



# ECLIPSE



*The Newsletter of the Barnard-Seyfert Astronomical Society*

Organized in 1928

November 2006

**The Membership Meeting will be held on  
November 16, 2006 at the  
Adventure Science Center at 7:30 pm.**

Dr. Higgins will talk on Dark Matter. He says "Dark matter and Dark Energy make up about 96% of the Universe and nobody knows what it is. How do we know that this material/energy exists and what tools/techniques do we have to measure it? I plan to shed some light on this matter (pardon the double-pun) by giving you an update on the latest knowledge and theories. This can help us understand how the Universe is structured and explain why the universe is expanding".

Continued on Page 2

## President's Message

This month I would again like to ask for the membership's help. As I mentioned in an Eclipse issue earlier this year, one of the challenges facing BSAS is the recruitment of new members, and the engagement of existing members. We have a great core group of members who are largely responsible for running the club, conducting outreach activities, and attending monthly membership meetings and star parties. For our club to continue to thrive and be effective in its outreach work, we need to actively recruit new members, in particular members who are interested in participating in club activities.

We would also be greatly enriched if we could diversify our membership by attracting more women, young people and people with varying backgrounds. I recently attended a symposium where the editor of *Sky & Telescope* magazine presented statistics that described the "typical" amateur astronomer. This person was most likely to be a middle aged white male. Now, don't get me wrong. As one of those, I certainly am not proposing that we dispose of any of them, or discourage their membership and participation. However, we do need to work together for the long-term health of the club to encourage the growth of a diverse and active membership. What I would ask of each of you is that you invite one person to attend the November or December membership meeting this year. If you would prefer not to do this, but know someone you think might be interested in membership, please let me know and I will be happy to personally invite them to join the club.

I would also like to solicit comments from BSAS members who attended last month's TNSP 2006. We are planning on having the 2007 event at the same location (the TAG camp near Lynchburg), and would like to begin the planning process by reviewing this year's event. If you have some thoughts on how to improve the event, please let us know. If you didn't come this year, but would come if something different were added to the TNSP, please let us know about that as well.

Thanks for you help. As usual, please don't hesitate to contact me with any questions or concerns you may have about the BSAS.

Best regards,

Mark Manner

Cell 615-351-3172

Office 615-251-1066

[mark.manner@h3gm.com](mailto:mark.manner@h3gm.com)

<http://www.spotastro.com>

<http://groups.yahoo.com/group/tnastronomy/>

Program, continued from Page 1

Chuck Higgins, Ph.D.

Assistant Professor Physics & Astronomy

Dr. Higgins grew up in Huntsville, Alabama, and the roar of the Saturn V engines on the test stands at Marshall Space Flight Center had enough of an impression on him that he majored in Physics at the University of Alabama in Huntsville. After working for McDonnell Douglas for 1 year he returned to school at the University of Florida to earn a M.S. and a Ph.D. in Astronomy in 1996. His research area is Planetary Radio Astronomy and his thesis project was recalculating the rotation period of Jupiter using radio astronomy data gathered at UF. He was a post-doc at NASA-Goddard Space Flight Center where he continued research and also got involved in science education programs. After a teaching position at Penn State University, Dr. Higgins joined the faculty at Middle Tennessee State University in 2001.

### 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: \$37.00

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](mailto:president@bsasnashville.com) if you have questions. Dues can be sent to:

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

#### THE ECLIPSE NEWSLETTER

Editor: Bill Griswold

[bgviz@comcast.net](mailto:bgviz@comcast.net)

#### BSAS Officers:

Mark Manner, President

Keith Burneson, Vice President

Bob Rice, Secretary

Randy Smith, Treasurer

Pam Thomas, Immediate Past President

#### Board of Directors

Mike Benson

Tony Campbell

JanaRuth Ford

Bill Griswold

Kris McCall

Gary Wilkerson

BSAS website: [www.bsasnashville.com](http://www.bsasnashville.com)

BSAS Logo by Tony Campbell

## Happy Birthday Gemini 12

by Robin Byrne

This month we celebrate the culmination and accomplishments of the Gemini space program. Designed as a stepping stone to the Moon, the Gemini program tested, individually, all the techniques necessary to get to the Moon. By the time Gemini 12 was ready to launch, prior flights had successfully rendezvoused, docked, and proven the endurance capabilities of the astronauts. The one area that had been more difficult than expected was working in space. It was up to Gemini 12 to solve that problem.

