The ECLIPSE

June 2010
Volume 3, Issue 6

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

Upcoming Events

Board of Directors Meeting

June 3rd at the Cumberland Valley Girl Scout Council Building – 7:30 pm

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

Membership Meeting

June 17th at the Adventure Science Center – 7:30 pm

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

Star Parties

June 4th – Hillmont Camp, White Bluff, TN - 8:45 -10:30 pm

June 8th, June 10th, June 15th – The Noggin Shack – Dickson County Public Library – 7:50 pm until…

June 11th - BSAS Binocular Public Star Party at Warner Park - 8:30-10:30 pm

June 12th - BSAS Private Star Party at Natchez Trace mile marker 412 (Water Valley Overlook)

June 18th - BSAS Public Star Party at Bells Bend Outdoor Center - 8:30-10:30 pm

In this issue:

Monthly Membership Meeting

Thursday, June 17, 2010
Adventure Science Center
7:30 pm

How do scientists measure the rotation periods of the giant planets? This is difficult because these planets do not have a solid surface and exhibit differential rotation. **Dr. Chuck Higgins** will be sharing techniques used to determine ***Giant Planet Rotation Periods*** at our next monthly meeting.

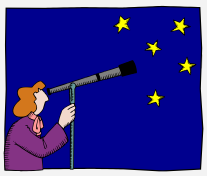
From The President

Greetings and clear skies from your president. The unofficial start of summer has come and gone this last weekend and I got my first good look at Scorpio. Although it wasn't until around midnight before I got a clear view of it, for me that signals the beginning of summer. The official start isn't for a few more weeks (6:29am on the 21st) but the days and nights already feel like summer.

I have always been torn between which is my favorite sky, summer or winter. The winter skies hold the delights of Orion and the many open clusters of Gemini, Taurus and Auriga. The skies darken early and are usually clear, especially after a good snow. The Pleiades are my favorite binocular object, although the Double Cluster in Perseus is a close second. The two problems are that it is so cold and there is only one lonely globular cluster (M79) which hides down in Lepus. The summer skies hold the beauty of the galactic center and many globular clusters as well as open clusters and nebulae. The evenings are warm and pleasant but there are two problems: bugs and a late twilight. A can of *Off* helps with the first problem but the second problem is tough to deal with when you have to get up and go to work in the morning. That usually restricts my serious observing to the weekend but I will occasionally stay up late if the seeing is really good. Whether you wait until the weekend or can survive on only a few hours sleep on a week night, take advantage of the warm nights and get out and enjoy the celestial delights of the summer sky.

Speaking of observing, we have a number of star parties I would like to encourage you to participate in this month. The first three Friday's (4th, 11th and 18th) have something scheduled and there are several other events that are asking for our help. The event on the 4th is at Hillmont Camp in White Bluff and is hosted by Woodmont Hills Church. They are expecting around 100 kids and adults so they can use all the help we can give. A map to the site can be found on the BSAS website (bsasnashville.com). The 11th is a binocular star party at Warner Park. It is at the Nature Center rather than our usual location at the model airplane field. The start time is at 7:30pm. I know that is well before dark but the park rangers running the event want time to familiarize the public with how to use binoculars while it is still light.

Continued on Page 2



"The man who voyages strange seas must of necessity be a little unsure of himself. It is the man with the flashy air of knowing everything, who is always with it, that we should beware of. "

Sir Fred Hoyle, FRS
1915-2001

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

June 2010

06/04 LAST Quarter
06/12 NEW Moon
06/19 FIRST Quarter
06/26 FULL Moon

July 2010

06/04 LAST Quarter
06/11 NEW Moon
06/18 FIRST Quarter
06/26 FULL Moon

OBJECTS VISIBLE THIS MONTH

Messier Objects:
Galaxies: The Virgo Cluster

M58, M59, M60, M84, M86, M87, M88, M89, M90, M91, M98, M99, M100

Lyrid meteor shower – June 14-16
radiant in Lyra (E)

Delta Aquarid meteor shower
July 28-29

Capricornid meteor shower
July 29-30

From the President, cont.

The 18th is a star party at the Bells Bend Park Outdoor Center. Bells Bend is possibly the darkest site we have public star parties at so come out and enjoy it if you can. We have also been asked to help out with some sidewalk astronomy in Dickson this month. The three nights are Tuesday the 8th, Thursday the 10th and Tuesday the 15th. The location is at the public library and is just about downtown Dickson so it will be mostly Venus and Saturn and anything else that is bright. Finally, we have a private star party on the Trace on Saturday the 12th.

