



ECLIPSE



The Newsletter of the Barnard-Seyfert Astronomical Society

Celebrating our 76th Year in 2004

February 2004

February 19, Membership Meeting 7:30 pm, Adventure Science Center

We are very fortunate to have Loren Ball as our speaker for the February meeting. Loren is proving that amateur astronomers can make a really substantial contribution to scientific knowledge—he had discovered (as of two months ago) some 138 asteroids! He made these discoveries from his own home observatory, using a Schmidt-Cassegrain telescope and CCD camera similar to those owned by several BSAS members. NASA and the University of Alabama at Huntsville recently recognized Loren's expertise and hard work by donating to him a new computer, LCD projector, and screen in order to show students how he accomplishes asteroid research. Don't miss this chance to hear from a leading asteroid hunter!

FROM THE PRESIDENT

Joseph M. Boyd, Jr.

Our January membership meeting was an example of how our members can work together to provide a program that attracts new members, informs both new and experienced members, and provides an opportunity for those who have developed an expertise in their respective equipment to share their knowledge. The large group attending the meeting included several visitors, some of whom elected to join the BSAS before leaving the Science Center. John Harrington, the Presentations Committee members, and the volunteers who brought their telescopes to demonstrate how to use them are entitled to accolades for their efforts. It was obvious from the comments made after the meeting that those attending thought it was a very productive program.

The program which is scheduled for our next meeting on February 19 will be one of the most interesting, as well as one of the most important, that we have had in a long time. With all of the asteroids which have been discovered recently, there has been a surge in media interest which has been followed by a surge in public interest. When the announcement was made very recently that an asteroid had passed closer to the Earth than the distance to the Moon, without even being detected until it had passed its closest point of approach, many people realized for the first time the real danger that an asteroid or comet impact with the Earth could have. Our speaker in February, Loren Ball, is a leader in discovering asteroids, having discovered (as of two months ago) a total of 138. He will tell us the techniques he has used to accomplish this feat. He made these discoveries from his own home observatory, using a Schmidt-Cassegrain telescope and CCD camera similar to those owned by several of our BSAS members. The knowledge he will impart to us should enable many of our members to participate in actual scientific research. I hope all of you will bring your families and some friends to hear this outstanding program.

Last month I requested that all of our committee chairs set up a schedule for holding regular meetings of their respective committees. Their response was outstanding. Our Mentoring, Outreach, Dark Sky, Finance and Budget, Equipment and Facilities, Long Range Planning, and Public Relations Committees have set up their regular meeting schedules. Elsewhere in this issue of the Eclipse, you will find the schedules of the committees for the remainder of 2004. This will enable the committee members to schedule their participation well in advance. It also provides that the committees will meet on a regular schedule and thus they will be able to accomplish more. I really appreciate this spirit of cooperation by our committee chairs, and the great things they are accomplishing for our Society and for astronomy in general.

Last week, Powell Hall, chair of our Dark Sky Committee and first chair of the newly organized Middle Tennes-

Continued on Page 2

Sushi Saturday

After a hiatus of a few years, a small group of BSAS'ers who enjoy Japanese cuisine, have decided to reinstate the practice of an informal monthly gathering on the first Saturday of every month at noon. Our next gathering will be on February 7.

We will meet at Shintomi restaurant in Green Hills. Bring yourself and friends (if you like) and enjoy an early afternoon get-together. It's a time for open discussion (within bounds of decorum, of course) and fellowship. In addition, the food is excellent, ranging from sushi to teriaki, tempura, and other Japanese delicacies.

Shintomi is located on Bandywood Drive (behind Davis-Kidd Booksellers and Wild Oats). Bandywood starts in front of the Green Hills Mall and makes a sharp curve to the right. The square where the restaurant is located is at the curve and Shintomi is the first establishment on the left side of the square. It would be good if we had an approximate count beforehand so the restaurant can be prepared for us. If you can, call Mike Benson at 883-6571 before 11 am, but please be spontaneous. If you decide to come at the last minute things will be arranged so that we can expand as needed. See you there!

