

The ECLIPSE

January
2019

The Newsletter of the Barnard-Seyfert Astronomical Society

Next Membership Meeting:

January 16, 2019, 7:30 pm

Cumberland Valley
Girl Scout Council Building
4522 Granny White Pike

Topic: *Telescope Workshop*
Details on page 6

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From the President

From the President, January 2019:

Happy New Year! I hope your 2019 is off to a great start. As I sit here writing this, it is raining with a forecast for it to continue all weekend. I think our annual New Year's wish is for less clouds. Let's hope this year comes through!

Our December meeting and pot-luck was a great time. I hope you were able to come and enjoy the food, fellowship, and presentation by Dr. Billy Teets. Dr. Teets talked about the astronomy outreach he does at the Dyer Observatory and had a very engaged audience.

Our January meeting will be January 16th and will be our annual telescope clinic. If you have a scope that has been collecting dust in the closet because you can't work it; or if you just received a scope for Christmas and want to know how to use it, then bring that scope in and let our members help you out! We will also have different club telescopes set up so that you can see how they work.

January is also a time for new board members. This year we have me filling in the President's spot, Gary moving to Ex-Officio, Theo joins the board as the Treasurer, Andy Reeves and Chip Crossman join as At-Large members, and Tom Beckermann comes in to fill the Vice President spot. Bud, KC, Johanna, Todd, and Drew all continue their service on the board. Bud has been secretary and acting treasurer for the past few months and I would like to extend a sincere thank you from the entire club for filling in and doing double duty. Thanks Bud!

With the new board members, we also have a few

continued on page 10



Officers

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Vice President

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Bud Hamblen
Secretary

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Treasurer

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Gary Eaton
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Directors at Large

Chip Crossman

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Drew Gilmore

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K.C. Katalbas

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Johana Keohane

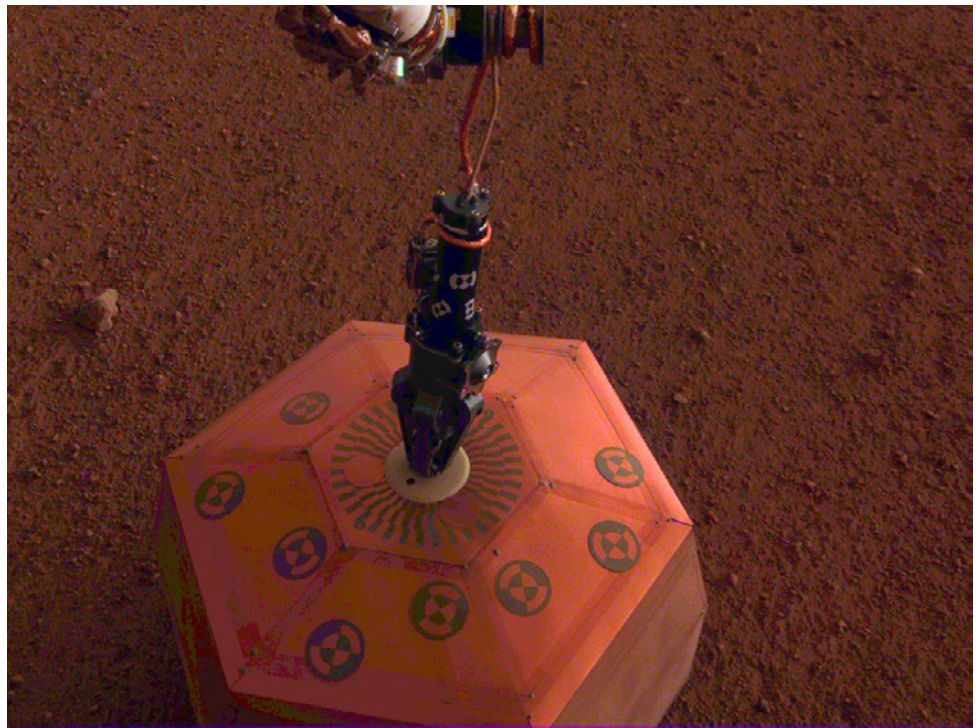
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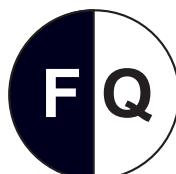
NASA's InSight lander placed its seismometer onto Mars on Dec. 19, 2018. This was the first time a spacecraft robotically placed a seismometer onto the surface of another planet. The seismometer is the copper-colored object in this image, which was taken around Martian dusk. [NASA/JPL-Caltech](https://www.nasa.gov/jpl-caltech)