I want to thank Jana Ruth Ford for her excellent program on "The History of Women in Astronomy" she presented at our public meeting last month. As I mentioned in my presidents message last month, it has been tough for women in science and especially in physics and astronomy. To hear of the many great accomplishments that women have achieved in astronomy despite the many obstacles can only serve to encourage any young woman thinking of a career in astronomy today.

Our program for the June public meeting is by another member of the physics & astronomy department at MTSU: Dr. Chuck Higgins. Dr. Higgins specializes in radio astronomy and was heavily involved in the development of Project Jove, a simple radio telescope that can be built by anyone. He hasn't given us a title yet but it should be an excellent program, whatever its title is. I would like everyone to invite a friend along to the meeting this month. Last month's meeting was fairly well attended despite the rainy skies and I am hoping this month will continue the trend. Since the kids are out of school now, I would especially like to encourage you to invite someone under 18. See you on the 17th.

Dr. Spencer Buckner
President

Happy Birthday Fred Holye

by Robin Byrne

This month we celebrate the life of a man whose contributions to astronomy run from revolutionary to controversial to fanciful. Fred Hoyle was born in Gilstead, West Yorkshire in England, June 24, 1915. His father, Ben, was a wool trader, and his mother, Mabel Pickard, had studied music. Shortly after Fred was born, World War I began, and his father was conscripted into the army, so his mother supported the family by playing piano accompaniment for silent films.

With his father away at war, most of Hoyle's early education was from his mother. From an early age, Hoyle's affinity with numbers was obvious, including being able to tell time by the age of three, and knowing the multiplication tables, up to 12x12, when he was four. Meanwhile, his language skills were not as strong, not learning to read until he was seven, which he learned by reading subtitles at the silent films his mother accompanied. When he became old enough to attend public school, he was not enthusiastic about learning at the pace the school dictated. It didn't take him long to learn how to manipulate the system. He would attend a few classes, then convinced the school he was home ill, while he convinced his parents that he was at school. Meanwhile, he passed all his exams. But this system gave him the freedom to pursue his interests in nature, astronomy and chemistry. At the age of eleven, he returned more fully to formal education at the Bingley Grammer School. In 1932, Hoyle entered Emmanuel College, Cambridge to study mathematics. He graduated with a B.A. in 1936, then he pursued an M.A. in physics, which he received in 1939. This was when he began his interest in astrophysics. That same year, he married Barbara Clark. They had two children: a son and a daughter.

During World War II, Hoyle worked at the Admiralty Signals Establishment. It was here that he became involved in the development of radar. It was also during this time that he, and two colleagues, began to develop the idea of a "steady-state" universe.

In 1945 Hoyle was hired as a junior lecturer at Cambridge. Here he worked on the idea of the synthesis of elements in stars. Hoyle is largely responsible for the concept of heavier elements being built up through fusion processes in stars, and that the heaviest (and rarest) elements would be created during supernova events. One of his colleagues, Alfred Fowler, won the Nobel Prize for Physics (along with Subrahmanyan Chandrasekhar) for these developments, but Hoyle was overlooked. Hoyle is especially noted for determining the details of the triple-alpha process, which leads to the formation of carbon. Hoyle found that the energy levels associated with the formation of carbon are very specific and statistically unlikely to occur. From this observation, he concluded that a higher being orchestrated the process. His arguments are often quoted by proponents of Intelligent Design. Those who disagree with Hoyle's conclusions refer to this idea as "Hoyle's fallacy."

Hoyle also had controversial views concerning the origin of the universe. Hoyle, while having no problem with the discovery of the universe expansion, rejected the idea that the universe had a beginning. He felt that the universe had always existed, and that to maintain a "steady state", new matter would be created in the areas between galaxies where the expansion has occurred. Hoyle denigrated the hypothesis of the universe having a beginning by dismissively calling the idea the "Big Bang." The name stuck. As more evidence mounted in support of the Big Bang, the vast majority of astronomers accepted the idea, but Hoyle remained firm in his criticism.

