

Night Visions



2018 April Issue

Newsletter of the Baton Rouge Astronomical Society

Monthly Meeting Monday, April 9th at 7PM at HRPO

(Monthly meetings are on 2nd Mondays, Highland Road Park Observatory).

Presentation: Webinar with Tom Fields, contributing editor to Sky and Telescope, discussing his starlight spectrum analysis software.

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President's Message

To recap last month and highlight upcoming events,

- BRAS got written up in the 225 Magazine, March (photos on Pages 2 and 3).
- We had a delightful monthly meeting, and I would like to thank John Martinez of the Pontchartrain Astronomy Society for his informative talk on Trappist-1 and the search for Alien Planets
- In March we planned to have a BRAS Night at Observatory on Saturday, March 17, however it was canceled due to our "fair weather friend" a forecast of less than ideal weather. We expect to have another very soon so let us know if you are willing to come. We said farewell to the long night of winter.
- Then there is April 9 at HRPO, to which I would like to invite you, your family and friends.
- The 2018 Annual DSSG Spring Scrimmage will be held from April 12 to April 15 at Feliciana Retreat Center.
- 2018 International Astronomy Day will be on Saturday, 21 April. We will hold our celebration at Highland Road Park Observatory from 3 pm to 11 pm, and I heartily invite you, your family and friends to come.

As I stated last month, Saturday, June 30, 2018, is the anniversary of the 1908 Siberian Tunguska event known as International Asteroid Day "global awareness campaign where people from around the world come together to learn about asteroids, the impact hazard they may pose..." I propose BRAS takes part in this day. If you are willing to help with Asteroid Day in Baton Rouge, let us know.

ASTROPHOTOGRAPHY: Scott Louque is spearheading our astrophotography group, so check with him if you wish to take part.

OUTREACH: Please check with Ben Toman if you are willing to help with our Outreach Requests. Remember, Outreach to our community is a lot of what we do.

Clear Skies

Steven M. Tilley

Steven M. Tilley, President



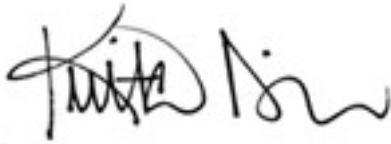
225 Magazine March 2018 Centerfold (photograph by 225's Collin Richie) "Join The Club" – Inside Baton Rouge's unique meetup culture"

L to R, BRAS Members Scott Louque, Ben Toman, Steven Tilley, Coy Wagoner, John Nagle



Secretary's Summary of March Meeting

- President Steven Tilley calls meeting to order at 7:03pm.
- Steven gives the floor to Vice President, Scott Louque, to announce the guest speaker.
- John Martinez from Pontchartrain Astronomy Society gives a talk on the Trappist System and Exoplanets.
- Steven announces Asteroid Day 2018 will be June 30th, and asked for volunteers.
- Merrill Hess mentions a BRAS observing night at HRPO for members only to take place on Saturday, March 18th. (This event was cancelled due to poor weather conditions.)
- Outreach chair, Ben Toman, gave the upcoming outreach events and asked for volunteers.
- Barry Simon spoke about Deep South Stargaze Spring Scrimmage coming up April 12-15.
- Merrill recognized Scott Cadwallader for receiving the Astronomical League Lunar Observing Award, and Coy Waggoner for the Meteor Observing Award.
- LPC chair, John Nagle, showed the club the LPC light meter that was purchased.
- Scott Louque notified the club of the upcoming astrophotography meeting to be held April 8th at his home.
- Steven Tilley held the raffle.
- Meeting adjourns.



Submitted by Krista Dison, Secretary

2018 Officers:

President: Steven M. Tilley
Vice-President: Scott Louque
Secretary: Krista Reed
Treasurer: Trey Anding

BRAS Liaison for BREC:

Chris Kersey

BRAS Liaison for LSU:

Greg Guzik

Committees/Coordinators:

Light Pollution:

John Nagle

Newsletter:

Michele Fry

Observing:

John Nagle

Outreach:

Ben Toman

Webmaster:

Frederick Barnett





BRAS Outreach Report

Hi Everyone,

Wow! It has been a busy couple of months for BRAS outreach. We've had Sidewalk Astronomy, 2 library appearances, Rockin' at the Swamp, Astronomy Night at Tanglewood Elementary and a ribbon cutting ceremony for a BREC park. For some reason I was thinking we'd get a little breather, but then I finished typing up the list of upcoming outreach requests and realized the busy times have just begun!!

Our list of volunteers begins to grow. Again, a lot of familiar names, but we couldn't do it without these folks. Thank you to: **John Nagle, Scott Cadwallader, Scott Louque, Roz Readinger, Susan Miller, Craig Brenden, Merrill Hess, Krista Dison, Trey Anding, Ben Toman, Michele Fry, Rick Wright, Chris Raby, Chris Kersey, Steven Tilley, Coy Wagoner, Connor Matherne.** I'm sure I've missed someone, so please forgive me!

