

ECLIPSE



The Newsletter of the Barnard-Seyfert Astronomical Society

January 2003

BSAS Program, January 16, 2003

The regular January membership meeting will be held at the Adventure Science Museum (Cumberland Science Museum) on Thursday, 16 January, at 1930.

The speaker will be Vandy grad student Jeff Bary to speak on the topic "More Sun-like stars may have planetary systems than currently thought Study of planetary disks around T Tauri stars. There may be a lot more planets circling stars like the Sun than current models of star and planet formation predict." Jeff Bary, graduate student is taking a critical look at T Tauri stars. These are stellar adolescents, less than 10 million years old, which are destined to become stars similar to the Sun as they age.

FROM THE PRESIDENT

By Joseph M. Boyd, Jr.

As we celebrate the beginning of a new year, it is always a time for reflection, anticipation, and hope - reflection on what we have done well this past year, as well as how we could have done better; anticipation of what opportunities await us in the new year; and hope that we will take advantage of the opportunities and make the new year even better.

In reflecting on this past year, I am disturbed by one thing that I keep hearing over and over - "This is the way we have always done it." A new idea comes up and there is an immediate response that "we have always done it this way". "We have always done it this way" is often a prescription for failure. It curbs enthusiasm. Obviously if something is working extremely well, we want to keep it. The old saying that "if it ain't broke, don't fix it" has a lot of merit. But often what we have been doing has not worked that well, and it may very well need fixing.

There is an old poem, author unknown, which is called The Path of the Calf. It describes a calf which wandered off from the herd one day, and went back to the barn by a circuitous route, ambling along as calves do. The muddy trail was taken up by a sheep the next day, and pretty soon a path was carved as wolves, sheep, and cattle followed in the footsteps of the calf. The farmer used the path, which had been widened by the herd, and drove his wagon and mules over it, finally making it a road to the far reaches of his farm. Later the path became a county dirt road, then a paved road, and finally a state and federal highway. Motorists from across the continent had to drive the curvy and winding road, just because two centuries earlier, a calf wandered off from the herd. The highway was where it was because people didn't want to change and preferred the familiar "path of least resistance" to straightening out the curves and making needed changes.

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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: \$29.95
ASTRONOMY: \$29.00

Checks or Money Orders should be made out to the Barnard Seyfert Astronomical Society (BSAS) and sent to the Treasurer at the following address:

BSAS
Dyer Observatory
1000 Oman Drive
Brentwood, TN 37027

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 are \$20.00 per year for Regular and Family memberships and \$15.00 per year for Seniors (over 60 years of age), and \$10.00 for students (under 22 years of age). Please call the Dyer Observatory (373-4897) if you have questions. Dues can be sent to:

BSAS c/o Dyer Observatory
1000 Oman Drive
Brentwood, TN 37027

THE ECLIPSE NEWSLETTER

Editor: Bill Griswold
bgriz@comcast.net

BSAS Officers:

Joe Boyd, President
John Harrington, Vice President
Evelyn Wright, Secretary
A.G. Kasselberg, Treasurer
Powell Hall, Immediate Past President

Board of Directors

Mike Benson
John Bradford
Bill Collins
JanaRuth Ford
Bill Griswold
Kris McCall

Logo Photograph:
Francisco Diego

Regular Meeting of the Barnard-Seyfert Astronomical Society Board of Directors on December 5, 2002

The meeting was called to order by President Joe Boyd at 7:03 PM on Thursday December 5, 2002 at the Jefferson Square Clubhouse. A quorum was present consisting of board members Mike Benson, Joe Boyd, Bill Collins, JanaRuth Ford, Powell Hall, John Harrington, A.G. Kasselberg, Kris McCall, and Evelyn Wright. Board members John Bradford and Bill Griswold were absent. Guests attending were Rocky Alvey, Lonnie Puterbaugh, Bob Rice, Larry Southerland, Jill Thompson, and Lloyd Watkins.

