

The June membership meeting will be held on Thursday, June 19, 2008 at 7:30 pm at the Adventure Science Center

Kris McCall, Director of the Sudekum Planetarium, will present a program highlighting the capabilities of the new planetarium technology and the Space Chase exhibits.

Public Grand Opening is June 28.



Message from the President

Do you have a passion? Is there something that grabs your attention that you feel compelled to study more closely? If you are like most of us, the answer is yes; you just may not realize it. For instance, you may find that you naturally seek out galaxies when you are out viewing. Perhaps, you find the planets irresistible. It could be that you cannot get enough of the equipment. Maybe you are fascinated by the idea of making your own telescope. Some are motivated by a desire to share astronomy with the wider public. You may find that your interests are a bit more scattered and you cannot imagine limiting yourself to just one or two things. Finally, you will probably discover that your interests will change with time.

Let me state for the record that all of these possibilities are both natural and good. In fact, let me encourage you to feed your astronomical passions. By feeding your passions, you not only benefit yourself, but you are also developing knowledge that you can then share with other club members and with the larger public. Astronomy is a very large subject, and no one person can know it all. As a club, we should be able to rely on each other to help fill in our holes while we help to fill in yours.

Last month was a busy month for us. We had two public star parties, Astronomy Day, as well as the monthly membership meeting. While the crowd at the star party following Astronomy Day was a bit sparse, I still enjoyed getting to hang out with you at the Adventure Science Center. And, we had some nice views of the Moon and Saturn to enjoy. We also had a table set up during Astronomy Day. I want to thank everyone who stopped by, and helped out with people who stopped by. Spencer and I gave a couple of talks during the day. Also, thanks to Lonnie and Spencer for setting up solar scopes out front.

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Message from the President, cont.

I would also like to thank the Program Committee for bringing Dr. Schmude in to speak last month. I really enjoyed his presentation. It inspires me to study Jupiter more closely. While Dr. Schmude's talk focused on his studies of the storm that we call "Red Junior", he reminded us that there are many fascinating phenomena on the big planet. If you have even a small interest in Jupiter, please take the next few months as an opportunity to feed that passion.

Coming up in June, we have a private star party scheduled for Saturday night, June 7 at the rest area at mile marker 435.5 on the Natchez Trace. This is the first rest stop on the left as you go south on the Trace from the intersection of Highway 96 and the Trace. Of course, these plans are dependent upon the weather. This star party is a replacement for the BSAS picnic which has been moved to Saturday, August 2. Finally, I would like to strongly encourage everyone to come to the membership meeting this month. We have a very special program planned that I do not think you will want to miss.

Terry Reeves
President

FREE TELESCOPE OFFER!!!

Did someone say free telescope? Yes, you did read that correctly.

The BSAS Equipment & Facilities Committee has free telescopes ranging in size from 2.6" to 8" that current members can actually have to use for up to 60 days at a time. We also have some other items in the loaner program such as a photometer, H-alpha solar telescope, educational CDs, tapes, DVDs, and books. Some restrictions apply. A waiting list is applicable in some cases. The BSAS Equipment Committee will not be held responsible for lost sleep or other problems arising from use of this excellent astronomy gear. For information on what equipment is currently available, contact Lonnie Puterbaugh at (615) 661-9540

MAGAZINE SUBSCRIPTIONS FOR BSAS MEMBERS

We are always able to accept requests for new and renewal yearly subscriptions to SKY AND TELESCOPE and ASTRONOMY from our members in good standing. The current yearly rates are as follows: SKY AND TELESCOPE: \$32.95 ASTRONOMY: \$34.00 Checks or Money Orders should be made out to the Barnard-Seyfert Astronomical Society (BSAS) and sent to the following address:

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

DUES INFORMATION

On your Eclipse mailing label is the expiration date for your current membership in the BSAS. There will be a two month grace period before any member's name is removed from the current mailing list. You will be receiving a number of warnings informing you that your membership is expiring. Dues per year are \$20.00 Regular (1 vote); \$30 Family (2 votes); \$15.00 Student (under 22 years of age)(1 vote); \$15 Seniors (65 years or older)(1 vote); \$25 Senior Family (65 years or older)(2 votes). Contact president@bsasnashville.com if you have questions. Dues can be sent to:

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

THE ECLIPSE NEWSLETTER

Editor: Steve Wheeler
wsw261@hotmail.net

BSAS Officers:

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BSAS

website:www.bsasnashville.com
BSAS Logo by Tony Campbell

Happy Birthday Marie Paul Charles Fabry by Robin Byrne

This month we celebrate the birthday of a man whose work in physics led to many astronomical discoveries. Marie Paul Charles Fabry was born June 11, 1867 in Marseille, France. Coming from a family of scientists, it wasn't too surprising that Fabry chose to major in Physics while attending both the Ecole Polytechnique, where he received his Bachelors Degree, and the Sorbonne, where he received his Ph.D. in 1892.

