

The newsletter of the Barnard Seyfert Astronomical Society, PO Box 150713, Nashville, TN 37215-0713

Upcoming Events

Board of Directors Meeting

April 7th at the Cumberland Valley Girl Scout Council Building – 7:30 pm

May 5th at the Cumberland Valley Girl Scout Council Building – 7:30 pm

Membership Meeting

April 21st at the Adventure Science Center – 7:30 pm

May 19th at the Adventure Science Center – 7:30 pm

Star Parties

April 2nd – BSAS Star Party & Messier Marathon - mile marker 412 Natchez Trace (alternate date April 30th)

April 9th – BSAS Public Star Party at Adventure Science Center – 8:00 pm

May 7th – BSAS Public Star Party at Long Hunter State Park – 8:00 pm

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Monthly Membership Meeting

Thursday, April 21st, 2011
Adventure Science Center
7:30 pm



Join MTSU Physics and Astronomy instructor **Jeff Gritton** who will be speaking on **Contact and Near Contact Binary Stars**. See you there!



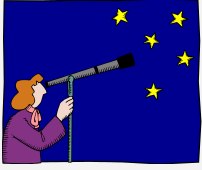
From The President

Greetings and clear skies from your BSAS president. April is a busy month for the BSAS with a Messier Marathon to begin and end the month, Astronomy Day at the Adventure Science Center and, of course, our monthly meeting on April 21. April is traditionally one of the wetter months of the year but we are hoping for clear skies for three of the weekends. The most recent forecast indicates that at least the first weekend, and our first shot at a Messier marathon, will be clear.

If you aren't familiar with the Messier Marathon, it is a competition against yourself and time to see how many of the Messier objects you can see in a single night. Because of their placement, it is possible to accomplish this herculean task from early March to early April. This year's primary marathon is the night of Saturday April 2 and morning of Sunday April 3. The location is on the Natchez Trace at mile marker 412 (the Water Valley Overlook). If you are going to participate, be sure to arrive well before sunset to have time to set up and be ready to start finding the first Messier objects while the glow in the west is still fading. Bring some snacks and warm drink and a good star map. The best type of telescope to use for a marathon is an 8" to 10" Dobs. Since the competition is against yourself, no one will think any worse of you if you use a go-to 'scope, though. The problem with go-to 'scopes is that they require initialization by pointing at one or two stars. If you have to wait until you can see the first stars to do the initialization, you have already lost the first few objects. Last year's best was by the club's vice-president, Dr. Donna Hummell. She managed to see 102 of the Messier objects. She used her Orion 10" Dobsonian Intelliscope but she didn't use the intelligent features of the mount. Even if you only manage to find a few dozen objects the most important thing is that you have fun doing it. If the skies don't cooperate on the first weekend of April, our rain/cloud delay date is April 30/May 1. Mark Manner has agreed to host the club at his Spot Observatory for that weekend. He isn't able to host the primary marathon on the 2nd since he will be visiting his daughter in New Mexico then.

The second event of April is the Astronomy Day celebrations at the Adventure Science Center. This year it will be on Saturday April 9. In addition to the events held during the day, the BSAS will be hosting a star party in the ASC parking lot that night. Astronomy Day is always lots of fun and this year's theme is a celebration of manned space flight.

Continued on Page 2



"What caused me to undertake the catalog was the nebula I discovered above the southern horn of Taurus on September 12, 1758, while observing the comet of that year.

This nebula had such a resemblance to a comet in its form and brightness that I endeavored to find others, so that astronomers would not confuse these same nebulae with comets just beginning to shine."

Charles Messier
1730 - 1817

FREE TELESCOPES!

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, and a waiting list may be 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 Lonnie Puterbaugh at (615) 661-9540.

Observing Highlights

all times listed are Central Standard Time

LUNAR PHASES

April 2011

04/03 NEW Moon
04/11 FIRST Quarter
04/17 FULL Moon
04/24 LAST Quarter

May 2011

05/03 NEW Moon
05/10 FIRST Quarter
05/17 FULL Moon
05/24 LAST Quarter

OBJECTS VISIBLE THIS MONTH

Messier Objects:

Star Pair:
M40

Galaxies:

M65, M66, M95, M96, M105, M106,
M108, M109

Planetary Nebula:

M97

From the President, cont.

