

## Upcoming Events

### Board of Directors Meeting

June 4<sup>th</sup> at the Cumberland Valley Girl Scout Council Building  
– 7:30 pm

July 2<sup>nd</sup> at the Cumberland Valley Girl Scout Council Building – 7:30 pm

### Membership Meeting

June 18<sup>th</sup> at Spot Observatory  
(see Outreach Update page 2 for details)

July 16<sup>th</sup> at the Adventure Science Center – 7:30 pm

### Public Star Parties

June 26<sup>th</sup> at Family Astronomy Night at Warner Park

July 25<sup>th</sup> at Long Hunter State Park  
8:30 - 10:30 pm

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## Monthly Membership Meeting

Thursday, June 18<sup>th</sup>, 2009  
Spot Observatory (home of Mark and Anne Manner)



Join BSAS as we provide observing opportunities for attendees of the 2009 meeting of the Southeastern Planetarium Conference. More details will be posted on the club web site (<http://www.bsasnashville.com>) as they are available.

## From The President



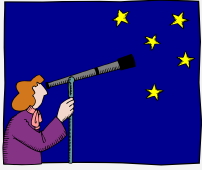
It's June, and that means that the year is almost half over. With all of the International Year of Astronomy 2009 and related activity, I had just about lost track of the time. With summer, our outreach activity will ease up somewhat since it does not get dark until really late. That does not mean that we are going to stop completely. We do have events scheduled, just not as many. This means that this is as good a time as any to use your telescope for your own enjoyment. With the warmer weather, you no longer have to pile on the layers to keep warm. The Milky Way is rising earlier each night. The southern sky is absolutely packed with things to look at.

Just in case you have been hiding in a cave without access to any news sources, the last service mission to the Hubble Space Telescope appears to have been a success. I'm sure that you join with me in the hope that the new cameras and other equipment will keep Hubble productive until the very end of its life.

One thing that I would suggest is that you spend some time just looking at the night sky with your Mark I 1x7mm binocular eyeballs from a dark area if you get the chance. As beautiful as some of clusters, nebulae, etc. that we all love to look at are, there is something absolutely stunningly awesome about watching the Milky Way on a dark clear summer night. It is an experience that we unfortunately get to experience all too infrequently from our light polluted skies. This is very much our loss.

I mentioned Astronomy related web sites a few months ago. This month, I would like to mention one of my personal favorites, the Lunar Photo of the Day (<http://lpod.wikispaces.com>). The site is run by Chuck Wood. He is a lunar and planetary scientist. He also wrote "The Modern Moon: A Personal View", a book I highly recommend if you want to learn about the science of our nearest neighbor. Most days, he posts a picture and a short description of what he sees in the picture. Some of the pictures are quite stunning.

Dr. Terry Reeves  
President



*"From orbit: Just saw Orion's nebula in the night sky - the sights make all the hard work and risk worthwhile for me."*

*tweet from Mike Massimino (aka Astro\_Mike) Mission Specialist STS-125*

### 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

#### June 2009

06/07 FULL Moon  
06/15 LAST Quarter  
06/22 NEW Moon  
06/29 FIRST Quarter

#### July 2009

07/07 FULL Moon  
07/15 LAST Quarter  
07/22 NEW Moon  
07/28 FIRST Quarter

### OBJECTS VISIBLE THIS MONTH

#### Messier Objects:

M3 M51 M63  
M64 M94 M106

#### Bootids Meteor Shower

Starts: June 22<sup>nd</sup>  
Peaks: June 27<sup>th</sup>  
Ends: July 2<sup>nd</sup>

## Outreach Update *Dr. Terry Reeves, president*

We held the BSAS annual picnic on the Saturday of Memorial Day weekend. While there were not many of us in attendance, those who were there had a good time. As usual, we had good food and good company.

I want to thank JanaRuth Ford for the presentation for the May meeting. I especially enjoyed learning about the impact sites in Tennessee. For the June 18 meeting, we will not be meeting at the Adventure Science Center. During that week, the Sudekum Planetarium will be hosting the 2009 meeting of the Southeastern Planetarium Conference. On that night, they will be meeting at the home of Mark and Anne Manner. We will be providing telescopes for people to look through. Food and program will be provided for us. This event will not be open to the public. More details will be posted on the club web site (<http://www.bsasnashville.com>) when they are available. The July program will be one of our "What's Up" presentations.