With no objection, the minutes of the November board meeting were approved as printed in the December issue of "The Eclipse". Treasurer A.G. Kasselberg reported that the club's CDs had been cashed and deposited into the club's checking account bringing the total to \$5300.34. His investment research indicates that interest rates are currently low (1-1.6%). Regarding 501(c)3 status, more information must be delivered to the IRS by the Wednesday following the board meeting. The IRS recommended that 509(a)2 status more closely matches the club's broad public support that comes mostly from TNSP. It was pointed out that if tax-exempt status is not granted, the IRS will inform the state which can require that the club file an income tax return in addition to the normal corporate filing. The minimum taxable income most likely will be higher than the club normally takes in. A.G. noted that the club is spending money faster than it is replacing it with dues.

Mike Benson reported on ALCon 2003 noting the progress of the speaker committee headed by John Harrington. Mike will scan in the vendors from last year's program and get them to Evelyn who needs more feedback from Mike and others on the drafts of vendor letters and call for papers she has submitted for review. Mike has submitted ads to "The Reflector". Lloyd Watkins advised contacting the AL webmaster each week until some progress occurs with the ALCon 2003 website sponsored by the AL. Lloyd also mentioned that he is considering Dyer Observatory for the Star-B-Que (requires the cost of a tent), but the Adventure Science Center might be better able to handle a larger group.

Powell Hall noted that the dark sky committee met on Monday with good attendance. John Harrington has not received any response from The Ensworth School Project. Lonnie Puterbaugh noted the equipment committee will be meeting soon, and has already drawn up an agenda. No one from the hospitality committee was present. The program committee is working on writing letters to ALCon 2003 speakers. It is unknown what the January program will be, yet. Bob Rice noted the budget and finance committee will be meeting Monday. There is no prior budget to work from, and he will be contacting A.G. to get a list of ongoing expenses and revenues. The long range planning committee will be looking 5-10 years out. It was pointed out that Dyer Observatory Director Rick Chappell suggested organizing a youth chapter of the BSAS.

Lloyd Watkins reported that the TNSP 2003 contract with Camp Nakanawa for September 26-28 has been signed. Lloyd will be inviting regional clubs and contacting past attendees to learn what worked and what did not. He hopes to set up a software database that will keep TNSP organizers from starting from scratch each year. Lonnie Puterbaugh noted that the best star parties tend to have the same core people running them from year to year.

Under old business, A.G. Kasselberg will go ahead and renew the club's membership in the International Dark-Sky Association as agreed upon at the November membership meeting. John Bradford was not present to report on the status of the method of appreciation for TNSP 2002 volunteers.

Mike Benson moved that the BSAS participate in the Adventure Science Center's Astronomy Day program. The motion was seconded by John Harrington and passed. Since money may be tight due to ALCon 2003 and TNSP 2003, it was recommended that participation be restricted to no-cost forms.

Joe Boyd agreed to arrange for the meat for the December potluck dinner. The cost will be divided among the board members.

Regarding TNSP 2002 telescopes, 3 have been delivered, parts for 5 more have been located, and 2 remain to be supplied. It was agreed to pay Bill Burgess for 8 scopes once 8 of the 10 TNSP 2002 telescopes are delivered, with the balance to be paid when the last 2 are delivered. A.G. noted the TNSP 2002 profit without the telescopes was \$735. Lloyd Watkins noted that money will be needed upfront for TNSP 2003 telescopes and the \$50 deposit for Camp Nakanawa.

Bill Collins noted that he has accepted a job in Annapolis, MD, and if and when he resigns, the BSAS will need a replacement board director and webmaster. Bill's wife Melissa was on the dark sky committee. While they will be missed, everyone wished them well.

Kris McCall will post to the Middle Tennessee Astronomy Yahoo group about the star party at Warner Park model airplane field at 7:30 PM on December 13, 2002 to try to get enough telescopes to show up, since it was not listed in the events section of the December issue of "The Eclipse".

Rocky will check with his legal department before the board proceeds with the matter of BSAS volunteers hosting telescope viewing for small groups at Dyer Observatory while there are no public nights during the winter.

