

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

Upcoming Events

Board of Directors Meeting

April 1st at the Cumberland Valley Girl Scout Council Building – 7:30 pm

May 6th at the Cumberland Valley Girl Scout Council Building – 7:30 pm

Membership Meeting

April 15th at the Adventure Science Center – 7:30 pm

May 20th at the Adventure Science Center – 7:30 pm

Star Parties

April 10th - BSAS Messier Marathon at Spot Observatory.

April 17th - BSAS Public Star Party at Sudekum Planetarium – 8:00 -10:00pm

May 8th - BSAS Private Star Party at Natchez Trace mile marker 435.5

May 15th - BSAS Public Star Party at at Long Hunter State Park - 8:30-10:30 pm

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Monthly Membership Meeting

Thursday, April 15, 2010
Adventure Science Center
7:30 pm



Sudekum Planetarium Director Kris McCall will present the planetarium program **"The Seven Wonders of the Universe"**. See you there!



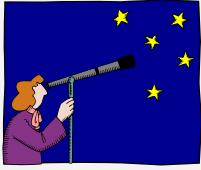
From The President

Greetings and clear skies from your president. We finally managed to hold a few star parties during March, one at Bells Bend and the other at the Adventure Science Center. Although the public turn-out was not as large as hoped for, there were a number of members with telescopes at each event. As the weather warms, perhaps the word will get out and more of the general public will come to our star parties. Our next one is the rain/cloud delayed Messier Marathon on April 10/11 at Mark Manners Spot Observatory. This is an all night event so come prepared with warm clothing, drinks (no alcohol please) and snacks. The next public star party is again at the Adventure Science Center for their celebration of Astronomy Day on April 17.

I want to thank Kris McCall for the excellent show she gave us at the March meeting. I have been following the exploits of Martian explorers since the days of Viking but Kris really put it all together. The Mars Update program drew one of the largest crowds we have had at a BSAS meeting in some time. I know some of it was due to certain faculty from APSU bribing their students to attend but only around 50 students signed the attendance sheets and estimates were around 110 people were in attendance. Whatever the reasons they came for, they got a really exciting program from Kris. The program for the April meeting will be another planetarium program on "The Seven Wonders of the Universe". I look forward to it and hope we draw another large crowd. If we all get the word out, maybe we can fill the planetarium this time.

Have you had a chance to observe the Sun recently? It looks like we may finally be coming out of the prolonged solar minima we have been in for almost two years. The year 2008 was the second quietest in a century and 2009 was only slightly more active. There were 266 spotless days in 2008 and 260 in 2009. As of March 31, there have only been 6 spotless days in 2010. Cycle 24, the current solar cycle, started its up-swing in late 2009 and the numbers of sunspots has been slowly climbing. We still aren't seeing large numbers of spots but a few is better than none. Most predictions are for a relatively low peak to Cycle 24 with somewhere between 50 to a little over 100 averaged sunspot counts. That doesn't mean you will see 50 to 100 sunspots because of the way the sunspot number is computed, though. SpaceWeather.com reports what is known as the Boulder Sunspot Number (BSN) which is computed from the number of sunspot groups and the number of individual spots in all the groups multiplied by a scaling factor. The number you would actually see at medium magnification with a 10" telescope using a neutral density filter is probably only about a tenth of the BSN. Still, five to ten sunspots at one time is a lot more than the one or two at a time that we have seen so far this year.

Continued on Page 2



"Mortal as I am, I know that I am born for a day. But when I follow at my pleasure the serried multitude of the stars in their circular course, my feet no longer touch the earth."

Ptolemy
c. AD 90 – c. AD 168

FREE TELESCOPES!

Yes, you did read that correctly. The BSAS Equipment & Facilities Committee has free telescopes ranging in size from 2.6" to 8" that current members can actually have to use for up to 60 days at a time.

We also have some other items in the loaner program such as a photometer, H-alpha solar telescope, educational CDs, tapes, DVDs, and books.

Some restrictions apply, and a waiting list may be applicable in some cases. The BSAS Equipment Committee will not be held responsible for lost sleep or other problems arising from use of this excellent astronomy gear.

For information on what equipment is currently available, contact Lonnie Puterbaugh at (615) 661-9540.

