The Bays Mountain Astronomy Club Newsletter

Table of Contents

Table of Contents	2
Cosmic Reflections	3
BMAC Notes	5
Photos!	6
BoBfest 2022	8
Stellar Observations	9
Astronomical Sketching	10
The Queen Speaks	15
Happy Book Review: "The Moon and the Western Imagination"	16
The Space Place - NASA Night Sky Network	19
The James Webb Space Telescope: Ready for Launch!	20
BMAC Calendar & More	24
Calendar:	25
Regular Contributors:	27
Connection:	28
Chapter Background Image Credits:	29

Cosmic Reflections

William Troxel - BMAC Chair

reetings fellow BMAC'ers!



I cannot believe that we are at the end of another year. I wish I could write that

this has been a normal year, we all know that is not the case. What is normal anymore? I am not sure anyone has the answer to this question. I must admit that when this pandemic started, I thought we, as a people, would figure a way to control it in a year or so. I was so wrong. We now must figure how to live with this. I believe in my heart that we will get through this and it will make us stronger. Do not allow yourself to ever lose hope!

I want to send out a big thank you to Chris for sharing his adventure at the Okie Tex Star Party for our November meeting. I enjoyed his recap. I have heard a lot about this event and always wondered what it would be like to visit a true dark sky site like this. I will be adding this to my bucket list of things to do. Again, thank you Chris. I also want to thank all those who shared in the show-n-tell in November. I really enjoy seeing and hearing about each of your descriptions of your new and new to you items. I know that I have added a lot of things to my wish list from your interactions each month.

Because it is December, I would like to remind you that each of you can offer new ideas for segments to our upcoming meetings. While I do not how we will be having those meetings for 2022 as yet, we can still try new ideas. I do believe that we will at some point be back together in person including all the parts we have come to enjoy through Zoom. Please don't be afraid to share your ideas.

The December meeting will be conducted via Zoom. I will be sending out the link a few days before the meeting. Our speaker will be BMACer Tom Rutherford. He will be talking about the SARA telescope. He has done a lot of work with this type of telescope over the years as a high school astronomy teacher in the Sullivan County school system. I hope you can set aside the date of December 3 @ 7p. The Zoom Room opens at 6:30p for social time and will remain open 30m after the close of meeting for additional social time. Hope to see you there! Until next time.... Clear skies.

BMAC Notes

Photos!

MACer Michael Hopkins sent in this photo and illustration to share. He says: Dwarf planet Pluto can't be seen, but we know where it should be with the screen shot also included. The photo from November 8, 2021 was easy enough

to capture just after sunset. Great to see an example of the ecliptic with the planets and Moon all lined up. Taken with my cell phone camera.



Screen shot of an astronomy app showing how the Solar System generally follows the ecliptic!



From left to right: Jupiter, Saturn, Moon and Venus. Image by Michael Hopkins.

BoBfest 2022

The 30th Annual Regional Gathering of Amateur Astronomers, aka BoBfest 2022, is coming soon! Mark your calendars for BoBfest on January 22, 2022 at the Catawba Science Center in Hickory, NC.

Make plans to be there, bring goodies to sell and trade at the BoBfest Marketplace and bring lots of \$\$\$ for door prizes. We will have a way to purchase door prize tickets with your debit or credit card as well as with cash.

Keynote presentations will include John O'Neil and Dan Caton, PhD as well as an afternoon retrospective on BoBfest, just before the doorprize drawings. Stay tuned **here** as we post details.

Visit our partner's website for <u>The Catawba Science Center</u> to see what's new there, including their new <u>planetarium</u> upgrade.

Stellar Observations

Greg Penner

Astronomical Sketching

n last month's article about tracking asteroids, I briefly touched on the topic of sketching the view in your eyepiece as a way of tracking the motion of asteroids. Astronomical sketching is a skill I would like to explore in more depth as I look for ways to be a more well-rounded amateur astronomer. Certainly, astrophotography is an excellent way to appreciate the objects in the night sky, and the amount of work that goes into creating the eye-popping images is to be appreciated, but there are aspects of sketching that really attract me as an alternative to astrophotography.

What I really find enticing about sketching is the simplicity of a sketch pad, pencil, eraser and perhaps a few other items. You do not need to spend hundreds or thousands of dollars on equipment or spend many hours at the computer processing images. Sketching objects at the telescope eyepiece requires the observer to patiently view in a more precise fashion. Faced with the task of re-creating what is seen through the eyepiece onto a piece of paper will cause the observer to really notice patterns in star fields, relative brightness of stars, bright or dark areas of nebulosity, or distinctive markings on planets. Sketching will create a record of what was seen by your eye, as opposed to astrophotography creating a record of what the camera was able to capture during a long exposure. The sketch can also be a more personal record of the object as the observer is recording their own impressions of what they see in the moment.