Fabry's doctoral thesis was the first to explain the formation of interference fringes. Interference patterns occur when light rays of the same wavelength combine either in phase (where the peaks of one ray align with the peaks of the other ray) or out of phase (where the peaks of one ray align with the troughs of the other ray). When light rays are in phase, the result is a brighter light. When they are out of phase, the light rays "cancel" and a dark spot appears. Interference fringes are a repeating pattern of bright and dark spots due to waves alternately combining in and out of phase. This work would underlie almost all the subsequent studies that Fabry would pursue.

Both while working on his doctorate, and for a few years after, Fabry taught in various schools. In 1894, he was hired to teach physics and study optics at the University of Marseille. Ten years later he was made a full professor of physics. It was at Marseille that Fabry began to collaborate with Alfred Perot. While Fabry's strength was the theory of optics, Perot's was in the ability to manufacture extremely precise instruments. Together they developed and built what is now called the Fabry-Perot Interferometer. The device is made with two parallel plates that both reflect and transmit the light that strikes them. The light undergoes several reflections before it is focused onto a screen, where an interference pattern is observed.

In 1906, Fabry began to collaborate with Henri Buisson. Continuing work Fabry had begun with Perot, they used the interferometer to precisely measure the wavelengths of various spectral lines. Their work led to new standards for use in spectroscopy. In 1914, they were able to use the interferometer in a laboratory to accurately measure the change in wavelength of a moving light source. Although this Doppler Effect had been measured in spectral lines of stars, this was the first time it had been measured in a laboratory, where velocities are much slower and harder to measure.

Much of Fabry's work with the interferometer had an astronomical application, largely due to a lifelong interest in astronomy. The interferometer was used to study the spectra of the sun and stars, and to produce spectra of small angular sized objects, such as planets and stars. It was also used for faint, diffuse objects, like galaxies and nebulae. In 1911, Fabry and Buisson discovered the spectral lines of "nebulium" in the Orion Nebula. These green emission lines of the Orion Nebula had been a great mystery, because no known element emitted light with these particular wavelengths, thus a new element was named: nebulium. We now know that the emission is due to a very rare transition that takes place in doubly ionized oxygen. Because the conditions in which the transition occurs are very difficult to reproduce in the lab, it had not been observed before.

In 1913, Fabry used the interferometer to study the absorption lines of sunlight produced by elements in Earth's atmosphere. Using this technique, he discovered the presence of ozone in Earth's stratosphere, and found that it is responsible for absorbing ultraviolet light. He was so interested in this discovery that he hosted the first international meeting on atmospheric ozone in 1929. Interestingly, no one from the United States attended the meeting.

After World War I, Fabry became professor of physics at the Sorbonne. Here, he was named the first director of the new Institute of Optics. Fabry stayed at the Sorbonne until his retirement in 1937.

Throughout his career, Fabry enjoyed bringing science to the public. He wrote several popular books on a variety of scientific topics. He also, for many years, taught a very popular evening class on electrotechnology to a standing room only audience of students, engineers and electricians. His lecture style was described as witty and clear, which was one reason why his talks were so popular.

During World War II and the occupation of Paris, Fabry moved to the coastal area of Provence to continue his work on optics. After the liberation, Fabry moved back to Paris, but was in declining health. He died December 11, 1945.

Fabry once said about his career, "My whole existence has been devoted to science and to teaching, and these two intense passions have brought me very great joy." The man responsible for our understanding and use of interferometers, and for the discovery of the ozone layer definitely made important contributions to science. When astronomers measure Doppler Shifts of spectral lines and use a known rest wavelength to determine the velocity, or when they study various spectral lines to learn about an object's composition, or when we discuss the hole in the ozone layer of our atmosphere, we can all thank Marie Paul Fabry for bringing us the knowledge and ability to continue to pursue the science he began.