On the afternoon of November 11, 1966, Jim Lovell and Buzz Aldrin approached their Gemini spacecraft with some additions to their spacesuits: they had taped the words "THE" and "END" on their backs, acknowledging the final flight of a Gemini craft. After a perfect launch, they were ready to go to work.

One of the first objectives was to rendezvous and dock with a Gemini Agena target vehicle (GATV). As they approached the vehicle, they realized their onboard ranging radar was not working. Using a handheld back-up range finder, Buzz Aldrin (aka Dr. Rendezvous) got a chance to put his doctoral dissertation about rendezvous maneuvers to the test. The procedure worked flawlessly, and they were soon docked with the GATV. Once docked, they tested undocking and re-docking. Despite some sticky latches that had to be coaxed into letting go, all worked well. A secondary objective of using the Agena's engines to boost the entire system to a higher orbit had to be scrubbed due to a propulsion problem with the GATV.

However, there was a silver lining to the change in plans. An original objective of photographing a solar eclipse had earlier been dropped due to conflicting with the altitude adjustment plans. Since that part of the mission was changed, they now could see the eclipse. This last minute addition to a mission was a first. Although the Agena didn't have enough thrust to change their altitude, it did have enough to speed up the Gemini and get in position to catch the eclipse. Once in position, the astronauts had the opportunity to observe the eclipse and photograph it.

Although docking with the Agena was another successful test of procedures needed to go to the Moon, and observing the eclipse was a boon to science, the most important part of the mission had yet to occur. Prior to this mission, three Americans had walked in space. While Ed White had merely floated along with the spacecraft, when Dick Gordon and Gene Cernan attempted to perform any tasks while in space, during their respective missions, they discovered how hard it really was. Both men exhausted themselves, and it was looking like spacewalks were not feasible. Buzz Aldrin was ready to prove that it could be done.

Over the course of three Extravehicular Activities (EVA's), Aldrin made it look easy. Two EVA's were spent standing in his seat, during which he photographed the stars and discarded some unneeded equipment and garbage. One EVA took him outside of the craft, where he tested handrails and footholds. He found he could easily perform "busy box" tasks, such as loosening and tightening bolts, connecting wires, and other manual tests. He then ventured to the Agena vehicle (still docked with Gemini) to attach a tether. On his way back to the capsule, he stopped to wipe Jim Lovell's window and check the "air in the tires." The tether allowed them to undock from the Agena and test how well a tethered system works in orbit. Although the tether experiment was inconclusive, what was definite was that Buzz Aldrin showed the world how to successfully perform an EVA.

Four days after launch, the crew was ready to return home. The reentry went fine, other than a pouch breaking free from its Velcro and landing in Lovell's lap during the peak of g-forces. The procedure during reentry is for both astronauts to hold the ejection rings located between their legs (just in case). Lovell resisted trying to catch the pouch, for fear he'd accidentally eject the two of them during the hottest stage of reentry. A slightly harder ocean landing than planned brought them within 4 miles of the target location, and brought an end to the Gemini program.

Each new addition to the International Space Station requires astronauts to spend hours maneuvering themselves, moving equipment, and fastening connections. Today we take for granted that such a mission will be successful. However, 40 years ago, that confidence didn't exist. It wasn't until the success of Buzz Aldrin and Gemini 12 that we could feel confident about going to the Moon, and about man's future in space. Much has happened in the space program over these past 40 years, and we can thank the crew of Gemini 12 for helping us to get where we are today.