Upcoming Star Parties

Saturday 1/5	Private Star Party Natchez Trace Parkway mile marker 435.3
Friday 1/11 6:30 pm to 8:30 pm	Public Star Party Bells Bend Outdoor Center
Sunday 1/20 8:00 pm to 12:00 am	Public Star Party Total Lunar Eclipse Warner Park Nature Center
Saturday 2/2	Private Star Party Natchez Trace Parkway mile marker 412 (Water Valley Overlook)



Jan 5
Feb 4



Jan 14
Feb 12



Jan 20
Feb 19



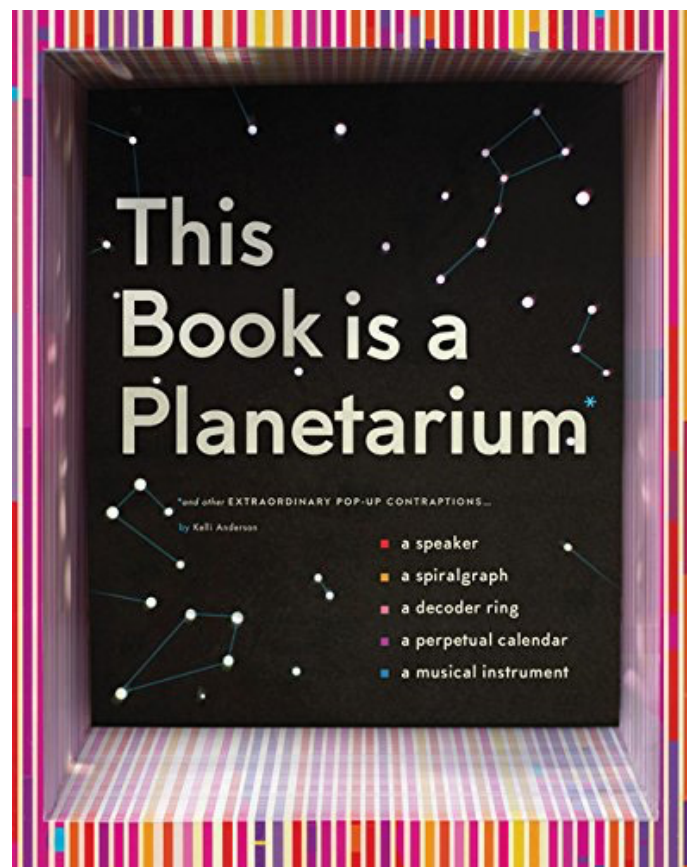
Jan 27
Feb 26

Book Review: This Book is a Planetarium reviewed by Robin Byrne

Before I review the book, there is a story I must tell. I first heard about *This Book is a Planetarium* (and other Extraordinary Pop-Up Contraptions) by Kelli Anderson late Fall 2014, when it was available for pre-order on Amazon. It seemed like it would be the perfect gift for Adam, combining both pop-ups (which we love) and planetariums, so I pre-ordered it. As the delivery date approached, I got an email from Amazon saying the delivery date was going to be delayed. No worries. I can wait. Then another email came with another delay. And another... Long story short, the book arrived about three and a half years after I first ordered it. I have no idea what the delays were for, whether manufacturing problems, or waiting for enough pre-orders to cover the cost of printing, or something else entirely. The important part is that it did finally arrive.