Observing Highlights

all times listed are Central Standard Time

LUNAR PHASES

April 2010

04/06 LAST Quarter
04/14 NEW Moon
04/21 FIRST Quarter
04/28 FULL Moon

May 2010

05/05 LAST Quarter
05/13 NEW Moon
05/20 FIRST Quarter
05/27 FULL Moon

OBJECTS VISIBLE THIS MONTH

Messier Objects:

M40 (star pair)

Galaxies:

M65, M66, M95, M96, M97, M105, M106, M108, M109

Lyrid meteor shower – April 21-22
radiant in Lyra (E) - 10-20/hour

Eta Aquarids meteor shower – May 5-6
radiant in Aquarius

From the President, cont.

Since I brought up the subject of observing the Sun, it is important to say a few words about safe solar observing techniques. The single most important thing to remember is never look directly at the Sun with your naked eye! Even at sunrise or sunset, it only takes a few seconds of direct solar observing to cause permanent eye damage. There are several ways to safely observe the Sun. One of the simplest is the pin-hole method. A small pin-hole punched in a piece of aluminum foil and held above a white piece of paper will project an image of the Sun onto the paper. It is important that the hole be very small, though. If it is too large it will let too much light through and the image will be uncomfortably bright to look at. The Sunspotter solar telescope (around \$350) is a commercially available device that uses the pin-hole technique to observe the Sun. The second method is to use a neutral density filter of some type. Least expensive, sheets of aluminized Mylar wrapped over the front of your telescope work well. A little more expensive, you can buy glass solar filters designed to fit over your telescope or binoculars. Finally, at the more expensive end, H-alpha telescopes look at the Sun in a very narrow wavelength range around the H-alpha absorption line. An H-alpha filter can run a few thousand dollars, though. The PST is the least expensive version of this type and they currently sell for around \$500.

However you choose to safely observe the Sun, be sure to share. Solar observing is the only daytime observing that everyone can enjoy. Take your solar telescope to a school or Girl Scout or Boy Scout meeting. Talk to them about safe solar observing techniques and then let them enjoy our once again active Sun.

Dr. Spencer Buckner
President

Happy Birthday Petrus Apianus

by Robin Byrne

This month we honor the life of a man whose publications helped to popularize astronomy in the 16th century. Peter Bienewitz (or Bennewitz) was born to Martin and Gertrude Bienewitz on April 16, 1495 in Leisnig, Saxony, and was one of four sons. The family was considered middle-class, with Martin making a good living as a shoemaker.

Peter began his education in Rochlitz at the Latin school. His higher education began in 1516 at the University of Leipzig. It was here that he latinized his name to Petrus Apianus (Biene is German for "bee", which in Latin is "apis"), although he is also known as Peter Apian. For three years, Apianus studied mathematics, astronomy and cosmography. Cosmography was the study of the positions of objects in the universe, using mathematics. Apianus proved to excel at this sort of applied mathematics. In 1519, Apianus moved to the University of Vienna. He was awarded his B.A. after two years of studying geography and mathematics, which was brought to a halt due to an outbreak of the plague.

During this era of great explorers (Vasco da Gama, Christopher Columbus, and Ferdinand Magellan), it is not surprising that Apianus' first publication would be a world map. A few years later, in 1524, Apianus published "Cosmographicus liber," which covered astronomy, geography, mapmaking, surveying, navigation, meteorology, and various scientific instruments. Included among the instruments were paper devices called "volvelles," which could be used by the reader to find positions of the sun, moon and planets. Also in the book were several maps, including some of the earliest maps of America. This book was so popular, it was reprinted 30 times, and was published in 14 different languages.

In 1526 Apianus married Katharina Mosner, the daughter of a councilman in Kandshut. Over the years, they would have five daughters and nine sons. One of their sons, Phillip, would follow in his father's footsteps and make a name for himself in the field of mathematics.

Due to the success of "Cosmographia," Apianus was appointed a position as Professor of Mathematics at the University of Ingolstadt in 1527. Apianus would work here for the rest of his life. In addition to teaching mathematics, Apianus was also put in charge of a print shop, which, under his leadership, became renowned for the quality of printing, especially of books concerning mapmaking and geography. Another result of "Cosmographia's" success was the patronage of the Holy Roman

emperor, Charles V. In 1530, Charles V gave Apianus a printing monopoly, and later granted him the right to display a coat of arms.

