

The March membership meeting will be held on Thursday, March 20, 2008 at 7:30 pm at the Adventure Science Center

On Thursday, March 20, 2008 we will hold our regularly scheduled membership meeting at the Adventure Science Center.

The topic this month will be "What's Up In The Spring Sky" by our esteemed President Terry Reeves. It is the goal of our program committee this year to present 3 or 4 programs such as this to give our members an idea of what is out there in the night sky throughout each season. It will be a valuable lesson for novice viewers to gain some helpful ideas and knowledge for stargazing, as well as giving more experienced amateurs some interesting and thought provoking challenges.

This is the first time in many years that our organization has attempted this type of program, where we will be returning to the fundamentals of amateur astronomy. The program committee will be asking for your thoughts and ideas in order to expand on this program and achieve a greater level of education for the future. This is a fantastic opportunity for all levels of interest, so please be sure to attend.

Message from the President

What a great month February has been! We started the month off with a public star party at Warner Park. The official count was 115 people in attendance. I had my telescope pointed at the Double Cluster in Perseus for most of the night. (This is one of the great deep sky targets for a refractor.) I certainly enjoyed trying to explain the difference between open clusters and globular clusters to everyone who looked through my telescope.

Then, on the 20th, we had a public star party at the Adventure Science Center to celebrate the lunar eclipse. The official count was 175. I showed Saturn. Because of the wind and atmospheric turbulence, I was limited to about 100x in magnification. Despite this, I had a line at my scope which did not stop. Saturn never fails to please. Quite a number claimed that this was their first time to see Saturn. My favorite response was by a girl from Mt. Juliet High School, "That's so CUTE!"

We also had the membership meeting where Lonnie Puterbaugh gave presentations on the upcoming Messier Marathon in March and the International Year of Astronomy in 2009. The International Year of Astronomy promises to be big for us next year. As a part of the meeting, we spent some meeting time trying to answer some questions from the Outreach Committee which is leading most of our efforts for IYA 2009. Don't worry if you weren't there; I'm sure that the Outreach Committee would love to get your feedback.

The Messier Marathon promises to be a fun night of viewing. It will be held at Mark Manner's home. You can find information and directions by looking on the club's web site, <http://www.bsasnashville.com>, for links. The date is Saturday, March 8. If weather causes us to cancel, we have an alternate date in April. Please plan to attend.

After the meeting, we received a treat from Kris McCall. She gave us a tour of the new Sudekum Planetarium and exhibit areas. While it is still very much a construction zone, it promises to be a very special facility.

I also handed out instruction sheets on how to participate in a project to measure light pollution across the country. I was introduced to this project when the Dark Sky Committee participated



ECLIPSE

Message from the President

Continued from Page 1

in a conference call and presentation put on by a group with the Night Sky Network. I am sure that all of you have noticed how the stars in the night sky seem to keep disappearing as more and more outdoor lights are added as Nashville and the surrounding communities grow. What is really unfortunate is that much of this lighting is misdirected and excessive. One of the tools that can help in combating this is knowledge about how our skies have been affected. If you did not get a copy, please go to <http://www.globe.gov/globeatnight>. From there you can download the Family Activity Packet. The steps to measure the light pollution are actually very simple. It involves looking at the constellation Orion and determining which picture looks the closest to what you see. There is a web address to report your results.

Finally, I would like to talk briefly about some of the upcoming membership meetings. We are going to try something that I don't remember us doing. We are going to try to have three or four programs this year describing what you can look for in the night sky for the next few months. The goal is to help inexperienced viewers get started looking up while also pointing out some more challenging targets for those of us who are more seasoned. The Program Committee will be wanting feedback about these presentations. The first of these is currently scheduled for the March membership meeting.

Terry Reeves
President

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 Lonnie Puterbaugh at (615) 661-9540

MAGAZINE SUBSCRIPTIONS FOR BSAS MEMBERS

We are always able to accept requests for new and renewal yearly subscriptions to SKY AND TELESCOPE and ASTRONOMY from our members in good standing.

The current yearly rates are as follows:
SKY AND TELESCOPE: \$32.95
ASTRONOMY: \$34.00

Checks or Money Orders should be made out to the Barnard-Seyfert Astronomical Society (BSAS) and sent to the following address:
BSAS
P. O. Box 150713
Nashville, TN 37215-0713

DUES INFORMATION

On your Eclipse mailing label is the expiration date for your current membership in the BSAS. There will be a two month grace period before any member's name is removed from the current mailing list. You will be receiving a number of warnings informing you that your membership is expiring.

