The ECLIPSE

The Newsletter of the Barnard-Seyfert Astronomical Society

June 2024

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Barnard-Seyfert Astronomical Society

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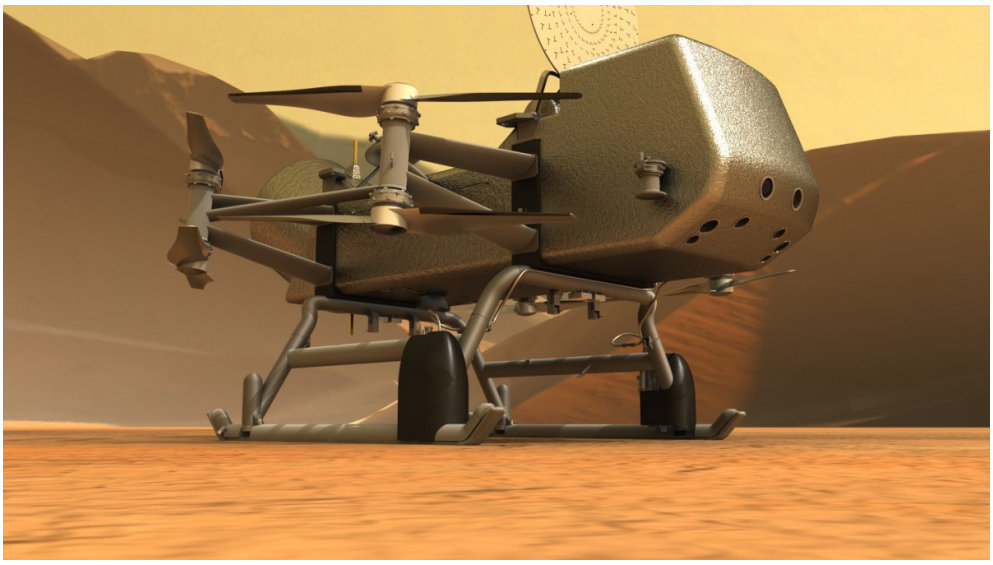

NASA has confirmed its revolutionary Dragonfly rotorcraft mission to Saturn's organic-rich moon Titan. The decision, announced April 16, allows the mission to progress to completion of final design, followed by the construction and testing of the spacecraft and its science instruments.

"Dragonfly is a spectacular science mission with broad community interest, and we are excited to take the next steps on this mission," said Nicky Fox, associate administrator, Science Mission Directorate at NASA Headquarters in Washington. "Exploring Titan will push the boundaries of what we can do with rotorcraft outside of Earth."

Led by the Johns Hopkins Applied Physics Laboratory (APL) in Laurel, Maryland, the Dragonfly spacecraft will launch to Titan in 2028. Following a roughly six-year interplanetary journey, the car-sized lander loaded with science instrumentation will fly between dozens of landing sites on Titan's surface to advance our understanding of the chemical origins of life. A mobile eight-rotored lander that will fly autonomously, this game-changing mission will achieve critical planetary science and astrobiology objectives as well as advance aeronautics and space technology.

On the cover: In celebration of the 34th anniversary of the launch of the legendary NASA/ESA Hubble Space Telescope, astronomers took a snapshot of the Little Dumbbell Nebula (also known as Messier 76, M76, or NGC 650/651) located 3400 light-years away in the northern circumpolar constellation Perseus. The photogenic nebula is a favourite target of amateur astronomers. *NASA, ESA, STScI, A. Pagan (STScI)*

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June 6 July 5	June 14 July 13	June 21 July 21	June 28 July 27

Happy Birthday Ann Druyan
by Robin Byrne

This month we celebrate the life of a woman who isn't as famous as the man she married, but who is impressive in her own right. Ann Druyan was born June 13, 1949 in Queens, New York. Her parents, Harry and Pearl, owned a knitwear company. Despite a later career promoting science, an experience in school originally soured her attitude toward science and math. When learning about the number pi in junior high school, she asked if it applied to every circle in the universe. Her teacher told her to not ask stupid questions. How appalling!

After graduating high school with honors, Druyan attended New York University, but left after three years without graduating. Instead, she began a journey of self-education that would last the rest of her life.