Fifty years ago on April 12, 1961, Yuri Gagarin became the first human to travel into space. On that same date in 1981, John Young and Robert Crippen became the first people to ride into space aboard a space shuttle in the Columbia on STS-1. April 9 is the closest Saturday to that auspicious anniversary so holding an Astronomy Day then is an excellent way to celebrate manned space flight. If the weather doesn't cooperate for the star party, it is also the second Saturday of the month so the Sudekum Planetarium will be holding their usual 2nd Saturday evening planetarium and laser shows.

The last event I want to mention is our regular meeting on April 21. This month's speaker is Jeff Gritton and he will be talking to us about contact and near contact binary systems. Imagine two stars so close to each other they touch. The interactions of such systems make them a fascinating area of study and Jeff, a temporary full-time instructor at MTSU, will tell us all about them.

One last item I would like to mention. Because of scheduling conflicts and security reasons, the Adventure Science Center has asked us to consider moving our meeting date from the third Thursday of the month to some other night. Since we are allowed to meet at the ASC for free, we feel this is not an unreasonable request. The matter will be discussed at this month's board meeting at the Cumberland Valley Girl Scout Council Building on April 7 but we would like to get the views of the club members on the matter. We would like to continue meeting in the third week of the month so the other possible dates are the third Monday, third Tuesday or third Wednesday of each month. Sometime during April we will set up a polling link on the BSAS website where you can make your preference known to the board of directors. A final decision won't be made for at least another month but we do want to hear from you. Look for the polling link in the coming weeks.

Clear skies!

Dr. Spencer Buckner
President

Book Review: *The Measure of All Things*

by Robin Byrne

It's time, once again, to pull a book off the ol' shelf and review it. This time, the book is "The Measure of All Things: The Seven Year Odyssey and Hidden Error That Transformed the World" by Ken Alder.

If you're like me, the basis for our units of measure never crossed your mind. You may have heard that a foot was the length of some monarch's actual foot, the yard was the length of their arm, or an inch was based on the distance from the knuckle to the first joint of a thumb. Actually, it was even more random than that. In the 18th century, there were no standard units of measure. From town to town, not only the names of the units might change, but even if it was called by the same name, the amount might be different. It could also differ depending on who you are. For example, the amount of flour in a pound when bought by a merchant could be more than the amount of flour in a pound sold by that same merchant to a customer. This was how merchants made a profit.

Then the French Revolution came along. Under the banner of "egalite" (equality), the proposal for standard units throughout France was developed. However, these new units couldn't possibly be based upon a monarch's anatomy under the new democracy. A new standard would need to be used that transcended mere men. So, the decision was made to base the unit of length upon the size of the Earth. In particular, one ten-millionth of the distance from the pole to the equator would equal this new unit of length: one meter.

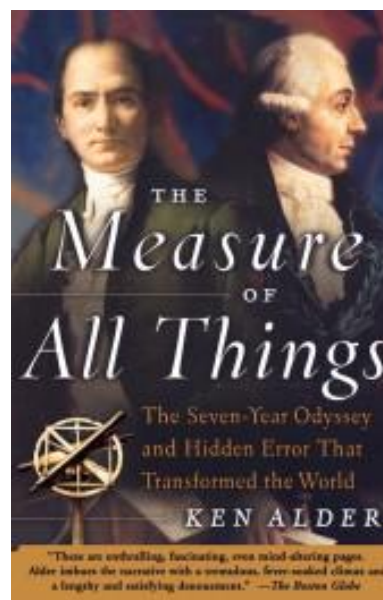
This meant measuring the size of the Earth with more accuracy than ever before. Obviously, measuring one quarter of the Earth's circumference was not a practical idea. Instead, a portion of this arc would be measured, and the full length would be extrapolated from that. The measured arc would run from Dunkerque, France at its northernmost point, through Paris to Barcelona, Spain at the southern terminus. The two men in charge of this task would be Jean Baptiste Joseph Delambre (for the northern portion) and Pierre Francois Andre Mechain (for the southern arc). These two men would spend seven years triangulating from city to city, measuring selected distances, and determining particular latitudes. Using the most precise equipment available at the time, their measurements would have accuracies measured in mere seconds of arc. Based on modern measurements of Earth's size, the standard meter, as determined by these two men, was off from the desired size by 0.2 mm. Not too shabby.