Hoyle also was critical of the theory of evolution, especially the idea of life evolving from chemical processes. He proposed that instead, the seeds of life permeate the universe and were delivered to Earth from comets and meteorites. Evolution is then driven by viruses from comets. These ideas would later be explored in many of the novels Hoyle wrote.

Hoyle worked at a variety of locations. He worked at Mt. Wilson and Palomar Observatories from 1956 to 1965. Simultaneously, he was a professor of Astronomy and Experimental Philosophy at Cambridge. In 1967 he helped found the Institute of Theoretical Astronomy at Cambridge and served as the first director. In his later years, Hoyle worked at the California Institute of Technology, and also at Cornell. Finally, in 1977, Hoyle returned to England to stay.

Hoyle also helped to popularize astronomy through a variety of media. In the 1950's, he regularly appeared on BBC radio. His series of lectures were collected into a book titled "The Nature of the Universe." This was the beginning of several books about astronomy written for the general public. Hoyle's writing also ventured into the realm of science fiction, co-authoring several books with his son, Geoffrey. He also wrote a television series titled "A is for Andromeda" and a play, "Rockets in Ursa Major."

Fred Hoyle was knighted in 1972. After a series of strokes, Hoyle died August 20, 2001 in Bournemouth, England. He was 86 years old. Always controversial, always innovative, Fred Hoyle made his mark on astronomy, philosophy, and popular culture. A life well worth celebrating.

References:

Fred Hoyle - Wikipedia
http://en.wikipedia.org/wiki/Fred_Hoyle

Fred Hoyle
http://www.hoyle.org.uk/FH/Home.html

Fred Hoyle
http://www.kirjasto.sci.fi/hoyle.htm

Board Meeting Minutes – May 6, 2010

Bob Rice, Secretary

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 6, 2010. A sign-in sheet was passed around in lieu of a roll call. Board members Dr. Spencer Buckner, Bill Griswold, Dr. Donna Hummell, Bob Norling, Dr. Terry Reeves, and Bob Rice, were present. Board members Tony Campbell, JanaRuth Ford, Santos Lopez, Kris McCall, Curt Porter, and Theo Wellington were absent. A quorum being present, President Dr. Spencer Buckner called the meeting to order at 7:40 P.M.

Treasurer Bob Norling reported that the Society had $2,324.41 in its regular checking account and $150.03 in its equipment account. Dr. Buckner announced these upcoming star parties: May 08 – May 08 – Private star party @ mile marker 435.5 on the Natchez Trace Parkway, May 15 – Public star party @ Long Hunter State Park, Jun 11 – Public binocular star party @ the Warner Parks Nature Center, Jun 12 – Private star party @ mile marker 412 on the Natchez Trace Parkway, and Jun 18 – Public star party @ Bells Bend Outdoor Center.

Dr. Spencer Buckner reported that the Society had almost depleted its supply of descriptive brochures used to provide information to potential members and the public. Bill Griswold volunteered to check on printing costs and to search his computer files for the source document of the old brochure. Dr. Donna Hummell volunteered to investigate potential updates to the brochure and Mr. Griswold will provide her with a source document copy if he can locate one. Both will report their recommendations at the next board meeting.

Dr. Spencer Buckner reported that Middle Tennessee State University faculty member and BSAS board member Jana Ruth Ford would present the May 20, 2010 membership-meeting program on "The History of Women in Astronomy." Dr. Buckner suggested two potential topics for the June 17, 2010 membership-meeting program: (1) Ancient Mayan Astronomy and (2) Unsung Heroes of Astronomy. Dr. Buckner said that he would contact BSAS board member Santos Lopez who had expressed a previous interest about presenting a topic on Mayan Astronomy in response to the considerable public interest in the recent motion picture 2012. Bob Rice said that he would contact other BSAS members about possibilities for an "Unsung Heroes" presentation. Dr. Buckner said that he would contact BSAS member Mark Manner about scheduling the annual club picnic at Spot Observatory sometime during June.

Bill Griswold reported that he had just renewed the Society's post office box for an annual fee $70.00 (the least expensive available) and posed the question of whether or not it was worth the cost in this age of email and other electronic communication. After some discussion, the board determined that it was a necessary business expense – and possibly legally required - for the BSAS to have an official mailing address in order to receive corporate charter mailings, tax-exemption updates, insurance premium notices, Astronomical League correspondence, and other official contacts.