Whether you can help out for a short time or an entire event, it all makes a huge difference. With that in mind, please take a look at the huge number of upcoming requests and let me know ASAP if you are able to help out with any of them. Like I said, busy times ahead!

Upcoming requests:

Thursday, April 5th

4pm-6pm

Howell Community Park (5509 Winbourne Ave)

Solar viewing/demos/info

(This is a ribbon cutting ceremony for a revamped BREC park.)

Sunday, April 8th

9:00am-5:30pm

Zippity Zoo Fest (Baton Rouge Zoo)

Solar observing/demos/info

(Several volunteers needed for shifts throughout the day.)

Thursday, April 19th

7pm-9pm

Vacherie Library

telescope viewing/info

Saturday, April 21st

7pm-9pm

Camp Marydale in St. Francisville (Girl Scouts)

telescope observing for 75+ Scouts

(We have one volunteer so far and could use at least one more. This is the same day as IAD so if you usually volunteer at the HRPO for that, please make that your priority. However, if you usually don't do IAD, please consider helping out with this one.)



Tuesday, April 24th

7pm-9pm

Sidewalk Astronomy at Perkins Rowe
telescope viewing/info

Sunday, April 29th

1pm-5pm

Louisiana Earth Day

LSU Parker Coliseum

solar observing/demos/info

(Several volunteers needed)

Friday, May 11th

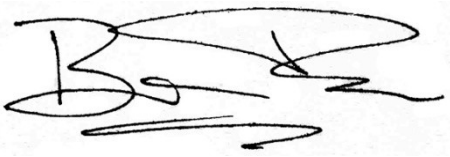
6pm-10pm

Mid City Makers Market (541 S. Eugene St)

telescope viewing/info

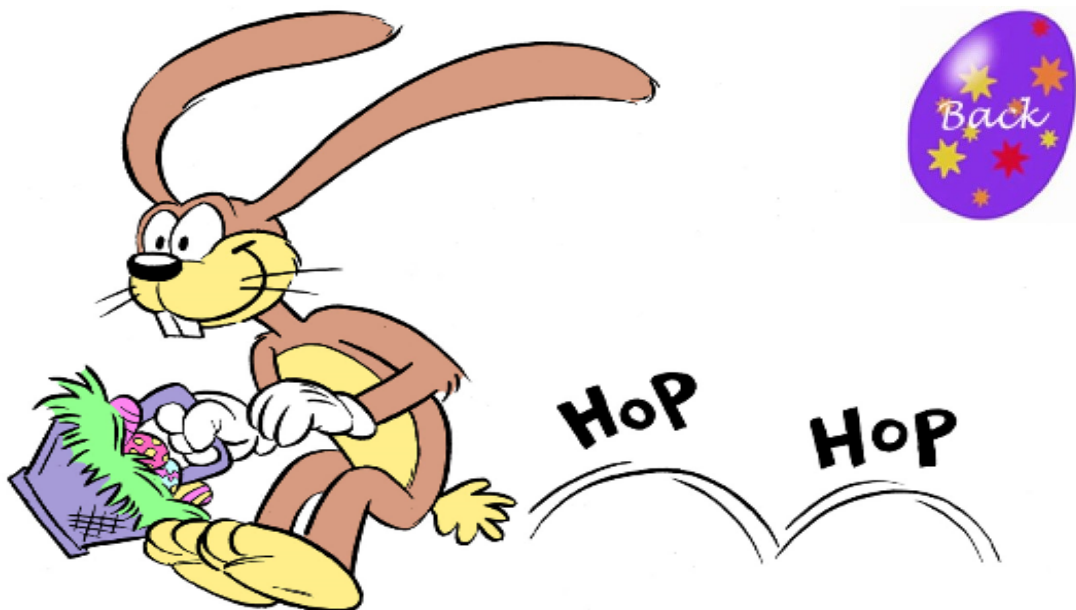
(They saw us at Perkins Rowe and invited us to participate at their market. There are many dates throughout the year. They said they typically have about 60 vendors of all ages.)

Clear Skies,



Ben Toman,
Outreach Coordinator

HOPpy Easter, HOPpy Spring





Below are a few cool Outreach Pics taken in March



Rockin' at the Swamp, Susan M. and John N.



Rockin' at the Swamp, Roz R. and Scott C.



Livingston Library: Left to right- Ben T., Merrill H., Chris K., Rick W.





BRAS Light Pollution Committee Report

This committee meets at 5:45, same day as the 6:30 BRAS Business Meeting
(which takes place on the Wednesday before the Monthly Meeting)

Everyone is welcome to join in.

Meeting called to order by John Nagle

No new members, with 8 members in attendance

February minutes were published in the March newsletter

Old Business:

1. Reported progress on research of electronic signatures for petition and pledges
2. The wording of Petition and Pledge to be re-worded
3. Reported progress of training material to be written

New Business:

1. Training for use of Light Meter
2. Will get list of Civic groups within a 3 mile radius of HRPO
3. Chris Kersey has contacted the Center for Energy Studies and the Louisiana Association of Business and Industry to talk to them about Light Pollution

Minutes of this meeting read and approved

Meeting adjourned.

