

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

Upcoming Events:

BSAS Annual Picnic and Star Party August 2nd at Spot Observatory – 4:00 pm

Board of Directors Meeting August 7th at the Cumberland Valley Girl Scout Council Building – 7:30 pm

Public Star Party August 9th at Warner Park – 8:00 pm

Membership Meeting August 21st at the Adventure Science Center – 7:30 pm

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August Membership Meeting

Thursday, August 21, 2008
Adventure Science Center
7:30 pm



Our program in August is being presented by Joe Boyd and Jana Ruth Ford on an issue that we all find important - light pollution. Please plan to be in attendance.

BSAS Annual Picnic & Star Party

Saturday, August 2nd
Spot Observatory
4:00 pm

See the Outreach Update, page 2, for details and directions.

From The President



I have a dream for my backyard. My dreams involve outbuildings and telescopes. Yes, I have been bitten by the observatory bug. For the last couple of years, I have been thinking about observatory types, locations, trees, permanent piers, scopes on wheels, etc., etc., etc. The driving reason behind all of this plotting has been convenience and my laziness. If my plans to get into photometry come to fruition, these factors will become all the more important.

Please understand that I am not trying to say that you necessarily need to build an observatory in your back yard; I am trying to make a point about your taking convenience into account. If you are like me, it is all too possible to get home on a clear night, but because you are tired, you do not take the effort to haul the telescope and any associated equipment out into the yard. This effect quickly becomes more pronounced the further your rig departs from a small grab-and-go scope. After all, if it takes thirty minutes to set up and a similar amount of time to tear down for just a few minutes of observing, you may be inclined to simply not do it.

There are many ways to skin this cat. One is to get a grab-and-go scope that you don't mind picking up and taking into the yard for just a short observing session. The second is to create something that allows you to leave your scope set up inside which you can easily move to your favorite observing spot. My favorite solution of this type has been perfected by Lonnie Puterbaugh. He has most of his scopes set up on wheels in his garage, and he simply rolls them out onto his driveway. I can easily see this same idea being applied to rolling a scope from the inside of your house if spouse and children allow or from an outbuilding in the yard. The final solution involves building permanent piers in the yard. The pier can be exposed to the elements or it can be protected by some sort of structure. If the pier is exposed, people usually keep the mount and scope inside and take it out when they wish to observe. When it comes to buildings to protect the scope, I have seen more solutions on the Internet than you would ever imagine possible. People build structures that roll away from the pier, roofs that roll off, domes, and more.

If you find that you are letting the small stuff keep you from observing, let me encourage you to start thinking about solutions. Be creative if necessary. Do not underestimate the effect convenience can have on your viewing.

I am sure that you have noticed the new format to the Eclipse. Steve Wheeler has taken over the duties of Eclipse editor from Pam Thomas who had been the editor for the past few years. We all owe a big thanks of gratitude to both Pam and Steve for their hard work.

Terry Reeves
President

Observing Highlights

all times listed are Central Standard Time

August 1—31, 2008

8/1	NEW MOON
8/2	BSAS Annual Picnic – Spot Observatory 4:00 pm
8/3	Saturn 4° North of Moon
8/4	Mars 4° North of Regulus
8/5	Venus 1.1° North of Moon
8/7	BSAS Board of Directors Mtg., 7:30 pm at Girl Scout Office
8/8	FIRST QUARTER
8/9	Public Star Party – Warner Park – 8:00 pm
8/10	Mercury 1.1° North of Regulus Antares 0.4° North of Moon, Occultation
8/12	Perseid Meteor Shower
8/16	FULL MOON
8/21	BSAS Membership Meeting 7:30 pm at ASC
8/23	LAST QUARTER
8/30	NEW MOON

September 1—30, 2008

9/4	BSAS Board of Directors Mtg., 7:30 pm at Girl Scout Office
9/4	Saturn in conjunction with the Sun
9/6	BSAS Private Star Party – mm 435.5 Natchez Trace Parkway – 8:00 pm
9/7	FIRST QUARTER – Moon at apogee
9/13	Mercury at greatest elongation in the evening sky
9/13	The mostly full Moon occults Neptune
9/13	Uranus at opposition
9/15	FULL MOON
9/18	BSAS Membership Meeting 7:30 pm at ASC
9/19	The Moon occults the Pleiades as seen from eastern North America
9/20	Moon at perigee
9/22	LAST QUARTER
9/22	Autumn equinox
9/29	NEW MOON



"Astronomy compels the soul to look upwards and leads us from this world to another."

Plato
428 BC – 348 BC

Outreach Update *Terry Reeves, President*

Last month was a bad month for our star parties. Both the private star party on the Natchez Trace and the public star party at Long Hunter State Park had to be canceled due to weather. We have two opportunities planned for August.

