



The ECLIPSE



The Newsletter of the Barnard-Seyfert Astronomical Society

Organized in 1928

May 2013

The Membership meeting will be held on May 15, 2013 at the Cumberland Valley Girl Scout Council Building located at the intersection of Harding Place and Granny White Pike at 7:30 pm.

Dr. Erika Grundstrom, Research Assistant Professor of Physics and Astronomy at Vanderbilt University, will deliver a program on "When a Star Gives Too Much: The Stripped Subdwarfs" at our May 15, 2013 membership meeting.

Upcoming Events

Board of Directors Meeting, May 1 at the Cumberland Valley Girl Scout Building – 7:30 pm

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Eclipse photograph by Francisco Diego	

From the President May 2013

Scientists and engineers are often thought of as not very well rounded people who spend a lot of time studying things no one else understands. You know, *geeks*. But...

Many of us know that Queen guitarist Brian May is *Dr. Brian May*. He went back after a great career in music and finished his astrophysics degree (I just had to own a copy of his thesis, it's about zodiacal dust.) Woody Paul, the king of the cowboy fiddlers (*Riders in the Sky*) received a PhD from MIT in plasma physics. Art Garfunkel has a Masters in Mathematics. Maybe you don't recognize the name Bobak Ferdowsi, but you do know the "Mohawk guy" from *Curiosity's* landing. Tweets out of the Lunar and Planetary Science Conference noted a lot of young folks with not entirely natural colors of hair. Whoa.....what gives? Could it be that the stereotype is not completely correct?

A popular TV show, *The Big Bang*, plays this for laughs. And while it is a funny show, the geek stereotype portrayed has always rubbed me the wrong way. Have I met folks like that? Sure. But I've seen that not-well-socialized personality in other places, not just science. Most of the people I've had the privilege to meet in science...and in particular, the successful scientists...are very well rounded individuals with diverse interests. You would not be able to pick them out just by looks, and of course pocket protectors are long gone. Our April speaker, Dr. Neil Gehrels, double majored in physics and music. Scientists can play sports. They enjoy art. Are they also huge science fiction fans? Sure. But they also have the same diverse interests...and talents...as any other group of people. Personally, I'm proud to be a geek.

Which is why the public outreach done by groups like BSAS is so important....we are just people interested in science, astronomy in particular. To demonstrate that everyone can enjoy the night sky, that you don't have to be a weird egghead, goes a long way toward inspiring others to learn more. Especially children. The night sky gives us so many opportunities to allow for that "oh my gosh!" reaction. So what if it is "just" the Moon? All of a sudden it really is another world, right up there, in a way that they have never seen it. Saturn, this summer, is another wonderful view. The rings are very

OFFICERS

Theo Wellington
President

tmwellington@comcast.net

Joe Boyd
Vice-President
boydjoe@comcast.net

Bob Rice
Secretary
brice_65@yahoo.com

Bob Norling
Treasurer
rdncpa@mindspring.com

unfilled
Ex-officio

Directors at Large

Spencer Buckner
buckners@apsu.edu

Steve Cobb
s.a.cobb@comcast.net

Bill Griswold
bgriz@comcast.net

Melissa Lanz
melissa_lanz@yahoo.com

Kris McCall
planetmccall@gmail.com

Poppy Simmons
poppysmmns@gmail.com

Bill Griswold
Newsletter Editor
bgriz@comcast.net

Observing Highlights for May & June

Moon phases

May 2013
05/02 LAST Quarter
05/10 NEW Moon
05/18 FIRST Quarter
05/25 FULL Moon
05/31 LAST Quarter

June 2013
06/08 NEW Moon
06/16 FIRST Quarter
06/23 FULL Moon
06/30 LAST Quarter

Objects:

Globular Clusters
M68, M53, M3, M5

Open Clusters
M35, NGC2264 (Christmas Tree),
M41, M50, M47, M46, M93, M48, M44
(Beehive), M67,
Mel111 (Coma Star Cluster), NGC4755
(Jewel Box Cluster)

Nebula
NGC2392 (Eskimo),
NGC3242 (Ghost of Jupiter), M97 (Owl)

Galaxies

M81, M82, NGC3115 (Spindle
Galaxy), M95, M96, M105, M108,
M65/M66/NGC3628 (Leo Triplet),
M109,
M98, M99, M106, M61, M100, M84,
M85, M86, M49, M87, M88, M91, M89,
M90, M58, M104 (Sombrero Galaxy),
M59, M60, M94, M64 (Black-Eye
Galaxy),
M63 (Sunflower Galaxy), M51
(Whirlpool Galaxy), M83,
M101/M102

