

ECLIPSE



The Newsletter of the Barnard-Seyfert Astronomical Society

Celebrating our 76th Year in 2004

November 2004

Meeting of the Barnard Seyfert Astronomical Society to November 18, 2004 at 7:30 pm at the Adventure Science Center, subject: "Science Instruction and Education"

Our speaker, David Van Hoven retired this past spring after teaching for 35 years in Metro Nashville Public Schools. He was the Planetarium Director as well as the Instructor for Introductory and General Astronomy at McGavok High School where he also served as Department Chair until 1998. He has also taught Biology, Anatomy and Physiology, Ecology, Aerospace and Physical Science. Mr. Van Hoven was a recipient of the Metro Nashville Public School "Science Chair" Teacher Award. One of his Master's degrees from Vanderbilt University is in the Methodology of Secondary Science Teaching. He also retired with the rank of Commander from the United States Naval Reserve in 1989.

FROM THE PRESIDENT

By John Harrington,

I'm happy to report that we have made at least modest progress toward some of the goals I set out in my initial message to you last month:

- Our first private star party is scheduled to begin at sunset on Saturday, November 13th, in conjunction with the Cumberland Astronomical Society at their dark sky site located near Castalian Springs, Tennessee. That site is located about 45-60 minutes northeast of Nashville, or about 5 miles due east of Gallatin on Highway 25. Our hardworking webmaster, Tony Campbell, has already posted a link on the BSAS website with Mapquest© directions. This is an excellent opportunity for good fellowship with our CAS colleagues, as well as for stargazing under fairly dark skies, so please do your best to attend this event!
- I have appointed the following chairs of our committees:

Dark Sky: Powell Hall

Equipment, Facilities & Grants: Lonnie Puterbaugh

Finance & Budget: Bob Rice Long Range Planning: Joe Boyd Programs: JanaRuth Ford

We have not yet fulfilled other important goals, but continue to work towards them:

- We are continuing to search for a chairperson to lead the Public Relations, Outreach and Mentoring Committee. This is a great opportunity to contribute to the club, so please contact me if you're interested in serving as the Committee's chair or as a member.
- Likewise, the search for a closer-in dark sky site for BSAS private star parties continues, though without success so far. If anyone knows of a good potential site closer than Water Valley Overlook at mile marker 412 of the Natchez Trace, PLEASE let me or another BSAS board member know!

Switching gears for a bit, I'd like to comment on the wonderful age we live, which is coming to be called a "golden age" for astronomy and space exploration. As I write this column, two NASA rovers (Spirit and Opportunity) have survived the worst of the Martian winter and are poised to begin their explorations again. Meanwhile, the European Space Agency (ESA) Cassini spacecraft entered orbit around Saturn over the summer and this coming January will release the Huygens probe for a voyage through the thick atmosphere of Saturn's largest moon, Titan, hopefully followed by a soft landing on Titan's surface. Meanwhile, NASA's great observatories continue patiently to observe the universe in a multitude of wavelengths—visible light (the Hubble Space Telescope), infrared light (the Spitzer Space Telescope) and x-rays (Chandra)—while several huge ground-based observatories use adaptive optics to sharpen their vision. It's a great time to be into astronomy!

Moving back to our own neighborhood, I look forward to seeing all of you at the joint CAS/BSAS star party at Castalian Springs on the 13^{th} of November!!!

Happy Birthday Hooker Telescope

by Robin Byrne

This month we celebrate the anniversary of "first light" for one of the most impressive telescopes ever built. In 1902, George Ellery Hale proposed building an observatory devoted to studying the sun and stars on a mountainous site overlooking Pasadena, California. With funding from the Carnegie Institution of Washington and Andrew Carnegie, Mount Wilson Observatory was founded in 1904.

In 1908, Mount Wilson became home to the largest telescope ever built, a 60-inch reflector. However, Hale wanted more, and was already in the planning stages to build a 100-inch reflector. A friend of Hale's, John D. Hooker, offered \$45,000 to cover the expenses of the glass disk, building a mirror grinding shop, and for constructing the grinding equipment. Later, additional funds from Andrew Carnegie ensured that the telescope would be built.