Submitted by John Nagle, Chairman



P.S. Every year BRAS presents a Good Lighting Award to a company that uses BEST outdoor lighting practices. If you notice a business in EBRP that uses Full Cutoff lighting fixtures, please jot down and send their Business name, address, date and description to me at jonagle@cox.net. This would be much appreciated.

The Progression from Bad to Best Lighting Fixtures that decrease Light Pollution

No Cutoff - BAD



Partial Cutoff - BETTER



Full Cutoff - BEST





Recent Entries in the BRAS Forum

Below are selected additions to the BRAS Forum. There are also nine active polls. The Forum has reached 5200 posts.

[Stephen Hawking Dies](#)

[Humanity Star's Life Greatly Overestimated](#)

Barry Simon Posts Information on [Deep South Spring Scrimmage](#)

[GOES-S Claims Spot in Orbit](#)

Briefings Held for [InSight](#)

[Tiangong 1](#) May be Gone by Release of This Newsletter

[Parker Solar Probe](#) to Launch This Summer

At Least [Two G1 Alerts](#) in March

[Asteroid 2018 FZ3](#) Comes Within 0.5 Lunar Distances of Earth

Clayton, Boyajian and Ellis ["Perform" at Varsity](#)



20/20 Vision Campaign

This campaign's goal was to raise the SQM measurement at HRPO's back viewing pad to 20.0 by this past November. There is talk of keeping it perpetual until the goal is reached, but the Light Pollution Committee will have to decide.





Messages from HRPO

Highland Road Park Observatory



FRIDAY NIGHT LECTURE SERIES

all start at 7:30pm

6 April: “Exoplanets” For his very first presentation, 20OGS operator Jordan Cobbs will survey the various manners in which we search for planets around other stars, and he will provide notable examples!

13 April: “Wonders of the Spring Sky” The temperature is mild as April’s constellations settle high overhead early in the night. HRPO Education Curator Amy Brouillette takes the audience on a fascinating tour of Baton Rouge’s summer season. She highlights the celestial gems that will sparkle throughout the next three months—gems that visitors will be able to see live if they continue to visit HRPO!

27 April: “Mercury and Venus” These two closer-than-Earth planets—one the fastest, one the hottest—are surveyed, together with an explanation of HRPO’s revised Planet Time policy.

SCIENCE ACADEMY

Saturdays from 10am to 12pm

For ages eight to twelve. \$5/\$6 per child.

7 April: “Plate Tectonics”

14 April: “Spring Day”

28 April: “Genetics”



ONE-TIME CALLS FOR VOLUNTEERS

***Saturday 21 April, 3pm to 11pm.** *Fifteen volunteers.* **International Astronomy Day.** HRPO’s largest public offering. Front desk duty, telescope operation, physical science demonstrations, children’s ride monitoring, relaying messages, welcome table. Low to high difficulty.

ONGOING CALL FOR VOLUNTEERS

HRPO periodically needs BRAS volunteers for crafting (gluing, cutting, painting, etc.); training is offered for these easy to moderate tasks. We also have plenty of “grunt work”. We are asking any members with the time to do so to assist. Thank you.



NASA Events

Live broadcasts open to the public at HRPO.
No admission fee. Drinks and refreshments.

Mon 2 Apr, 3pm: CRS-14 Launch

Wed 4 Apr, 5:30am: Dragon Docking/Hatch Opening



GLOBE at Night: 6 to 15 April [Orion]

Instructions to participate in this project are at...

<http://www.braastro.org/phpBB3/viewtopic.php?f=29&t=2760>



INTERNATIONAL ASTRONOMY DAY

Saturday, 21 April from 3pm to 11pm

Twelfth Consecutive Year!

Volunteers needed! HRPO will be calling!

RAFFLE TICKETS, \$5 EACH

EXPECTED EXHIBITORS...

American Institute of Aeronautics and Astronautics

Baton Rouge Amateur Radio Club

Baton Rouge Metropolitan Airport

Baton Rouge Mosquito Abatement

Baton Rouge Zoo

Bluebonnet Swamp Nature Center

Civil Air Patrol

LIGO

MARS Van

Saint Joseph's Academy

POTENTIAL RIDES...

18" Dry Slide

Spacewalk

Obstacle Course

Hamster Ball



OTHER...
Adventure Quest
Face Painting
Homemade Comet
Scope-on-a-Rope

Early volunteer sign-up is needed. It is extremely difficult to schedule a volunteer if that person reveals his availability with only two or three days to go. Sign-up now, please!



SPECIAL ANNOUNCEMENT

Local CPA and tax attorney Marvin Owen, a longtime BRAS member, has stepped down as a 20OGS operator at HRPO. December saw his last operating session. My predecessor Trey Goodman was inspired to create the Frank Conrad Memorial Volunteer of the Year Award due to Marvin's unfettered enthusiasm for introducing visitors to the night sky, and in fact Marvin was the award's first recipient. Here's to hoping he continues to stop by as a patron.