On August 2 at 4:00 pm, we have the BSAS picnic at Mark Manner's home (aka Spot Observatory). While the primary purpose of the picnic is social and will occur rain or shine, we will also have the opportunity for viewing that evening if the sky is clear. The club will provide paper plates, utensils, cups, and ice. Please bring enough food and drink for your party, plus some to share. Directions are as follows:

Take I-40 West from Nashville and take Exit 152, Bucksport. At the bottom of the exit ramp, take a left on HWY 230, and follow it back under I-40 and around an "S" curve to a "T" intersection stop sign. At the stop sign, take a left, continuing on HWY 230 (the signs will indicate "HWY 230 East"). From that stop, the entrance to the observatory and campsite is approximately 4 miles on the left.

There is a public star party at Warner Park on August 9. Once again, it will focus on the moon and planets. Jupiter is near opposition, so it should be a prime target for the public (and us). Of course, as usual, these plans are dependent upon the weather.

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.

Happy Birthday 1992 QB1

by Robin Byrne

This month we celebrate the first in a series of discoveries that confirmed the existence of the Kuiper belt. In 1949, Kenneth Edgeworth predicted the existence of a belt of objects beyond the orbit of Neptune. Gerard Kuiper made a similar prediction in 1951. The basis for their predictions had to do with comets. Jan Oort had already proposed that the solar system was engulfed in a huge, spherical halo of comet nuclei. By analyzing comet orbits, and extrapolating back in time, Oort showed that long-period comets (comets with orbital periods lasting thousands of years) originated far from where the planets are found. However, the number of short-period comets (with orbital periods less than 200 years) could not be accounted for simply by altering the orbits of long-period comets, since the alteration is too time-consuming to generate the number of known short-period comets. This is what led Edgeworth and Kuiper to suggest that another comet reservoir existed closer to home, in the region just beyond the orbit of Neptune.

In 1987, David Jewitt at MIT began a search for objects in the outer solar system, and recruited his graduate student, Jane Luu, to help. Using telescopes at both Kitt Peak and Cerro Tololo, they originally performed the search using methods similar to the hunt for Pluto. Taking two images a few days apart, the images were compared in a blink comparator, in an attempt to spot tiny motions of non-stellar objects. When CCD's became more common, their hunt became much more efficient. Exposure times were drastically reduced, and the comparing of images could now be done using computers. When Jewitt took a position at the University of Hawaii, Luu soon joined him to continue their search using the 2.24 meter telescope at Mauna Kea.

After 5 years of searching, their efforts finally paid off. During August, 1992, while observing in the direction of Pisces, they found the faint, moving speck they were hoping for. On August 30 they announced the "Discovery of candidate Kuiper belt object (15760) 1992 QB1." Since Jewitt and Luu had been reading John le Carre novels, they had tentatively named it Smiley, after the character George Smiley central in many of the le Carre novels. However, the name Smiley had already been used to name an asteroid, although named after an astronomer of the same name. Six months later, they had discovered a second object in the same region. Since then, thousands of Kuiper belt objects have been discovered.

Very little is known about 1992 QB1. Estimates place its diameter at approximately 100 - 200 kilometers (roughly 1/10 the size of Pluto). Based on other objects in the region, the composition is guessed to be roughly half rock and half ice. Its orbit is a little larger than Pluto's, has a slight tilt, and is almost circular. It takes 289 years to orbit once around the Sun. Like many other subsequently discovered Kuiper belt objects, 1992 QB1 has a red color. This is thought to be due to hydrocarbons on its surface that are similar in composition to what is found in Titan's atmosphere. 1992 QB1 still has no name.

Although the Kuiper belt was proposed as a source of short-period comets, it has now been found that there are two parts to the Kuiper belt. Where 1992 QB1 is located is called the "Classical Kuiper Belt." In this region, the orbits are fairly stable, circular, and are closer to Neptune. A more distant, less stable, "scattered" belt is thought to be the source of short-period comets. It is thought that Neptune's gravity disrupted what was originally one belt into the two components.

In 2015 we will get our first up-close glimpse of the Kuiper belt. Launched on January 19, 2006, the New Horizons spacecraft will visit Pluto and, hopefully, at least one other Kuiper belt object. As New Horizons gets closer to the belt, it will begin scanning for potential objects to study. Some of the criteria are for an object between 25 and 50 miles across, and with a grey or white color. The color criterion is because Pluto is the same reddish color as is found on 1992 QB1, and they are hoping to observe objects with a different composition.