Dues per year are \$20.00 Regular (1 vote); \$30 Family (2 votes); \$15.00 Student (under 22 years of age)(1 vote); \$15 Seniors (65 years or older)(1 vote); \$25 Senior Family (65 years or older)(2 votes).

Contact president@bsasnashville.com if you have questions. Dues can be sent to:
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THE ECLIPSE NEWSLETTER

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Happy Birthday Wilhelm Heinrich Walter Baade

by Robin Byrne

This month we celebrate the life of an astronomer whose work led to an increase in the size of the universe. Wilhelm Heinrich Walter Baade was born March 24, 1893 in Schrottinghausen, Germany. After attending universities in Munster and Gottingen, Baade graduated with a Ph.D. in Astronomy in 1919. His first job was working at the Hamburg Observatory, until 1931 when he emigrated to the United States to work at Mount Wilson Observatory. Although never becoming an American citizen, Baade worked at both the Mount Wilson and Palomar Observatories until his retirement in 1958.

As a German citizen, Baade was considered an enemy alien during World War II, which prevented him from joining the army. However, this provided an unique opportunity for Baade. Blackout conditions in Los Angeles created unusually dark skies for Mount Wilson. Photographing the Andromeda Galaxy resulted in the first resolved images of stars in the galaxy's center. Seeing individual stars allowed Baade to make a variety of measurements, which led to the discovery of two "populations" of stars. Population I stars were found in the disk and spiral arms of the galaxy. These stars, on average, were younger, hotter, and had higher amounts of heavy elements. Population II stars were found in the central bulge and halo, and were older, cooler, and had a much lower heavy element composition. We now know that Population II stars are first generation stars, while Population I stars are later generation stars formed from the remains of earlier stellar generations. Based on these observations, Baade hypothesized that the Milky Way is similar to the Andromeda Galaxy, and would also be a spiral galaxy.

In 1952, while studying the two stellar populations, Baade found that the Cepheid variable stars found in each group were also different. In 1912, Henrietta Leavitt had discovered a relationship between the period of light variability and luminosity for Cepheid variables. This relationship meant that if you could observe the time it took one of these stars to go through a complete cycle of getting brighter, then fainter, then brighter again, you would then know its luminosity. Comparing the known luminosity with the observed brightness then allows astronomers to calculate its distance. This was how Edwin Hubble first determined the distance to the Andromeda Galaxy. However, with the discovery of two different types of Cepheids, Baade found that the distance Hubble calculated was incorrect. The period-luminosity relationship differs depending on whether it is a Cepheid with Population I or Population II stars. The relationship Hubble had used was for Population I Cepheids, but he had been observing Population II Cepheids. Adjusting the calculation for the correct type of Cepheid led Baade to change Hubble's distance to the Andromeda Galaxy from 900 lightyears to 2 million lightyears.

This adjustment to the distance scale led to the universe being more than twice as large as previously thought. Hubble had also used the distance to the Andromeda Galaxy to estimate the age of the universe. Hubble had concluded that the universe was 2 billion years old. This was a problem, because geologists had estimated Earth to be 4 to 5 billion years old. With the distance scale more than doubled, the age of the universe was also more than doubled, making it more consistent with the geology numbers. Also, with the Andromeda Galaxy being farther than originally thought, it was now larger than originally thought. This led to the Milky Way no longer being much larger than other known galaxies.

Baade worked with Fritz Zwicky in a study of supernova remnants, as well. They proposed that supernovae could produce neutron stars. In studying the Crab Nebula, they found that it was the remnant of the supernova of 1054. They also proposed that there were two types of supernovae, which are now categorized as Type I and Type II supernovae. The difference, observationally, is that the two types reach different peak brightnesses and have different spectra. Type I supernovae are instrumental in determining the distances to remote galaxies.

Other work by Baade was the correlation of radio sources with their optical counterparts. Among those that he studied were: Cygnus A, Cassiopeia A and Centaurus A. Baade had suggested that Cygnus A was actually two spiral galaxies colliding. Minkowski disagreed, so they bet a bottle of whiskey on who was correct. Based on the spectrum, Baade won the bet. However, the bottle Minkowski produced was only a hip flask, while Baade had expected a quart. Based on what we now know, that may have been just as well, since Cygnus A is today identified as an elliptical galaxy which is the result of two galaxies colliding, so they were both right.