Observing Notes:

by John Nagle

Sextans

Position: RA 10, Dec. 0°

Named Stars:

There are no named stars in this constellation.

Deep Sky:

NGC 3115, Caldwell 53, H163-1, “Spindle Nebula”, mag. 8.9, 10 05.2 -07 43, 8.3’x3.2’ in size, is a very bright, large, and very elongated galaxy; very bright nucleus; almost spherical nuclear bulge with an extremely thin disk. Several times the size of the Milky Way. Contains a super-massive black hole of over 2 billion solar masses.

There are no other Deep Sky objects above magnitude 10, but there are a few objects beyond magnitude 10 that are of interest.

Sextans A (UGCA 205), mag. 12.0, is a dwarf irregular galaxy with an unusual square shape.

Sextans B (UGC 5373), mag. 11.4, is a fairly bright dwarf irregular galaxy, containing five planetary nebulae.

Sextans A and B might be gravitationally associated with NGC 3109 in Hydra and the Antlia Dwarf Galaxy in Antlia.

NGC 3169, H4-1, mag. 10.2, 3.9’x1.7’ in size, distorted, interacting with NGC 3166, 7 arc minutes away.

NGC 3166, H3-1, mag. 10.4, 4.0’x1.5’ in size, interacting with NGC 3169, contains Super Nova SN2003cg.

PGC 88608, Sextans Dwarf Galaxy, mag. 12.

PAL 3, UGC 5439, MCG +00-26-17, mag. 13.9, 2.8’ in size.

Sextans Dwarf Spherical Galaxy, Sextans 1, mag. 10.4.

CR 7(Cosmos Redshift 7), discovered in 2015, is a **Lyman-alpha** emitter, and one of the oldest, most distant galaxies known at 12.9 billion light years. Contains **Population III** (first generation) stars, formed during the re-ionization epoch when the universe was only 800 million years old. **CR 7** has a red shift of **Z=6.60**.

CL J1001+0220 is the most distant known galaxy cluster at 11.1 billion light years from **Earth**, containing 17 galaxies, at a red shift of **Z=2.506**.

CID-42 (CXOC 1 100043.1+020637), is a galactic quasar or a super-massive black hole, created when two small galaxies collided, leaving an extended trail of stars.

Beyond magnitude 10 there are 55 NGC, 35 IC, 12 UGC, 3 UGCA, 27 MCG, 6 Arp, 4PGC, 1 CGCG, 1 Mrk, and 11 Herschel objects.

Other Stars:

Alpha Sex, mag. 4.48, 10 07 56.30 -00 22 17.9, is a white giant star, and is informally called the “equator star” because it is almost (less than ¼° south) on the celestial equator.



Beta Sex, mag. 5.08, 10 30 17.50 -00 38 13.1, is a blue-white main sequence dwarf star.

Gamma Sex, mag. 5.07, 09 52 30.47 -08 06 17.7, is a triple star system consisting of a double star with a companion. The primary star is a blue-white main sequence dwarf star at magnitude 5.07, with its binary member at magnitude 6.2, at 0.38 arc seconds separation, and an orbital period of 77.6 years. The companion star is a 12th magnitude star separated from the binary stars by 36 arc seconds.

Delta Sex, mag. 5.19, 10 29 28.73 -02 44 20.8, is a blue-white main sequence dwarf star.

Epsilon Sex, mag. 5.25, 10 17 37.90 -08 04 08.1, is a yellow-white giant star.

24 Sex, mag. 6.45, 10 23 28.33 -00 54 07.8, is a yellow sub-giant star with two planets in orbit. The b planet has two **Jupiter** masses and an orbital period of 453 days, while the c planet has only 5/6 the mass of **Jupiter** and an orbital period of 883 days. These planets are in a 2:1 resonance.

HD 92788, mag. 7.31, 10 42 48.0 -02 11 01, has two planets in orbit. The b planet has 3.67 **Jupiter** masses and an orbital period of 325.81 days.

HD 86081, mag. 8.74, 09 56 05.92 -03 48 30.3, is a yellow-white main sequence dwarf star with one planet in orbit, with 1.5 **Jupiter** mass and an orbital period of 2.1375 days.

BD-08°2823, mag. 9.86, 10 00 47.72 -09 31 00.0, is an orange main sequence dwarf star with two planets in orbit. The b planet has an orbital period of 5.60 days, and the c planet has an orbital period of 237.6 days.

There are 5 stars beyond magnitude 10 that are of interest.

WASP-127, mag. 10.15, 10 42 14.1 -03 50 06, has a transiting planet.

WASP 43, mag. 12.4, 10 19 38 -09 48 23, is an orange dwarf star with a hot **Jupiter** transiting planet.

PG 1026+002, mag. 13.83, 10 28 34.88 -00 00 29.5, is a re-radiating binary star.