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Joe Boyd passed around a document from Dr. Doug Hall about Friends of Dyer Observatory and asked if the club wanted to get involved in Dr. Hall's offer regarding selling stars to raise money. Mike Benson moved that the board decline Dr. Hall's offer, and John Harrington seconded. The motion to decline carried. A resolution to send a thank you letter to Dr. Hall regarding making his books and papers in the Dyer Observatory Library available for perusal by BSAS members passed without objection.

Kris McCall distributed a proposal by her ex-husband Allan McCall to film footage at the December potluck supper to be used in a short version of a film he wants to raise money for. A couple of actors would mingle with the crowd. A written release would be required for each person whose face is visible in the result. Mike Benson moved that the filming be allowed, and JanaRuth Ford seconded it. The motion carried although there were dissenting votes.

Joe Boyd noted that membership applications and dues may be getting lost. A.G. thought that all applications were accounted for and produced a notebook of them. Once a space for BSAS records is set up at Dyer Observatory, it should be easier for those who need to use them to find them. It was noted that the club's liability insurance policy for public events is still not in the club records. A.G. should be able to get a copy from whomever he is sending the check to.

Lonnie Puterbaugh will get a quote on the cost for 1000 blank name tags to help identify members at club meetings. He would also like to create a BSAS library from which members can check out donated DVDs, software, books, magazines and equipment. A.G. Kasselberg distributed copies of the Observer's Handbook for \$16.00 to those present who wanted them.

With no objection, Joe Boyd declared the meeting adjourned at 9:30 PM.

Respectfully submitted,
Evelyn Wright, Secretary

Minutes of Regular Monthly Membership Meeting of Barnard-Seyfert Astronomical Society on December 19, 2002

Following a potluck supper, President Joe Boyd called the meeting to order at 7:48 PM Thursday, 19 December 2002 in the Sky Room of the Science Adventure Center. Approximately 40 members and several visitors were present. All were encouraged to update their phone numbers and addresses on the circulating attendance list.

The minutes stood approved as published in the December issue of "The Eclipse" newsletter. A.G. Kasselberg reported that the additional information asked for by the IRS for tax-exempt approval has been sent. If tax-exempt status is granted, it will be retroactive to the September 2002 filing date. A.G. also had 6 copies of The Observer's Handbook for sale at \$16.00.

Mike Benson noted that ALCon 2003 occurs on July 9-12, and the committee needs to meet the Friday or Saturday after Christmas. Dr. Doug Hall reported that the IAPPP Symposium will start the Monday after ALCon 2003.

Rocky Alvey noted the tremendous effort Steven Balay has put into meeting the telescope obligations unresolved from TNSP 2002. Steven received a round of applause. Lloyd Watkins reported that TNSP 2003 has a website and surveys will be going out to those who attended the last TNSP.

Lonnie Puterbaugh mentioned the inventory of club equipment completed by Steven Balay and John Harrington, and stated that the equipment will be available for checkout by club members. He also distributed a survey to find out what direction the Equipment Committee should head in. Joe Boyd asked for volunteers to help Dyer Observatory with public nights by appointment until the normal schedule starts up in March. Rocky Alvey announced that he will have Dyer Observatory open tomorrow night to view Saturn at its brightest in 30 years.

Joe Boyd expressed appreciation for Dr. Doug Hall's books and papers in the Dyer Observatory library that are available for perusal by club members. These materials must remain on the premises. The Hospitality Committee received applause for its potluck supper arrangements.

Kris McCall expressed appreciation for allowing her ex-husband Allen to film background footage for a movie short using BSAS members at the Adventure Science Center tonight. She also noted that she appreciated the BSAS' help that ranged from staffing star parties to giving pointers on astrophotography. Kris suggested that the club's May 15 meeting be held at the Adventure Science Center since a lunar eclipse will be occurring about the time the meeting adjourns.