The glass disk was ordered from the French Plate Glass Companies in St. Gobain, France in September of 1906. The mirror grinding building, named the "Hooker Building", was constructed with extra safeguards built-in to protect it from fire and earthquakes (the San Francisco earthquake had occurred just 5 months earlier). By August of 1908, the first attempt to cast a 100-inch disk was compete. However, when it arrived in Pasadena that December, they discovered there was a layer of bubbles in the glass. So another attempt would be made, under the supervision of George Ritchey, the chief optician at Mount Wilson. A new disk was cast, but it cracked while cooling. Two more were cast, but none lived up to expectations. It was then decided to try to use the original, "bubbly", disk. Despite Ritchey's concerns, it turned out to work well. A glass expert even suggested that the bubbles would help the glass maintain its shape despite temperature changes, which ended up being true.

With the mirror off to a good start, the next challenge was to build the mount. The completion of the 60-inch telescope helped. Using many of the same design features, the mount was constructed. One of the features was the use of mercury floatation bearings to provide a nearly frictionless support medium. The mercury worked so well that a person could easily move the 100 ton telescope with their hands. Also added was a water cooling system to keep the mirror at a constant temperature. By the fall of 1915, after transporting 650 tons of material to the mountain top via a new road, most of the building and mount were complete.

The mirror grinding was finally finished in 1916. The test of the shape proved to be just what was hoped for. In July of 1917, the mirror was successfully delivered to Mount Wilson, despite the hazardous switchback road and a bomb threat.

After delays due to World War I, it was time to test the completed telescope. On November 1, 1917 the Hooker Telescope had "First Light." Pointing the massive telescope to Jupiter, the astronomers were amazed, but not by the clarity. The image was horrible! Several overlapping images blurred together and filled the eyepiece. Finally, it was realized that while the final touches were being completed on the building, the dome had been open all day, heating the mirror and air in the dome. Hale and Walter Adams decided to let the telescope cool and return at 3:00 am to try again. By this time, Jupiter had set, so they looked at a star. It was a perfect pinpoint of light. Both men heaved a great sigh of relief. Later comparison with the 60-inch found that the telescope performed at its theoretical limits.

Over the years, the Hooker Telescope was used for many important discoveries in astronomy. Albert Michelson developed the techniques of stellar interferometry to measure the diameters of stars with the telescope. Using this new technique, he measured the size of Betelgeuse, which proved the existence of red giant stars. Henry Norris Russell used the telescope in his development of what is now known as the Hertzsprung-Russell Diagram, allowing a star's spectrum to be used to ultimately determine its distance. However, the most famous astronomer to use the Hooker was Edwin Hubble. Using the Hooker Telescope, Hubble proved that galaxies were "island universes" residing beyond the Milky Way. It was also with this telescope, that Hubble, with the assistance of Milton Humason, discovered the expansion of the universe, leading to the idea of the Big Bang.

For forty years, the Hooker Telescope was the largest in the world, and it remains the largest mirror made of a single piece of glass. This telescope, that allowed astronomers to observe the details of our stellar neighbors and to peer out to the farthest reaches of space, holds a very important place in the history of astronomical discovery. It is with great reverence that we should make the wish, "Happy Birthday Hooker Telescope!"

Happy Birthday Hooker Telescope, Continued from Page 2

References:

Mount Wilson Observatory Web Site by Michael Simmons http://www.mtwilson.edu/his/art/gla4.htm

The 100-Inch Telescope of the Mount Wilson Observatory Web Site http://216.239.41.104/search?q=cache:WjT4-cLDPRAJ:www.astro.wisc.edu/~jsg/astro335/class_pdf_materials/Mt wilson hist.pdf+hooker+telescope+history&hl=en

MINUTES OF A REGULAR MEETING OF THE BOARD OF DIRECTORS OF THE BARNARD-SEYFERT ASTRONOMICAL SOCIETY HELD ON 7 OCTOBER 2004

The Board of Directors of the Barnard-Seyfert Astronomical Society met in regular monthly session at the Jefferson Square Club House in Nashville, Tennessee, at 1930h on Thursday, 7 October 2004.