By the late 1970's Druyan began to find her path and hone her skills. In 1976, Druyan was hired by NASA to be the creative director for the message that was carried on the Voyager 1 and 2 spacecrafts. The Voyager Interstellar Message Project was a golden record that included music, spoken words, and images as a message for any lifeforms that might find the spacecrafts as they travel beyond our solar system. Druyan fought to include one of the songs on the record, Johnny B. Goode by Chuck Berry, explaining that the rock music genre is the music of motion and going someplace new, just like Voyager. It is estimated that the records could last as long as one billion years.

In 1977 Druyan published her first book, A Famous Broken Heart. It is a fantasy novel about a woman who finds herself in a world of fictional characters, who worry about what's happening in the real world.

In 1979, Druyan began what would be a life-changing collaboration with Carl Sagan. After working with her on the Voyager records, Sagan decided to hire Druyan to help co-write his ground-breaking PBS series, Cosmos. With Sagan as the host, the thirteen episodes covered a range of topics, from the origin of life to the fate of the universe. With over 500 million viewers, it wasn't until Ken Burns' Civil War series that another PBS show had a wider audience.

The team of Druyan and Sagan took things to another level when they married on June 1, 1981. They would have two children: Alexandra, born in 1982, and Sam, born in 1991. Over the years, they would collaborate on several books, including The Demon Haunted World and Comet.

Druyan's writing career and association with PBS would also continue. In 1987, she wrote and produced an episode of NOVA titled Confessions of a Weaponeer about George Kistiakowsky, who was Dwight D. Eisenhower's Science Advisor.

In addition to her writing career, Druyan has also been an activist for a variety of causes she has felt passionate about. In the 1980's, Druyan was arrested three times for her participation in nuclear disarmament protests.

In 1988, Druyan was named as Secretary of the Federation of American Scientists, a role she held for ten years. This organization, established after the bombing of Hiroshima, is known as the "conscience of American science" because of its mission to use science and technology to benefit humankind.

In the 1990's, Druyan and Sagan collaborated with then-Senator Al Gore, Jr., as well a wide range of religious leaders, to draft policy proposals related to protecting the environment. The document, titled Statement by Religious Leaders at the Summit on the Environment, emphasized the importance of protecting the environment as a human rights issue, showing the connection between areas of environmental devastation and the toll it takes on the people living there.

In 1996, Carl Sagan was diagnosed with myelodysplasia (MDS), a form of cancer affecting the blood. Despite a valiant battle, and Druyan by his side throughout the ordeal, Sagan died on December 20, 1996. During Sagan's battle with MDS, he and Druyan were working as co-creators and co-producers of the film version of Sagan's novel Contact. The film was released in 1997, after Sagan's death.

In the year 2000, Druyan continued to bring astronomy to the public through her writing, this time in the form of a planetarium show. The renovation of the Hayden Planetarium brought with it a new production, written by Druyan and Steve Soter, titled Passport to the Universe, narrated by Tom Hanks. The team of Druyan and Soter wrote a subsequent show for the Hayden Planetarium, titled Search for Life: Are We Alone, narrated by Harrison Ford.

Druyan's association with the Hayden Planetarium led to another project with the planetarium's director, Neil deGrasse Tyson. In 2000, Druyan, working with Joseph Firmage, created a production company, Cosmos Studios, Inc, devoted to producing science-based entertainment. One of their first productions was the reboot of Sagan's PBS series, now hosted by Tyson, Cosmos: A SpaceTime Odyssey, for which Druyan was also one of the writers. Other productions by their company have covered topics ranging from dinosaurs to the Voyager mission.

In addition to their legacy in print and film, Druyan and Sagan will also live on in the stars. In 1982, an asteroid was named in Sagan's honor, 2709 Sagan. Then in 1988, Eleanor F. Helen discovered another asteroid, which she named 4970 Druyan. As the two asteroids travel around the Sun, the orbit of one of the asteroids crosses in and out of the other's orbit, like two linked rings, so they have been dubbed as sharing a "wedding ring orbit." What a beautiful homage to the life shared by Druyan and Sagan.