LHS 292, mag. 15.60, 10 48 12.58 -11 20 08.3, is a red dwarf flare star.

SW Sex, 10 15 09.39 -03 08 32.8, is an eclipsing binary and nova-like star.

Sky Happenings: April 2018

(what follows pertains ONLY to the current month. Material above is good year after year.)



April 1st - **Mercury** is in inferior conjunction with the **Sun** at 1 PM CDT.

April 2nd - Dawn: in the south-southeast, above the **Teapot** asterism in **Sagittarius**, **Mars** can be seen hovering about 1° below **Saturn**. Look to the right, towards the **Moon**, to see **Jupiter** in **Libra**,

Mars passes 1.3° south of **Saturn** at 7 AM CDT.

April 3rd - The **Moon** passes 4° north of **Jupiter** at 9 AM CDT.

April 7th - Dawn: The waning gibbous **Moon**, above the **Teapot** asterism in **Sagittarius**, floats about 1½° above **Saturn**, and just over 4° and to the right of **Mars**,

The **Moon** passes 1.9° north of **Saturn** at 8 AM CDT,

The **Moon** passes 3° north of **Mars** at 1 PM CDT.

April 8th - The **Moon** is at apogee (251,123 miles from **Earth** or 368,714 km) at 12:31 AM CDT, **Last Quarter Moon** occurs at 2:18 AM CDT.

April 12th - The **Moon** passes 1.9° south of **Neptune** at 6 PM CDT.

April 13th - **Mercury** is stationary at 11 PM CDT.

April 14th - The **Moon** passes 4° south of **Mercury** at 4 AM CDT.

April 15th - **New Moon** occurs at 8:57 PM CDT.

Saturn is at aphelion (936 million miles from the **Sun**) at 6 AM CDT –the farthest it has been from the **Sun** since 1959,

The **Moon** passes 5° south of **Venus** at 2 PM CDT,

Saturn is stationary at 9 PM CDT.

April 18th - **Uranus** is in conjunction with the **Sun** at 9 AM CDT,

Evening: A sliver of the waxing crescent **Moon** is cradled by the **Hyades**, with less than 2° separating the **Moon** from **Aldebaran**, with an occultation visible in parts of northern **Canada**,

The **Moon** passes 1.1° north of **Aldebaran** at 12 midnight CDT for everyone else.

- April 20th** - The **Moon** is at perigee (229,108 miles from **Earth**, or 368,714 km) at 9:41 AM CDT, The disk of **Mars** exceeds 10 arc seconds, The waxing crescent **Moon** will occult 4th magnitude **Nu Geminorum** at about 10:08 PM to 10:57 PM CDT.
- April 22nd** The **Lyrid Meteor Shower** peaks before dawn under a **Moon**-free sky, **First Quarter Moon** occurs at 4:46 PM CDT, Evening: The first-quarter **Moon** is in **Cancer**, some 2° to 3° below the fuzzy **Beehive Cluster (M44)**, **Pluto** is stationary at 9 PM CDT.
- April 23rd** **Mercury** is at aphelion, The **Moon** is 1.9° south of the **Beehive Cluster (M44)** at 2 AM CDT.
- April 24th** - The **Moon** passes 1.2° north of **Regulus** at 3 PM CDT, Evening: The **Moon** trails **Regulus** by some 3° as they travel together through the night toward the west.
- April 29th** - **Mercury** is at greatest western elongation (27°) at 1 PM CDT, **Full Moon** occurs at 7:58 PM CDT.
- April 30th** - The **Moon** passes 4° north of **Jupiter** at 12 noon CDT, Sunset: The nearly full **Moon** rises 6½° from **Jupiter**, Evening: **Jupiter** and the full **Moon** vie for the prime position in **Libra**.



Planets:

Mercury – After an inferior conjunction with the **Sun** on April 1st, **Mercury** spends the month going to greatest western elongation (27°) on April 29th, climbing only 4° above the eastern horizon 30 minutes before the **Sun** rises, glowing at only magnitude 0.4, making it hard to pick out in the bright twilight. This is the lowest morning apparition of **Mercury** in 2018.

Venus – **Venus** shines at magnitude -3.9, low in the western sky. On April 1st, it stands 10° above the horizon 45 minutes after sundown. **Venus** will show a bland disk that appears 10.6” across, and 94% lit. The lapse between sunset and **Venus**-set grows to 130 minutes during the month. On April 17th, look for the 2-day-old **Moon** 5° to the planet’s left. As the sky darkens, the **Pleiades Star Cluster (M45)** slowly emerges 9° directly above **Venus**. By 9:30 PM local time, the pair will dip below the horizon. The planet moves eastward during April, passing from **Aries** into **Taurus** on the 19th. **Venus** passes 3.5° to the lower left (south-southeast) of the **Pleiades** on the 24th. At nightfall on the 27th, the planet is poised directly – and almost exactly halfway – between the **Hyades** and the **Pleiades**. By April’s close, **Venus** will appear 11.5” across, with an illumination of 89% of the disk. This evening “star” is beginning an apparition that will last through most of 2018.