Without objection, Joe Boyd declared the meeting recessed at 8:20 PM to allow cleanup after the potluck supper and filming of background footage. At 8:40 PM the meeting was resumed in the Ingram Theater. Vice President John Harrington introduced Dr. Richard Schmude, Associate Director of the Association of Lunar and

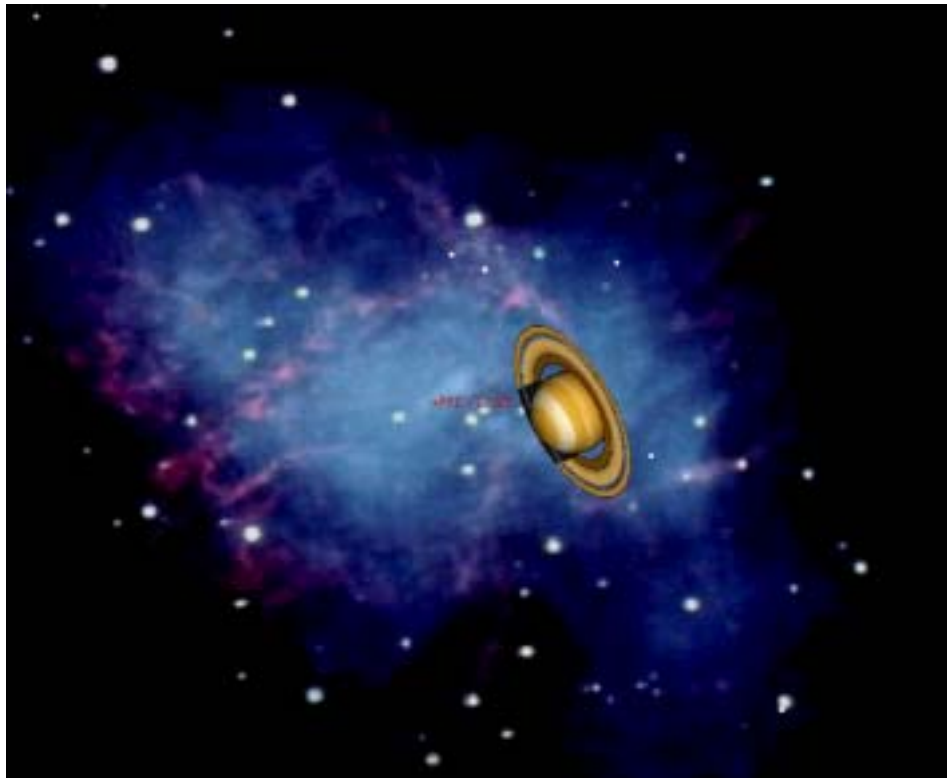
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Planetary Observers (ALPO) and a professor at Gordon College in Barnesville, Georgia. Dr. Schmude discussed the variations in brightness or reflectivity (albedo) of Jupiter's surface over the past couple of years. The dark bands (belts) and bright bands (zones) have storms which interact with each other. Dark storms are called barges, and light ones are called ovals. The Great Red Spot is neither a barge nor an oval, but does affect them. Dr. Schmude encouraged amateur astronomers to help investigate the overall albedo of Jupiter, how Jupiter's storms interact with each other, and satellite transits. He also mentioned the proposed Astronomical League GRS pin before giving a pop quiz on his talk. The quiz notwithstanding, Dr. Schmude received a round of applause for his informative program.

After Jill Thompson distributed the Kea Mauna magnets she acquired on a recent trip to Hawaii, Joe Boyd declared the meeting adjourned at 10:12 PM.

Respectfully submitted,
Evelyn Wright, Secretary



The picture of Saturn is shown superimposed over the M1, Crab Nebula and was taken from Starry Night Pro. The time and date should be set on Jan 5, 2003 and at 12:41:51. (A word of caution. If you set the date first and then scroll the time, when you pass beyond midnight, the calendar will advance to 1/6/2003)

Messier Marathon Dates

By Lonnie Puterbaugh

For those who want to participate in this year's Messier Marathon, it appears that the primary date will be March 29-30 (weather permitting). We can have a practice session on either or both of March 1-2 or 8-9. Based on past years, some may want to come on one of those early weekends ready to run the entire marathon just in case we have bad weather late in the month. March 1-2 would be a good weekend to try the whole thing if the weather is good, but we will have trouble getting some of the last few objects in the morning. The dates at the end of the month will pressure us heavily in the early evening, but may permit us to see every object in the morning.

