
 - Sony A7ii with Sony FE 2.8/90 Macro G OSS lens, f/2.8, 8 sec., ISO 4,000, July 15, 2020.
- Cosmic Reflections image of the Summer Triangle area of the Milky Way by William Troxel.
 - Image captured July 23, 2016.
- BMAC Notes painting of the Moon with moon glow by Christa Cartwright.
 - Painting based on a photograph of the Moon Christa captured July 2020.
- Stellar Observations image of Crescent Nebula by David Reagan.
 - This image was taken with a 140mm refractor in his suburban backyard using an AstroPhysics 900 mount, 8.7 hours of 5 minute Ha and OIII subexposures, combined in AstroPixelProcessor as an HOO image and processed in Lightroom and Photoshop. Image captured in 2022.
- The Queen Speaks image of a solar halo by Robin Byrne.
 - iPhone 7, June 8, 2020.
- The Space Place NASA Night Sky Network image of the Rho Ophiuchi cloud complex by Brandon Stroupe.
 - Canon 6D with Canon 2.8/70-200mm lens, f/2.8 @200mm, 20 x 120 sec. exposures, ISO 1,000, stacked in Deepsky Stacker, processed in Adobe Photoshop CC, Skywatcher Star Adventure mount, September 19, 2015.
- BMAC Calendar & More image of the Moon by Greg Penner.
 - *iPhone shooting through a 9mm eyepiece and 12.5*" Truss Tube Dobsonian @212x.
- All background images used with permission by their authors.