Once again, a good place to find resources to help in this pursuit is the Astronomical League website. The A.L. has a **Sketching Observing Program** with a list containing 114 objects at different difficulty levels for sketching. In order to complete the program, the observer needs to sketch 75 of the objects. I have not committed to doing the program yet, but I did find some great **resources** with links to webpages and video tutorials on how to get started in sketching. The videos show a few different techniques for sketching, so you can pick whichever one you are more comfortable with or take a mix and match approach. I have started doing some sketching based primarily on the technique shown in videos by Peter Vercauteren. I might not do everything that he shows, but his techniques

looked like a good place for me to start. He actually does quite a bit of image processing of his sketches with software.

When I first thought about doing astronomical sketching, what bothered me was how to create a sketch showing the black background of space with white(ish) stars. Do I use black paper with some kind of white pencil? Instead, the technique I learned about was inverting the sketch using software so that the black becomes white, and the white becomes black. So, you can sketch using normal white sketch paper with normal pencils, take a photograph of your completed sketch, use image processing software to "invert" colors, and you end up with a realistic-looking sketch.

The first sketch I attempted using techniques I learned from Peter's video is a simple sketch I did to capture the motion of asteroid Julia (see image 1). You will notice there are 12 tick marks around the circle like a clock. This is useful in orienting the stars I see in the eyepiece so they are correctly placed in the sketch. For instance, when I'm viewing through the eyepiece, and I note where north is, then assuming north is at 12 o'clock, I determined that the bright star 11 Pegasi was at about 4:30. Following this procedure, I placed most of the stars I could see in the eyepiece on my sketch and then what appeared to me to be the asteroid Julia (based on a star chart as explained in last month's article). The next night I made another observation and noted the movement of Julia. I then took a picture of the sketch and used the free software "GIMP" to invert the black and white colors to create the final image (see image 2).



Image 1 - Original sketch of asteroid Julia. Image by Greg Penner.



Image 2 - Sketch of Julia with colors inverted. Image by Greg Penner.

For a second attempt at sketching, I decided to sketch the Double Cluster in Perseus. This was definitely going to be a big step up in the number of stars, so I decided to observe with my small refractor so I wouldn't be too overwhelmed with the number of stars to sketch. Patience and diligence were required to properly locate stars in the correct orientation, and I know I didn't get them perfectly placed (see image 3). I was somewhat hampered by colder weather, so I'm sure I rushed a bit. However, I'm encouraged by these first two attempts, and I look forward to improving this observing skill.



Image 3 - Sketch of Double Cluster with colors inverted. Image by Greg Penner.

The Queen Speaks

Robin Byrne

Happy Book Review: "The Moon and the Western Imagination"

he following article is an artisinally-repurposed article from a previous newsletter issue.

The ole bookshelf is calling, and this time I picked up "The Moon and the Western Imagination" by Scott L. Montgomery. Montgomery is a geologist, who clearly also has an interest in art and culture. However, his writing style definitely reflects more of the geology background than his other interests. Sadly, this book was not exactly riveting to read, which is a shame, because the content had the potential to be quite interesting.

Montgomery takes us through a chronological journey of ideas and images related to the Moon. However, the journey, as the book title suggests, is limited to Western concepts. No other cultures are incorporated. So, naturally, under these conditions, the story begins with the Greeks and remains within Europe throughout the text.

From tales of the Moon's origins to artistic representations to scientific observations, the book is rich with information. Early conflicting ideas about whether the Moon would be inhabited, or not, were entertaining. Even early notions of how men could journey to the Moon were discussed. All of this should have been fascinating to read, but Montgomery's writing style kept getting in the way.

Many chapters were devoted to the changing way in which the Moon has been represented in works of art. Montgomery goes into much detail about many art pieces and the significance of various representations. Sadly, very few of these images are actually reproduced in the book, leaving the reader to either use their imagination, or read the book while searching the internet for each image discussed.

SCOTT L. MONTGOMERY

The Moon and the Western Imagination



The last section of the book deals with the earliest telescopic observations of the Moon. Galileo's famous sketches of craters set the standard, with a realism rarely matched by many who tried to follow his example. Then the politics of naming lunar features is discussed, which I found to be the most intriguing part of the book. Many naming schemes were put forth, but the one we use today, and many of the names still in use, was meant to represent both scientists who were in favor of a geocentric universe and those who proposed a heliocentric model. However, if you look at the craters' locations and size, it is clear to see that the geocentrists were favored. All in all, "The Moon and the Western Imagination" is an informative, if not exciting, book to read. As a source for research, it would be quite useful. As a book to curl up with, only if you are suffering from insomnia would I recommend it.

References:

"The Moon and the Western Imagination" by Scott L. Montgomery

The Space Place - NASA Night Sky Metwor

December 2021

David Prosper

The James Webb Space Telescope: Ready for Launch!

ASA's James Webb Space Telescope is ready for lift-off! As of this writing (November 15), the much-anticipated next-generation space telescope is being carefully prepared for launch on December 18, 2021, and will begin its mission to investigate some of the deepest mysteries of our Universe.