The meeting was called to order by the President, John Harrington, and, upon roll call, those present and absent were as follows:

Present
John Harrington
Pam Thomas
Randy H. Smith
Joe Boyd.
Bill Griswold
Gary W. Wilkerson
Kris McCall
Tony Campbell

Absent Bob Rice Mike Benson JanaRuth Ford

The President declared a quorum present.

In addition to the members of the Board, the following BSAS members were also present: Powell Hall, Lonnie Puterbaugh, and Heinrich Tischler. Heinrich reported that JanaRuth Ford is teaching at MTSU tonight, and was therefore unable to attend.

The president appointed Joe Boyd as acting secretary in the absence of Secretary Bob Rice, who is out of town.

The minutes of the regular meeting held on 2 September 2004 were presented by the Secretary and were approved as presented without objection.

The minutes of the annual meeting held on 16 September 2004 were not available, and will be presented by the Secretary at the next meeting.

The President called on Powell Hall who made a report on the Dark Sky Committee. He has been invited to Roane State Community College to speak on 3 November 2004, to try to start a chapter of the International Dark Sky Association. He would welcome anyone who would like to go with him. After discussing other Dark Sky activities, he talked about the Royal Canadian Observer's Handbook and the difficulties he had with the handling of the funds for the books. Treasurer Randy Smith said he would take care of handling the monetary aspects of securing the books, as he considered it part of the job. A long discussion ensued about how to handle the ordering of Sky and Telescope and Astronomy. Powell agreed to work with Randy to get this straightened out.

It was the agreed by consensus that the BSAS order 26 of the Handbooks and 15 of the Astronomy Magazine calendars.

The President reported for JanaRuth to say that David Van Hoven has been lined up for the November program. He will speak on teaching astronomy in the public schools. She suggests not having a program at the December meeting. The Planetarium is available. It was agreed by consensus to follow her recommendation. Games were discussed for the January program.

Minutes of Board of Directors, continued from Page 3

Old Business.

President Harrington discussed the report of the treasurer of TNSP 2004, Bob Rice, and Pam Thomas reported that there will be an additional \$120.00 to be added to the intake, from sale of leftovers from the snack bar.

President Harrington reported that he has been working on a checklist for future TNSPs, and he will distribute it to the board members next week.

He also reported that the dates of 7-9 October 2005 have been reserved at Camp Nakanawa for TNSP 2005. He suggested that, based on comments he has received so far, the idea of adding an additional day, going from three nights rather than two, be discussed.

Motion. It was moved by Joe Boyd, seconded by Pam Thomas, that the president appoint one person to handle negotiations with Anne and Pepe Perron of Camp Nikanawa to see about extending the TNAP 2005 the extra night, and that a report be brought back to the next board meeting for decision. The motion carried unanimously.

New Business.

President John Harrington brought up the committee system, which he said needs to be continued but reduced in the number of committees. John asked that the following be the committees or coordinator positions be approved by the board: Presentations; Night Sky Coordinator; Equipment and Facilities; Public Relations, Outreach, and Mentoring; Finance; Long Range Planning; Dark Sky; Webmaster Coordinator; Membership Coordinator; ALCOR Coordinator; and Hospitality Coordinator. This would mean folding the former Grants Committee into Equipment and Facilities, and Public Relations into the combined committee set out above. John Harrington moved that the new committee structure be approved by the board, to replace the existing committee structure. The motion was seconded by Tony Campbell, and upon a vote, it carried unanimously. The President declared the motion carried unanimously.

President Harrington announced his appointments of the chairs of the various committees and coordinator positions, effective at once, as follows:

Dark Sky Committee, Powell Hall

Equipment and Facilities Committee, Lonnie Puterbaugh

Finance Committee, Bob Rice

Long Range Planning Committee, Joe Boyd

Presentations Committee, JanaRuth Ford

Public Relations, Outreach, and Mentoring Committee, to be announced

ALCOR Coordinator, Mike Benson

Hospitality Coordinator, Pam Thomas

Membership Coordinator, Bill Griswold

Night Sky Coordinator, JanaRuth Ford

Webmaster Coordinator, Tony Campbell

A discussion was held regarding dark sky sites which might be used by BSAS members. Water Valley Overlook is the best site on Natchez Trace. President Harrington wants to have monthly star parties for the club members, with automatic roll back dates. It was agreed to schedule the Triune site for the next star party. John will look into arranging the site.