Multiple Star Systems

Alpha Geminorum (Castor),
Gamma Leonis (Algieba),
M40, Gamma Virginis (Porrima),
Alpha Canum Venaticorum
(CorCaroli),
Zeta Ursae Majoris (Mizar),
Epsilon Bootis (Izar or Pulcherrima)
Mu Bootis (Alkalurops)

Variable Stars

L Puppis, R Leonis

Planets

Mercury, Venus, Jupiter, Saturn

Star Parties for months of May and June

Fri 5/3 Bells Bend 830 to 1030 LQ is 5/2 Jupiter,
Saturn, Beehive cluster, etc

Sat 5/11 BSAS trace NM is 5/10 mile
marker 435.5

Sat 5/18 Long Hunter 830 to 1030 FQ is 5/18 Moon and
Saturn

Sat 6/8 BSAS trace NM is 6/8 mile
marker 412 water valley overlook

Sat 6/22 Long Hunter 830 to 1030 FM is 6/23 Great
American Backyard Campout - Moon, Saturn, double stars

Fri 6/28 Bells Bend 830 to 1030 LQ is 6/30 Saturn, star

Happy Birthday Frank Drake

by Robin Byrne

This month we celebrate the birthday of a man whose name has become synonymous with the search for extraterrestrial intelligence (SETI). Frank Drake was born May 29, 1930 in Chicago, Illinois. As early as age 8, he was already thinking about the possibility of life on other planets, but the religious atmosphere of his family prevented him from sharing that idea with anyone. Still, his scientific interests found expression through chemistry and electronics.

When it was time to go to college, Drake received a Navy Reserve Officer Training Corps scholarship to Cornell University. At Cornell, he majored in Astronomy. In 1951, Otto Struve gave a lecture on campus about the possibility of extraterrestrial life. Drake felt vindicated, and his enthusiasm for pursuing evidence for life elsewhere was rekindled. Upon graduation, Drake fulfilled his Navy scholarship obligation with a tour of duty as an electronics officer on the USS Albany. Once free from the military, Drake went to graduate school at Harvard, where he received his doctorate in radio astronomy.

Drake's first professional position put his radio astronomy background to good use at the National Radio Astronomy Observatory (NRAO) in Green Bank, WV. He then moved on to the Jet Propulsion Laboratory (JPL). During this time, Drake was using radio telescopes to observe Jupiter's ionosphere and magnetosphere.

In 1960, Drake finally began the area of research for which he will always be remembered. The goal of Project Ozma was to try to detect radio signals from another intelligent civilization. Using one of the radio telescopes at Green Bank, Drake chose two stars with characteristics similar to the Sun to observe: Tau Ceti and Epsilon Eridani. The hope was that since the stars are Sun-like, they would host planets that are Earth-like. Over the course of four months, Drake spent a total of 150 hours looking for some kind of signal. Although unsuccessful, Project Ozma is remembered as the first experiment to hunt for extraterrestrial life.

In 1961, Drake wondered what the odds were that intelligent life would arise on a planet and how plentiful would it be in our galaxy. To answer this, he set out to think of all the factors that would need to be in place for life to evolve to the point of having a technological means to send out a signal that we could detect. Among the factors considered were: the rate of star formation, how many stars have planets, how many planets would be conducive to life, how many of those would actually have life develop, what are the odds that the life will evolve to become intelligent, and of those, how many develop technology that can send a signal into space, and has enough time elapsed for that signal to reach Earth. Multiplying all of these factors together will then tell you how many civilizations we should expect to find. Now known as the Drake Equation, the answer you get is highly dependent on the assumptions made for each of the variables. Depending on what numbers you use, you can get results that range from only one technologically advanced planet in the galaxy (Earth) to millions of such planets existing.

In 1964, Drake became a faculty member at Cornell University. He would remain there until 1984, when he moved to the University of California at Santa Cruz. While here, he used radio telescopes to study the rotation rates of pulsars. It was also during this time that Cornell was involved in the construction of the radio telescope at Arecibo in Puerto Rico, which was to be named the National Astronomy and Ionospheric Center (NAIC). Drake was a key player in developing the radio dish and later became Director of the NAIC.

In 1972, Drake and Carl Sagan designed a plaque to be carried on the Pioneer spacecraft. On the

plaque were images of a man and woman, our solar system's location relative to several known pulsars, and Earth's location in the solar system. This would be our first message sent out to any alien civilization that may find it. In 1974, Drake created a digital message that carried similar information, and used the Arecibo telescope to send it out. Pointed toward the globular cluster M13, the message contained: a binary representation of the numbers 0 - 10, the atomic numbers of the elements found in DNA, a representation of the DNA double helix, a representation of a person with his height measured relative to a standard wavelength, a representation of our solar system, the relative sizes of the planets, and an indication of which planet sent the signal. In 1975, Drake was involved in a similar project: the golden record to be carried by the Voyager spacecraft.