Our next public event is a "Family Astronomy" night at Warner Park. This is not being held at the normal place for our star parties. Instead, this event will focus primarily on less expensive ways to enjoy astronomy, especially binoculars. It is currently scheduled for Friday afternoon/night on June 26. More details will be posted on the club web site when details are available. We also have a public star party scheduled for Saturday night, July 25, from 8:30 PM until 10:30 PM at Long Hunter State Park Visitors Center.

# Happy Birthday William Lassell

by Robin Byrne

This month we celebrate the life of an amateur astronomer who not only made important discoveries, but also innovated the mounting and construction of large telescopes. William Lassell was born June 18, 1799 in Bolton, England. Lassell began his education at Bolton Day School, then the Rochdale Academy after turning eight. When Lassell was 16, his family moved to Liverpool. It was here, in 1822, that Lassell began an apprenticeship in the office of a liquor merchant's office.

In 1824, Lassell began his own business as a brewer. The large port in Liverpool made the brewing business very lucrative, with potential customers from the travelers coming and going, as well as all of the dock workers. It did not take very long for Lassell to become a major supplier of beer in England. The financial security of this business allowed Lassell to pursue his hobby of astronomy to its fullest.

Two other Liverpool businessmen, brothers Alfred and Joseph King, were also amateur astronomers. The three friends often observed together and compared telescopes. This friendship ultimately led to Lassell's marriage to their sister, Maria, in 1827. Another of Lassell's astronomy friends was the engineer, James Nasmyth, who would be a major assistance in Lassell's telescope making. Lassell's interest in astronomy became the main component of his life. In 1836, he moved to West Derby, Liverpool for a better observing site. He called the new home "Starfield," and he added his own observatory in 1839.

The observatory he built was designed to house the first telescope he built. In that year, Lassell constructed a 9 inch reflector. Hardly of the monstrous size standards already set by William and John Herschel or Lord Rosse, but this telescope was still revolutionary. With precision construction, aided by Nasmyth's expertise, this telescope was the first to be mounted equatorially. The roller-bearing mount was so well made that it only took a light touch to move the telescope. While the Herschels and Rosse were searching for deep sky objects, and mainly implementing sky surveys, Lassell wanted to observe planets in detail. This required smooth tracking over longer period of times, which the new mount allowed.

Four years later, Lassell got aperture fever and started working on a 24 inch telescope. Using the same design as he used for the 9 inch, but beefed up for the larger mirror, Lassell and Nasmyth completed the telescope construction in 2 years. The mirror was now too large and heavy to be ground by hand, so Lassell and Nasmyth devised a grinding and polishing machine that ran on steam power. This design became the prototype of future grinding machines. In 1995, the 24 inch mirror was tested and found to be precise to a fraction of a wavelength. Now in the realm of the behemoths, the mirror weighed almost 400 pounds, while the mount and piers brought it to a grand total of over 5 tons. The large Newtonian again used an equatorial mount, and the tube was designed to rotate so that the eyepiece could be moved to a convenient angle. Despite its size, with the precision mounting, Lassell was able to move the telescope with a single hand crank. In 1852,

Lassell took this telescope to Malta for the dark skies, making it the first equatorially mounted telescope used in a prime observing location.

In 1846, while still in Liverpool, Lassell used the 24 inch telescope to observe Neptune. Only a few days after the announcement of Neptune's discovery, Lassell could easily see that it showed a disk, thought he could detect a ring, and, on October 10th of that year, discovered Neptune's moon, Triton. A month later, Lassell's wife sketched the disk, ring and moon based on her own observations. In 1852, after moving the telescope to Malta, Lassell improved how the mirror was supported, and he no longer saw the ring. His image of the ring was an illusion due to optical distortion. Meanwhile, Lassell continued to observe Triton, and determined its orbital period, which allowed for the calculation of Neptune's mass.

The same telescope was used to discover Saturn's moon Hyperion in 1848. Three years later, he found two more moons of Uranus, which he named Ariel and Umbriel. Lassell also studied the clouds and rings of Saturn. Many of Lassell's discoveries, including Hyperion and Saturn's Crepe ring, were made simultaneously by William Cranch Bond at the Harvard College Observatory. This may have been the impetus to move his telescope to the dark site of Malta. Six years after the move, he went even one better and built a 48 inch reflector, which was completed in 1861. In addition to continuing his study of solar system objects, Lassell also made discoveries about the Trapezium area of the Orion Nebula.

Over the years, Lassell received many honors, including a Gold Medal from the Royal Astronomical Society in 1858. He also served as president of the RAS for two years. It is said that when Queen Victoria visited Liverpool, Lassell was the only person she specifically requested to meet. There is even a crater on the Moon named after him.