From the President, continued from Page 1

see Section of the International Dark Sky Association (IDA), Glenn Johnson, vice-chair of the Section and a past president of the Tennessee Valley Section of the Illuminating Engineers Society of North America (IESNA), and I met with Rick Bernhardt, Director of Planning for Metro Nashville, to discuss working together to promote better and more responsible lighting for the Nashville area. Rick was most responsive, and we had an excellent conference. You will be hearing more about this relationship in the near future, but suffice it to say that I am very encouraged by the progress being made.

Also last week, Heinrich Tischler, chair of our Outreach Committee, and I met with Heather Gallagher, Park Ranger at Warner Parks, to discuss our plans for the year and to coordinate the programs on which we will be working together. I believe all three of us left the meeting feeling that we have some great opportunities this year to work together to bring astronomy to the people of Middle Tennessee. Kris McCall was unable to attend the meeting, but briefed us in advance on the schedules. The Sudekum Planetarium will be jointly sponsoring, and actually acting as host location, for some of the activities, so all of our efforts are being carefully coordinated.

You can probably sense from my comments that I am very enthused about what is happening in the BSAS and about our proposed activities for this year. Considering that we may have two naked-eye comets visible this year, a seldom seen Venus transit, and a very motivated membership, this might be one of our best years ever. Let's press on and make it happen.

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: \$29.00

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). Please call President, Joe Boyd, (615) 386-3134 if you have questions. Dues can be sent to:

BSAS
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THE ECLIPSE NEWSLETTER

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Joe Boyd, President
John Harrington, Vice President
Jill Thompson, Secretary
Lonnie Puterbaugh, Treasurer
Powell Hall, Immediate Past President

Board of Directors

Mike Benson
Tony Campbell
JanaRuth Ford
Bill Griswold
Kris McCall
Pam Thomas

Logo Photograph:
Francisco Diego

BSAS COMMITTEES SET MEETING SCHEDULES

At the request of President Joe Boyd, several BSAS committees have set up regular meeting times and places, and have scheduled their meetings through 2004. This will enable members of the various committees to plan their schedules accordingly, and should both increase the attendance at the meetings and make them more accessible to the membership.

A list of the committees and their schedules, along with the meeting location and name and telephone number of the individual chairs, follows. All addresses are in Nashville unless otherwise specified. All telephone numbers are home numbers and are in Area Code 615.

Dark Sky Committee, Powell Hall (872-0162), chair, 1st Tuesday of each month at 1930, McKendree Tower on Lebanon Road

Equipment and Facilities Committee, Lonnie Puterbaugh (661-9540), chair, 1st Wednesday of each month at 1900 except February meeting will be the 2nd Wednesday, Lonnie Puterbaugh's home at 8214 Twin Spring Court, Brentwood

Grants Committee, Jill Thompson (361-9983) and Bob Rice (673-7366), chairs, 2nd Wednesday of each month at 1900, Jefferson Square Clubhouse except February meeting which will be at Lonnie Puterbaugh's home at 8214 Twin Spring Court, Brentwood

Long Range Planning Committee, Dennis Williams (895-5784), chair, 1st Wednesday of every other month of odd numbered months at 1900, Lonnie Puterbaugh's home at 8214 Twin Spring Court, Brentwood

Mentoring Committee, JanaRuth Ford (221-4032), chair, 4th Thursday of each month at 1900 except 5th Thursday in January, Jefferson Square Clubhouse

Outreach Committee, Heinrich Tischler (221-4032), chair, 4th Monday of each month at 1900, Jefferson Square Clubhouse

Presentations (Program) Committee, John Harrington (269-5078), chair, 2nd Monday in March, June, September, & December at 1900, John Harrington's home at 1712 Temple Avenue

Public Relations Committee, Kris McCall (383-2514), chair, 1st Monday of each month at 1730, Adventure Science Center

All BSAS members, whether or not you are a member of a committee, are urged to save this list of the times and places for future reference. Those who are not members of a committee but would like to attend a particular committee meeting are urged to contact the chair of that committee by phone or email prior to the meeting to make certain that there has been no change in date, time, or location, as well as to get directions to the meeting place if needed.

Minutes of the Barnard-Seyfert Astronomical Society Board of Director's Meeting Thursday, January 8, 2004

The January meeting of the BSAS Board of Director's was called to order at 7:40 P.M at the Clubhouse of Jefferson Square Condominiums. Board members present were Joe Boyd, Powell Hall, Jill Thompson, Mike Benson, Bob Rice, Bill Griswold, John Harrington, Janaruth Ford, Heinrich Tischler, and Lonnie Puterbaugh. Guests present were Rocky Alvey and Lloyd Watkins. A quorum being present, Joe Boyd began the meeting. The minutes of the previous meeting were approved as presented.