Alder also shows us that at the same time as units of length were being "decimalized," so were other units of measure, such as: currency, angular measures, and time. This was when the French Franc was developed, which was divided into 100 Centimes. In the new system, there would be 100° in one quarter of a circle (instead of 90°). There would be 10 months of 36 days each in a year, plus a 5-day holiday. One week would have 10 days. Each day would have 10 hours, with each hour containing 10 minutes, and each minute 10 seconds. I can imagine the calendar printers and clock makers having a field day with all of the changes! Needless-to-say, most of these changes didn't

last, and even the metric system of length was adopted with different levels of enthusiasm and enforcement, depending upon the which regime was in power.

In "The Measure of All Things," you not only learn about the history of measurement, but also the ordeals suffered by Delambre and Mechain as they strove to complete their mission. Revolutionary-era France was in a constant state of upheaval, which added unexpected roadblocks, such as the threat of execution by local coalitions. Apparently contradictory measurements would contribute to Mechain's mental breakdown and inability to continue his work, and, ultimately, his attempt to cover-up what he (wrongly) assumed was a fatal flaw in his measurements. Add into the mix weather delays and physical injuries, and the fact that the project was completed at all is amazing.

If you relish a combination of history, biography and science, pour yourself a drink from a 2-liter bottle, so you can take some painkiller measured in milligrams, after being whacked over the head with a meter stick, and enjoy "The Measure of All Things."



The Measure of All Things by Ken Alder
The Free Press, 2002.

Board Meeting Minutes – March 3, 2011

Bob Rice, Secretary

The board of directors of the Barnard-Seyfert Astronomical Society (BSAS) met in regular session at the Cumberland Valley Girl Scout Council Building in Nashville, Tennessee on March 3, 2011. A sign-in sheet was passed around in lieu of a roll call. Board members Dr. Spencer Buckner, Steve Cobb, Jana Ruth Ford, Bill Griswold, Kris McCall, Bob Norling, Curt Porter, Dr. Terry Reeves, Bob Rice, and Theo Wellington were present. Board members Dr. Donna Hummell and Santos Lopez were absent. A quorum being present, President Dr. Spencer Buckner called the meeting to order at 7:37 P.M.

Treasurer Bob Norling reported that the BSAS had \$2,224.23 in its regular checking account and \$407.31 in its equipment account. Dr. Spencer Buckner announced these upcoming star parties:

- Mar 05 - Private star party & practice session for the Messier Marathon at mile marker 412 on the Natchez Trace Parkway.
- Mar 12 - Public star party at the Warner Parks from 7:30 to 9:30 P.M.
- Mar 26 - Public star party at the Adventure Science Center (ASC) 8:00 to 10:00 P.M. for Earth Hour.
- Apr 02 - Private Messier Marathon at mile marker 412 on the Natchez Trace Parkway. Alternate rain or cloud date is on Apr 30 at Mark Manner's Spot Observatory.

Dr. Spencer Buckner announced that Dr. Brian Hart from the University of California would present the March 17 public membership meeting program on "Galaxy Clusters - Giants of the Universe." He also noted that the BSAS' Annual Picnic was tentatively set for June 4 with possible dates of September 24 or 25, October 22 or 23, or October 29 or 30 under consideration for the Fall Retreat. Bob Rice, reporting for the Program Committee, handed out an updated schedule showing that speakers had been secured for all 2011 meeting dates except July 21, September 15, and October 20. Kris McCall announced that Dr. M. Beatrice Magnani, who had originally been scheduled to deliver a program on "The 200th Anniversary of the 1811 New Madrid Earthquake" at the December 15 Christmas Pot-Luck Supper, would not be able to make that presentation until the January 19, 2012 public membership meeting. Dr. Buckner reported that Dr. Allyn Smith had volunteered to judge astronomy projects at the 59th Middle Tennessee Science and Engineering Fair to be held at Austin Peay State University on March 17-19, 2011.

Curt Porter suggested that holding a hands-on telescope workshop might be a good draw for a spring or summer public membership meeting. Jana Ruth Ford noted that Dr. Eric Klumpe had recently delivered a very popular session at Middle Tennessee State University on "Complexities of the Universe" that touched on the topic of multiverses. She suggested that his presentation might also be a good candidate for a future BSAS program. Sudekum Planetarium Director Kris McCall stated that her travels to worldwide points of astronomical interest during the past several years could also serve as a compendium of stories for a future BSAS program. In addition, Ms McCall said that she and Theo Wellington would be willing to provide an introduction to the upcoming "What I Want For Christmas Are Astronomy Toys" program slated for the November 12 membership meeting.