In 1540, Apianus dedicated his latest work, "Astronomicum Caesareum," to Charles V. Although similar to "Cosmographia," this book was more lavishly illustrated, and it contained some new discoveries. One new idea was the use of solar eclipses for determining longitude. However, more importantly, this book contains Apianus' observations of five comets (one of which would later be named Halley's Comet). From his observations, Apianus was able to determine that the tail of a comet always points away from the Sun. In recognition of his work, Charles V awarded Apianus 3000 golden guilders, named him Court Mathematician, and knighted not only Apianus, but also his three brothers. Later, Charles V would bestow upon Apianus the title of Imperial Duke of the Court and Palatinate.

"Astronomicum Caesareum" appears to be Apianus' last major work. Although he continued to work at the University of Ingolstadt, no new publications appeared. On April 21, 1552, Petrus Apianus died. Apianus' contributions to astronomy and mathematics are varied, and some of his work lives on as a legacy. The idea that a comet's tail always points away from the Sun is now understood to be due to the solar wind. If it had not been for Apianus' observations and publication, how much longer would we have had to wait to understand our sun? Apianus' popularization of various scientific instruments undoubtedly inspired many of his readers, as well. And, to this day, we can remember Apianus by observing the crater on the Moon named for him. We owe much to this month's honoree: Petrus Apianus.

References:

Petrus Apianus - Wikipedia
http://en.wikipedia.org/wiki/Petrus_Apianus

Apianus biography
<http://www.gap-system.org/~history/Biographies/Apianus.html>

Peter Apian Biography
<http://www.petrus-apianus.com/>

Board Meeting Minutes – March 4, 2010

Santos Lopez, Board Member

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 March 4, 2010. Board members Dr. Spencer Buckner, Bill Griswold, Bob Norling, Curt Porter, Dr. Terry Reeves, JanaRuth Ford, Santos Lopez and Kris McCall were in attendance. Board members Theo Wellington, Tony Campbell, Dr. Donna Hummel, and Bob Rice were unable to attend. A quorum being present, President Dr. Spencer Buckner called the meeting to order at 7:35 P.M. Santos López volunteered to act as secretary and take the minutes, with the aid of Curt Porter's pen.

Treasurer Bob Norling reported that BSAS had \$2,439.41 in its regular checking account, and \$150 in its equipment fund. Dr. Buckner proposed using the equipment fund to acquire needed gear, like eyepieces, and Curt Porter proposed that a call be made to BSAS members to donate their surplus equipment, or make cash contributions. Dr. Buckner proposed meeting with Lonnie Putterbaugh and the equipment committee to obtain a report detailing what gear we currently have, and after that the board can decide on what was needed. The motion was and approved by a unanimous voice vote.

The next item in the agenda was a discussion of upcoming star parties. Dr. Buckner expressed relief at not having to cancel the Shelby Bottoms party on February 20th. Dr. Reeves mentioned that there about 40 members of the public were treated to good views of Saturn and other winter targets. Other star parties in the agenda included:

- March 13th – Messier Marathon for club members @ Mark Manner's Spot Observatory, with a rain date of April 10th at the same location
- Saturday, March 20th – Public star party @ Warner Parks event field from 8:00 – 10:00 PM; later start time due to DST
- Saturday, March 26th – Public star party @ Adventure Science center to coincide with Earth Hour. 8:00 – 10:00 PM. We can expect a group of Cub Scouts and a great opportunity to discuss the effects of light pollution.
- Saturday, April 17th – Public star party @ Adventure Science center to celebrate Astronomy Day, 8:00 to 10:00PM. Throughout the day there will be talks about new planetary exploration, a demo about how craters are formed, a discussion on whether Pluto is a dwarf planet or a Kuiper-belt object. The ASC will encourage small group discussions about Astronomy, and that as always, our help will be needed to set up daytime telescopes to observe the sun.

The next item on the agenda was a discussion of the Middle Tennessee Science and Engineering Fair. Traditionally BSAS has provided a cash award to the best Astronomy entries, and Dr. Buckner mentioned that this year there is at least one Astronomy entry. However, since the fair will take place on March 18th at Austin Peay in Clarksville, which coincides with our monthly membership meeting, the board discussed who could represent BSAS. After a lively discussion Larry Dunlap-Berg, an educator at The ASC, and Astronomy professor Allyn Smith of Austin Peay were selected to serve as Judges. If an entry merits an award, Dr. Buckner will present a check at the awards ceremony. A motion was called to approve the disbursement of funds if an award is to be given, which was approved by unanimous voice.