Mars – In the opening days of April, **Mars** and **Saturn** appear in the southeast, close together at around 2:30 AM local time, and are highest just after sunrise. On April 1st, just 1.4° separate them, with the gap closing to 1.3° at their conjunction on the 2nd. **Mars** is at magnitude +0.3 and an equatorial diameter of about 8½” and **Saturn** is at magnitude +0.5 with an equatorial diameter of 17” with the rings spanning about 2½ times the size of **Saturn**’s globe. The conjunction is just a few degrees to the upper left of **Lambda Sagittarii (Kaus Borealis)**, the top star of the **Teapot** asterism in **Sagittarius**, with the 5th magnitude globular star cluster **M 22** being just 0.4° southwest of **Mars**. **Mars** will then race eastwards away from **Saturn** during April, with the gap between them at 2° on the 5th, a little more than 5° on the 12th, and more than 14° on the 30th. During April, **Mars** brightens from magnitude +0.3 to -0.4, and its width swells from 8½” to 11”. **Mars** will deliver its finest apparition in 15 years, reaching magnitude -0.4 by the end of the month. Still, this is just a prelude to what lies ahead. The long awaited peak in late July will show that **Mars** will shine 10 times brighter and more than double in size from its appearance in April. During April, at 4 AM CDT all month, the main features visible along the planet’s central meridian are as follows: The elongated neighbors **Mare Cimmerium** and **Mare Sirenum** take center stage during the first week of April; On the 11th and 12th look for the dark spot **Solis Lacus**; on the 29th and 30th the planet’s most prominent dark area – **Syrtis Major** - and the bright area of **Hellas** will both lie near the disk’s center.

Jupiter – **Jupiter** rises in the east-southeast about 3 hours after sunset (magnitude -2.4) as April opens around 11PM local time, and will be visible during twilight at month's end, almost diametrically opposite **Venus**. **Jupiter** lies in central **Libra**, almost due east of **Alpha Librae (Zubenelgenubi)**, with the gap between them closing from 7° to 4° during April. **Jupiter** will reach opposition and peak visibility during the second week of May. During April, the planet will brighten almost imperceptibly from magnitude -2.4 to -2.5, with a telescope showing a disk swelling only from 43" across to 45" across. Best views are obtained in the early morning hours. In early April, the planet will stand 30° or higher from 2 AM to 5 AM local daylight time, reaching the same altitude two hours earlier by month's end. Once every six years or so, we get a slightly enhanced view of one pole or the other as **Jupiter's** axis tilts a bit in our direction. This tilt reaches a maximum in April, when the south pole tips 3.4° toward **Earth**, and we get a better-than-normal look at **Jupiter's** south polar region. The four bright **Galilean** moons also show a difference. Because they lie in the planet's equatorial plane, their orbital motion carry them further north or south of the planet's center than usual. The effect shows up most clearly with the two outer moons, **Ganymede** and **Callisto**. If you view **Jupiter** on the night of April 7th/8th, you will notice the shadow of **Ganymede** crossing the north polar region from 12:17 AM to 2:01 AM CDT. The big moon itself traverses the same region starting at 3:25 AM and wrapping up at 4:27 AM CDT. On April 15th, you can see another shadow transit of this moon between 4:14 AM and 5:59 AM CDT. On the night of April 18th/19th, both **Ganymede** and **Callisto** are on the far side of **Jupiter** and appear south of the planet's disk. Earlier in the evening, **Jupiter** will occult **Ganymede**, with the moon returning to view by 10 PM CDT. **Callisto** lies well south of the planet all night and never enters the shadow of **Jupiter**.

Saturn – On April 1st, **Saturn** and **Mars** appear in the southeast around 2:30 AM local daylight time, with just 1.4° separating them. On April 2nd, the two planets are in conjunction with only 1.3° separation, **Saturn** will remain almost stationary this month, never straying more than 2° from **M 22**, just above **Lambda Sagittarii**. At the beginning of April, **Saturn** is at magnitude +0.5, with an equatorial diameter of 17". During the month, **Saturn** will brighten from magnitude +0.5 to +0.3. In mid-April, the planet's disk measures 17" across the equator while the ring system spans 39" and tips 25° to our line of sight. By month's end, **Saturn** will appear above the east-southeast horizon at roughly 12:15 AM. On the night of April 16th/17th, **Saturn**, at almost the same time it begins retrograde (westward) motion, reaches aphelion for the first time in 30 years. **Saturn** will then lie 10.07 a.u. from the **Sun**.

Uranus – **Uranus** is lost in the solar glare below **Venus** in early April, passing behind the **Sun** on April 18th (conjunction), to remain hidden in our star's glare all month. **Uranus** will return to view before dawn in late May.