While Sagan is no longer with us, Druyan continues to work, writing and producing shows that help popularize science. At their closest to Earth, both asteroids, Sagan and Druyan, are approximately 13th magnitude, which, though faint, is not out of reach of many amateur telescopes. Perhaps it would be a fitting way to honor both Druyan and Sagan to attempt to observe their intertwined asteroids and think about all that Ann Druyan has contributed to our love of the cosmos.

References:

Wikipedia - Ann Druyan
Freedom From Religion Foundation - Ann Druyan
Queenska - Ann Druyan, Conqueror of the Universe by Marta Oleskiv, April 25, 2023

Next Membership Meeting:

Wednesday, May 15 at 7:30 pm

Dyer Observatory
1000 Oman Drive
Brentwood TN 37027

Barnard-Seyfert Astronomical Society
Minutes of the Monthly Membership Meeting
Held on Wednesday, May 15, 2024

The Barnard-Seyfert Astronomical Society met at Vanderbilt's Dyer Observatory and on-line via Zoom on Wednesday, May 15, 2023, Tom Beckermann presiding.

Dr. Wayne R. Keith, Professor of Physics, McMurry University, Abilene, Texas, presented "The Magnetosphere: Earth's Invisible Shield." This was especially timely because of the aurora visible in Nashville and further south on May 10, 2024. Dr. Keith mentioned a book on the magnetosphere - Earth's Magnetosphere: Formed by the Low-Latitude Boundary Layer by Wayne Keith and Walter Heikkila.

Treasurer's report: The Truist bank balance is $9,296.32 The PayPal balance is $227.18. Expenses include the monthly Zoom fee, the annual post office box fee, Astronomical League dues and awards for the winning Middle Tennessee Science and Engineering Fair projects ($150).

Membership report: There are 191 members. The chair recognized Danny (new member).

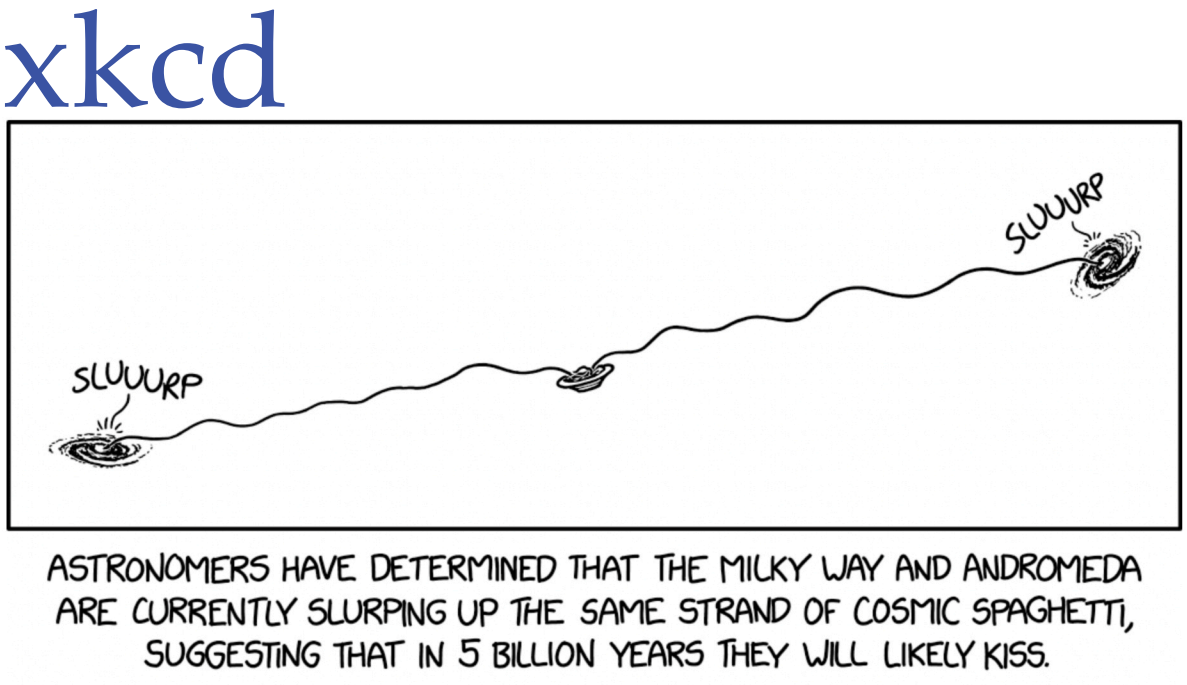
Social media report: Thanks to Donna for keeping Facebook updated and to Steve for keeping Instagram updated.