Since there was no further business to discuss, Dr. Donna Hummell moved that the meeting be adjourned and President Buckner declared it to be so at 8:26 P.M.

Minutes of a Special Meeting of the Board of Directors Held On Thursday, May 20, 2010

The board of directors of the Barnard-Seyfert Astronomical Society (BSAS) met briefly in special session immediately following the monthly membership meeting on Thursday, May 20, 2010. The purpose of this meeting was to consider and advise the BSAS' Astronomical League (AL) Correspondent Mike Benson on how he should cast his vote in the upcoming AL election of senior officers for 2011. Board members Dr. Spencer Buckner, JanaRuth Ford, Bill Griswold, Curt Porter, Dr. Terry Reeves, and Bob Rice were present. Non-voting Ex Officio board member Kris McCall and Mr. Benson also attended. Board members Tony Campbell, Dr. Donna Hummell, Santos Lopez, Bob Norling, and Theo Wellington were absent. A quorum being present, Dr. Buckner called the meeting to order at 8:53 P.M.

Mike Benson informed the board that the AL's member astronomy clubs were electing a president and vice-president for 2011 with the League's nominating committee having recommended these two individuals: for president – Carroll Iorg, the current vice-president; and for vice-president – John Jardine Goss, secretary until last year when his term expired. Following a brief discussion, the board by a unanimous voice vote advised Mr. Benson to cast his votes for the two recommended nominees.

Since there was no further business to discuss, President Dr. Spencer Buckner declared the meeting be adjourned at 9:00 P.M.

Monthly Meeting Minutes – May 20, 2010

Bob Rice, Secretary

President Dr. Spencer Buckner called the meeting to order at 7:35 P.M. in the Adventure Science Center (ASC) and welcomed new members and visitors. Bob Rice, reporting for Treasurer Bob Norling, announced that the BSAS had $2,324.41 in its regular bank account and $150.03 in its equipment account. Dr. Buckner announced these upcoming events and star parties:

June 11 – Public binocular star party at the Warner Parks Nature Center
June 12 – Private star party at the mile marker 412 site on the Natchez Trace Parkway
June 18 – Public star party at Bells Bend Park

Chuck Schlemm announced that he was giving a public outreach demonstration on space flight at the Hillmont Camp in White Bluff, Tennessee on Friday, June 4, 2010 and asked for volunteers to bring telescopes for evening viewing from 8:45 P.M. to 10:00 PM. Mr. Schlemm noted that he already had three volunteers and that there would be approximately 95 campers aged 8-12 years old at the event. Mr. Schlemm also announced that there would be public "sidewalk astronomy" events at the Dickson Public Library in Dickson, Tennessee on the evenings of June 8, 10, and 15. Dr. Spencer Buckner reported that the date for the BSAS annual picnic was being moved from June to sometime in August and that, once decided upon, details would be communicated to the membership.

Dr. Spencer Buckner announced that Dr. Chuck Higgins of Middle Tennessee State University would give the program for the June 17, 2010 membership meeting on a subject yet to be determined. Sudekum Planetarium Director Kris McCall announced that the planetarium would not be available for the September 16, 2010 monthly membership meeting.

Dr. Spencer Buckner then introduced BSAS board member and Middle Tennessee State University Physics and Astronomy Instructor Jana Ruth Ford who delivered the evening's program on "The History of Women in Astronomy." Ms Ford initiated this topic by noting that women were not typically permitted to use the "large" observatory telescopes for research until well into the 1960s. Ms Ford also explained that after years of considerable struggle currently about 15% of astronomers worldwide were women and that about 25% of the PhDs in astronomy are now being awarded to women. She then gave several brief sketches about important female astronomers from the past including: Hypatia of Alexandria, Hildegard von Binger, Sophia Brahe, Maria Cunitz, Caroline Herschel, Maria Mitchell, Mary Watson Whitney, Henrietta Swan Leavitt, and Helen Sawyer Hogg among others. Ms Ford next described the careers of several contemporary female astronomers including: Margaret Burbridge, Vera Rubin, Carolyn Shoemaker, Beatrice Tinsley, Jocelyn Bell Burnell, Carolyn Porco, Wendy Freedman, and Debra Fischer to name just a few. Ms Ford concluded by acknowledging the much-improved acceptance of women in astronomy and noted that in the United States today roughly 50% of young astronomers were women – a figure roughly comparable to their percentage of the general population.