References:

NASA Project Gemini - XII

<http://science.ksc.nasa.gov/history/gemini/gemini-xii/gemini-xii.html>

Gemini 12

<http://www.astronautix.com/flights/gemini12.htm>

**Barnard-Seyfert Astronomical Society**  
**Minutes of a Regular Meeting of the Board of Directors**  
**Held On Thursday, October 5, 2006**

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 October 5, 2006. A sign-in sheet was circulated in lieu of a roll call. Board members Mike Benson, Keith Burneson, Tony Campbell, JanaRuth Ford, Bill Griswold, Kris McCall, Mark Manner, Bob Rice, and Randy Smith were present. Board members Pam Thomas and Gary Wilkerson were absent. Also attending were Long Range Planning Committee Chair Joe Boyd, Equipment Committee Chair Lonnie Puterbaugh, and BSAS members Donna Hummell and Heinrich Tischler. A quorum being present, President Mark Manner called the meeting to order at 7:38 P.M.

Treasurer Randy Smith reported that the Society's bank balance was \$3,585.91. Upon Mark Manner's inquiry, the board learned that this amount did not include approximately \$1,400.00 that will be transferred from the Tennessee Star Party (TNSP) bank account. Mr. Manner led the board in a general discussion of the recently completed TNSP and Joe Boyd submitted written suggestions to be considered for the 2007 TNSP.

Program Committee Chair JanaRuth Ford announced these upcoming membership meeting programs and activities:

October – Kris McCall to show “Nine Planets and Counting” in the Sudekum Planetarium

November – Dr. Chuck Higgins of Middle Tennessee State University on “Dark Matter”

December – Annual potluck holiday supper

January – Possibly Dr. Scott Hawley of Belmont University on “Grabbing Black Holes”

Mark Manner announced that the BSAS would pay the annual Astronomical League dues to continue its membership in that organization. The board then discussed potential candidates for officer and director positions to be voted upon during the annual membership meeting in November.

Kris McCall informed the board about these upcoming events:

October 17 – The Adventure Science Center (ASC) will publicly announce its upcoming plans

November 8 - News Hour will visit the ASC & conduct interviews regarding the transit of Mercury

January 7 – Will be the last day for scheduled planetarium programs due to planned construction

Ms McCall also sadly announced that Hume-Fogg Academic High School astronomy educator John Hornaday had died in January. In addition, she passed along information from Warner Park that it planned to renovate its special events field during 2007; BSAS members Heinrich Tischler and Steve Wheeler may review those plans. JanaRuth Ford suggested that there might be a constellation shootout at the ASC before the planetarium programs cease in January.

Since there was no further business to discuss, President Manner declared the meeting adjourned at 8:30 P.M.

Respectfully submitted,  
Bob Rice  
Secretary

**Barnard-Seyfert Astronomical Society  
Minutes of the Monthly Membership Meeting  
Held on Thursday, October 19, 2006**

President Mark Manner called the meeting to order at 7:32 P.M. in the Adventure Science Center (ASC) and welcomed new members and visitors. Mr. Manner commented that he had experienced some problems with bulk emails to Comcast recipients. Treasurer Randy Smith reported that the BSAS' bank balance was \$3,190.96. Mr. Smith also announced that copies of the 2007 Observers Handbook and the Kalmbach Calendar would again be on sale for \$20.00 and \$10.00 respectively, but that members would have to pay for their orders in advance.

Mark Manner reminded the audience that pictures from the recently concluded Tennessee Star Party (TNSP) had been published in the October *Eclipse* newsletter. Noting that the BSAS essentially broke even on the TNSP this year, Mr. Manner described it as a fun event despite being almost completely rained out. He further pointed out that the TNSP had good speakers and a good facility to which we would return. In conclusion, Mr. Manner solicited member's opinions regarding the TNSP for publication in the next *Eclipse*.