Joe made the following announcements. The contract with Camp Nakanawa for the 2004 Tennessee Star Party has been fully executed. Copies were distributed to Lloyd Watkins, Rocky Alvey, John Harrington, and Bill Griswold. A copy of the certificate of insurance will also be provided to each one and to Camp Nakanawa. Joe also indicates that a number of committees are meeting and have set regular monthly meeting days.

Powell Hall, Chair of the Dark-sky Committee, announced that he is encouraging members to join the International Dark-sky Association. A presentation to the BSAS on light pollution is in the planning stages.

Lonnie Puterbaugh reported on the joint meeting of the Equipment & Facilities Committee and the Long-Range Planning Committee. He indicated that two equatorial platforms have been ordered and are on the way. A loaner scope policy is being developed, which should be ready next month. Lonnie explained that, at the joint meeting, he had trained those present on how to set up and operate the new sound system. In regard to long-range plans, he announced that the committee will be working toward the acquisition/creation of a mobile observatory in order to bring astronomy to the public. He indicated that he hoped to have this accomplished in 2-5 years.

Lonnie Puterbaugh then gave the Treasurer's report. The total monetary assets as of December 31, 2003 were \$6367.29. Income was reported as \$415, which is all from dues. Expenses totaled \$1128.11, which included the cost of stamps, the Christmas party, the audio system, and the November, December and January Eclipses.

Bill Griswold announced that 24 members have become inactive because they have not paid dues in the last 2-3 months. Everyone who receives the Eclipse by mail has the membership expiration date listed on the mailing label. To those who receive the Eclipse by E-mail and whose membership is expiring or will expire by next month, Bill has sent them a message indicating this. Mike Benson indicated that a list of active members needed to be sent to the Astronomical League by 1 January. It was also commented that several people complained about not receiving the Reflector and that the updated records should help prevent that. Mike also noted that the list should be sent in quarterly to the Astronomical League. Joe Boyd commented that we owe a huge debt of gratitude to Bill Griswold for handling membership duties.

As Chair of the Mentoring, Janaruth Ford reported that committee would meet on the fourth Thursday of each month initially and then drop to every other month after they were established. She indicated plans were in the works for a certification program for members who wished to check out loaner telescopes or use the photometry equipment. Rocky Alvey indicated that he would be glad to help with the training on photometry and the use of the equipment. Janaruth reported that an interest survey will be presented soon to see if members might wish to participate in classes and if so, on what topics.

Heinrich Tischler reported on Outreach and indicated that his committee would be meeting at the end of the month. Research is being done on becoming active with the Boy and Girl Scouts. He also indicated that efforts will be made to reach beginners inside the club. He mentioned a possible forum, open only to members, for those who wish to sell equipment. In addition, he mentioned that there would be a focus on recruiting junior high students and pulling in their parents through them. Also, he mentioned establishing the Sidewalk Astronomer activity, making follow up phone calls to club visitors, making sure that star parties are well-manned, and possibly bringing astronomy to some religious organizations.

Kris McCall was not present, so Janaruth Ford reported on the Public Relations Committee. There had been no additional E-mail messages received concerning the January membership meeting on how to use a telescope. However, Janaruth indicated that she had announced the meeting at the Planetarium during the holidays and had received a number of verbal inquiries. Janaruth also mentioned that Kris wanted to really publicize Astronomy Day at the Adventure Science Center and will speak more about it at the membership meeting. Janaruth also mentioned that a packet for Beginner's is being planned. She also described a possible logo for the club. Rocky indicated that he could help a little in the design.

Tony Campbell was not present due to the illness of his newborn son, so there was no report from the web master.

It was noted that the club budget will need to be revised to accommodate some unexpected changes. Joe Boyd announced that Pam Thomas was absent but that she is planning activities to celebrate the completion of the club's 75th year.