Following Ms Ford's presentation Dr. Spencer Buckner asked guests and new members to briefly introduce themselves. Dr. Buckner then asked board members to remain after the meeting for a brief discussion. Since there was no additional regular business to discuss, Dr. Buckner declared the meeting to be adjourned at 8:50 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/

Ancient Supernova Riddle Solved

Space Place Partners Article, May 2010

Australopithecus squinted at the blue African sky. He had never seen a star in broad daylight before, but he could see one today. Was it dangerous? He stared for a long time, puzzled, but nothing happened, and after a while he strode across the savanna unconcerned.

Millions of years later, we know better.That star was a supernova, one of many that exploded in our corner of the Milky Way around the Pliocene era of pre-humans. Australopithecus left no records; we know the explosions happened because their debris is still around. The solar system and everything else within about 300 light-years is surrounded by supernova exhaust—a haze of million-degree gas that permeates all of local space.

Supernovas are dangerous things, and when one appears in the daytime sky, it is cause for alarm. How did Earth survive? Modern astronomers believe the blasts were too far away (albeit not by much) to zap our planet with lethal amounts of radiation. Also, the Sun's magnetic field has done a good job holding the hot gas at bay. In other words, we lucked out. The debris from those old explosions has the compelling power of a train wreck; astronomers have trouble tearing their eyes away. Over the years, they've thoroughly surveyed the wreckage and therein found a mystery—clouds of hydrogen and helium apparently too fragile to have survived the blasts. One of them, whimsically called "the Local Fluff," is on the doorstep of the solar system.

"The observed temperature and density of the Fluff do not provide enough pressure to resist the crushing action of the hot supernova gas around it," says astronomer Merav Opher of George Mason University. "It makes us wonder, how can such a cloud exist?"

NASA's Voyager spacecraft may have found the answer. NASA's two Voyager probes have been racing out of the solar system for more than 30 years. They are now beyond the orbit of Pluto and on the verge of entering interstellar space. "The Voyagers are not actually inside the Local Fluff," explains Opher. "But they are getting close and can sense what the cloud is like as they approach it."

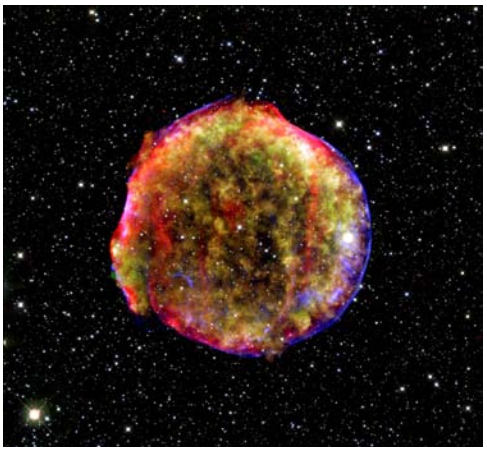
And the answer is … "Magnetism," says Opher. "Voyager data show that the Fluff is strongly magnetized with a field strength between 4 and 5 microgauss. This magnetic field can provide the pressure required to resist destruction."

If fluffy clouds of hydrogen can survive a supernova blast, maybe it's not so surprising that we did, too. "Indeed, this is helping us understand how supernovas interact with their environment—and how destructive the blasts actually are," says Opher.

Maybe Australopithecus was on to something after all.

