



# ECLIPSE



*The Newsletter of the Barnard-Seyfert Astronomical Society*

Organized in 1928

July 2006

## **The Membership Meeting will be held on July 20, 2006 At the Adventure Science Center at 7:30 pm.**

The program committee is working to obtain a speaker for the Membership Meeting. The program will be announced by email prior to the meeting. So plan to come and be rewarded with a good program, as usual.

### **PRESIDENT'S MESSAGE**

Each year many amateur astronomers engage in a Messier Marathon and try to view all of the Messier objects in one evening. Obviously, since the goal is to try to see them all in one night, many of the Messier objects are not well positioned, but the challenge of trying to see them all is great fun. This month I want to talk about trying to see or image all 9 planets and the Sun and Moon in one night or one 24 hour period.

Using any of the readily available planetarium programs or other source for ephemeris data, it is possible to find times when all the planets can be found in one night. You primarily need to find times when Mercury is close to greatest elongation, Venus is relatively well placed, and none of the outer planets are at or near conjunction. There are usually a few times each year during which this is possible, even in years when there are no syzygies of several of the outer planets, as occurred on my birthday in 1982! As many of you know, a "syzygy" in astronomical usage is where 3 bodies are in alignment, and the plural has been used colloquially to describe the situation when all or most of the planets are on the same side of the Sun at the same time. Syzygies have also been used by some to predict (incorrectly so far), the imminent destruction of the Earth.

My first attempt at a Solar System Marathon was in 1979. I used a 4" Maksutov from my balcony in Washington, D.C., and was able to see all of the planets, other than Pluto, which was too faint for my aperture. Off and on over the years I have seen many of them, but finally last year in late June I was able to see all 9 planets in one 24 hour period (I looked at my feet for the Earth). I decided a couple of months ago to try to image the Sun, Moon and all of the planets in one night in order to have a record of the event. I selected last week by using TheSKY6 to check on rising and setting times. The weather cooperated to some extent and I was successful, although given the altitude of most of the planets, the images are obviously not the best obtainable. A composite of the individual images, taken from 6:30pm Tuesday to 5:15am Wednesday, June 27-28, appears in this issue of The Eclipse.

For ordinary amateur equipment, seeing the Sun, Moon and all the planets other than Pluto in one evening is an entertaining and not terribly difficult project, weather and sleep deprivation aside. I encourage others to do this, and to come up with other ideas to keep the hobby interesting.

Please feel free to contact me with any questions or concerns about the BSAS. Best regards,

Mark Manner

Cell 615-351-3172

Office 615-251-1066

[mark.manner@h3gm.com](mailto:mark.manner@h3gm.com)

<http://www.spotastro.com>

<http://groups.yahoo.com/group/tnastronomy/>

## Happy Birthday Giuseppe Piazzi

by Robin Byrne

This month we look at the life of a man who made one of the major discoveries of the early 19th century. Giuseppe Piazzi was born July 16, 1746 in Valtellina, which at the time was part of Switzerland, but is now in Italy. A devout Catholic, Piazzi early on chose to dedicate his life to the church. While studying for the priesthood, Piazzi also discovered an interest in astronomy and math.

One of Piazzi's first assignments was teaching mathematics at the University of Malta. In 1780, he was appointed the Chair of Higher Mathematics at the Academy of Palermo. Upon his arrival, Piazzi proposed building an observatory, which would be the southernmost of all European observatories. A grant from the Viceroy of Sicily made it a reality. From 1787 to 1788, Piazzi sought out advice from some of the great astronomers of the time, including Lalande, William Herschel, and the Astronomer Royal, Nevil Maskelyne. To construct the equipment, Piazzi chose Jesse Ramsden. The primary instrument used a 5-foot vertical circle that gave altitude and azimuth readings using micrometer microscopes. The construction was completed in 1789, and the circle was mounted on top of a tower located at the royal palace.

Piazzi was able to begin observations in 1791. Some of his initial work included improving values for the obliquity of the ecliptic, corrections for errors due to various forms of aberration, measurement of the tropical year to a greater accuracy, and an attempt to measure parallax of nearby stars. However, his first major work was to take advantage of the observatory's location and superior equipment to produce a highly accurate star catalog, which would include far more southern stars than any previous catalog. To improve the accuracy of his measurements, Piazzi would measure a star's position on multiple nights. This produced positional accuracy to a few seconds of arc. In 1803, his first catalog was published, with 6784 stars included. A second catalog was published in 1814, which contained 7446 stars positions.