The development of the Webb began earlier than you might expect - the concept that would develop into Webb was proposed even before the launch of the Hubble in the late 1980's! Since then, its design underwent many refinements, and the telescope experienced a series of delays during construction and testing. While frustrating, the team needs to ensure that this extremely complex and advanced scientific instrument is successfully launched and deployed. The Webb team can't take any chances; unlike the Hubble, orbiting at an astronaut-serviceable 340 miles (347 km) above Earth, the Webb will orbit about one million miles away (or 1.6 million km), at Lagrange Point 2. Lagrange Points are special positions where the gravitational influence between two different bodies, like the Sun and Earth, "balance out," allowing objects like space telescopes to be placed into stable long-term orbits, requiring only minor adjustments - saving Webb a good deal of fuel!

Since this position is also several times further than the Moon, Webb's sunshield will safely cover the Moon, Earth, and Sun and block any potential interference from their own infrared radiation. Even the seemingly small amount of heat from the surfaces of the Earth and Moon would interfere with Webb's extraordinarily sensitive infrared observations of our Universe if left unblocked. More detailed information about Webb's orbit can be found **here**, and a video showing its movement **here**.



Webb will follow up on many of Hubble's observations and continue its mission to study the most distant galaxies and stars it can - and as you can see in this comparison, its mirror and orbit are both huge in comparison, in order to continue these studies in an even deeper fashion! Credits: NASA, J. Olmsted (STScI) Once in its final position, its sunshield and mirror fully deployed and instruments checked out, Webb will begin observing! Webb's 21-foot segmented mirror will be trained on targets as fine and varied as planets, moons, and distant objects in our outer Solar System, active centers of galaxies, and some of the most distant stars and galaxies in our Universe: objects that may be some of the first luminous objects formed after the Big Bang! Webb will join with other observatories to study black holes - including the one lurking in the center of our galaxy, and will study solar systems around other stars, including planetary atmospheres, to investigate their potential for hosting life.



Webb will observe a wide band of the infrared spectrum, including parts observed by the Hubble which also observes in a bit of ultraviolet light as well as visible - and the recently retired Spitzer Space Telescope. Webb will even observe parts of the infrared spectrum not seen by either of these missions! Credits: NASA and J. Olmstead (STScI) Wondering how Webb's infrared observations can reveal what visible light cannot? The "Universe in a Different Light" Night Sky Network **activity** can help. Stay alert to the latest news from NASA and Webb team as it begins its mission by following #UnfoldTheUniverse on social media, and on the **web**.

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 **nightsky** to find local clubs, events, and more!

BMAC Calendar & More

Calendar:



MAC Meetings:

- BMAC meetings will be held on Zoom until further notice.
- Friday, December 3, 2021 7p Via Zoom Social time 30m before and after meeting.
 BMACer Tom Rutherford will be talking about the SARA telescope.
- Friday, February 4, 2022 7p Via Zoom? Social time 30m before and after meeting. Topic TBA.
- Friday, March 4, 2022 7p Via Zoom? Social time 30m before and after meeting. Topic TBA.
- Friday, April 1, 2022 7p Via Zoom? Social time 30m before and after meeting. Topic TBA.



unWatch:

• Cancelled until further notice.

- Every clear Saturday & Sunday 3p-3:30p March-October On the Dam
 - View the Sun safely with a white-light & Ha 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:

- Cancelled until further notice.
- October 2 & 9, 2021 7:30p
- October 16, 23, 30 & November 6, 2021 7p
- November 13, 20 & 27 6p

- 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.

pecial Events:

- All special events are cancelled until further notice.
- BMAC Dinner January 2022 Day TBD 6p?
 - BMACers gather to have a nice meal at a restaurant.
- Astronomy Day May 7, 2022 1p-4p; 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 2022 Day TBD 6p?
 - 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.
 - Please bring a dish to share and bring your own chair.
- StarFest 2022 November 4, 5 & 6, 2022
 - Our 37th 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. 14, 2022 with full payment is mandatory for attendance.
 Sorry, no walk-ins nor "visits."
 - MeadowView Marriott special hotel rate.
 - <u>StarFest Link</u>

Regular Contributors:



William Troxel



Robin Byrne



Greg Penner



Adam Thanz





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).



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.



dam Thanz has been the BMAC Newsletter Editor for all but a small number of issues since 1992. He is the Planetarium Director at Bays Mountain Park and an astronomy adjunct instructor at NSCC since 2000.

Connection:



ays Mountain Astronomy Club:

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



- Dues are 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 Association member (which incurs a separate, additional fee), then a 50% reduction in BMAC dues are applied.
- Dues can be paid in many ways. For renewals, you will be sent an e-mail with an invoice and a direct link to pay online. You can also pay by mail, over the phone or in person at the gift shop.

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 2021.
- 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.