Neptune – if you rise early, during the final week of April, **Neptune** can be seen in binoculars. The magnitude 7.9 planet glows faintly and stands just 5° high in the east at dawn's first light. Hunt for it between the 4th magnitude stars **Lambda** and **Phi Aquarii**. **Neptune** lies 1.5° west-southwest of **Phi Aquarii** on the 30th.

Pluto – Dim **Pluto**, at magnitude +14.0, is 1.4° north of **Mars** on the morning of April 26th.

Moon – The fat, waning gibbous **Moon** is about 5° to the upper right of **Jupiter** on the morning of April 3rd. The **Moon** will be nearing last quarter when it is less than 2° to the upper right of **Saturn** (itself less than 3° to the upper right of **Mars**) at dawn on April 7th. A slender waxing lunar crescent is almost 6° to the left of **Venus** at night fall on the 17th, and within the **Hyades** 24 hours later. The waxing gibbous **Moon** is some 3° to the left of **Regulus** at night fall on April 24th. The **Moon** is full on the **North American** evening of April 29th, and joins **Jupiter** in **Libra**. On the night of April 20th-21st, the waxing crescent **Moon** will occult 4th magnitude **Nu Geminorum**, starting at about 10:08 PM CDT, and ending at about 10:57 PM CDT.

Libration in longitude – eastern limb most exposed on the 2nd (+4.9°); western limb most exposed on the 14th (-5.7°); Libration in latitude – northern limb most exposed on the 17th; southern limb most exposed on the 3rd (-6.6°) and on the 30th (-6.5°). Greatest northern declination on the 20th (+20.4°); greatest southern declination is on the 8th (-20.3°).

Asteroids – **Ceres** is pretty easy to find in April. Almost any telescope will pick up the 8th magnitude glow from the suburbs. **Ceres** moves slowly eastward relative to the background stars of northern **Cancer**, a region that is high in the south in early evening. Use 4th magnitude **Iota Cancr**i as a starting point. On April 4th, **Ceres**

will be passing **46 Cancri** (less than $\frac{1}{3}^\circ$), on the 16th it will be less than 1° south-southeast of **57 Cancri** (or about 1.2° north of **Rho¹ Cancri**), on the 21st about 1° south of **61 Cancri** (or about 1.3° due north of **Rho¹ Cancri**), and on the 26th about 1° north-northeast of **67 Cancri**.

Comets – Comet **PANSTARRS (C/2016 R2)** will pass no closer than 2.6 a.u. to the **Sun**, meaning a slower speed and many months of visibility for observers on **Earth**. The biggest uncertainty rests on the comet's activity. If it continues to outgas as it has been and hangs in at 10th magnitude, a 4-inch telescope, under a dark sky, will pick it up. But a magnitude or two fainter will require an 8 to 10 inch telescope. The comet will appear highest in April's early evening sky, starting the month in **Perseus** and crossing into **Auriga** at mid-month. By April's close, you can find it 2.5° south of magnitude 0.1 **Capella**. By my estimates, on April 6th the comet will be about $2\frac{1}{2}^\circ$ south of **59 Per**, on the 21st about 1° north-northeast of **Zeta Aur**, and on the 25th about 1° north of **Eta Aur**.

Meteor Showers – The first of spring's major meteor showers (April 14th – 30th), the **Lyrids**, peaks before dawn on April 22nd, as **Earth** passes through the debris path of comet **C/1861 Thatcher** (last time the comet passed through the solar system was over 150 years ago). The **Lyrids** benefit this year from dark skies – the first quarter **Moon** sets shortly before 2 AM local daylight time. The radiant of the shower, in **Lyra** near the star **Vega**, will be 40° high in the east for observers. Meteor rates typically reach 15 to 20 per hour shortly before dawn, when **Lyra** passes nearly overhead.

When to View the Planets:

Evening Sky

Venus (west)

Midnight

Jupiter (southeast)

Morning Sky

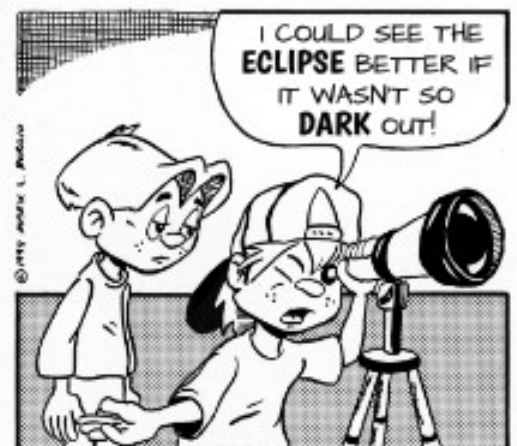
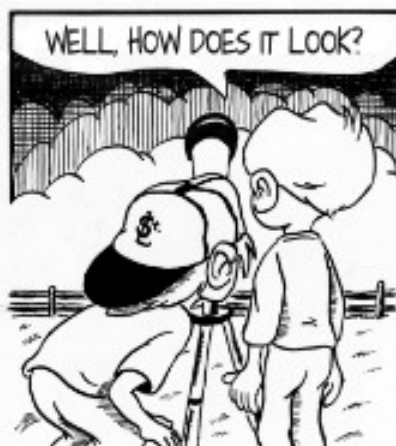
Mercury (east)
Mars (south)
Jupiter (southwest)
Saturn (south)
Neptune (east)