Lonnie Puterbaugh suggested having the Messier Marathon at the time in March near the new Moon. He also suggested a backup date in April. He suggested that an inquiry be made to see if any member has land that could be used.

A discussion was held regarding who may have access to the BSAS telephone number so the message can be changed. Tony stated that the number is 252-4091, and to change the message press the star (*) key and input the code. The code was furnished to the board.

Tony Campbell was called from the meeting due to the illness of his son.

The following resolution was introduced by Joe Boyd, read in full, and considered:

Minutes of Board of Directors, continued from Page 4

WHEREAS, it is in the best interest of BSAS that private star parties be held on a regular basis, with one purpose being to build a cohesive organization, NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Barnard-Seyfert Astronomical Society that the BSAS shall sponsor a private star party no less often than once per month, with an alternate fall back date as practicable.

After discussion, Joe Boyd moved that the resolution be adopted as introduced and read. The motion was seconded by Randy Smith, Bill Griswold, and Pam Thomas, and, on roll call, was adopted by a unanimous vote of the directors. The President thereupon declared the motion carried and the resolution unanimously adopted.

President Harrington stated that Lonnie has suggested a joint star party with other clubs, and he would like to explore the idea. Cumberland Astronomical Society (CAS) members who attended TNSP 04 are interested. It was suggested that Henry Horton State Park might be a good place for such a joint party. It was also suggested that initially BSAS invite CAS, the Von Braun club, and Dyer Observatory to participate. John will carry this out.

The following resolution was introduced by John Harrington, read in full, and considered:

RESOLUTION 04-03

RESOLUTION AUTHORIZING AD HOC COMMITTEE TO LOCATE DARK SKY SITES

BE IT RESOLVED by the Board of Directors of the Barnard-Seyfert Astronomical Society that an ad hoc committee be set up to evaluate potential dark sky sites in the Nashville vicinity, with the members of the committee to be appointed by the president.

After discussion, John Harrington moved that the resolution be adopted as introduced and read. The motion was seconded by Bill Griswold, and, on roll call, was adopted by a unanimous vote of the directors. The President thereupon declared the motion carried and the resolution unanimously adopted.

Lonnie suggested the committee look at Big South Fork as a possible location.

The directors discussed having an annual field trip for BSAS members. Suggested places were French Camp, MS; Mile Marker 181 on the Natchez Trace; Green Bank Observatory, WV; the University of the South at Monteagle; and Tamke Allen Observatory. Joe Boyd moved that BSAS have an annual field trip as a club event, and that the President be authorized to take steps to implement this. The motion was seconded by John Harrington, and, upon a vote being taken, was passed unanimously. The President declared the motion carried.

It was announced that the BSAS will participate in an astronomy training session at Grassland Middle School on Thursday, 9 December 2004, at 1900h.

Lonnie reported that 92 T-shirts from TNSP have been sold, with a profit of approximately \$109.95. He has 47 left. He was authorized to contact Will Tirion to give him one of the T-shirts in appreciation for his presentation to BSAS.

Lonnie asked for authorization to purchase Turboflares for use at the Tennessee Star Parties, some of which were used at this year's party. He has located seven packages at a cost of \$52.08 per package, from Sam's Club. Pam Thomas moved that Lonnie Puterbaugh be authorized to purchase seven packages of Turboflares, at an approximate cost of \$52.08 per package, to be paid as a cost of TNSP. The motion was seconded by Joe Boyd, and, a vote being taken, the motion carried unanimously. The President so declared.

Lonnie suggested that the BSAS needs to thank Chuck Schlemm for his hard work in coming to many activities and setting up his large array of exhibits, and explaining for several hours to both children and adults.