In the mid-1860's, Lassell moved to Maidenhead for the clearer skies. On October 5, 1880, Lassell died, leaving behind a fortune from his brewing business, which, by today's standards, would have been equivalent to millions of dollars.

Equatorially mounted large telescopes, machines for grinding large mirrors, discovery of moons of the Jovian planets - so much of Lassell's legacy sounds like modern-day astronomy. There's a reason for that. Much of modern astronomy uses the innovations first implemented by Lassell. We owe a large debt of gratitude to this month's honoree: William Lassell.

#### References:

- William Lassell (1799-1880) and the discovery of Triton, 1846 by Allan Chapman  
[http://www.mikeoates.org/lassell/lassell\\_by\\_a\\_chapman.htm](http://www.mikeoates.org/lassell/lassell_by_a_chapman.htm)
- William Lassell - Wikipedia, the free encyclopedia  
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- William Lassell  
[http://www.mikeoates.org/lassell/lassell\\_inbrief.htm](http://www.mikeoates.org/lassell/lassell_inbrief.htm)
- The Lassell Telescope  
<http://www.mikeoates.org/lassell/telescope.htm>

## May 2009 Board Meeting Minutes

*Bob Rice, Secretary*

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 May 7, 2009. Board members Dr. Spencer Buckner, Bill Griswold, Dr. Donna Hummell, Bob Norling, Curt Porter, Dr. Terry Reeves, and Bob Rice, were present. Board members Tony Campbell, JanaRuth Ford, Kris McCall, Theo Wellington, and Steve Wheeler were absent. A quorum being present, President Terry Reeves called the meeting to order at 7:39 P.M.

Treasurer Bob Norling reported that the BSAS' bank balance was \$2,392.64 and that the subscription rate to Sky & Telescope magazine for BSAS members was \$32.95 per year. Dr. Terry Reeves reported that Drew Gilmore had agreed to assist Webmaster Tony Campbell with maintenance of the BSAS' website. Dr. Reeves also reported that JanaRuth Ford would give a presentation on meteorites at the upcoming May 21st membership meeting and that the June 18th membership meeting would be held at Mark Manner's Spot Observatory with the Southeastern Planetarium Association group. In addition, he reported that the Messier Marathon held at Spot Observatory on April 25th was an enjoyable success.

Dr. Terry Reeves reminded the board about the BSAS' annual picnic to be held on Saturday, May 23rd at Spot Observatory. He noted that members should bring their own food plus a little extra to share and that the club would supply the drinks and ice. Dr. Reeves also announced these scheduled star parties: a family binocular astronomy star party at the Warner Parks on June 26th and a public star party at Long Hunter State Park on July 25th.

The board then discussed the changed role of the Eclipse newsletter as a major informational venue and noted that the BSAS' website might now be a better medium for doing this. The board also recognized these major benefits of BSAS membership: (1) telescope & equipment loaner program, (2) reduced subscription rates to Astronomy and Sky & Telescope magazines, and (3) attending private star parties. The board also briefly discussed the possibility of offering free classes for members with a charge to non-members.

Dr. Terry Reeves announced that Chuck Schlemm would not be available to do a presentation at the Warner Parks family astronomy event on June 26th. There being no further business to discuss, Dr. Reeves called for a motion to adjourn the meeting at 8:24 P.M. Dr. Spencer Buckner so moved and Bill Griswold seconded his motion that passed by a unanimous voice vote.

### OFFICERS

**Dr. Terry Reeves**  
*President*

**Dr. Spencer Buckner**  
*Vice-President*

**Bob Rice**  
*Secretary*

**Bob Norling**  
*Treasurer*

### *Directors at Large*

**Tony Campbell**  
**Jana Ruth Ford**  
**Bill Griswold** (*ex officio*)  
**Dr. Donna Hummel**  
**Curt Porter**  
**Theo Wellington**  
**Steve Wheeler**  
**Kris McCall** (*ex officio*)

**Steve Wheeler**  
*Newsletter Editor*  
[wsw261@hotmail.com](mailto:wsw261@hotmail.com)

**Monthly meetings  
are held at:**



**The Adventure  
Science Center**

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

## May 2009 Monthly Meeting Minutes

*Steve Wheeler, editor*

*(Secretary Bob Rice was unavailable to attend the May 2009 meeting. Steve Wheeler, newsletter editor, volunteered to take the minutes.)*

President Dr. Terry Reeves called the meeting to order at 7:32 P.M. in the Sudekum Planetarium at the Adventure Science Center (ASC) and welcomed new members and guests. Treasurer Bob Norling reported that the BSAS' bank balance was \$2,205.82.