For the newer persons in the group, a Messier Marathon is an individual challenge held once/year to try and see all 110 Messier objects in one night! It starts at dusk and goes until sunrise. If you arrive late in the evening, many of the objects have already gone below the western horizon. If you go home early, you'll never see many of the objects rise above the eastern horizon. Many of the objects (~70) can be spotted in 50mm binoculars at a dark-sky site. It is recommended that at least a 4" scope be used to try and see all 110. A 6" or 8" scope will make the challenge much easier, but a short focal length works best. This event started in the 70's when a few individuals in a club decided to try it. Now clubs all over the world will be hosting this event on the same dates. It is the spirit of this event to try and spot all 110 objects by using star-hopping only. This means full manual scopes (such as dobbs) and star charts are the best to use. In this form, the event is very challenging. If a "goto" scope is used, the 110 object total will become very easy to obtain in one night, assuming that a sufficient supply of batteries is available. Dew heaters are nearly a must for this event! Even Newtonian scopes have had problems with dew in the past.

This event will be held at the Water Valley Overlook on Natchez Trace and will start just before sunset.

Why do we do this crazy thing? That's a good question! It hones our skills with our scope. If we can find 110 objects in one night, we should be ready for a great year of observing and star parties. Participation in this type of event will aid in our ability to do public outreach later in the year. Imagine being able to find Messier objects very quickly at Warner Park or at Dyer Observatory when 20 people are waiting in line at your scope. In the heavy light-pollution where we have these public parties, the brightest Messier objects are usually all that's visible and even they can be hard to locate if we haven't done it before. I find that after completing a Messier Marathon, I can many times slew my scope quicker to an object manually, than letting the "goto" do it for me and I don't even need a star chart anymore.

I've answered what, when, where, and why. I still have to tell many of you how. I will have more info available soon.

The President's Message, cont from page 1

This past year we have made great strides in getting out of the rut, and making some substantial changes. We have adopted new bylaws, which give us a more involved and responsive board of directors. We have established a new committee system, with almost every person in the BSAS already appointed to one or more of the committees or at least given the opportunity to serve on one. We have a budget in progress, which will be submitted to the board of directors in January and presented to the membership at the January meeting. We are in the process of clarifying our relationships with Dyer Observatory, Vanderbilt, and the Adventure Science Center. One of our committees has just completed an inventory of all equipment owned by the BSAS, including but not limited to telescopes and parts. Our Long Range Planning Committee is working on plans for the BSAS for the next five years and our hopes through the next ten years. We have undertaken a mammoth project of hosting the annual convention of the Astronomical League for 2003, something that will involve most of our members. All of this has been done with your participation and support.

One more word about our committees. All of you should be proud, as I am, of the level of participation by our members in the new committees. I have attended all of the meetings of the committees so far, and have been both amazed and overjoyed at the number of people who have attended the meetings and have actively participated. Many have told me they have never been asked to do anything for the BSAS before, and are happy with the chance to serve and show what they can do. This is a great chance to get some NEW ideas, some NEW suggestions, and some NEW involvement. Don't discourage those who are making the suggestions by telling them this is not the way we have done it in the past, and therefore we should not consider the new idea. Let's get out of the path of the calf and go forward in 2003. We have the chance to be one of the outstanding astronomy societies in the nation. Let's make it happen.