Now for the book. It was worth the wait. Each page has a beautiful graphic design quality. Printed on thick card stock, the book is sturdy for holding the shape of the pop-ups. Each pop-up is very interactive, with printed instructions on what to do.

It begins with a stringed instrument and pick for plucking out a tune. With five strings, you can create a melody, and the sound quality isn't too bad, considering it's a book. Next up, a decoder ring. Having recently watched *A Christmas Story*, I couldn't help but think, "Be sure to drink your Ovaltine." Just like the Little Orphan Annie decoder ring in the movie, this one is set by a certain number, and lines up the letters to be swapped. A perpetual calendar appears on the adjacent page to the decoder ring. With years from 2012 to 2054, you can see what dates fall on each day of the week by lining up the year with the month. The planetarium is what I was most interested in. It is designed to use the flashlight on a smart phone as the light source to project the constellations of the fall sky onto your ceiling through the holes of the paper dome. Although fuzzy, the projected image isn't bad, and very bright. The speaker, also designed to work with a cell phone, didn't work as well. Intended to help amplify the sound, I only heard a slight increase in volume. The last page is a spiralgraph (not to be confused with a Spirograph™). You're given a place to insert a piece of paper with a round window, and 4 different discs shaped like cogs that run around the circumference of the opening. Each cog has a variety of holes in it to use for drawing shapes. Much like the mass-produced version, the trickiest part is keeping the cogs lined up properly around the opening so that it doesn't slip. As long as you're careful, you will get a cool final product.