On the evening of January 1, 1801, while double checking observations for the first catalog, Piazzi noted an 8th magnitude stellar object that was not in his original list. Observing it on the subsequent evening, he realized that it had moved. Over the course of 40 days, Piazzi observed the object on every clear night available. Piazzi believed he had discovered a comet, and informed other astronomers of his findings, even though he was concerned by the lack of a coma or tail.

Over time, Piazzi realized that the motion of this new object was more consistent with an elliptical planetary orbit located between Mars and Jupiter than with a more parabolic cometary orbit. The orbit of this new object convinced him that he had discovered a new planet. Piazzi estimated its size to be larger than Earth by comparing its apparent size in the telescope eyepiece with the illuminated crosshairs. However, over time, its size appeared to get smaller. Piazzi began to wonder if it had been a comet, and was now leaving the solar system.

Due to illness, Piazzi's observations had to come to an end. At this point, he sent his observations to others to compute a more accurate orbit. It was Gauss who completed the calculations first, and confirmed that it did orbit the Sun at a distance that placed it between Mars and Jupiter. Both Kepler and Bode had predicted that a planet should be found in this area, so the discovery received a lot of attention. Piazzi was given the honor of naming it. He called it Ceres Ferdinandea, in honor of the patron saint of Italy (Ceres) and of his royal patron (Ferdinand).

The following year, another object, Pallas, was found by Olbers to orbit at a similar distance. That same year, William Herschel proved that both Ceres and Pallas were much smaller than planets, and proposed calling them asteroids. Piazzi was not pleased with his discovery being demoted from planet to asteroid. Over the years, we have found that thousands of asteroids inhabit this region between Mars and Jupiter, which is now known as the Asteroid Belt.

After the discovery of Ceres, Piazzi was in a good position to have his wishes fulfilled. The king wanted to produce a gold medal made with Piazzi's image on it. Instead, Piazzi requested the money be used to build an equatorial telescope at the observatory in Palermo. In 1812, Piazzi was placed in charge of converting Italy's weights and measures standards to the metric system. In 1817, he was in charge of building a new observatory in Naples.

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**Happy Birthday**, continued from Page 2

Giuseppe Piazzi died in Naples on July 22, 1826, a few days after his 80th birthday. From Piazzi's discovery of the first asteroid to today's robotic exploration of the Asteroid Belt, much has been learned about these remnants of our solar system's formation. Although Ceres is not a planet, as Piazzi so wanted it to be, his discovery marked a milestone in our understanding of how our solar system (and perhaps other solar systems) formed. I think Piazzi would be pleased.

## References:

Catholic Encyclopedia: Piazzi  
<http://www.newadvent.org/cathen/12072d.htm>

Bode's Law and the Discovery of Ceres  
[http://www.astropa.unipa.it/versione\\_inglese/Hystory/BODE'S\\_LAW.htm#8a](http://www.astropa.unipa.it/versione_inglese/Hystory/BODE'S_LAW.htm#8a)

**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: \$37.00

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](mailto: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: Bill Griswold

[bgritz@comcast.net](mailto:bgritz@comcast.net)

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BSAS Logo by Tony Campbell

**Barnard-Seyfert Astronomical Society  
Minutes of the Monthly Membership Meeting  
Held on Thursday, June 15, 2006**

President Mark Manner called the meeting to order at 7:36 P.M. in the Sudekum Planetarium at the Adventure Science Center (ASC) and welcomed new members and visitors. The minutes of the previous meeting held on May 18, 2006 were approved without exception as published in the June 2006 edition of the *Eclipse* newsletter. Treasurer Randy Smith reported that the BSAS' bank balance was \$3,569.38. Mark Manner reported that the society was seeking a caterer in the Lynchburg area for the upcoming TNSP in September. One attendee suggested contacting Miss Mary Bobo's Boarding House and Restaurant in Lynchburg.

Long Range Planning Committee Chair Joe Boyd reported that this committee was gathering information for the BSAS to apply for *Astronomy Magazine's* "Out-Of-This-World" award for 2006. This \$2,500 award, to be determined by the magazine's editors, will be given to an astronomy club demonstrating the greatest "sustained effort" in public outreach and education. Mr. Boyd noted that the deadline for applying was July 15, 2006 and commented that the committee's greatest challenge was describing all of the BSAS' public outreach efforts within the required 500 word limit. He further explained that the committee planned to supplement the written description with pictures. Kris McCall suggested using phrases rather than complete sentences to facilitate meeting the 500 word restriction. She also stated that she had pictures from the BSAS' participation in Astronomy Day that could be used.

Mark Manner announced these upcoming star parties and events:

- June 24 – Natchez Trace Star Party
- July 20 – Membership Meeting at ASC
- July 22 – Natchez Trace Star Party

Mr. Manner also asked for volunteers to participate in a requested outreach event at a campout to be held at the Northwest YMCA, located at the corner of Ashland City Highway and Clarksville Highway, on Friday, June 23 beginning at about 6:30 P.M.