Dr. Reeves announced the BSAS annual picnic scheduled for May 23<sup>rd</sup> at BSAS member Mark Manner's Spot Observatory and explained the event for the benefit of newcomers. He also announced that the June meeting would be to provide observing opportunities for Southeastern Planetarium Conference attendees at Spot Observatory.

Other announcements included noting that Drew Gilmore and Santos Lopez would help with web site updates. Kris McCall gave kudos to all BSAS members who participated in Astronomy Day 2009.

Dr. Reeves then introduced BSAS board member and MTSU professor JannaRuth Ford, who gave the presentation "Special Deliveries from Outer Space." The topics discussed included asteroid belt versus Kuiper belt objects, the cause of meteor showers, and some of the more famous impacts in recorded history. She then covered in detail the eight impact sites located in Tennessee, and entertained questions from the audience and allowed attendees to view actual meteorite samples.

Member Chuck Schlem invited members to the Full Moon Pickin' Party, a monthly activity hosted by Warner Park. He also updated us with the latest on the Hubble Servicing Mission.

Since there was no further business to discuss, Dr. Terry declared the meeting to be adjourned at 8:55 P.M.

### BSAS Affiliations

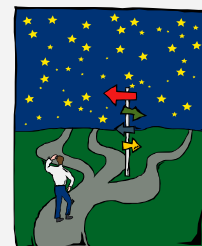
*The Astronomical League*  
<http://www.astroleague.org/>



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



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





## GO ATLANTIS! Viewing the Launch of STS-125

*Steve Wheeler, Newsletter Editor*

With the space shuttle program nearing retirement, many of you may be thinking about viewing one of the remaining launches. I had the opportunity to view the launch of Atlantis on STS-125, the last servicing mission to the Hubble Space Telescope. I wanted to share my experience with those of you who are planning to see a launch.

I was invited to Florida to attend my nephew's wedding, which was on Saturday, May 9th in my hometown of Lake City, Florida – about 2 hours north of Orlando. As luck would have it, NASA had moved the launch date of STS-125 up one day to Monday, May 11th and the launch was scheduled for approximately 2:00 pm. Although I was leery about the prospects of paying for a rental car, hotel,

airfare, and launch ticket only to have the launch scrubbed, my wife encouraged me to attend even though this meant she would have to drive back to Tennessee by herself with my three children in tow plus get my oldest daughter to a softball game and do time in the concession stand on Monday as well.

About a week before the launch, I decided to go for it. First, I found a flight out of Orlando at 8:45 pm Monday night – this would give me ample time to get back from the launch and make it to the airport. Next, I needed launch tickets, but at this late date all the tickets for Kennedy Space Center were sold out. I found a solution via Gray Line Tours of Orlando. For \$115, they pick you up at one of several designated locations in and around Orlando, drive you to the launch, and then bring you back afterwards. The viewing was on the NASA Causeway, approximately 6 miles from the launch pad.

So I now have a flight and launch tickets. I simply booked a room at one of Gray Line's pickup locations (Holiday Inn Select Orlando) and rented a car to get me from Lake City to Orlando on Sunday.

Even though a noisy air conditioning unit kept me up most of the night, I awoke Monday morning very excited. This was not only my first shuttle launch but my first launch, period. I looked forward to having a good breakfast and getting on the bus, which was to load at 6:45 am. Room service was supposed to bring breakfast at 6:00 am, but it never showed up. I went downstairs to grab something from the continental buffet only to find my bus already at the hotel and loading. I grabbed a couple of bananas and a danish and hurried to get in line thinking "I'll just get something at KSC." That line of thought turned out to be a bit of a problem.

The bus left around 7:30 am and the drive to KSC was approximately 1.5 hours. We parked and all of us plus the bus itself had to go through a security checkpoint. It took about an hour to get through, but I was in line with cousins of shuttle commander Scott Altman. They were very nice and told many stories of Scott's career. I did not know that Commander Altman was the actual pilot who flew Tom Cruise's jet in "Top Gun."

I also met people from Canada, Germany, and England – there was truly an international presence and interest in the launch.