Upon a suggestion by Lonnie, the following resolution was introduced by John Harrington, read in full, and considered:

RESOLUTION 04–04
RESOLUTION OF APPRECIATION TO CHUCK SCHLEMM

Minutes of Board of Directors, continued from Page 5

WHEREAS, Chuck Schlemm has actively participated in almost every public event either hosted by or participated in by the Barnard-Seyfert Astronomical Society (BSAS), driving long distances each way to set up his large array of exhibits: and

WHEREAS, he has spent many hours at BSAS functions at Adventure Science Center, the Australian Festival, Warner Park, and others, both setting up his exhibits and explaining for many hours to both children and adults the wonders of the solar system and the universe, as well as the national and international space programs and their equipment;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Barnard-Seyfert Astronomical Society that:

- (1) Chuck Schlemm is hereby recognized for his hard work and his dedication to the BSAS and to the fields of astronomy, space exploration, manned flight, and space travel; and
- (2) The BSAS hereby expresses its appreciation to Check Schlemm for what he has meant to the Society as well as to the communities he has served.

After discussion, John Harrington moved that the resolution be adopted as introduced and read. The motion was seconded by Randy Smith, and, on roll call, was adopted by a unanimous vote of the directors. The President thereupon declared the motion carried and the resolution unanimously adopted.

The following announcements were made:

- Children's Day will be held at Warner Park on 9 October. BSAS will participate in solar viewing and explaining astronomy.
- There will be a Lunar eclipse party at Adventure Science Center on 27 October for the total lunar eclipse. BSAS will furnish the astronomers and the equipment.
- For those who missed the September membership meeting, it is announced that Dr. Rhea Seddon will speak at Adventure Science Center on 1 November at 1900.
- There will be a public star party at Long Hunter State Park on 6 November at 2000. BSAS will furnish the astronomers and the equipment.
- There will be a public star party at Percy Warner Park on 11 December at 1930. BSAS will furnish the astronomers and the equipment.

The suggestion was made that the next TNSP have more and larger signs.

There being no further business to come before the meeting, the President declared the meeting adjourned at 2130.

Joseph M. Boyd, Jr., Acting Secretary

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: \$29.00

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). Please call President, Joe Boyd, (615) 386-3134 if you have questions. Dues can be sent to:

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

THE ECLIPSE NEWSLETTER

Editor: Bill Griswold bgriz@comcast.net

BSAS Officers:

John Harrington, President
Pam Thomas, Vice President
Bob Rice, Secretary
Randy Smith, Treasurer
Joe Boyd, Immediate Past President

Board of Directors

Mike Benson Tony Campbell JanaRuth Ford Bill Griswold Kris McCall Gary Wilkerson

BSAS Logo: Tony Campbell

Barnard-Seyfert Astronomical Society Minutes of the Monthly Membership Meeting Held on Thursday, October 21, 2004

President John Harrington called the meeting to order at 7:38 P.M. at the Adventure Science Center (ASC) and welcomed new members and visitors. The minutes of the previous membership meeting held on September 16, 2004 were approved as published in the October 2004 issue of the *Eclipse* newsletter.

John Harrington presented a program with digital photographs and commentary about his recent trip to Mauna Kea in Hawaii. At 13,800 feet, this extinct volcano rises above the clouds to serve as the site for many of the world's most advanced observatories. Mr. Harrington's presentation centered on Japan's 8.3 meter Subaru telescope that has been optimized for near-infra-red observation because the extremely low relative humidity atop Mauna Kea – typically less than 40% - is conducive to viewing this range of the electromagnetic spectrum. Mr. Harrington also described the facilities and computer array located at the base facility in Hilo some 40 miles away.