The discovery of 1992 QB1 ultimately led to the controversy surrounding Pluto's planetary status. With the discovery of thousands of Kuiper belt objects, including the larger-than-Pluto Eris, it became clear that Pluto was no longer a unique object in that part of the solar system. Just as the original asteroids were called planets until it became clear that the asteroid belt was swarming with objects, we now know that Pluto is just one of the myriad of Kuiper belt objects. No matter your feelings about what happened to Pluto, the confirmation of the Kuiper belt is an important milestone in planetary science, and we have the, still, unnamed 1992 QB1 to thank.

References:

The Planetary Society: Trans-Neptunian Objects (15760) 1992 QB1
http://www.planetary.org/explore/topics/our_solar_system/trans_nep_tunian_objects/1992qb1.html

(15760) 1992 QB1 - Wikipedia
[http://en.wikipedia.org/wiki/\(15760\)_1992_QB1](http://en.wikipedia.org/wiki/(15760)_1992_QB1)

Kuiper belt - Wikipedia
http://en.wikipedia.org/wiki/Kuiper_belt_object

Classical Kuiper belt object - Wikipedia
<http://en.wikipedia.org/wiki/Cubewano>

The 'planet' that came in from the cold: The discovery of a world beyond Pluto, some six billion kilometres from the Sun, shows that our inventory of the Solar System has been missing a vital component; New Scientist, 14 November 1992; Nigel Henbest

<http://www.newscientist.com/article/mg13618474.400-the-planet-that-came-in-from-the-cold-the-discovery-of-a-world-beyond-pluto-some-six-billion-kilometres-from-the-sun-shows-thatourinventory-of-the-solar-system-has-been-missing-a-vital-component-.html>

July 2008 Board of Directors Minutes

Bob Rice, Secretary

No meeting was held in July due to the close proximity of the scheduled meeting (July 3rd) to the 4th of July holiday. Many board members were out of town or otherwise unavailable to attend the meeting.

July 2008 Monthly Meeting Minutes

Bob Rice, Secretary

President Terry Reeves called the meeting to order at 7:33 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 \$2,018.40 and that the annual Astronomical League dues were paid. Mr. Smith reminded the membership that he would personally handle the reduced payment for subscriptions (a benefit of BSAS membership) to Astronomy Magazine, but that similar reduced subscriptions to Sky & Telescope Magazine should be made directly to the publisher via their website. Dr. Reeves then asked for corrections to the minutes of the previous membership meeting held on June 19, 2008 and, there being none, declared them to be approved without exception as published in the July 2008 edition of the Eclipse newsletter.

Dr. Terry Reeves reminded attendees about these upcoming events: (1) the rescheduled BSAS picnic on August 2 at Mark Manner's Spot Observatory, and (2) a public star party from 8:30 P.M. to 10:30 P.M. on August 9 at the Warner Parks' special events field. Dr. Donna Hummell encouraged members to attend the picnic and noted that directions to Spot Observatory were on the BSAS' website.

Sudekum Planetarium Director and BSAS member Kris McCall announced that, in response to many requests, the ASC would allow people to attend only the planetarium on Saturday, August 2. She said that ASC management expected a good turnout. Ms McCall also announced that the ASC would host the annual meeting of the Southern Planetarium Society during the summer of 2009 and hoped that this group might be able to attend a function at Spot Observatory on June 13 of that year. Dr. Terry Reeves announced that Steve Wheeler would take over as editor of the Eclipse newsletter for a while.

Dr. Terry Reeves then delivered the program on "What's Up Tonight," the second in a planned series of presentations designed to provide seasonal guidance to observers about what can be seen in the night sky even from light-infested backyards. All items were carefully selected to include naked eye objects (e.g., the Milky Way and the Summer Triangle), binocular objects (e.g., globular cluster M13 in Hercules and the binary star Albireo in Cygnus), and many telescopic objects including the Splinter Galaxy in Draco, the planetary nebula M57 in Lyra, the Wild Duck open cluster M11 in Scutum along with a good selection of other objects ranging from the easy to the difficult to see. The presentation was ordered by constellation running from west to east. Each object's location was illustrated with projected star charts derived from planetarium software; many objects also included detailed star-hopping guides. Following his presentation, Mr. Reeves answered questions from the audience.

Dr. Terry Reeves commented that the Tennessee Star Party (TNSP) had been cancelled for 2008 due to poor financial returns and too few volunteers having to do too much for the last several years. He noted that the board was considering alternative approaches for the future and asked the attendees for comments and suggestions. Many good responses were offered that included: (1) Having a much less formal get-together, (2) Attendance lowered due to the high cost of gasoline, (3) The former site at Camp Nakanawa seemed to have more attendees, (4) Weather in Tennessee was too variable, (5) Provide speakers, but not meals or accommodations, and (6) Must decide if the TNSP is for public outreach or serious observers only.