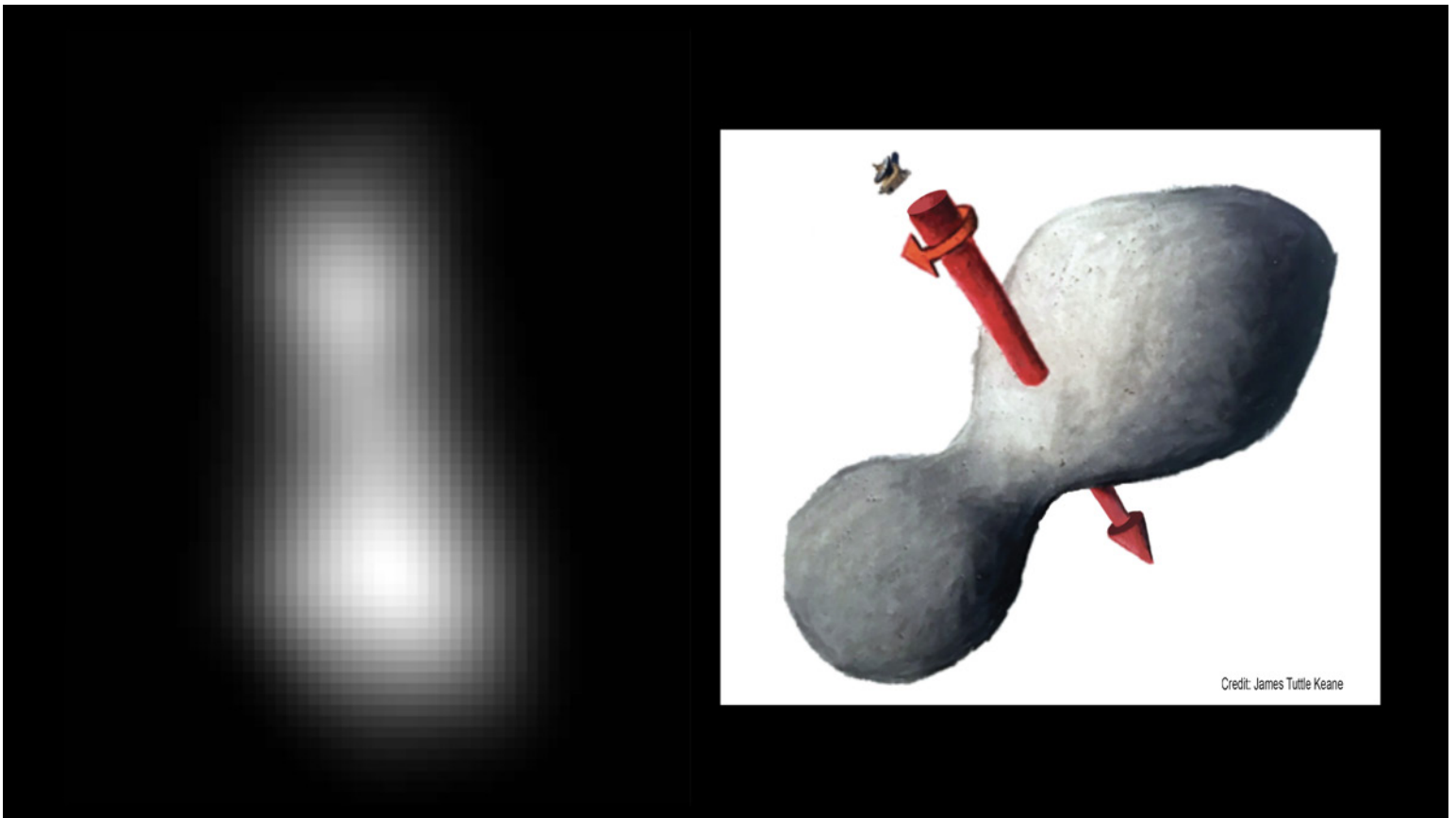


Book Review, continued

Each pop-up includes easy-to-follow instructions. Most pages also have a paragraph or two to explain the principle behind the device. If thinking about this book as a gift for a child, I would say that young teens on up would be able to manipulate the pop-ups and understand the explanations. Of course, geeky, geezers like me would also enjoy it. So, whether indulging your inner child, or giving a cool gift to an actual kid, *This Book is a Planetarium* is an excellent choice.

References:

This Book is a Planetarium by Kelli Anderson, Chronicle Books LLC, 2017



At left is a composite of two images taken by New Horizons' high-resolution Long-Range Reconnaissance Imager (LORRI), which provides the best indication of Ultima Thule's size and shape so far. Preliminary measurements of this Kuiper Belt object suggest it is approximately 20 miles long by 10 miles wide (32 kilometers by 16 kilometers). An artist's impression at right illustrates one possible appearance of Ultima Thule, based on the actual image at left. The direction of Ultima's spin axis is indicated by the arrows.

Credit: [NASA/JHUAPL/SwRI](#); sketch courtesy of James Tuttle Keane

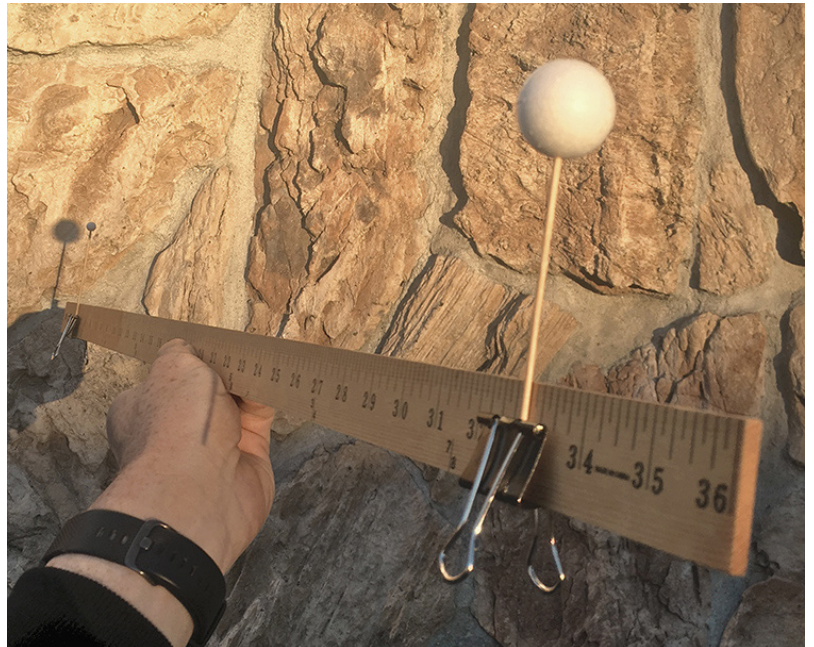
January's Evening Eclipse and Morning Conjunctions By David Prosper

Observers in the Americas are treated to an evening total lunar eclipse this month. Early risers can spot some striking morning conjunctions between Venus, Jupiter, and the Moon late in January.