Curt Porter presented the board with a proposed first draft of the Memorandum of Understanding (MOU) between the BSAS and the Adventure Science Center (ASC) where we hold our monthly public membership meetings. The board members reviewed this document and agreed that it provided a good starting point for additional communication with the ASC. Dr. Spencer Buckner stated that he would like to set up a meeting with the ASC's Executive Director on Monday or Wednesday of the following week to begin these discussions. Curt Porter moved that this first draft be presented as written to the ASC's Executive Director and Bob Rice seconded his motion that subsequently passed by a unanimous voice vote. Kris McCall and Theo Wellington, being employees of the ASC, abstained from voting. Note: a copy of this first draft is attached as an addendum to these minutes. (see page 5 - ed.)

Jana Ruth Ford pointed out that an article in the March 2011 issue of the Astronomical League's Reflector magazine described how an astronomy club in Tullahoma, Tennessee had significantly increased public attendance at its star parties by having a brief presentation on "core science curricula" topics prior to the observing sessions. The content of these presentations was communicated to local science teachers beforehand to elicit their support and encourage them to get the word out to interested students. Dr. Spencer Buckner noted that public attendance at the BSAS' star parties had typically been very good, but commented that the Society might consider adapting elements of this approach to improve attendance at our public monthly meetings. Curt Porter stated that Stratford High School had been designated as a "STEM" (Science, Technology, Engineering, and Mathematics) school and might be worth contacting about upcoming BSAS' star parties and public meeting programs. Steve Cobb asked if lights from the nearby baseball field had affected the BSAS' public star parties at the Warner Parks. Kris McCall responded that the BSAS had effectively scheduled these events with the Parks' management and that, except for possibly a couple of occasions during the last several years, there had been no problems.

Since there was no further business to discuss, President Dr. Spencer Buckner declared the meeting to be adjourned at 8:37P.M.

OFFICERS

Dr. Spencer Buckner
President

Dr. Donna Hummell
Vice-President

Bob Rice
Secretary

Bob Norling
Treasurer

Directors at Large

Steve Cobb
Jana Ruth Ford
Bill Griswold
Santos Lopez
Curt Porter
Theo Wellington
Kris McCall (ex officio)

Steve Wheeler
Newsletter Editor
wsw261@hotmail.com

**Monthly meetings
are held at:**



**The Adventure
Science Center**

**800 Fort Negley Blvd
Nashville, TN 37203**

Addendum to March 2011 Board Meeting Minutes

Being a copy of the first draft Memorandum Of Understanding adopted by the Barnard-Seyfert Astronomical Society's Board of Directors on March 3, 2011 for presentation to senior management of the Adventure Science Center.

Memorandum of Understanding (MOU) Between The Barnard-Seyfert Astronomical Society (BSAS) and the Adventure Science Center (ASC).

The purpose of this MOU is to continue a mutually beneficial relationship between the BSAS and the ASC and identify some specific areas of cooperation. The ASC provides facilities that promote the mission of the BSAS and the BSAS provides a resource of educated, experienced amateur and professional astronomers for events at the ASC. The BSAS Mission: The Barnard-Seyfert Astronomical Society is an organization dedicated to the advancement of the science of astronomy, the support and encouragement of amateur and professional astronomy, and the support and encouragement of the exploration and utilization of space for the advancement of civilization. The BSAS operates under the State of Tennessee Title 48 as a non-profit.

The ASC Mission: The Adventure Science Center ignites curiosity and inspires the lifelong discovery of science.

Specific areas of cooperation:

- The BSAS will meet on the third Thursday of each month at the ASC in a space designated by the ASC, sufficient for the membership and a reasonable number of the general public. Meetings are typically at 7:30PM local (Nashville) time. Typical meetings end by 9:30PM. The BSAS will hold meetings open to the public with the optional exception of the December meeting. This meeting is a potluck meal and program which requires a space with tables and chairs for 75 people. Set up begins at 6:00PM with the meal between 6:30 and 7:30PM. The program should be done by 9:30PM. The BSAS will make sure that the space is left in good order after each meeting.
- The BSAS will, from time to time during the year, facilitate special events, for and with the planning/cooperation of the ASC, at the ASC and other locations throughout middle Tennessee. Such events typically include: Star Parties, Astronomy Day and other astronomically relevant events. This MOU will become effective when signed by the President of the BSAS, having been ratified by the BSAS Board of Directors, and the party designated by the ASC as having sufficient signing authority.

This MOU will automatically renew every 366 days unless either BSAS or ASC wishes to modify or terminate this MOU, with either BSAS or ASC giving a sixty (60) days advance notice of the need to change it.