References:

Fabry, (Marie Paul Auguste) Charles - Hutchinson encyclopedia article
[http://encyclopedia.farlex.com/Fabry,+\(Marie+Paul+Auguste\)+Charles](http://encyclopedia.farlex.com/Fabry,+(Marie+Paul+Auguste)+Charles)

The Fabry-Perot Interferometer - Google Book Search
<http://books.google.com/books?id=mMLuISueDKYC&pg=PR6&lpg=PR6&dq=Marie+Paul+Fabry&source=web&ots=zX-CPilmH5&sig=MZat05-UQEzmYqw3kQX8ikCF62Y&hl=en>

Who were Fabry and Perot? by Joseph F. Mulligan
American Journal of Physics 66, 797 (1998)

Barnard-Seyfert Astronomical Society Minutes of a Regular Meeting of the Board of Directors Thursday, May 1, 2008

The board of directors of the Barnard-Seyfert Astronomical Society met in regular session at the Cumberland Valley Girl Scout Council Building in Nashville, Tennessee on May 1, 2008. A sign-in sheet was circulated in lieu of a roll call. Board members Dr. Spencer Buckner, Tony Campbell, JanaRuth Ford, Bill Griswold, Dr. Donna Hummell, Dr. Terry Reeves, Bob Rice, Theo Wellington, and Steve Wheeler were present. Board members Keith Burneson, Kris McCall, and Randy Smith were absent. A quorum being present, President Terry Reeves called the meeting to order at 7:30 P.M.

Dr. Terry Reeves suggested that we invite other area clubs to attend Dr. Richard Schmude's program about Jupiter on May 15. He also reported that although the weather was bad, the BSAS Messier Marathon held at Mark Manner's Spot Observatory on April 5 provided good food and good fellowship. Tony Campbell moved that the BSAS' Annual Picnic be held on August 2. Following a brief discussion Steve Wheeler seconded this motion that passed by a unanimous voice vote. Dr. Terry Reeves suggested that the location for the June 6 private star party be moved to the closer-in site on the Natchez Trace Parkway. Tony Campbell so moved and Dr. Donna Hummell seconded this motion that subsequently passed by a unanimous voice vote.

JanaRuth Ford suggested that the BSAS should take advantage of school being out by holding a public star party at the Warner Parks along the lines of "...bring your new telescope and we will help you set it up and use it." Ms Ford further suggested that we try this out on BSAS members first to see how it went. The board noted that differences in goto telescopes along with collimation issues could be a problem. Tony Campbell suggested that we might hold a binocular star party as an easier entry to observing. Mr. Campbell pointed out that this would also be a natural tie in to promoting the Astronomical League's Binocular Club award program. He further suggested that this could be done sometime after our "What's Up" program at the July meeting. JanaRuth Ford noted that the Warner Parks had 30 pairs of binoculars that could be used for this event. The board very much liked the idea of holding a binocular star party and set Saturday, July 26 as a tentative date.

Dr. Terry Reeves reminded the board about the BSAS' participation in Astronomy Day activities at the Adventure Science Center on May 17. Dr. Spencer Buckner reported that he would have a display of telescopes at the event. Dr. Reeves noted that he would give a variation of his "What's Up" presentation that emphasized the constellations. He also noted that the BSAS would have its club display there and that Chuck Schlemm would likely be able to bring his space travel oriented display.

Dr. Terry Reeves reported that Tennessee State University (TSU) had established a chapter of NASA's SEMAA (Science, Engineering, Mathematics, and Aerospace Academy) to encourage its students to pursue studies in the core science, technology, engineering, and mathematics curricula. He suggested that the BSAS might offer free memberships to these students as an additional encouragement. Joe Boyd said that offering these at no charge would not increase the BSAS' Astronomical League dues that are assessed based upon total paid memberships. Steve Wheeler said that he would contact Dr. Todd Gary at TSU to follow up on this.

Dr. Terry Reeves, reporting for Treasurer Randy Smith, announced that the BSAS' bank account had a balance of \$1,881.19. Dr. Reeves reported that the BSAS' Astronomical League (AL) membership fee was due and asked for a motion to renew that membership. A motion was made, seconded, and passed by a unanimous voice vote without additional discussion. Dr. Reeves reported that he had spent \$36.95 to renew the BSAS' website and Bill Griswold reported that he had spent \$68.00 to renew the BSAS' post office box.

Tony Campbell suggested that we pitch BSAS memberships as being an opportunity for serving as a spokesman for science. Dr. Terry Reeves noted that this approach might also encourage donations. Dr. Reeves also suggested that the Astronomical League's Lunar Club would be a good "entry level" observing program since it did not require a dark sky. Tony Campbell suggested that we might have an "object of the month" to observe and list the names of members who have seen it on the BSAS' website.

Dr. Donna Hummell commented that September and October would be good months for starting a lunar observing program since the weather was still warm.

Dr. Terry Reeves noted that October would be a good month to hold the BSAS Retreat especially if we also included observing club activities. He suggested October 3 and 4 as proposed dates with September 26 and 27 as a fallback due to bad weather. Dr. Spencer Buckner put this suggestion into a motion that was seconded by Steve Wheeler and passed by a unanimous voice vote.

BOD Meeting Minutes, cont.