A total lunar eclipse will occur on January 20th and be visible from start to finish for observers located in North and South America. This eclipse might be a treat for folks with early bedtimes; western observers can even watch the whole event before midnight. Lunar eclipses takes several hours to complete and are at their most impressive during total eclipse, or totality, when the Moon is completely enveloped by the umbra, the darkest part of Earth's shadow. During totality the color of the Moon can change to a bright orange or red thanks to the sunlight bending through the Earth's atmosphere - the same reason we see pink sunsets. The eclipse begins at 10:34 pm Eastern Standard Time, with totality beginning at 11:41 pm. The total eclipse lasts for slightly over an hour, ending at 12:43 am. The eclipse finishes when the Moon fully emerges from Earth's shadow by 1:51 am. Convert these times to your own time zone to plan your own eclipse watching; for example, observers under Pacific Standard Time will see the eclipse start at 7:34 pm and end by 10:51 pm.

Lunar eclipses offer observers a unique opportunity to judge how much the Moon's glare can interfere with stargazing. On eclipse night the Moon will be in Cancer, a constellation made up of dim stars. How many stars you can see near the full Moon before or after the eclipse? How many stars can you see during the total eclipse? The difference may surprise you. During these observations, you may spot a fuzzy cloud of stars relatively close to the Moon; this is known as the "Beehive Cluster," M44, or Praesepe. It's an open cluster of stars thought to be about 600 million year old and a little under 600 light years distant. Praesepe looks fantastic through binoculars.

Mars is visible in the evening and sets before midnight. It is still bright but has faded considerably since its closest approach to Earth last summer. Watch the red planet travel through the constellation Pisces throughout January.



Have you ever wondered how eclipses occur? You can model the Earth-Moon system using just a couple of small balls and a measuring stick to find out! The "yardstick eclipse" model shown here is set up to demonstrate a lunar eclipse. The "Earth" ball (front, right) casts its shadow on the smaller "Moon" ball (rear, left). You can also simulate a solar eclipse just by flipping this model around. You can even use the Sun as your light source! Find more details on this simple eclipse model at bit.ly/yardstickeclipse

January's Evening Eclipse, continued

Venus makes notable early morning appearances beside both Jupiter and the Moon later this month; make sure to get up about an hour before sunrise for the best views of these events. First, Venus and Jupiter approach each other during the third full week of January. Watch their conjunction on the 22nd, when the planets appear to pass just under $2\frac{1}{2}$ degrees of each other. The next week, observe Venus in a close conjunction with a crescent Moon the morning of the 31st. For many observers their closest pass - just over half a degree apart, or less than a thumb's width held at arm's length - will occur after sunrise. Since Venus and the Moon are so bright you may still be able to spot them, even after sunrise. Have you ever seen Venus in the daytime?

If you have missed Saturn this winter, watch for the ringed planet's return by the end of the month, when it rises right before sunrise in Sagittarius. See if you can spot it after observing Venus' conjunctions!

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.jpl.nasa.org to find local clubs, events, and more!

You can catch up on all of NASA's current and future missions at nasa.gov

With articles, activities and games NASA Space Place encourages everyone to get excited about science and technology. Visit spaceplace.nasa.gov to explore space and Earth science!