A discussion about upcoming programs took place. Dr. Buckner discussed the possibility of the April meeting being a planetarium show, a presentation about debunking "2012 end of the world Mayan prophecies", or a program about the "unsung Heroes of Astronomy". Santos López said that he is still onboard for doing the 2012 lecture, but that he needs a bit more time to prepare. Kris McCall offered a planetarium show titled "7 wonders of the Ancient world and 7 Wonders of the Modern Universe", which sounded really exciting. She went on to describe it, but you'll have to come to the April meeting to experience it in 1080p HD and 7.1 DTS sound.

Dr. Buckner inquired about the results of the silent auction at ASC, and Kris McCall was happy to announce that there was a winning bid on the "Private Star Party" package. The winners will have a year to claim their prize, and they are aware that certain meteorological conditions must be taken into account before scheduling it.

JanaRuth received an inquiry from Metro Parks about scheduling a public binocular star party at the Edwin Warner parks. A date of June 11th was proposed if it does not interfere with the Bell's Bend start party which is already on the calendar.

Having no other business to discuss, other than whether curling should be an Olympic sport, or be demoted to a "pastime like Billiards", El Señor Presidente Buckner declared the meeting adjourned at 8:30 P.M. And off into the night they went, with a song in their hearts.

OFFICERS

Dr. Spencer Buckner
President

Dr. Donna Hummel
Vice-President

Bob Rice
Secretary

Bob Norling
Treasurer

Directors at Large

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

Steve Wheeler
Newsletter Editor
wsw261@hotmail.com

**Monthly meetings
are held at:**



**The Adventure
Science Center**

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

Monthly Meeting Minutes – March 18, 2010

Bob Rice, Secretary

President Dr. Spencer Buckner called the meeting to order at 7:30 P.M. in the Adventure Science Center (ASC) and welcomed new members and visitors. Treasurer Bob Norling reported that the BSAS had \$2,469.41 in its regular bank account and \$150.00 in its equipment account. Dr. Buckner announced these upcoming events:

- Mar 20 – a public star party at the Warner Parks' special events field from 7:30 – 9:30 P.M.
- Mar 26 – a public star party at Bells Bend Park from 8:00 – 10:00 P.M.
- Mar 27 – Earth Hour (hopefully with many city lights out) at the ASC from 8:30 – 9:30 P.M.
- Mar 25 – Vanderbilt University's Seyfert Lecture at 4:00 P.M. on "Primordial Ice Reservoirs of the Solar System" by UCLA professor Dr. David C. Jewitt.
- Apr 10 & 11 – Messier Marathon at Mark Manner's Spot Observatory.
- Apr 16, 17, & 18 – TN Spring Star Party @ Fall Creek Falls State Park sponsored by the Cumberland Astronomical Society.
- Apr 17 – Astronomy Day at the ASC.

Dr. Buckner also announced that the program for the April 15 membership meeting would be a presentation on "The Seven Wonders of the Modern Universe" by Sudekum Planetarium Director Kris McCall.

Dr. Spencer Buckner then introduced BSAS board member and Sudekum Planetarium Director Kris McCall who delivered the evening's planetarium program on "Mars Update." This program, professionally produced for the new Sudekum Planetarium's 60-foot dome and state-of-the-art Goto projection and sound systems, began with a brief summary of how our views on Mars have changed over the years - from H.G. Wells and Percival Lowell to the Mars Exploration Rovers Spirit and Opportunity. It then showed where to find Mars in the current night sky and provided an excellent animation of how the Earth and Mars moved in their orbits with respect to each other. The program also explained the current status of the various spacecraft working at Mars, what they've discovered, and what other spacecraft have been or will be doing on Mars. Following this presentation, Ms McCall showed and personally narrated a collage of videos selected from NASA's and JPL's (Jet Propulsion Laboratory) websites that showed (among many other events) pre-launch tests of the rovers being dropped from helicopters and the Rock Abrasion Tools (RAT) that later became trench-diggers and geologists on wheels on Mars. In addition, she outlined some of the accomplishments of the Spirit and Opportunity rovers including:

- Finding volcanic ash in Gusev crater
- Lasting far beyond their three month design limitations
- Measuring solar output
- Seeing dust devils that are fuller and wider than on Earth
- Identification of ancient steam vents

Although these selected NASA and JPL videos were sometimes grainy and certainly not as professionally slick as the preceding "Mars Update" sequence, no one could miss the enthusiasm and excitement in Ms McCall's voice as she recounted the hard work and thought from so many that had gone into expanding our knowledge of the red planet.