Happy Birthday NEAR

by Robin Byrne

This month we celebrate a spacecraft that went above and beyond the call of duty. The Near Earth Asteroid Rendezvous (NEAR) spacecraft launched February 17, 1996. This is the first such craft to go into orbit around an asteroid. On its journey to the primary target, NEAR flew within 700 miles of another asteroid, Mathilde, in 1997, providing unprecedented views of this body. But, on February 14, 2000, NEAR made history when it went into orbit around asteroid Eros.

Many scientific discoveries were made both on NEAR's journey and while in orbit. Part of the objective was to determine the composition of Eros. One way this was achieved was using the on-board gamma-ray instrument. Analysis of the data continues to this day, but will allow astronomers to link known meteorites back to Eros as the parent body.

Another scientific goal was to map the surface of Eros to a high degree of accuracy. Much of this was achieved by combining visual images with radar maps made during each orbit. The Laser Rangefinder bounced signals off of the asteroid. By timing how long it took for the signals to return, a 3-dimensional map emerged. Among the unusual features mapped was a cliff at the edge of a 6-mile wide crater named Himeros. The cliff measured at over 300 feet high and is nearly vertical.

By use of radio tracking of NEAR, scientists were able to determine the gravitational pull of Eros on the spacecraft. This, in turn, allowed them to determine the distribution of mass in the asteroid. From this, it was found that Eros has an even distribution throughout. That means that Eros is among the more primitive types of asteroids that have not experienced any melting in their history. Therefore, the composition of Eros is similar to the materials from which the terrestrial planets formed. This was corroborated with observations by the gamma-ray spectrometer. The spectrum showed the presence of elements found only in the most primitive asteroids, known as chondrites.

As NEAR traveled toward Eros, it had a name change. Following the death of Eugene Shoemaker in a car accident in 1997, it was decided to rename the spacecraft NEAR Shoemaker, in his honor. Shoemaker's career focused on many aspects of astrogeology, especially concerning cratering processes. He was also one of the people who helped design the NEAR mission and its scientific objectives. The naming was a very fitting tribute.

NEAR was designed to orbit Eros for one year, and then to be abandoned to crash onto the asteroid. However, some very clever people came up with an idea to try something daring: let's try to land NEAR on Eros. Despite not being designed to land on anything, a team of engineers worked out a way to at least attempt it. On February 12, 2001, NEAR's velocity and trajectory were changed. Using small thrusters designed for small changes in its motion, NEAR slowed down to 4 mph as it fell toward Eros. Since the gravity of the asteroid is so low, NEAR survived the low speed impact and continued to send signals back to Earth. As it approached the surface, NEAR sent back 69 images of Eros down to an altitude of less than 400 feet, when it became too close to get clear images from cameras designed for a much larger distance. This last image showed an area approximately 20 feet across. The gamma-ray spectrometer continued to make measurements for a few more days. The last signal returned to Earth arrived on February 28, 2001.

NEAR Shoemaker could be renamed again as "The Little Spacecraft That Could." Not only did it achieve the first orbit of an asteroid, and the first landing on an asteroid (despite not being designed to do such a thing), NEAR also collected 10 times more data than hoped for and met all of the original scientific goals. NEAR was a resounding success and a spacecraft worthy of great praise.

References

NEAR Information Web Page <http://nssdc.gsfc.nasa.gov/planetary/near.html>

NASA Press Release: NEAR Shoemaker Makes Historic Touchdown on Asteroid Eros http://nssdc.gsfc.nasa.gov/planetary/text/near_pr_20010212.txt

NEAR Science Results http://nssdc.gsfc.nasa.gov/planetary/mission/near/near_science.html

NASA Press Release: NEAR Shoemaker Observations Link Eros to Primordial Solar System http://nssdc.gsfc.nasa.gov/planetary/text/near_pr_20000530.txt

NASA Press Release: NASA RENAMES NEAR SPACECRAFT FOR PLANETARY SCIENCE PIONEER GENE SHOEMAKER http://nssdc.gsfc.nasa.gov/planetary/text/near_pr_20000314.txt

Minutes, Board of Directors, Continued from Page 4

Bill Griswold moved that the club purchase 10 Observer's Handbooks. Mike Benson seconded the motion. Powell Hall amended it to authorize Kris McCall to purchase 15 handbooks. There was no additional discussion and the motion passed. Mike Benson moved that the club authorize that the cost to members be at least one dollar above our own cost. Bill Griswold seconded the motion, which passed.