DIRECTIONS TO THE NEW BSAS DARK-SKY SITE

- Go west on Old Hickory Blvd. from I-65, 4.5 miles to Hillsboro Rd. Go south on Hillsboro Rd. for 3.4 miles to Highway 46 and turn right. You will see Grassland Elementary school on the left as a landmark.
 - Follow Highway 46 for 5.8 miles to Highway 96 and a flashing red light.
 - Continue straight on Highway 46 for 6.0 miles through Leiper's Fork to a right turn just outside of town, to stay on route 46.
 - Continue on Route 46 for 0.9 miles to Natchez Trace Parkway.
 - Follow the entrance ramp to the Parkway and turn right, toward Tupelo, Mississippi.
 - Follow the Parkway for 17.2 miles, passing Old Trace and Burns Branch, to the "Water Valley" overlook (MILE MARKER 412). Our site is the parking area.
- (THIS NEW SITE IS 12 MILES FARTHER SOUTH PAST THE OLD SITE WHICH WAS AT MILE MARKER #424)

THE BERGQUIST C-14 TELESCOPE STEWARD LIST

Our club telescope is available for use by club members on a first-come basis. To use the telescope please call the person who is assigned for that night you choose. Please give the stewards as much notice as possible.

Monday - Mike Benson 615-883-6571
 Tuesday - Lonnie Puterbaugh 615-661-9540
 Wednesday - A.G. Kasselberg 615-661-0231
 Thursday - Lloyd Watkins 615-824-3005
 Friday - John Bradford 615-871-9542
 & Powell Hall 615-872-0162
 Saturday - Jim Reid 615-595-6589
 Sunday - Tom Murdic 615-794-6029
 Alternate - Dudly Pitts 615-837-2696

HOT FLASH

By Gerald Lappin

Here it is. January again, January, named for the Janus, the god who looks to both the past and the future. We all know what happened in the past though some of us geriatric types may not remember what we know. Whatever, it's gone so lets forget it and get on with peering into the future. The columnists union requires that all members make predictions every January so here are mine.

1. Many new planets will be discovered in 2003. Not one will return the favor by welcoming us into the Great Cosmologic Planetary Congress.
2. Dark matter and energy will stay dark throughout 2003 though there is a small chance that this will be the year when light and dark matter and energy flip and the visible universe becomes invisible and vice versa. Should this happen I predict there would be a Big Flash, which will end in the collapse of the universe. In that case Star Fest 2003 will be cancelled.
3. Several new theories concerning the formation of the universe will be put forth though none of these will be comprehensible to anyone who lacks a Ph.D. in cosmology. Violent arguments will erupt but no fatalities will occur.
4. The controversy over whether Mars is wet, dry or subject to periodic boiling water floods will continue. The only possible casualties will be Martians scalded by an unexpected flood of superheated water.
5. Recent data show that comets are very dark and have high surface temperatures, calling into question whether they are actually dirty snowballs. This conflict will be resolved by a new theory that comets are actually similar to Eskimo Pies, ice cream centers coated with chocolate.
6. Computer controlled telescopes will become more complicated and will develop minds of their own, showing their owners only those objects that they think he or she should observe.

Happy Birthday Sergei Korolev

by Robin Byrne

This month we honor the life of a man whose contributions to the space program were kept secret until after his death. Sergei Pavlovich Korolev was born on December 30, 1906 in the city of Zhitomir, Ukraine. That date is based upon the calendar Russia used at the time. However, the equivalent date using the modern Gregorian calendar places the birth date on January 12, 1907, so we will consider Korolev a January birthday boy.

In 1917, Korolev's family moved to Odessa just in time for the Bolshevik Revolution. In 1922, at the age of 16, Korolev spent his senior year at the Odessa construction professional school. Two years later, he was admitted to the Kiev Polytechnic Institute. It was here that his interest in aviation found kindred spirits, where they formed a group of rocket enthusiasts called the Jet Propulsion Research Group (GIRD). In 1926, Korolev transferred to MVTU, the best engineering school in Russia.

A few years after graduation, in 1931, Korolev was hired at the Central Aero and Hydrodynamics Institute. In 1932, he was appointed chief of GIRD, which later was taken over by the military and called the Jet Propulsion Research Institute (RNII). Here, he developed cruise missiles and a manned rocket-powered glider.

On June 27, 1938, just as his career was beginning to become established, Korolev was arrested during one of Stalin's purges. First he spent months on the Transsiberian railway and then in a prison vessel at Magadan. He was then sent to a GULAG in Siberia to work in the Kolyma gold mines. Two years later, he was transferred to a prison in Moscow. That same year, the chief of the secret police charged him with sabotage and sentenced Korolev to 8 years in the labor camps. Stalin, realizing the importance of rocketry in the upcoming war with Germany, set up another prison that included an aviation design bureau, to which Korolev was transferred.