Since there was no further business to discuss, Dr. Spencer Buckner declared the meeting to be adjourned at 9:37 P.M.

BSAS Affiliations

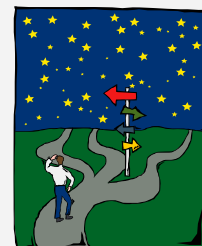
The Astronomical League
<http://www.astroleague.org/>



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



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





Get ready to discover the planets, the stars and many more exciting destinations on Astronomy Day, Saturday, April 17, 2010, when the Sudekum Planetarium and the Adventure Science Center take visitors To Worlds Beyond.

From 12:00 to 4:00 pm, members of the Barnard-Seyfert Astronomical Society and Austin-Peay State University Physics Club will be stationed throughout the Space Chase exhibits to demonstrate Newton's Laws of Motion, build scale models of the solar system, and create impact craters.

* In Test Bed, visitors can launch rockets, test trajectories, and drop payloads to gain a greater understanding of Newton's Laws of Motion and how physics plays a crucial role in both human and robotic exploration of the solar system.

* In the Solar System Survey, walk the 200-foot scale model of the solar system or build a scale model that will fit in your pocket. Compare the relative sizes of the major objects in our solar system, peruse the solar system touch screen database, and weigh yourself on another world.

* On the second floor of Space Chase within the Wonders of the Universe, interact with the electromagnetic spectrum and become a Spectral Detective. Get ready to see yourself and your friends in a new light.

* Before leaving, be sure to vote in the Pluto Poll. Is Pluto a planet? You might want to see Nine Planets and Counting in the Sudekum Planetarium before making your decision.

Throughout the day, two different programs will be offered in Cosmic Ray's. One presentation focuses on Cutting-Edge Science while the other highlights the challenges of Living in Space. Sudekum Planetarium shows will take you on a tour of your own night sky, examine the planets of our Solar System, bring you up close and personal with the most immense stars and even take you back in time to visit the seven wonders of the ancient world.

A complete program schedule is available at <http://www.sudekumplanetarium.com/features/2010/04/astronomyday.shtml>.

BSAS VOLUNTEERS NEEDED!!

All members of BSAS are invited to volunteer on Astronomy Day. Training and preparation for floor activities and exhibit demonstrations will begin at 9:30 am. Lunch will be provided at 11:15, and the real action runs from 12 to 4 pm.

* Members can help demonstrate Newton's Laws of Motion in Test Bed, show visitors spectral tubes using diffraction glasses, and play with props in front of the infrared camera.

* JanaRuth Ford is spearheading the Pocket Solar System and will need assistance.