For the BSAS: _____ Date: _____

For the ASC: _____ Date: _____

Monthly Meeting Minutes – March 17, 2011

Curt W. Porter, Board Member

Meeting was opened at 7:43PM local time by President Spencer Buckner Ph.D.

Treasury report: \$2299.23 plus \$407 in the equipment account.

Important dates:

Earth Hour 26-MAR (rained out). Messier Marathon 2-APR at mile marker 412 Natchez Trace from dusk to dawn with a rain date of 30-APR at Spot Observatory, Astronomy Day 9-APR 8-10PM at Adventure Science Center.

President Buckner also gave a progress report on the MOU being developed with the ASC, the main item being that monthly meetings night might need to be switched to Wednesday.

The program was titled "Galaxy Clusters: Giants of the Universe" by Brian Hart - PhD graduate of the University of California at Irvine. Brian presented a mixed media presentation based on his doctoral work, starting with the basics and ending up at the cutting edge of current research.

The meeting adjourned at 8:45PM.

BSAS Affiliations

The Astronomical League
<http://www.astroleague.org/>



The Night Sky Network
<http://nightsky.jpl.nasa.gov/>



International Dark Sky Association
<http://www.darksky.org/>



GOES-R, Zombie Fighter

by Dr. Tony Phillips

Space Place Partners Article, April 2011

On April 5, 2010, something eerie happened to the Galaxy 15 telecommunications satellite: It turned into a zombie.

The day began as usual, with industry-owned Galaxy 15 relaying TV signals to millions of viewers in North America, when suddenly the geosynchronous satellite stopped taking commands from Earth. It was brain dead! Like any good zombie, however, its body continued to function. Within days, Galaxy 15 began to meander among other satellites in geosynchronous orbit, transmitting its own signal on top of the others'. Satellite operators scrambled to deal with the interference, all the while wondering what happened?

In horror movies, zombies are usually produced by viruses. "In this case, the culprit was probably the sun," says Bill Denig of the National Geophysical Data Center in Boulder, Colorado. He and colleague Janet Green of NOAA's Space Weather Prediction Center recently led a study of the Galaxy 15 anomaly, and here are their conclusions:

On April 3rd, a relatively minor solar flare launched a cloud of plasma toward Earth. Galaxy 15 had experienced many such events before, but this time there was a difference. "Galaxy 15 was just emerging from the shadow of Earth when the cloud arrived and triggered a geomagnetic storm," explains Denig. Suddenly exposed to sunlight and the ongoing storm, "the spacecraft began to heat up and charge [up]."

Electrons swirling around Galaxy 15 stuck to and penetrated the spacecraft's surface. As more and more charged particles accumulated, voltages began to rise, and—zap!—an electrostatic discharge occurred. A zombie was born.

"At least, this is what we suspect happened based on data collected by GOES satellites in the vicinity," he says. "We'll be able to diagnose events like this much better, however, after GOES-R is launched by NASA in 2015." GOES-R is NOAA's next-generation Geostationary Operational Environmental Satellite. One of the instruments it will carry, a low-energy electron counter, is crucial to "zombie fighting." Low energy-electrons are the ones most likely to stick to a spacecraft's surface and cause brain-frying discharges. By monitoring these particles in Earth orbit, GOES-R will provide better post-mortems for future zombie outbreaks. This could help satellite designers figure out how to build spacecraft less susceptible to discharges. Also, GOES-R will be able to issue alerts when dangerous electrons appear. Satellite operators could then take protective action—for example, putting their birds in "safe mode"—to keep the zombie population at bay.

Meanwhile, Galaxy 15 is a zombie no more. In late December 2010, after 9 months of terrorizing nearby spacecraft, the comsat was re-booted, and began responding to commands from Earth again.

All's well that ends well? True zombie fighters know better than to relax. Says Denig, "we're looking forward to GOES-R." You and the kids in your life can learn about space weather at <http://scijinks.gov/space-weather-and-us>.



The Galaxy 15 communication satellite was "brainless" for several months in 2010 after being exposed to a geomagnetic storm.

The new GOES-R satellite will warn of such dangers.

To Boldly Go...

Astronomy Day 2011

by Kris McCall – Director, Sudekum Planetarium

On Saturday, April 9, 2011, from 11 am to 4 pm, Adventure Science Center will celebrate Astronomy Day, but maybe we should call it Astronaut Day because the theme this year is the requirements and challenges of human spaceflight. Demonstrations will include Suited for Success, Living in Space, Cabin Fever, Spacecraft on Parade, and the Astronaut Polling Station. Enter to win door prizes including one Celestron 50th Anniversary FirstScope provided by Celestron Telescopes and Astronomy Magazine.