Walter Baade died June 25, 1960. His prolific career spanned several decades and led to many important discoveries. From Population I and II stars, to the two types of Cepheids, to the distance and time scale of the universe, Baade's research literally expanded our knowledge of the universe. As we catch our last few glimpses of the Andromeda Galaxy until next Fall, and ponder the two million year journey the light traveled before entering our eyes, pause to think of Walter Baade's contribution to our knowledge about that galaxy and the amazing distances to other galaxies.

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Walter Baade: Biography and Much More from Answers.com

<http://www.answers.com/topic/walter-baade?cat=technology>

Barnard-Seyfert Astronomical Society
Minutes of a Regular Meeting of the Board of Directors
Held on Thursday, February 7, 2008

The board of directors of the Barnard-Seyfert Astronomical Society met in regular session at the Cumberland Valley Girl Scout Council Building in Nashville, Tennessee on February 7, 2008. A sign-in sheet was circulated in lieu of a roll call. Board members Dr. Spencer Buckner, Keith Burneson, Tony Campbell, Bill Griswold, Dr. Donna Hummell, Kris McCall, Dr. Terry Reeves, Bob Rice, and Steve Wheeler were present. Board members JanaRuth Ford, Randy Smith, and Theo Wellington were absent. Also attending were BSAS members Mike Benson and Dr. Joe Boyd. A quorum being present, President Terry Reeves called the meeting to order at 7:42 P.M.

Mike Benson informed the board that he had received a letter from Austin Peay State University (APSU) announcing that judging for projects entered in the Middle Tennessee Science & Engineering Fair would occur on March 13. Mr. Benson asked the board to consider providing \$100, \$50, and \$25 prizes in the name of the BSAS for astronomy related entries as had been done for the last several years. Bob Rice so moved and Spencer Buckner seconded this motion that passed by a unanimous voice vote. Mike Benson, Spencer Buckner, and Bill Griswold volunteered to serve as judges for this category of projects.

Mike Benson announced that O'Reilly Press had sent him an evaluation copy of their newly released book *Digital Astrophotography: A Guide to Capturing the Cosmos* by Rocky Nook. Steve Wheeler volunteered to review this book. Mr. Benson also announced that the Des Moines Astronomical Society would host the 2008 Astronomical League Convention (ALCON) on July 17-19 in Des Moines, Iowa. He pointed out that airfare to the ALCON would cost approximately \$307.00 and that hotel rates would be \$99.00 per night.

Kris McCall announced that she was screening a copy of Jeffrey Roth's unreleased film *The Wonder Of It All* that features interviews with seven astronauts who have walked on the moon and recounts how that experience affected their lives. Ms McCall stated that Mr. Roth had requested coverage of his travel and lodging expenses if the Adventure Science Center (ASC) showed his film, but that ASC management had not yet committed to do this. She asked if the BSAS might consider helping to fund this venture and, following some discussion, the board agreed to take this under consideration. Tony Campbell stated that this might be a good outreach activity for the BSAS and offered to contact the Belcourt and Green Hills Theaters about becoming gratis venues for the film.

Kris McCall asked about the BSAS doing observing at Long Hunter State Park on nights when no public star parties were scheduled and suggested May 3, July 11, and November 8 as possible dates. The board thought that this was a good idea, but noted that May 3 conflicted with a private star party scheduled at the Natchez Trace mile marker 412 site. Steve Wheeler moved that the Long Hunter event be substituted for the private Natchez Trace star party, Tony Campbell seconded this motion, and the board passed it without additional discussion by a unanimous voice vote.

Mike Benson reminded the board that a public star party was scheduled at the ASC to observe the total lunar eclipse on February 20. Kris McCall announced that the ASC would likely host the Southeast Planetarium Association in June 2009 and suggested the possibility of a combined event at Spot Observatory with the BSAS. Terry Reeves noted that the BSAS was scheduled to participate in Astronomy Day activities at the ASC on May 3, 2008 from 10 A.M. to 3 P.M. In response to Kris McCall's inquiry, Dr. Reeves stated that Lonnie Puterbaugh would deliver the February 21 membership-meeting program on the observance of International Astronomy Year in 2009. The board also briefly discussed the Messier Marathon scheduled for March 8.

Bill Griswold stated that all obsolete membership application forms should be destroyed and that only the correct form currently appearing on the BSAS website should be used. Joe Boyd announced that the Dark Sky Committee would meet on Tuesday evening, February 12. Mr. Boyd also announced that NASA's Night Sky Network planned to develop slides of the constellation Orion during February and March to produce light pollution maps. In addition, he said that the Night Sky Network also had kits using Maglites to dramatize the effects of light pollution. Tennessee Star Party Treasurer Bob Rice reported that all checks from the 2007 operation had cleared and that he would transfer the account balance to BSAS Treasurer Randy Smith for deposit to the Society's main bank account.