**Next BSAS meeting
January 16, 2019, 7:30 pm**

**Cumberland Valley
Girl Scout Council Building
4522 Granny White Pike**

Telescope Workshop: Whether you just received a telescope for Christmas or have one gathering dust in the closet, bring it to the meeting for some one on one instruction! Be sure to bring the manual and other parts that came with your telescope, if they're available. If you plan on bringing a telescope to the meeting, let us know beforehand by emailing your name along with the brand and model of the telescope to info@bsasnashville.com. This way, we'll be prepared to assist you.



International Space Station Commander Alexander Gerst viewed SpaceX's Dragon cargo craft chasing the orbital laboratory on Dec. 8, 2018. Gerst watched as the Dragon approached the station and took a series of photographs, saying "Hard to decide which photo of the approaching SpaceX Dragon 16 is the most stunning."

The Dragon cargo craft contained supplies and experiments, including the Global Ecosystem Dynamics Investigation (GEDI), which will provide high-quality laser ranging observations of the Earth's forests; a small satellite deployment mechanism, called SlingShot to be installed in a Northrop Grumman Cygnus spacecraft prior to its departure from the space station and the Robotic Refueling Mission-3 (RRM3), among others.

Dragon is scheduled to depart the station in January 2019 and return to Earth with more than 4,000 pounds of research, hardware and crew supplies.

Image Credit: [ESA/Gerst](#)



Comet 46P/Wirtanen and Pleiades - BSAS Member Thomas Gaudin

**Barnard-Seyfert Astronomical Society
Minutes of a Regular Meeting of the Board of Directors
Held On Wednesday, December 5, 2018.**

The regular meeting of the Board of Directors of the Barnard-Seyfert Astronomical Society was held December 5, 2018, at the Girl Scout Center, 4522 Granny White Pike, Nashville, TN 37204. Present were Spencer Buckner, Gary Eaton, Drew Gilmore, Bud Hamblen, Johanna Keohane, Todd Nannie, Keith Rainey, and Theo Wellington, constituting a quorum. Gary called the meeting to order at 7:30 PM. Gary asked for a motion to adopt the minutes of the November 7, 2018, board meeting. Todd so moved, Spencer seconded, and the minutes were adopted without discussion by unanimous voice vote. Bud reported that there was \$3,818.57 in the checking account and \$4,574.15 in the savings account. Keith reported that there were 144 active members.

The December meeting will be the annual pot luck dinner and silent auction, with a presentation by Dr Billy Teets on the outreach efforts of the Dyer Observatory. Theo said that printable copies of the silent auction form will be emailed to members.

About 5 or 6 people were able to attend the private star party at Natchez Trace Mile Marker 435.3. Over 600 people attended the public star party at the Edwin Warner Park Special Events Field.

Long Hunter State Park has joined the scheduled public star parties, completing the schedule of public events.

Physical assest inventory tags are currently being applied to club-owned euipment.

The club is receiving responses on social media.

Johanna has received a preliminary design from Hatch Show Print for a poster, which will be circulated among the board for comment.

There being no further business, Gary asked for a motion to adjourn. Keith so moved, Todd seconded, and the meeting was adjourned at 8:45 PM.

Respectfully submitted,

Bud Hamblen
Secretary

**Barnard-Seyfert Astronomical Society
Minutes of the Monthly Membership Meeting
Held On Wednesday, December 19, 2018.**

The Barnard-Seyfert Astronomical Society had its annual potluck dinner and silent auction on Wednesday, December 19, 2018, at the Girl Scout Center, 4022 Granny White Pike, Nashville, Tennessee. Twenty-three members and guests signed in and gathered for dinner at 6:30 PM. Members provided side dishes and desserts. The club provided entrees and drinks. Dr Terry Reeves opened the dinner with a prayer. After dinner President Gary Eaton called the regular meeting to order at 7:30 PM. Gary asked for a motion to adopt the minutes of the November 28, 2018, meeting as published in the December edition of the Eclipse, and the minutes were adopted without discussion. Bud Hamblen reported that there was \$3,218.52 in the checking account and \$4,574.15 in the savings account. Keith Rainey reported that there were 146 members.