Frank Drake is still active in SETI today. He is an Emeritus Professor at UC Santa Cruz and serves on the Board of Trustees of the SETI Institute. Using the 40-inch Nickel telescope at Lick Observatory, Drake is involved in a project to search for optical signals that would indicate intelligent life elsewhere. Meanwhile, he continues to work on improving radio telescope designs to increase the chances of picking up an alien radio signal. Drake has also proposed that planets orbiting low mass red stars might be good candidates for hosting life. Given the vast number of these stars, should his hypothesis be correct, the odds of finding a habitable planet would increase tenfold.

Almost every experiment in the area of SETI can be linked to Frank Drake. If you want to mathematically prove life exists elsewhere or want to prove it does not, you will use the Drake Equation. Whether you are a firm believer that extraterrestrial life exists, or are strongly convinced that it does not, you cannot deny the impact Frank Drake has had upon this controversial idea. There is no way to separate Frank Drake from the idea of life elsewhere in the universe, and I think he would be quite pleased that this is the case.

References:

Frank Drake - Wikipedia

http://en.wikipedia.org/wiki/Frank_Drake

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<http://www.daviddarling.info/encyclopedia/D/DrakeF.html>

Father of SETI Honored 50 Years After First Search for Alien Life [Space.com](http://www.space.com)

By Clara Moskowitz

<http://www.space.com/8952-father-seti-honored-50-years-search-alien-life.html>

Arecibo message - Wikipedia

http://en.wikipedia.org/wiki/Arecibo_message

Barnard-Seyfert Astronomical Society Minutes of the Regular Meeting of the Board of Directors Held On Wednesday, April 3, 2013

The board of directors of the Barnard-Seyfert Astronomical Society (BSAS) met in regular session at the Cumberland Valley Girl Scout Council Building in Nashville, Tennessee on Wednesday, April 3, 2013. A sign-in sheet was passed around in lieu of a roll call. Board members Joe Boyd, Dr. Spencer Buckner, Steve Cobb, Bill Griswold, John Harrington, Melissa Lanz, Bob Norling, Bob Rice, Poppy Simmons, and Theo Wellington were present. Board member Kris McCall was absent. A quorum being present, President Theo Wellington called the meeting to order at 7:35 P.M.

Theo Wellington asked for corrections to the minutes of the previous board meeting held on March 6, 2013 and, there being none, asked for a motion declaring them to be approved as published in the April 2013 edition of the Society's *Eclipse* newsletter. Dr. Spencer Buckner so moved and Joe Boyd seconded his motion that was subsequently passed by a unanimous voice vote without discussion. Treasurer Bob Norling reported that the BSAS had \$1,979.76 in its regular checking account and \$1,251.20 in its equipment account.

Theo Wellington announced these upcoming star parties:

- Apr 05 – Public star party @ Bowie Nature Park from 7:30 to 9:30 P.M.,
- Apr 06 – Messier Marathon @ Mark Manner's Spot Observatory.
- Apr 13 – Public star party @ The Adventure Science Center from 7:30 to 10:30 P.M.,
- Apr 20 – Public star party @ Nathan Bedford Forest State Park from 7:30 to 10:30 P.M. and
- May 03 – Public star party @ Bells Bend Park from 8:30 P.M. to 10:30 P.M.

Joe Boyd announced that he had learned that Nashville Metro government had an Office of Sustainability within the Mayor's office that could be contacted regarding dark sky issues. Theo Wellington announced that two BSAS members could attend the Gamma Ray Burst Conference being held in Nashville. Ms Wellington commented that, with comet PanSTARRS now becoming harder to see, we could look forward to comet Lemmon in the early morning hours of April and hopefully comet ISON later this fall. She also noted that we might highlight the Apollo Rendezvous that will be held in Dayton, Ohio later this year. In addition, she suggested that members check the back pages of the Astronomical League's *Reflector* newsletter for other events of interest to amateur astronomers.

Bill Griswold announced that he attended the funeral of Dr. Doug Hall, a former Vanderbilt University professor of astronomy and dear friend to the BSAS, and gave Dr. Hall's widow a complementary BSAS membership and *Eclipse* newsletter subscription. Mr. Griswold stated that he also gave a complementary BSAS membership and *Eclipse* newsletter subscription to Francille Bergquist whose family had donated a large telescope to the BSAS several years ago. John Harrington announced that he was getting married and would soon move to Boston, Massachusetts thereby leaving a vacancy on the club's board of directors.