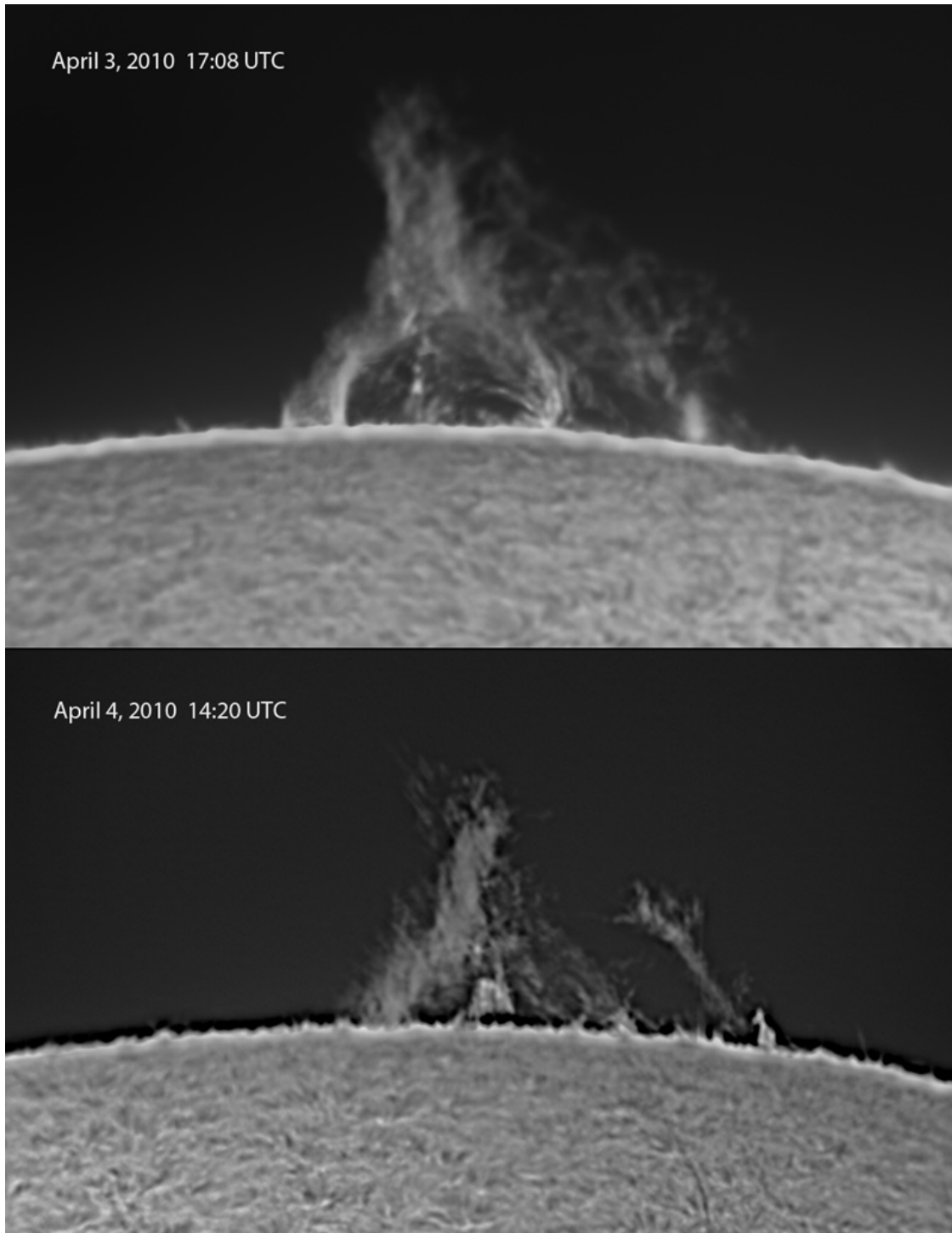
* While Chuck Schlemm is creating craters outdoors, members can staff his display tables and explain the ISS, Mars rovers, and other artifacts to curious guests.

* We also need someone to staff the Pluto Poll and make sure no one stuffs the ballot box!

* Solar observing setups are also welcome for anyone who wants to work on their tan.

Rain or shine, this should be a fun day spent with fellow astronomy enthusiasts and performing astronomy outreach. If you are interested in volunteering, please contact Kris McCall as soon as possible at **615-401-5077** or via email at krisccall@adventuresci.com.

MEMBER Contributions



Solar Prominence imaged by Mark Manner
<http://www.spotastro.com>

Become a Member of the BSAS!

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

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

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

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

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

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

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

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

IMPORTANT DUES INFORMATION

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

About Our Organization

Organized in 1928, the Barnard-Seyfert Astronomical Society is an association of amateur and professional astronomers who have joined to share our knowledge and our love of the sky.

The BSAS meets on the third Thursday of each month at the Adventure Science Center in Nashville. Experienced members or guest speakers talk about some aspect of astronomy or observing. Subjects range from how the universe first formed to how to build your own telescope. The meetings are informal and time is allotted for fellowship. You do not have to be a member to attend the meetings.

Membership entitles you to subscriptions to *Astronomy and Sky & Telescope* at reduced rates; the club's newsletter, the *Eclipse*, is sent to members monthly. BSAS members also receive membership in the Astronomical League, receiving their quarterly newsletter, the *Reflector*, discounts on all astronomical books, and many other benefits.

In addition to the meetings, BSAS also sponsors many public events, such as star parties and Astronomy Day; we go into the schools on occasion to hold star parties for the children and their parents. Often the public star parties are centered on a special astronomical event, such as a lunar eclipse or a planetary opposition.

Most information about BSAS and our activities may be found at www.bsasnashville.com. If you need more information, write to us at info@bsasnashville.com or call Dr. Spencer Buckner at (931) 221-6241.

**BARNARD-SEYFERT
ASTRONOMICAL SOCIETY**
PO BOX 150713
NASHVILLE, TN 37215-0713