Gary announced the board's nominations for new officers and at-large members:

Keith Rainey, President
Tom Beckermann, Vice President
Theo Wellington, Treasurer
Bud Hamblen, Secretary
Chip Crossman, At-Large
Andy Reeves, At-Large

and asked for other nominations from the floor. None were offered.

Continuing their current terms are:

Drew Gilmore, At-large
K C Katalbas, At-large
Johanna Keohane, At-large
Todd Nannie, At-large

Gary Eaton is a member ex-officio as president emeritus.

Gary asked for a motion to elect the board as presented. Chuck Schlemm so moved, Spencer Buckner seconded, and the board was elected by acclamation. Gary thanked Tom Guss, whose term as treasurer has ended, Mike Benson and Dr Spencer Buckner, whose terms as at-large directors are expiring, for their service on the board.

Dr Billy Teets discussed astronomy outreach activities at the Vanderbilt Dyer Observatory and presented a brief history of the observatory.

The silent auction was completed at the end of the meeting and raised \$602.00.

There being no further business, the meeting was adjourned at 9 PM.

Respectfully submitted,
Bud Hamblen
Secretary

From the President, continued

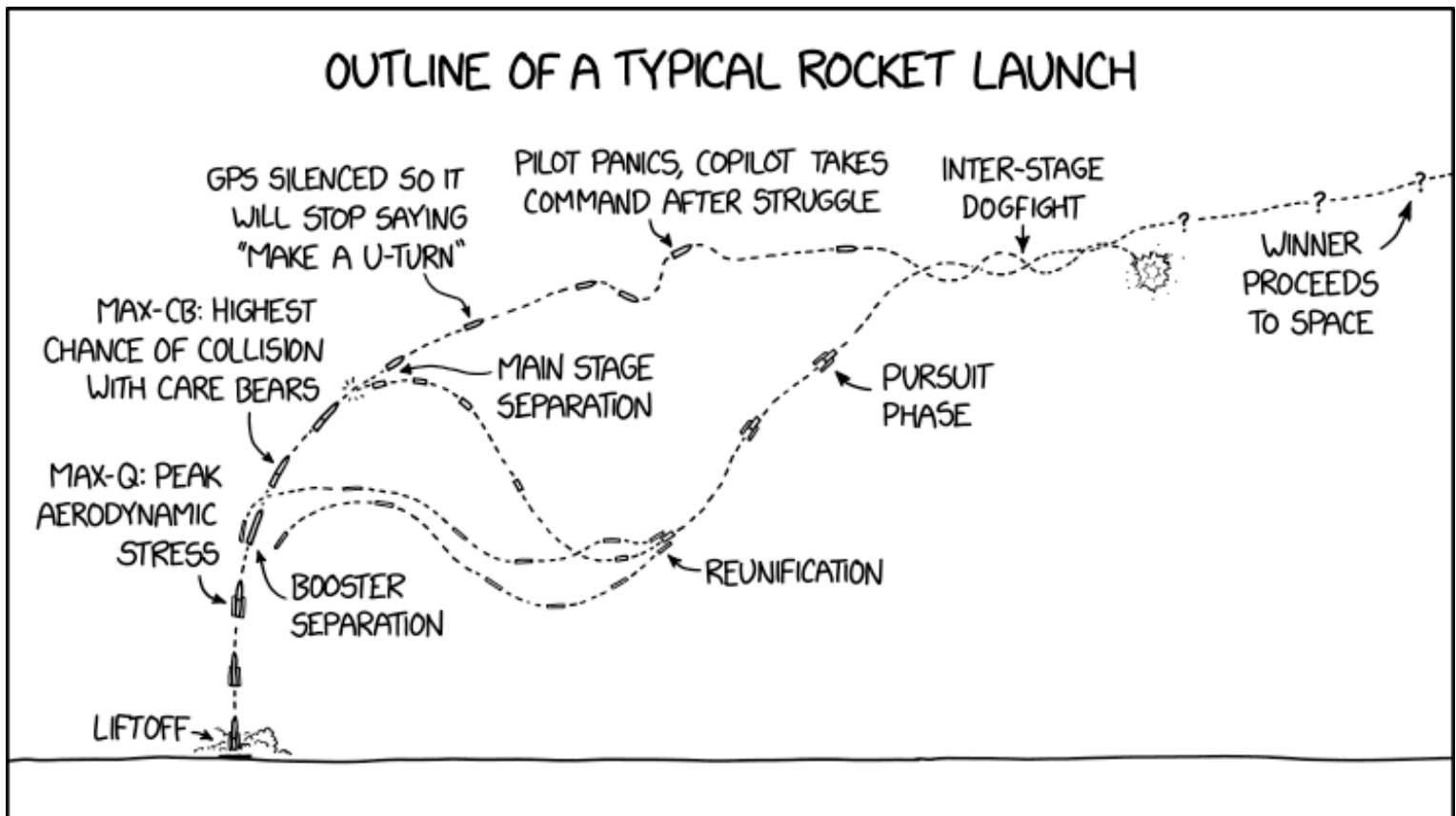
members leaving the board and I would like to recognize them for their service: Dr. Spencer Buckner, Mike Benson, and Tom Guss. Thank you all for your time and energy while serving on the board.