John Harrington recalled the meeting to order at 8:40 P.M. Mr. Harrington announced these new committee chairpersons:

Dark Sky: Powell Hall

Equipment, Facilities & Grants: Lonnie Puterbaugh

Finance & Budget: Bob Rice Long Range Planning: Joe Boyd

Public Relations, Outreach & Mentoring: Open

Programs: JanaRuth Ford

Kris McCall and JanaRuth Ford announced these upcoming events:

October 27 Lunar Eclipse party at ASC

November 1 Dr. Rhea Seddon at ASC for Boy Scouts and BSAS members

November 6 Star party at Long Hunter State Park

November 13 Joint star party with the Cumberland Astronomical Society at their dark sky site in Castilian Springs

December 9 Outreach at Grassland Elementary School December 11 Star party at Percy Warner Park at 7:30PM

Tennessee Star Party (TNSP) Treasurer Bob Rice reported a checking account balance of \$2,722.16 with all deposits credited to the TNSP account and eight checks still outstanding. Mr. Rice noted that the TNSP had not yet been billed for t-shirts or NASA speaker Paul Johnson's mileage. BSAS Treasurer Randy Smith reported that the Society's checking account balance was \$3,650.06 and that he was aware of no outstanding obligations.

Program Committee Chair JanaRuth Ford reported that former Metro teacher David van Hoven, who operated a planetarium at McGavock High School until his recent retirement, will speak at the November meeting about involving teens in astronomy. Ms Ford announced that there would be no speaker at the annual holiday dinner in December. Joe Boyd announced that an area cub-scout master had asked about conducting an outreach program sometime during November 11–12. John Harrington asked any members interested in participating to contact him.

Kris McCall announced that she wanted to find homes for some excess astronomy books and suggested having a silent auction for that purpose during the December holiday dinner. She noted that other members might also have items to contribute. John Harrington said that anyone interested in doing this could contact him or Ms McCall. Mike Benson announced that he would take orders for Guy Ottewell's Astronomical Calendar 2005 after the meeting.

President John Harrington and Vice-President Pam Thomas presented Joe Boyd with a handsome plaque of appreciation for his two years of service as the BSAS' past president. Since there was no further business to consider, President Harrington declared the meeting adjourned at 9:17 P.M.

Respectfully submitted, Bob Rice, Secretary

Mike Benson has ordered 25 of the 2005 Guy Ottwell Astronomical Calendars. They should be available at the November meeting. The cost will be \$21 each and that includes the postage. About half have already been spoken for. If you want to reserve a copy, please either call me at: 883-6571 or e-mail me at: Ocentaurus@aol.com.

Activities and Events

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11/4	LAST QUARTER, Venus 0.6° N of Jupiter	12/2	Board of Directors meeting, 7:30, Jefferson Square
11/4	Board of Directors meeting, 7:30, Jefferson Square	12/4	LAST QUARTER
11/5	Double shadow transit on Jupiter	12/5	Venus 1.3° N of Mars (27° W)
11/6	Star party at Long Hunter 8:30-10:30pm	12/7	Jupiter 0.3° S of Moon, occultation
11/9	Jupiter 1.0° S of Moon, occultation; Venus 0.2 ° N of	12/9	Mars 2° N of Moon
	Moon, occultation	12/11	NEW MOON
11/10	Mars 0.5° N of Moon, occultation	12/11	Star party at Percy Warner Park 7:30pm
11/11	Mercury 2° N of Antares	12/12	Large tides
11/12	NEW MOON, Double shadow transit on Jupiter	12/13	Geminid meteors peak
11/13	Mercury 0.9° N of Moon, occultation	12/16	BSAS Christmas Party & Membership meeting,
11/13	Joint star party with CAS at Castalian Springs site		ASC, 6:00 pm
11/17-18	Leonid meteor shower	12/18	FIRST QUARTER
11/18	FIRST QUARTER	12/21	Winter Solstice at 6:42am CST
11/18	Membership meeting, ASC, 7:30 pm	12/26	FULL MOON
11/20	Mercury greatest elongation E (22°)	12/28	Mercury 1.2° N of Venus (22° W)
11/27	FULL MOON	12/29	Mercury greatest elongation @ (22°)

November 1 — 30, 2004

Note: all dates & hours according to Central Time

December 1 — 31, 2004

FOUND AT TNSP 2004: One soft, check-pattern shirt, tan with greenish and bluish stripes, plus a pair of blue jeans. Please contact John Harrington at 937-3650 to claim.

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