Since there was no further business to discuss, President Manner declared the meeting adjourned at 7:45 P.M. At 7:48 P.M. Sudekum Planetarium Director Kris McCall presented the show "Sky Watchers of Africa," a fascinating animation of the many stories and related star patterns observed by the diverse peoples of that continent. The program emphasized the significance of sky watching as a shared and universal experience throughout the course of human history.

Respectfully submitted,  
Bob Rice, Secretary

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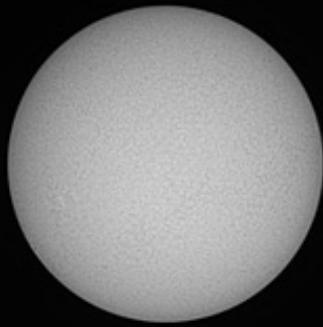
**Barnard-Seyfert Astronomical Society  
Minutes of the Monthly Board of Directors Meeting.**

No meeting of the Board of Directors was held. The Annual Picnic was held at the Spot Observatory, thanks to our hosts, Mark and Anne Manner on June 3.

It had been planned to have the Board of Directors meet at the picnic, but too many Board Members had to leave early and there was not a quorum.

# The Solar System

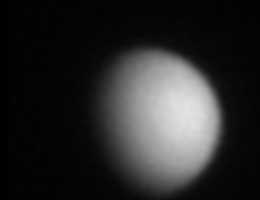
June 27-28, 2006



The Sun



Mercury



Venus



The Earth



The Moon



Mars



Jupiter



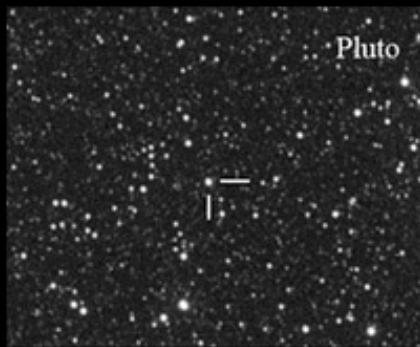
Saturn



Uranus



Neptune



Pluto



## Activities and Events

July 1 — 31, 2006

7/1 Pallas at opposition  
 7/3 FIRST QUARTER; Earth at aphelion  
 7/4 Spica 0.1° N of Moon  
 7/6 BSAS Board of Directors mtg., 7:30 p.m. at Girl Scout Office  
 7/8 Antares 0.2° N of Moon  
 7/10 FULL MOON  
 7/14 Uranus 0.4° N of Moon  
 7/17 LAST QUARTER  
 7/20 BSAS monthly meeting at ASC: 7:30 p. m.  
 7/20 Moon 0.4° N of Pleiades (M45); Venus 1.5° S of M35 (25° W)  
 7/22 Mars 0.7° N of Regulus (30° W)  
 7/22 Private Star Party (Natchez Trace, Mile 435 parking lot)  
 7/24 NEW MOON  
 7/27 Mars 1.1° S of Moon

August 1 — 31, 2006

8/2 FIRST QUARTER  
 8/3 BSAS Board of Directors mtg., 7:30 p.m. at Girl Scout Office; Double shadow transit on Jupiter

8/4 Antares 0.4° N of Moon  
 8/5 Hebe at opposition  
 8/6 Mercury greatest elongation W (19° W)  
 8/7 Double shadow transit on Jupiter  
 8/9 FULL MOON  
 8/10 Double shadow transit on Jupiter  
 8/11 Neptune at opposition; Uranus 0.3° N of Moon  
 8/12 Star party at Warner Park, 8:30 — 10:30  
 Ceres at opposition; Perseid meteors peak  
 8/14 Double shadow transit on Jupiter  
 8/15 LAST QUARTER  
 8/16 Moon 0.6° N of Pleiades (M45)  
 8/17 BSAS monthly meeting at ASC: 7:30 p.m.  
 Double shadow transit on Jupiter  
 8/19 Double shadow transit on Jupiter; Private Star Party, Natchez Trace mile 435  
 8/21 Double shadow transit on Jupiter  
 8/23 NEW MOON  
 8/24 Double shadow transit on Jupiter; Mars 0.6° N of Moon  
 8/26 Double shadow transit on Jupiter; Venus 0.07° N of Saturn (16° W)  
 8/28 Spica 0.5° N of Moon; Double shadow transit on Jupiter  
 8/31 FIRST QUARTER

No meeting of the Dark Sky committee until August  
 Note: all dates & hours according to Central Time

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