Upcoming meetings: The June meeting will be on June 26, 2024, and the July meeting will be on 24, 2024. The June and July meetings are a week later than normal. Scheduled presentations are on starquakes and the James Webb Space Telescope.

Upcoming star parties: Public star parties are scheduled for June 15, 2024, at Bells Bend Outdoor Center, and June 22, 2024, at Montgomery Bell State Park.

Respectfully submitted,

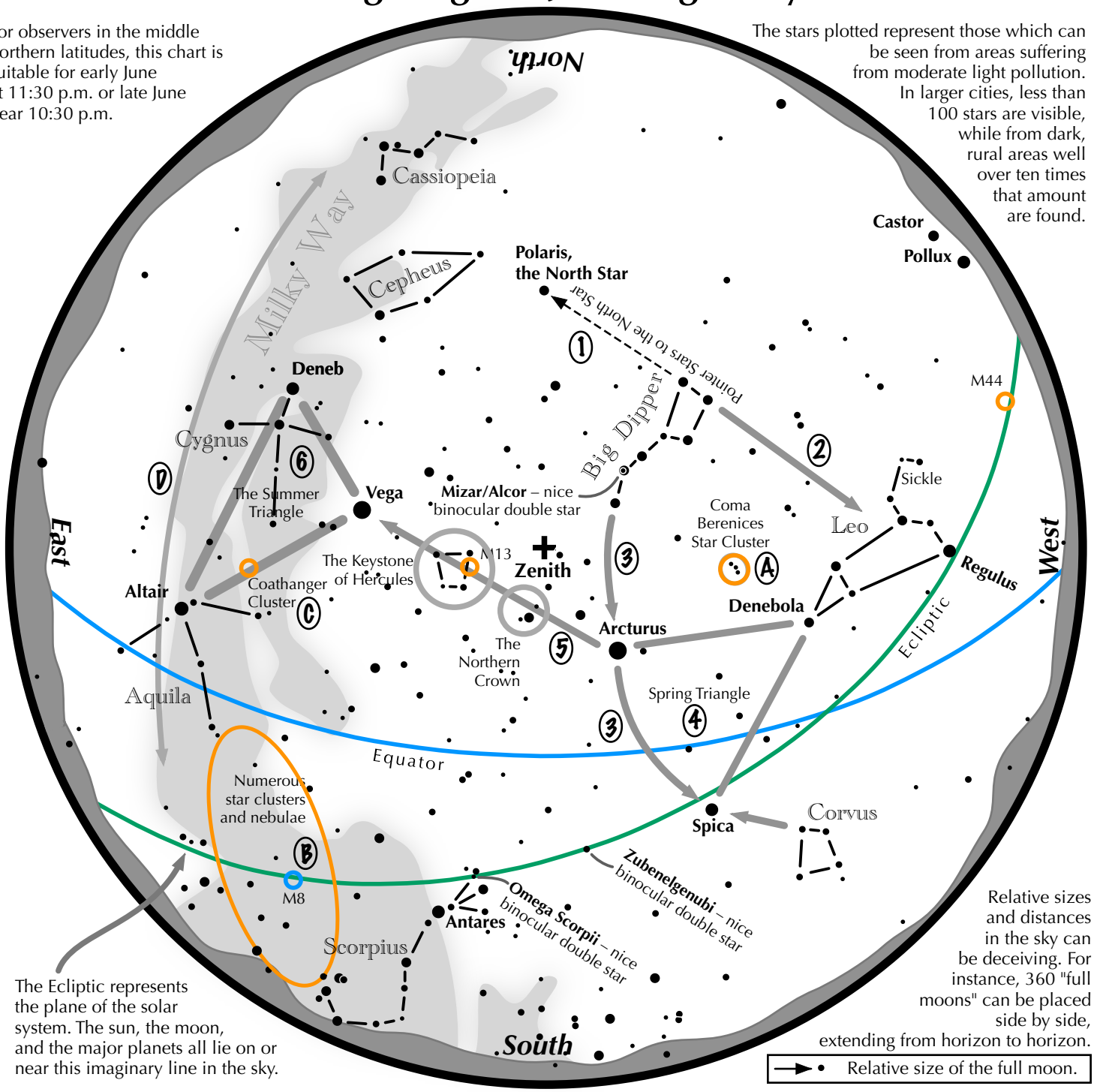
Bud Hamblen
Secretary



Navigating the June Night Sky

For observers in the middle northern latitudes, this chart is suitable for early June at 11:30 p.m. or late June near 10:30 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

Relative size of the full moon.

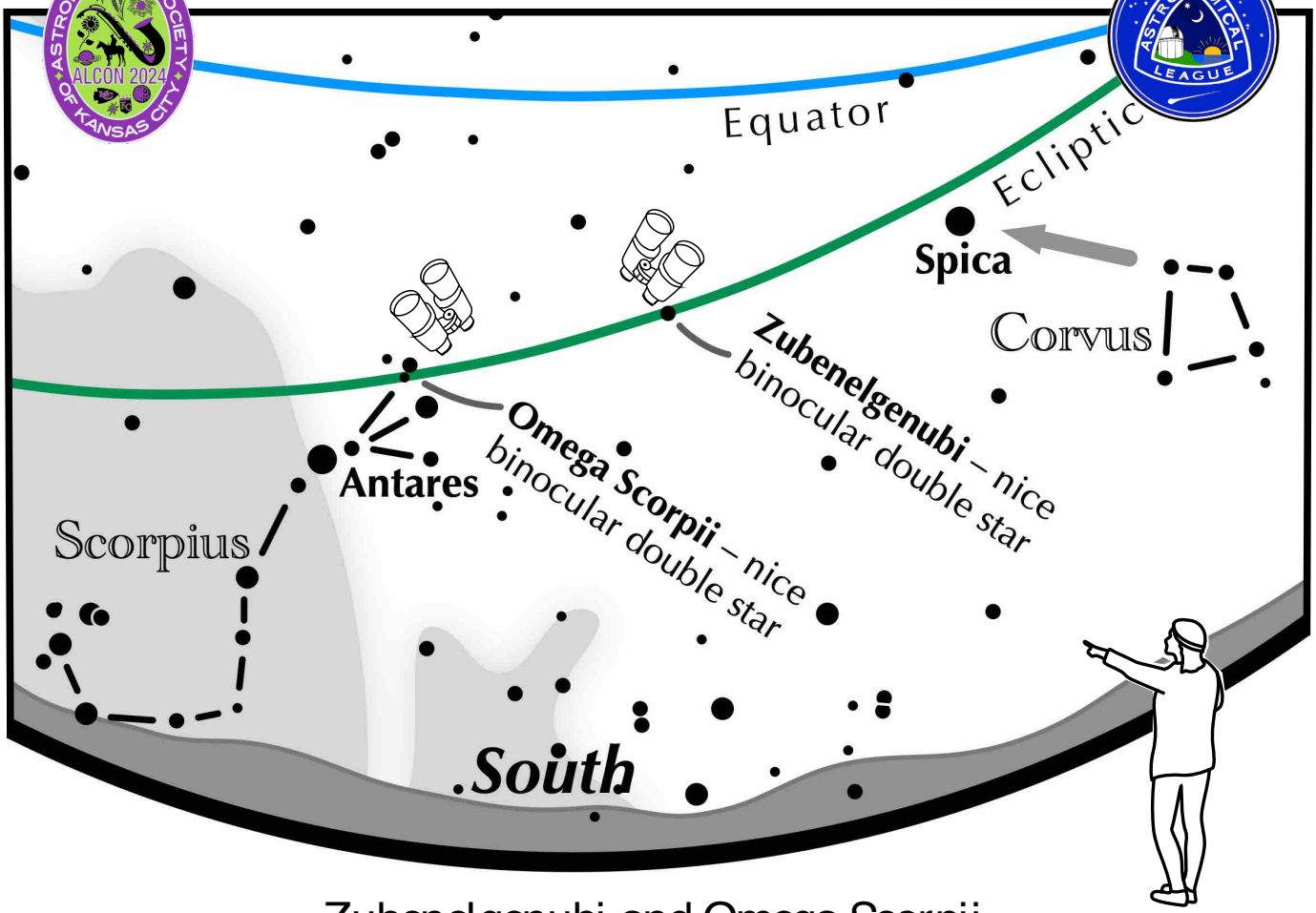
Navigating the June night sky: Simply start with what you know or with what you can easily find.

1. Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
2. Draw another line in the opposite direction. It strikes the constellation Leo high in the west.
3. Follow the arc of the Dipper's handle. It first intersects Arcturus, the brightest star in the June evening sky, then Spica.
4. Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
5. To the northeast of Arcturus shines another star of the same brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
6. High in the east are the three bright stars of the Summer Triangle: Vega, Altair, and Deneb.

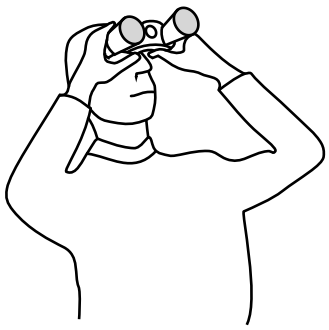
Binocular Highlights

A: Between Denebola and the tip of the Big Dipper's handle, lie the stars of the Coma Berenices Star Cluster.
B: Between the bright stars of Antares and Altair, hides an area containing many star clusters and nebulae.
C: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
D. Sweep along the Milky Way for an astounding number of faint glows and dark bays.

If you can see only one celestial event this June, see this one.



Zubenelgenubi and Omega Scorpii, two easy binocular double stars.



Enhance the scene – use binoculars!

Throughout June ninety minutes after sunset, look low in the south for the bright stars Spica and Antares.

- Almost mid–way between them shines the moderately bright star Alpha Librae, also called Zubenelgenubi.
- Aim binoculars at it and two stars will be seen.
- To Antares' right are the three "claw" stars of Scorpius. Directly below the uppermost claw, Graffias – or Beta Scorpii – is Omega Scorpii.
- Binoculars will easily show two 4th magnitude stars, Omega 1 and 2, separated by nearly a full moon width. The two Omega's are a chance line of sight pair. They are not gravitationally bound to each other.

The keen-eyed skywatcher will discern two stars when gazing at both Zuben and Omega.

In honor of the club's 90th anniversary we partnered with Hatch Show Print to create a unique poster that would honor the achievement of the club. For those who don't know Hatch Show has been making posters for a variety of events and concerts for 140 years. In all that time we are their first astronomy club.

On the poster at the center is the moon. This was made from a wood grained stencil that the shop has used for over 50 years. To contrast that the telescope that the people are using is a brand new stencil made for our poster. The poster has three colors. First the pale yellow color of the moon was applied. Next the small stars, circles, and figures at the bottom were colored in metallic gold. The third color is a blue for the night sky. Where it overlaps with the metallic gold it creates a darker blue leaving the figures at the bottom looking like silhouettes. This was a one time printing so the 100 that we have are all that will be printed.

The prints are approximately 13 3/4” x 22 1/4” and are available for $20 at our membership meetings, or $25 with shipping by ordering through bsasnashville.com. Frame not included.

Barnard-Seyfert Astronomical Society

Become a Member of BSAS! Visit bsasnashville.com to join online.

All memberships have a vote in BSAS elections and other membership votes. Also included are subscriptions to the BSAS and Astronomical League newsletters.

Annual dues:

Regular: $25
Family: $35
Senior/Senior family: $20
Student*: $15

* To qualify as a student, you must be enrolled full time in an accredited institution or home schooled.

About BSAS

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 Wednesday of each month at the Dyer Observatory 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 bsasnashville.com. If you need more information, write to us at info@bsasnashville.com.

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 info@bsasnashville.com.