This year, January is also time for a lunar eclipse! We have a special public star party scheduled at Warner Park Nature Center for the night of the 20th starting at 8:30pm. Come out, bring a blanket, lay down, and enjoy the eclipse with a few other people.

Finally, I would like to ask everyone if they have any ideas for programs. The Board does a great job with planning and executing presentations, but I would also like to hear from you, the members. What would you like to see? Are there any special topics or presenters you would like to see? Let me know and we can try to get that scheduled.

Keith Rainey

xkcd





Become a Member of BSAS!
Visit bsasnashville.com to join online.

All memberships have a vote in BSAS elections and other membership votes. Also included are subscriptions to the BSAS and Astronomical League newsletters.

Annual dues:

Regular: \$25
Family: \$35
Senior/Senior family: \$20
Student:* \$15

* To qualify as a student, you must be enrolled full time in an accredited institution or home schooled.

About BSAS

Organized in 1928, the Barnard-Seyfert Astronomical Society is an association of amateur and professional astronomers who have joined to share our knowledge and our love of the sky.

The BSAS meets on the third Wednesday of each month at the Cumberland Valley Girl Scout Building at the intersection of Granny White Pike and Harding Place in Nashville. Experienced members or guest speakers talk about some aspect of astronomy or observing. Subjects range from how the universe first formed to how to build your own telescope. The meetings are informal and time is allotted for fellowship. You do not have to be a member to attend the meetings.

Membership entitles you to subscriptions to *Astronomy and Sky & Telescope* at reduced rates; the club's newsletter, the *Eclipse*, is sent to members monthly. BSAS members also receive membership in the Astronomical League, receiving their quarterly newsletter, the *Reflector*, discounts on all astronomical books, and many other benefits.

In addition to the meetings, BSAS also sponsors many public events, such as star parties and Astronomy Day; we go into the schools on occasion to hold star parties for the children and their parents. Often the public star parties are centered on a special astronomical event, such as a lunar eclipse or a planetary opposition.

Most information about BSAS and our activities may be found at bsasnashville.com. If you need more information, write to us at info@bsasnashville.com.

Free Telescope Offer!

Did someone say free telescope? Yes, you did read that correctly. The BSAS Equipment & Facilities Committee has free telescopes ranging in size from 2.6" to 8" that current members can actually have to use for up to 60 days at a time. We also have some other items in the loaner program such as a photometer, H-alpha solar telescope, educational CDs, tapes, DVDs, and books. Some restrictions apply. A waiting list is applicable in some cases. The BSAS Equipment Committee will not be held responsible for lost sleep or other problems arising from use of this excellent astronomy gear. For information on what equipment is currently available, contact info@bsasnashville.com.