Dr. Terry Reeves reported that Eclipse Editor Pam Thomas would be resigning from that position and that we needed to find a replacement. Dr. Reeves noted that she used Microsoft Publisher for that job. Steve Wheeler offered to take over as editor on a temporary basis. There being no further business to discuss, President Reeves asked for a motion to adjourn the meeting at 9:02 P.M. Bill Griswold so moved and Steve Wheeler seconded his motion that carried by a unanimous voice vote.

Respectfully submitted,
Bob Rice, Secretary

Barnard-Seyfert Astronomical Society Minutes of the Monthly Membership Meeting Thursday, May 22, 2008

President Terry Reeves called the meeting to order at 7:36 P.M. in the Adventure Science Center (ASC) and welcomed new members and guests. Treasurer Randy Smith reported that the Society's bank balance was \$1,696.49. Dr. Reeves then asked for corrections to the minutes of the last membership meeting held on April 17, 2008 and, there being none, declared them to be approved without exception as published in the May 2008 edition of the *Eclipse* newsletter. Chuck Schlemm commented that some members were not receiving their online copies of the *Eclipse* newsletter do to problems with their Internet service provider and spam filters.

Dr. Terry Reeves invited everyone to attend the post Astronomy Day public star party scheduled from 8:30 P.M. to 10:30 P.M. on May 17 at the ASC. Astronomical League Correspondent Mike Benson reported that the League's annual officer election and proposed changes to the bylaws was coming up soon. Mr. Benson asked for authorization to vote for the recommended slate of officers and for a provision that would allow the Treasurer to oversee the filing of state and federal reports. Authorization to do so was granted by a unanimous voice vote of the membership. Dr. Terry Reeves announced that the BSAS was invited to attend a program on "The Search For Exo-planet Transits" at 8:00 P.M. on May 22 at the Dyer Observatory. Dr. Reeves also announced that Steve Wheeler was seeking permission from the National Park Service to hold a private star party on June 6 at one of our Natchez Trace Parkway observing sites.

Joe Boyd introduced Dr. Richard Schmude, Professor of Chemistry at Gordon College in Barnesville, GA, who delivered the evening's program on the recent appearance of a new smaller red spot on the planet Jupiter. First observed in 2000, this hurricane-like storm is officially known as Oval BA although amateurs have generally referred to it as Red Spot Junior. Oval BA is located at about 33 degrees south latitude on Jupiter's visual disk and is about the size of Earth. By comparison, the Great Red Spot (GRS) is about 1.5 times the Earth's size and has been observed for over 300 years. Dr. Schmude commented that three ovals first seen in 1939 might have been the progenitors of Oval BA. After describing some recent color changes, he allowed the audience to measure the length of Oval BA by overlaying standard sized digital images taken over time with a transparent grid.

Dr. Schmude described his hypothesis that the color changes might have been triggered by changes in Oval BA's size and drift rate. He also raised the possibility that Oval BA might somehow be getting energy from the GRS. He stated that he would present his findings at the American Astronomical Society's meeting this fall in Ithaca, NY. Dr. Schmude also announced that he had just finished writing a book to be published soon on the outer planets Uranus, Neptune, and the dwarf planet Pluto. He then graciously answered questions from the audience following his presentation.

Since there was no further business to discuss, President Reeves declared the meeting to be adjourned at 8:33 P.M.

Respectfully submitted,
Bob Rice, Secretary

Activities and Events

June 1 – 30, 2008

6/3 NEW MOON
 6/5 BSAS Board of Directors Mtg., 7:30 pm at Girl Scout Office
 6/7 Private Star Party – mm 435.5 Natchez Trace Parkway – 8:00 pm
 Mercury in inferior conjunction
 Mars 1.1° north of Moon, conjunction
 6/9 Saturn 3° north of Moon
 6/10 FIRST QUARTER
 6/17 Antares 0.2° north of Moon, occultation
 6/18 FULL MOON
 6/19 BSAS Membership Mtg., 7:30 pm at ASC
 6/20 Summer Solstice 7:59 pm
 6/26 LAST QUARTER
 6/30 Mars 0.7° north of Regulus

July 1-31, 2008

7/2 NEW MOON
 7/3 BSAS Board of Directors Mtg., 7:30pm at Girl Scout Office
 7/5 Private Star Party – mm 435.5 Natchez Trace Parkway – 8:00 pm
 7/6 Mars 3° north of Moon
 Saturn 3° north of Moon
 7/10 FIRST QUARTER
 7/18 FULL MOON
 7/24 BSAS Membership Mtg., 7:30 pm at ASC
 7/25 LAST QUARTER
 7/26 Delta Aquarid Meteor Shower – radiant in Aquarius (S) – 20/hr (7/26 through 7/28)

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