After getting through security, we had about 45 minutes before re-boarding the bus for the drive to the causeway. This type of tour leaves no time to visit the exhibits at KSC – this was strictly a “see the launch and go home” trip. I went looking for a quick bite to eat, but all the lines were extremely long. All told, there were about 30,000 visitors on site to view the launch, so I found a short line at a drink stand and bought a couple of bottles of water as it was going to be hot that day. I also had applied sunscreen, and wore a hat and a Kool Tie, which is a bandana that you soak in water and it cools you down as the water evaporates. I got back on the bus and was a bit disappointed that I missed a decent breakfast and lunch, but I did find a stash of snack crackers and peanuts that I had placed in my camera bag the night before. Oh well, we’ll try again at supper time!

The drive out to the Nasa Causeway took about an hour. When we arrived everyone rushed off the bus to get a good spot. The mission audio was being broadcast over a public address system, and at this point we were about 1.5 hours away from the scheduled launch time.

If you visit many of the websites offering tips on viewing a launch, most of them advise against trying to take pictures or video of your first launch. The event happens so fast that to view it through a viewfinder or LCD display does not give you a feel of the power and majesty of liftoff. While that may be true, I knew I had to get some images as this was probably the only opportunity I would have to see a launch.

I decided to take a “best of both worlds” approach. I would view the launch naked-eye, while at the same time use a remote shutter release cable and the “continuous” mode on my camera to simply “fire away” until either my 1 GB memory card was filled up or Atlantis was gone, whichever came first. I also set up my video camera on a smaller tripod under my larger camera tripod. Aimed at the launch pad and zoomed in slightly, my plan was to press “record” when the “go” for launch was given, just to capture the initial liftoff and the sound of the launch.

At about T- 10 minutes, Launch Director Mike Leinbach gave the “go” for launch and the crowd erupted in a cheer. We also heard the comments from Commander Altman over the PA system, and another cheer went up.

At T minus 10 seconds, the crowd along the causeway began counting down. At T minus 3 seconds I saw a cloud of smoke, and then lifting out of that cloud is the brightest pillar of orange fire I have ever seen arching upwards and to the right. Just as it clears the tower and moves to the “heads down” position you begin to hear the rumble of the engines and the high-pitched cracking which I was told is caused by pockets of air in the solid rocket motor fuel. The metaphor “thundering off the launch pad” was truly appropriate – it did sound like thunder except it just kept on going.



As Atlantis and her crew rocketed skyward, they disappeared in some high, thin clouds so I did not get a visual on booster separation. Shortly after this, the sound faded and the smoke plume began to dissipate. We happily packed up our gear and made our way back to the bus, which by this time Atlantis was well into her first orbit.



While on the bus I checked my images and video and sent a text message to my wife. She and her third grade class had watched the launch on NASA TV – in a way she had shared this once in a lifetime opportunity with me even though we were many miles away – very cool!

The bus ride back from the launch was over 3.5 hours due to traffic and a 30 minute standstill caused by an accident on the interstate. We got back to the hotel around 6:00 pm, and this caused several individuals on my bus to miss their flights home. My flight, luckily, was not until 8:45 pm so I picked up my luggage, found a sandwich and waited for the shuttle to the airport.

I arrived back at Nashville around 10:15 pm and was home by 11:15 pm. Although I was pretty tired at work the next day, I cherished the memory of viewing the launch and knew I had witnessed something extraordinary. I felt proud to live in a country that values exploration and possesses the human capital to successfully execute an undertaking as daunting as manned spaceflight. I felt fortunate to have a wife and family who support my hobbies and interests. As an astrophotography enthusiast, I was especially pleased that the Hubble Space Telescope would be given a new lease on life with the planned repairs and upgrades this mission would provide.

If you have an opportunity to view a launch, by all means go for it – it will definitely be one item you can mark off your “bucket” list!

More of Steve’s Images of the STS-125 Launch  
<http://wsw261.zenfolio.com/>

Kennedy Space Center  
<http://www.nasa.gov/centers/kennedy/home/index.html>

Gray Line Shuttle Launch Tours  
<http://www.grayline.com/Grayline/destinations/us/shuttlelaunch.go>





**Become a Member of the BSAS!**

Download and print the Application for membership from [www.bsasnashville.com](http://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)
- \$15** Student\*

\* To qualify, you must be 21 or younger & enrolled in an accredited institution.

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**

On your Eclipse mailing label is the expiration date for your current membership. There will be a two month grace period before any member's name is removed from the current mailing list.



**We're on the Web!**

See us at:  
[www.bsasnashville.com](http://www.bsasnashville.com)

# 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](http://www.bsasnashville.com). If you need more information, write to us at [info@bsasnashville.com](mailto:info@bsasnashville.com) or call Joe Boyd at (615) 386-3134.

**BARNARD-SEYFERT  
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