Rocky Alvey announced that Stuart Carroll, a ranger at Fall Creek Falls, is interested in establishing a regular astronomy program in conjunction with the BSAS. He would like several people from the club to come, spend the night, and brainstorm about how to incorporate astronomy activities. Rocky indicated that this may gain national publicity. Bill Griswold moved that the BSAS participate. John Harrington seconded the motion, which passed. Rocky indicated that he would send an E-mail message to Stuart and copy Joe.

Rocky also commented that he would like to see a push to get club members to attend other star parties and become more aware of the things other clubs are doing and what is on the cutting edge of astronomy. He also suggested publishing the dates of other star parties in the Eclipse and possibly planning a trip to Hayden Planetarium or some other important location.

Joe Boyd announced that Heather Gallagher would like BSAS participation in a program at Shelby Park and needs to know immediately if we can participate. Bill Griswold moved to follow up on participation in the Shelby Park activity and Powell Hall seconded it. Joe indicated that 3-5 people would be needed. The motion passed.

Rocky requested that the Board consider a chair for TNSP2005 so that they could begin training. Joe postponed the decision until after the next membership meeting in order to see who would be interested.

John Harrington announced that it would be a good idea to try and locate other darksky or quasi-darksky sites at which to hold private star parties because the Natchez Trace site is very far. He suggested have several options and alternating gatherings at each one so that people living in different areas around Nashville could participate. John and Jill Thompson visited the Stones River Greenway to see if it is a possibility and noted that there was a large, open, semi-dark area behind the police training offices next to the Greenway. Plans have been made to contact the training facility to see if they would be agreeable to allowing the BSAS to gather there. John also suggested passing around a list of area parks at the membership meeting, along with a list of things to look for, and encourage club members to check out other parks.

Powell Hall moved to adjourn the meeting. Bill Griswold seconded the motion, which passed. The meeting was adjourned at 9:10 P.M.

Respectfully Submitted,
Jill Thompson
Secretary

Minutes of the Barnard-Seyfert Astronomical Society Monthly Membership Meeting

Thursday, January 15, 2004

Joe Boyd called the meeting to order at 7:40 P.M. at the Adventure Science Center. Joe welcomed visitors and new members. Mike Benson announced that he has a few more Guy Ottewell Calendars available for purchase. The minutes of the 18 December meeting were approved as presented.

Treasurer Lonnie Puterbaugh gave a Treasurer's report. The current balance is \$6367.29. Lonnie also announced that the next meeting of the Equipment committee would be on 11 February. Joe commented that a loaner telescope policy is being put into place and that telescopes will be available for check-out once the interested party has gone through the appropriate training and been certified by the club.

Joe Boyd announced the contract with Camp Nakanawa for TNSP2004 has been finalized. He also announced that the Wendell Holliday Lecture will take place on February 12 and the speaker will be Dr. Scott Hubbard, the Director of Ames Laboratory.

Jill Thompson reported on the Grant Proposal Committee and announced that 4 items and been determined to be the focus of the quest for funds. These are: creation of a mobile observatory, creation of a BSAS headquarters, photometry research, and honorariums for speakers.

Janaruth Ford and Heinrich Tischler were not present to make reports on Mentoring and Outreach, but Joe Boyd made a few comments on their behalf. He also requested that all committee chairs designate a time for their committee to meet.

Continued on Page 7

Minutes, Monthly Membership Meeting, Continued from Page 6

Powell Hall announced that the BSAS Dark-sky Committee meets on the first Tuesday of each month and that the February date will be a joint meeting with the Middle Tennessee Chapter of the International Dark-sky Association. Powell indicated that he had IDA membership forms available for those interested in joining.

Kris McCall announced that she had copies of the Observer's Handbook available for purchase at \$16.00 each. She has a very limited quantity. Joe indicated that if there is enough interest, we might be able to make another bulk order to get the books at a discounted rate. Kris also announced upcoming Public Star Parties on Friday, 13 February and Saturday, 27 March.

Web master Tony Campbell reported that there are several changes to the web site and that there is a new calendar link. The website is www.bsasnashville.com.

Joe Boyd invited all members to become active on a committee.

Bill Griswold announced that we have about 136 active members whose membership is currently paid. This is out of 169 total.