There being no further business to discuss, President Reeves declared the meeting to be adjourned at 9:08 P.M.

Respectfully submitted,
Bob Rice, Secretary

**Barnard-Seyfert Astronomical Society
Minutes of the Monthly Membership Meeting
Held On Thursday, February 21, 2008**

President Terry Reeves called the meeting to order at 7:39 P.M. in the Adventure Science Center (ASC) and welcomed new members and guests. Reporting for Treasurer Randy Smith, Mr. Reeves announced that the Society had a bank balance of \$2,720.20. He then asked for corrections to the minutes of the last membership meeting held on January 17, 2008 and, there being none, declared them to be accepted without exception as published in the February 2008 edition of the *Eclipse* newsletter.

Terry Reeves introduced BSAS member Lonnie Puterbaugh who delivered a dual-topic program for the evening. First, Mr. Puterbaugh spoke about the upcoming Messier Marathon scheduled for Saturday March 8 at BSAS member Mark Manner's home (a.k.a. Spot Observatory) near Bucksport, TN. This widely popular amateur event is an attempt to locate and identify all 110 Messier objects – or as many as one wishes to try - during one night. Acknowledging that this effort was difficult, Mr. Puterbaugh pointed out these practical benefits: (1) becoming more proficient in using your equipment whatever it might be; (2) learning how to use star charts; (3) learning which objects look best in your equipment; and (4) having the opportunity to share and learn with fellow BSAS members. He noted that the Marathon was largely a race against the sun - both setting and rising – and suggested a best order for accessing the objects. Mr. Puterbaugh also made suggestions for selecting telescopes and eyepieces along with practical measures such as bringing food and drink and dressing in layers. He also recommended several reference books including Harvard C. Pennington's *The Year-round Messier Marathon Field Guide*.

Next Mr. Puterbaugh discussed the International Year of Astronomy (IYA), a joint effort by UNESCO and the International Astronomical Union during 2009 to promote a worldwide interest in the science of astronomy and to celebrate the 400th anniversary of Galileo's first astronomical use of a telescope. He showed a NASA video entitled *Reach* that dramatized the contributions of Galileo, Werner von Braun, others toward enriching the overall human vision. Mr. Puterbaugh then described the IYA's Global Cornerstone Projects including 100 Hours of Astronomy; the Galileoscope (an inexpensive but effective telescope to be handed out around the world); She is an Astronomer; and Dark Skies Awareness among others. He described the IYA's website at www.astronomy2009.org and noted that the United States' node would hopefully be updated by June or July 2008. Following Mr. Puterbaugh's presentation, the audience divided into three groups to discuss and answer a series of questions designed to provide the Outreach Committee with possibilities that the BSAS might pursue during IYA 2009.

Terry Reeves handed out copies of the Globe at Night observation guide designed to use the constellation Orion to provide a measure of worldwide light pollution from 110 participating countries from February 25 through March 8, 2008. Since there was no further business to discuss, President Reeves declared the meeting to be adjourned at 9:20 P.M.

Respectfully submitted,
Bob Rice, Secretary

ACTIVITIES and EVENTS*March 1—31, 2008*

3/3 Jupiter 4° N of Moon,
3/5 Venus 0.2° S of Moon
3/6 BSAS Board of Directors mtg., 7:30 p.m. at Girl Scout Office,
3/7 NEW MOON
3/8 Messier Marathon at Spot Observatory, dusk to dawn
3/9 Daylight Savings Time begins
3/14 FIRST QUARTER
3/15 Mars 1.7° S of Moon
3/19 Saturn 3° N of Moon
3/20 BSAS Membership mtg. 7:30 p.m. at ASC, Spring Equinox
3/21 FULL MOON
3/29 LAST QUARTER

April 1—30, 2008

4/2 Conj. of Neptune & Moon
4/3 BSAS Board of Directors mtg., 7:30 p.m. at Girl Scout Office
4/5 Messier Marathon (alt. date) at Spot Observatory, dusk to dawn
4/6 NEW MOON
4/9 Moon 1.0° N of Pleiades
4/12 FIRST QUARTER, Public star party at Warner Park 8:00-10:00 p.m.
4/15 Saturn 3° N of Moon
4/17 BSAS Membership mtg. 7:30 p.m. at ASC
4/22 Lyrid meteors peak
4/20 FULL MOON
4/27 Jupiter 3° N of Moon
4/28 LAST QUARTER

*All times listed are Central Time

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