The Sudekum Planetarium will also be presenting Dawn of the Space Age in celebration of the 30th anniversary of the first Space Shuttle launch, Columbia, and the 50th anniversary of the first human to fly in space, Russian cosmonaut Yuri Gagarin. For astronaut wannabes and those who just want to look up at the sky, Skies Over Nashville is a live tour of what is visible in the current night sky: constellations, planets, and more than can be seen now and in the coming weeks. Audience participation and questions are strongly encouraged in this engaging program suitable for visitors of all ages.

Astronomy Day activities are made possible by the volunteers of the Barnard-Seyfert Astronomical Society, Austin-Peay State University Physics Club, and Middle Tennessee Chapter of the National Space Society.

Suited for Success - Explore the design essentials of spacesuits. See what every astronaut needs to work outside his/her spacecraft in the harsh environment of space.

Stations: Living in Space - Discover how living in space differs from living on Earth. Interactive stations will allow visitors to learn how astronauts work, eat, sleep, wash up, and the number one most often asked question: how they go to the bathroom!

Stations:

Cabin Fever - Going into space sounds like fun, until you realize that there is not much space inside your spacecraft. The interior of the Mercury capsule has been described as "coffin-sized." Find out just how cozy home would really be inside mockups of typical spacecraft.

Spacecraft on Parade - Study and compare models of past, present, and future spacecraft to see how traveling to and from space has changed over the years. The Middle Tennessee Chapter of the National Space Society provides these spacecraft displays.

Go or No Go? Astronaut Polling Station - Lots of people want to go into space. Lots of people don't. If there was an empty seat on the Space Shuttle right now, and you were asked to join the crew, would you go into space?

Door Prizes - Enter to win door prizes including one Celestron 50th Anniversary FirstScope provided by Celestron Telescopes and Astronomy Magazine.

Program schedule:

11:30	Dawn of the Space Age	1:30	Skies Over Nashville
1:30	Scibites - Making Stuff Stronger	2:30	Scibites - Shrinking Robots
3:30	Dawn of the Space Age		

The Science Center closes at 5 pm, but the astronomy will continue into the night with a FREE public star party from 8:00 to 10:00 pm and a variety of shows in the Sudekum Planetarium.

From 8:00 to 10:00 pm, members of the Barnard-Seyfert Astronomical Society will set up telescopes outside the Adventure Science Center to provide views of the Moon, Saturn, the Orion Nebula, and much more.

Doors open at 6:00 pm for evening programs in the Sudekum Planetarium including Dawn of the Space Age, Skies Over Nashville, and Cosmic Concerts featuring the music of the 1980s, U2, and Pink Floyd.

Evening Program Schedule

6:30 pm – Dawn of the Space Age	7:30 pm – Skies Over Nashville
8:30 pm – She Blinded Me With Lasers: 80s Classics	9:30 pm - Classic U2
10:30 pm - The Other Side of Pink Floyd	

Become a Member of the BSAS!

Download and print the Application for membership from www.bsasnashville.com (Adobe® Acrobat Reader® required).

Then fill it out and bring it to the next monthly meeting or mail it along with your first year's membership dues to:

BSAS
P.O. Box 150713
Nashville, TN 37215-0713

Annual dues, which include membership in the BSAS and Astronomical League, and subscriptions to their newsletters, are:

- \$20** Individual
- \$30** Family
- \$15** Senior (+65)
- \$25** Senior Family (+65)
- \$12** Student*

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

All memberships have a vote in BSAS elections and other membership votes,

Also included are subscriptions to the BSAS and Astronomical League newsletters.

IMPORTANT DUES INFORMATION

To find the expiration date for your current membership, visit our web site at <http://www.bsasnashville.com> and click the Renewals link.

There will be a two month grace period before any member's name is removed from the current distribution list.



We're on the Web!

See us at:

www.bsasnashville.com

[BSAS on Facebook](#)

About Our Organization

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 Thursday of each month at the Adventure Science Center 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 www.bsasnashville.com. If you need more information, write to us at info@bsasnashville.com or call Dr. Spencer Buckner at (931) 221-6241.

**BARNARD-SEYFERT
ASTRONOMICAL SOCIETY**
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