Kris McCall commented that she would like to integrate using the new planetarium's advanced features for future "What's Up" presentations and demonstrated several possibilities including planetary motions and constellation figure projections. Since there was no further business to discuss, President Reeves declared the meeting to be adjourned at 9:25 P.M.

OFFICERS

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Theo Wellington
Steve Wheeler
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*

Member Contributions

Book Review:

Digital Astrophotography: A Guide to Capturing the Cosmos

By Stefan Seip
(ISBN 9781933952161, \$29.95)

Let's face it – many amateur astronomers wish they could take pictures like those they see on *APOD* or the annual calendars from *Sky and Telescope* and *Astronomy*. The fact is, imaging is not easy. The demands it places on equipment, software, and the user cause many would-be imagers to give up in frustration.

Fortunately, today's amateur astronomer has more choices than ever before when it comes to imaging equipment and the software used to process those images. Compact digital cameras, digital SLR cameras, and web cams can all be used as alternatives to the traditional (and expensive) astronomical CCD cameras to create aesthetically pleasing images to share with family and friends or post on a web site. In addition, imaging web sites, web forums, and other web resources abound in information, product reviews, and technical discussions.

What has been lacking, however, is a comprehensive resource of information that covers all options available to those new to imaging. Stefan Seip's new book, *Digital Astrophotography: A Guide to Capturing the Cosmos*, is just the resource a new imager needs to make an educated decision about where to start.

Seip begins with a brief overview of the current state of astrophotography and briefly reviews basic telescope and mount options. Then, he covers in depth digital compact cameras, web cams, digital SLRs, and the astronomical CCD camera. Included are references to the strengths and weaknesses of each camera, along with tips for purchasing a camera and for making the most of the image in post processing.

For example, Seip points out that basic fixed tripod imaging with a compact digital camera can be very rewarding as an entry point to astrophotography, and goes on to suggest several motifs including sunsets and planetary conjunctions. For web cam imaging, he uses the popular Phillips SPC900NC web cam and goes into great detail regarding capturing the images and the subsequent post processing in the popular freeware application *Registax*.

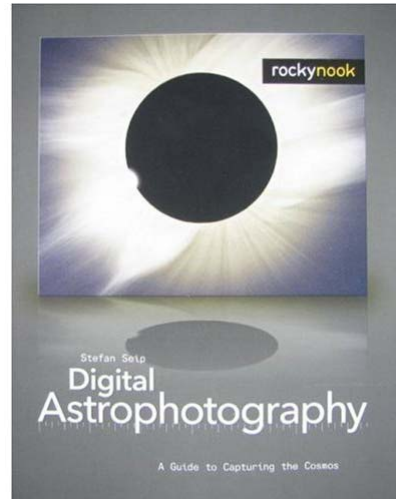
If there are any shortcomings with this book, it lies with the chapters on digital SLRs and the astronomical CCD camera. When imaging with these cameras, post processing is extremely intensive and while the book covers this topic well, it will probably not be enough information for the imager who has some experience under their belt and are hoping to improve their processing skills.

My personal journey as an imager started with a Nikon Coolpix 4300 compact digital camera. I then "graduated" to a Meade Lunar Planetary Imager, a SAC Mintron EX camera, a Stellacam II video camera, a Meade DSI Pro II, and now a Canon Digital Rebel XT. As I have since learned, this is a common progression for many imagers. All these cameras (except the video cameras) and the techniques to get the most out of them are covered in this book.

I would highly recommend this book to anyone wanting to get started in imaging. It covers a lot of territory, is well written, and will be easy for a beginning imager to understand. Reading through the book reminded me of the many nights I spent slapping mosquitoes and fumbling with adapters and cables in the dark, only to find out the next day my focus was off and the hours of imaging yielded nothing of value. Such is the life of the astrophotographer. A resource like **Digital Astrophotography: A Guide to Capturing the Cosmos** will most definitely make the learning curve more manageable.

Steve Wheeler
<http://sgto.home.comcast.net>

BSAS members – submit your astrophotography or article submissions for inclusion in next month's *Eclipse* to wsw261@hotmail.com. Please include image details along with your submission.



BSAS Affiliations

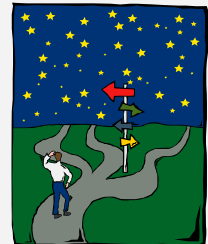
The Astronomical League
<http://www.astroleague.org/>



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



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



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)
\$15 Student*

* To qualify, you must be 21 or younger & enrolled in an accredited institution.

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 Joe Boyd at (615) 386-3134.

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