Since there was no further business to discuss, Steve Cobb moved that the meeting be adjourned. Bob Rice seconded his motion that passed by a unanimous voice vote of the board at 8:25 P.M. without additional discussion.

Respectfully submitted,
Bob Rice, Secretary

nice this year. How many of us have had the experience of a viewer asking if we are looking at a picture? It just looks unreal, floating there in space.

We have some excellent opportunities coming up to share our wonder and enjoyment of the universe. If you have the time and a portable scope, please come on out to any of the regular star parties as well as some of our side opportunities. We are invited to the Great American Campout at Long Hunter State Park on June 22, and Jessica House from the State Park Junior Rangers has told me that there will be some inner city children there....so what a great thing to be able to show them the night sky! Camp Idyllwild along the Duck River would like some folks to help with an Astronomy night on June 7. You just never know what young life you might touch....

Adam Steltzner was born to a wealthy family. He goofed around as a teenager, failed geometry, played rock and roll music in bands, and irritated his father into telling him he'd never be more than a ditch digger. As he tells the story, though, one night he was driving home from a gig and he noticed that Orion was in a different part of the sky than it had been earlier. He got curious, and wanted to take an astronomy class at a local college. They made him take a physics class first....and the rest is, as they say, history. You might have seen him in the NASA video *Seven Minutes of Terror*. Lead engineer for the Entry, Descent and Landing phase for Curiosity, he helped design and test the "sky crane."

The stars have inspired humans for centuries, they continue to do so today, and all of us have opportunities to share the universe with others. You never know what famous future scientist, engineer...or rock legend...*you* might introduce to the night sky with your telescope.

Clear, dark skies

Theo Wellington

Barnard-Seyfert Astronomical Society Minutes of the Monthly Membership Meeting Held On Wednesday, April 17th, 2013

President Theo Wellington called the meeting to order at 7:30 P.M. on Wednesday, April 17, 2013 at the Cumberland Valley Girl Scout Council Building in Nashville, Tennessee and welcomed members and visitors. The minutes of the previous membership meeting on March 20, 2013, as published in the April 2013 edition of the Society's *Eclipse* newsletter, were approved by a unanimous voice vote of the membership. Treasurer Bob Norling reported that the Society had \$2027.81 in its regular account and \$1,251.20 in its equipment account.

Theo Wellington announced these upcoming star parties and other events:

- May 3 – Public Star Party at Bells Bend State Park from 8:30 to 10:30 P.M.
- May 11 – Private Star Party at mile marker 435.5 on the Natchez Trace Parkway
- May 18 – Public Star Party at Long Hunter State Park from 8:30 to 10:30 P.M.
- June 8 – Private Star Party at Water Valley Overlook on the Natchez Trace Parkway
- June 22 – Public Star Party at Long Hunter State Park from 8:30 to 10:30 P.M.

Ms. Wellington also announced that the Cumberland Astronomical Society, located in Gallatin, TN, will hold its annual Tennessee Spring Star Party at Fall Creek Falls State Park on May 10-12, 2013. The star party is free, except for lodging.

Ms. Wellington then introduced our speaker for the evening, Dr. Neil Gehrels, an experimental physicist working in gamma-ray astronomy. Dr. Gehrels is Chief of the Astroparticle Physics Laboratory at NASA's Goddard Space Flight Center. He is Principal Investigator for the Swift gamma-ray burst MIDEX mission. His interests include gamma-ray bursts and supernovae, and music and mountaineering.

Dr. Neil Gehrels spoke on "Gamma-Ray Bursts and the Birth of Black Holes". He answered questions about what black holes are, where they come from, and what life is like inside a black hole. Although we do not know the true nature of black holes, there are objects in the universe that look and behave like the black holes predicted by Einstein's theory. The Swift mission is observing the fiery birth of black holes in gamma-ray bursts. Gamma-ray bursts are new tools for studying the universe.

Since there was no further business to discuss, the meeting adjourned.

Respectfully submitted,
Melissa Lanz (Substituting for Bob Rice, Secretary)

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

To find the expiration date for your current membership, visit our web site at <http://www.bsasnashville.com> and click the Renewals link.

There will be a two month grace period before any member's name is removed from the current distribution list.

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 Wednesday of each month at the Cumberland Valley Girl Scout Building at the intersection of Granny White Pike and Harding Place 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 John Harrington at (615) 739-4500.

[BSAS on Facebook](#)

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.