Six years and one month after being arrested, Korolev was paroled. With the end of World War II in sight, and Germany defeated, Korolev traveled to Germany to learn about the V2 rockets the Germans had developed. While in Germany, Korolev was given the responsibility of developing Russian missiles based upon the German designs.

In April of 1953, Korolev helped to launch the first intercontinental ballistic missile (ICBM), called the R-7. This same rocket was later used to launch the first Earth-orbiting satellite, Sputnik, on October 4, 1957. Encouraged by the success of their satellite program, Korolev began to plan for more adventurous endeavors, in particular, to send a man to the Moon. The first step was to put a man in space, which was achieved April 12 1961 with the single orbit of Yuri Gagarin. Next was to land an unmanned spacecraft on the Moon, which was achieved multiple times by the Luna missions. Finally, a large rocket would need to be developed to send men and all the necessary equipment to the Moon. Korolev and his team worked on the N-1 rocket (similar to the United States' Saturn V rocket). Although the work continued from 1962 until 1971, it was never successful and Korolev did not live to see any men walk on the Moon. Sergei Pavlovich Korolev died on January 14, 1966. Without his dynamic leadership and driving ambition, the Soviet space program floundered for many years.

Despite his importance to the Soviet space program, Korolev was only known publicly as the "Chief Designer" due to the classified nature of his work. It was only after his death that his name was made public, and he was given a state funeral. Among those in attendance were Krushchev and Yuri Gagarin.

Although, at the time, Korolev was considered a threat to the United States, if it weren't for his contributions to space exploration, the United States would never have gone to the Moon. We needed the competition with the Soviets to drive our space exploration. Today, we share space with Russia. The International Space Station is currently home to a new crew of 2 Americans and one Russian (having just sent home a crew of 2 Russians and one American). None of us would be there if it weren't for Sergei Korolev.

References:

Sputnik Biographies—Sergei P. Korolev (1906-1966) Web Page
<http://www.hq.nasa.gov/office/pao/History/sputnik/korolev.html>

Korolev Web Page
<http://www.russianspaceweb.com/korolev.html>

Activities & Events

January 1 - January 31, 2003

- 1/2 NEW MOON
- 1/3 Conj. Moon & Mercury
- 1/4 Conj. Moon & Neptune, Earth at perihelion; private star party, Natchez Trace site
- 1/5 Conj. Moon & Uranus
- 1/10 First Quarter; private star party, Natchez Trace site
- 1/11 Conj. Mercury & Sun, inf.
- 1/15 Conj. Moon & Saturn
- 1/18 FULL MOON
- 1/19 Conj. Moon & Jupiter
- 1/25 LAST QUARTER; private star party, Natchez Trace site
- 1/27 Conj. Moon & Mars
- 1/28 Conj. Moon & Venus
- 1/30 Conj. Moon with Mercury and Uranus with Neptune

February 1 - February 28, 2003

- 2/1 NEW MOON; Chinese New Year; Private star party, Natchez Trace site
- 2/3 Mercury, gr. elong. W. (i. e. as a Morning Star)
- 2/6 BSAS Bd. of Directors, 7:00 p. m.
- 2/9 FIRST QUARTER
- 2/11 Conj., Moon and Saturn
- 2/12 Lincoln's birthday
- 2/14 St. Valentine's Day
- 2/15 Conj., Moon and Jupiter
- 2/16 FULL MOON
- 2/17 Conj., Sun and Uranus
- 2/20 Conj., Mercury and Neptune; BSAS MEETING, 7:30 P. M., at Adventure Science Museum
- 2/22 Washington's birthday; private star party, Natchez Trace site.
- 2/23 LAST QUARTER
- 2/25 Conj., Moon and Mars
- 2/27 Conj., Moon and Venus
- 2/28 Conj., Moon and Neptune

BSAS c/o Dyer Observatory
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