DARK SKY VIEWING - PRIMARY ON APRIL 14TH, SECONDARY ON APRIL 21ST

Acorn Park (The Early Years)

by M. L. Burgio

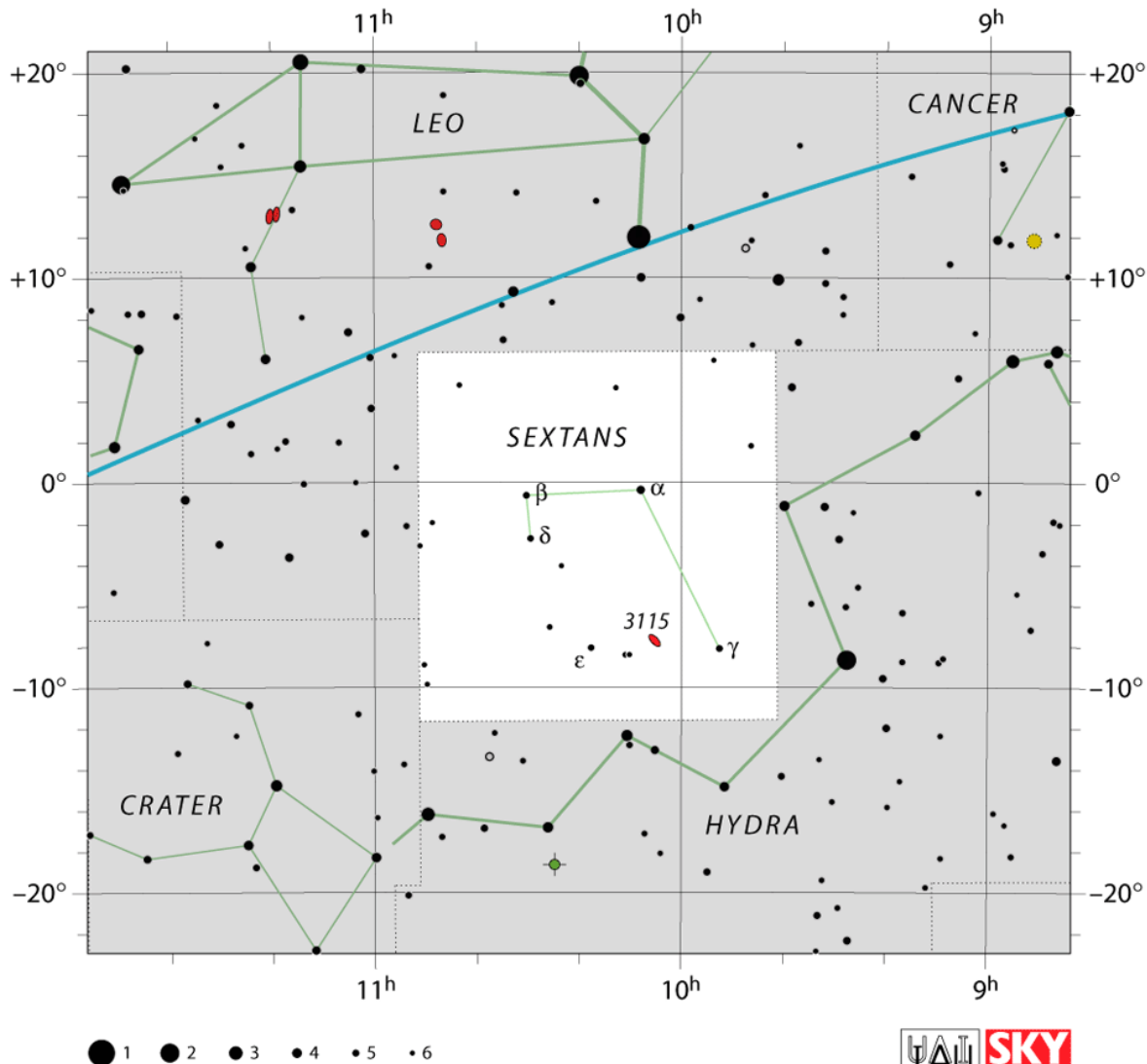


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Mythology

SEXTANS – the Sextant

A faint constellation south of Leo, introduced by the Polish astronomer Johannes Hevelius in 1687 under the name *Sextans Uraniae* to commemorate the instrument with which he measured star positions. Hevelius continued to make naked-eye sightings with his sextant throughout his life, even though telescopes were available; it was perhaps to demonstrate the keenness of his eyes that he formed Sextans out of such faint stars, as he did with another of his inventions, Lynx. The brightest star in Sextans is of magnitude 4.5 and none of the stars are named.



The End