Lonnie Puterbaugh announced that John Dobson is in Tennessee this weekend. He also announced plans for the next Messier Marathon on 20 March. He also commented on the upcoming Venus transit and indicated that it would be visible in this area in the early morning on 8 June. He mentioned the possibility of a group run to the east coast for better viewing conditions. Interested parties should talk to Lonnie or Tony Campbell.

Joe Boyd announced that Fox News had recently interviewed Rick Chappell on the topic of Astronomy and that he had done an excellent job. Joe also announced that the Department of Physics and Astronomy at Middle Tennessee State University would be hosting star parties on the beginning of each month for the next few months. The events are open to the public and are held 6:30 to 8:30. There is a 30-45 minute lecture at the Wiser-Patten Building in room 102 and then observing from a telescope set up outside the building. The topics for each meeting are as follows.

February 6	Martian Landscape
March 5	Vernal Equinox
April 2	Comets
May 7	MTSU Naked-eye observing

Kris McCall announced that Astronomy Day would be held at the Adventure Science Center on Saturday, 24 April. On Friday, 23 April, there will be a beautiful grouping of Venus, Mars, Saturn, and the Moon in the evening sky. This is an excellent opportunity for learning and camaraderie, so everyone is encouraged to attend. Kris noted that in addition to other great activities, there would be a reenactment of Otto von Guericke's Horses and Hemispheres vacuum experiment. Kris will need volunteers from the BSAS, so interested parties should contact her.

Joe Boyd turned to meeting over to Presentations Committee Chair John Harrington at 8:40 P.M. John announced that the speaker for the February 19 membership meeting would be Loren Ball, and amateur astronomer from Decatur, Alabama who has discovered about 138 asteroids. John then announced that tonight's topic is "How to Use Your New Telescope." Joe Boyd and John Harrington would be available to work with visitors with Dobsonians. Lonnie Puterbaugh, Mike Benson and Dudley Pitts would be explaining Equatorial Mounted Telescopes, and Dennis Williams, Rocky Alvey and Bill Griswold would be working with Schmidt Cassegrains and Maksutov Cassegrains. John Harrington gave a brief description of each general type of telescope and then the crowd broke up into individual groups. Joe Boyd announced that the club would not reassemble after the meeting, so those interested in serving on a committee should see him.

Respectfully Submitted,
 Jill Thompson
 Secretary

Activities and Events

February 1 – 29, 2004

- 2/2 Conj., Neptune & Sun
- 2/3 BSAS Dark-Sky Committee, 7:30 pm at 4343
Lebanon Road, Hermitage
- 2/5 BSAS Board meeting, 7:30 pm at Jefferson
Square, Joe Boyd 386-3134)
- 2/6 FULL MOON
- 2/8 Conj., Jupiter & Moon
- 2/13 LAST QUARTER
- 2/13 7:30 to 9:30 pm Winter Star Party: Model
airplane field at Edwin Warner Park
- 2/14 Valentine's Day
- 2/15 Conj., Mercury & Neptune
- 2/18 Conj., Moon & Neptune
- 2/19 BSAS Membership Meeting 7:30 Adventure
Science Center
- 2/20 NEW MOON
- 2/21 Conj., Uranus & Sun
- 2/23 Conj., Moon & Venus
- 2/25 Conj., Moon & Mars
- 2/27 FIRST QUARTER

March 1 – 31, 2004

- 3/1 Conj., Moon & Saturn
- 3/2 BSAS Board meeting, 7:30 pm at
Jefferson Square, Joe Boyd 386-3134)
- 3/3 Mercury at superior conj., Jupiter at
opposition
- 3/6 FULL MOON; Conj., Moon & Jupiter
- 3/13 LAST QUARTER
- 3/17 ST. PATRICK'S DAY; conj. Moon & Nep-
tune
- 3/18 BSAS meeting, 7:30 pm at Dyer Observa-
tory; conj. Moon & Uranus
- 3/20 NEW MOON; Vernal equinox 12:49 am
(Spring begins.)
- 3/21 Conj., Moon & Mercury
- 3/24 Conj., Moon & Venus
- 3/25 Conj., Moon & Mars
- 3/28 FIRST QUARTER; Conj., Moon & Saturn
- 3/29 Mercury at greatest E. elongation (19%);
Venus at greatest E. elongation (46%)

Note: all dates & hours according to Central
Time

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