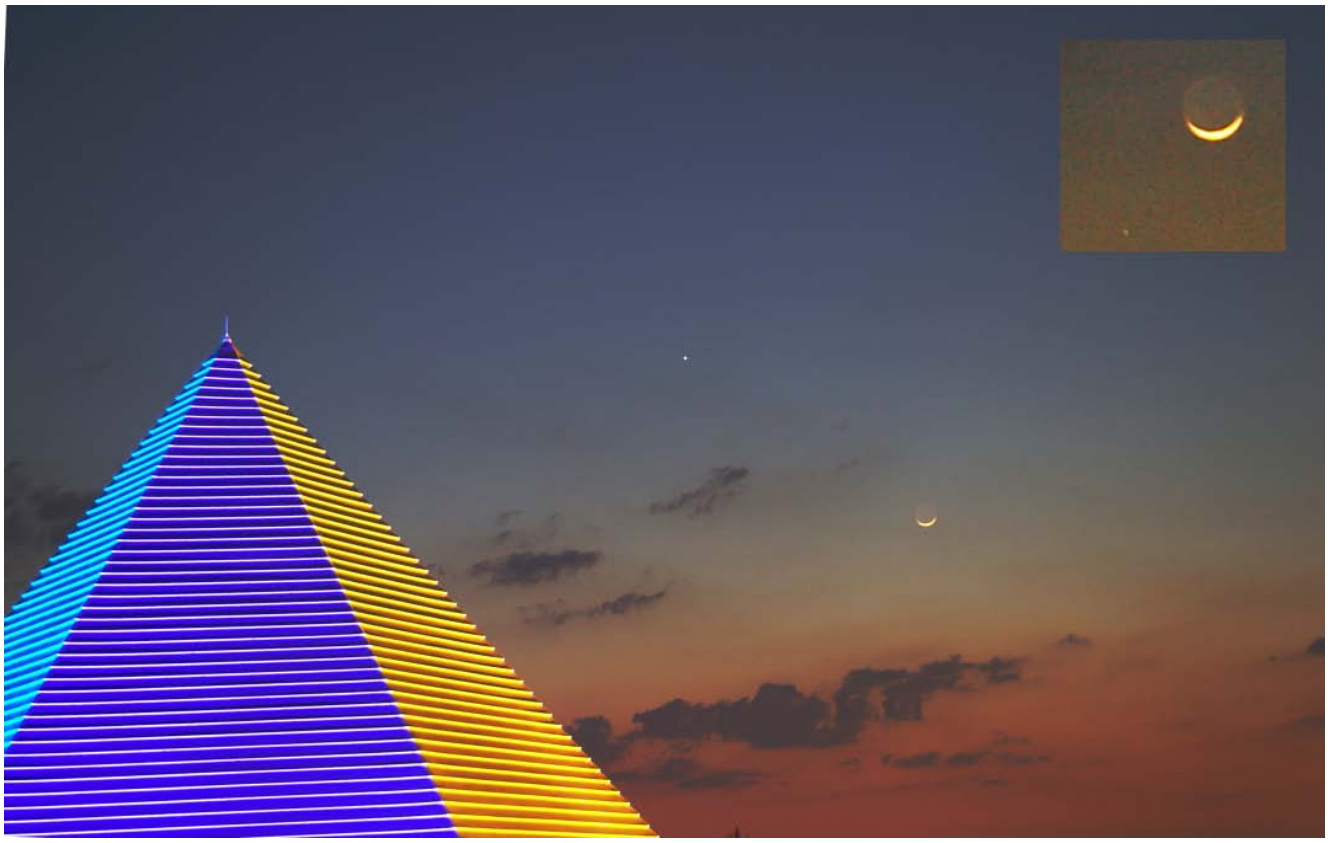
Opher's original research describing Voyager's discovery of the magnetic field in the Local Fluff may be found in Nature, 462, 1036-1038 (24 December 2009). The Space Place has a new Amazing Fact page about the Voyagers' Golden Records, with sample images and sounds of Earth. Just in case one of the Voyager's ever meets up with ET, we will want to introduce ourselves. Visit http://spaceplace.nasa.gov/en/kids/voyager.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



Left-over cloud from the Tycho supernova, witnessed by Tycho Brahe and other astronomers over 400 years ago. This image combines infrared light captured by the Spitzer Space Telescope with x-rays captured by the Chandra X-ray Observatory, plus visible light from the Calar Also Observatory in Spain.

Member Contributions



The View from the Adventure Science Center on BSAS Meeting Night - April 15, 2010
By Theo Wellington

"The very young Moon (36 hours, I was told), Venus, the pyramid, and everyone was looking for elusive Mercury. I couldn't see it until I zoomed up the picture! So the inset has the Moon and Mercury."

Theo Wellington

BSAS Brochure Photo Contest

That's right, the BSAS is holding a photo contest. We are redesigning the BSAS brochure and are looking for a good astronomical image taken by a club member to use on the front cover. The winning photo will be featured on the front of the new BSAS brochure and have your by line under it.

The contest is open to BSAS members only. If you aren't a member you can submit your new membership form with your image and both will be accepted. Details for how to submit an image will be posted on http://www.bsasnashville.com in the coming week. The top ten images will be selected by the BSAS board and voting for the winning image will take place at the July 15 membership meeting.

Watch the BSAS website for more details.

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.

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