Mr. Manner reported these recommendations from the Nominating Committee to be candidates for the election of officers and board members at the annual membership meeting in November: for President – Bill Griswold; for Vice-President – Terry Reeves; for Secretary – Bob Rice; for Treasurer – Randy Smith; for Board Members at Large – Keith Burneson, Donna Hummell, and Steve Wheeler; and for Board Member Ex Officio – Kris McCall.

Mark manner announced these upcoming events of interest:

November 3: Public star party at Middle Tennessee State University  
November 7: Dark Sky Committee meeting  
November 16: Annual BSAS membership meeting & election  
November 17: Public star party at Long Hunter State Park

Kris McCall announced that Dark Sky Committee Chair Powell Hall had been hospitalized, but was doing better now. She noted that the next Dark Sky Committee meeting would still be held on November 7 as scheduled.

Tony Campbell reported that BSAS member Kayla LaFrance will receive a VIP tour of NASA facilities as her prize for submitting the best video in a competition sponsored by that agency. Hopefully Ms La France will show her winning video at a future membership meeting.

Since there was no further business to discuss, President Manner declared the meeting adjourned at 7:38 P.M.

Attendees then relocated to the Sudekum Planetarium for a special presentation of the "Nine Plants and Counting" program by Kris McCall. This program, skillfully created by Ms McCall and the ASC staff before the International Astronomical Union's pronouncement on Pluto earlier this year, deftly portrayed the features and relationships of all solar system objects – sun, planets, asteroids, and others – in a way that left the viewer well prepared for ensuing classification changes. Following this presentation, Ms McCall briefly demonstrated a prototype of the spectacular new projection system that will be installed during the upcoming renovation.

Respectfully submitted,  
Bob Rice  
Secretary

## Activities and Events

November 1 — 30, 2006

11/1 Uranus 0.5° N of Moon  
 11/2 BSAS Board of Directors mtg., 7:30 p.m. at Girl Scout Office  
 11/3 MTSU Star Party, 6:30 to 9:00  
 11/5 FULL MOON  
 11/6 Moon 0.6° N of Pleiades (M45)  
 11/8 Transit of Mercury  
 11/12 LAST QUARTER; Saturn 1.6° S of Moon  
 11/14 Iris at opposition  
 11/16 BSAS monthly meeting at ASC: 7:30 p.m.  
 11/17 Spica 0.6° N of Moon  
 11/18 Private Star Party, Natchez Trace mile 435  
 11/20 NEW MOON  
 11/25 Mercury greatest elongation W (20°)  
 11/28 FIRST QUARTER; Uranus 0.3° N of Moon

December 1 — 31, 2006

12/1 MTSU Star Party, 6:30 to 9:00  
 12/3 Moon 0.6° N of Pleiades (M45)  
 12/4 FULL MOON  
 12/7 BSAS Board of Directors mtg., 7:30 p.m. at Girl Scout Office  
 12/9 Mercury 1.0° N of Mars (15° W)  
 12/10 Saturn 1.2° S of Moon; Mercury 0.1° N of Jupiter  
 12/11 Mars 0.8° S of Jupiter  
 12/12 LAST QUARTER  
 12/14 Geminid meteors peak  
 12/15 Spica 0.8° N of Moon; Star Party, Warner Park, 8:00 to 10:00  
 12/16 Private Star Party, Natchez Trace mile 435  
 12/18 Antares 0.4° N of Moon  
 12/20 NEW MOON  
 12/21 BSAS monthly meeting at ASC: 6:00 p.m. Covered dish and Christmas Party  
 12/21 Solstice  
 12/25 Christmas day; Uranus 0.08° S of Moon  
 12/27 FIRST QUARTER  
 12/31 Moon 0.7° N of Pleiades (M45)

Note: all times are Central Time

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

