Monthly Meeting
Monday, January 8th at 7PM at HRPO

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

Program: Show'N Tell. Club Members will bring and brag on astronomy items Santa brought them for Christmas, or show off their other brag worthy paraphernalia of interest to star gazers.

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Observing Notes – Lepus – The Hare & Mythology

Like this newsletter? See past issues back to 2009 at
http://brastro.org/newsletters.html

Presidents' Messages (out with the old/in with the new)

NEW PRES: Steven Tilley

First off, I thank you for placing your trust in me for 2018. Also, I wish to thank our outgoing officers for their service. Through the hard work of many members over the years, BRAS has grown into the society it is today. With your help, I plan to continue this trend.

Looks like we collared a new Pres! Welcome Steven Tilley

A little about myself: I am a research assistant for the Clerk of the Louisiana House of Representatives, with a degree in political science. Single. No kids. I am an Eagle Scout, and served on Camp Avondale's staff most of the 1990's. I pursue astronomy using online telescopes, tracking asteroids and comets. Two sites I've used are www.slooh.com and itelescope.net. I also enjoy photography.

I moved to BR at age 4, in 1977, was interested in stars as early as I can remember, and a telescope for Christmas was one of my most exciting gifts ever. My involvement with BRAS began in my youth. Having learned about the club from the Goodwood Library information desk/ or FUN section of The Morning Advocate, I was completely dazzled by the stargazing after my first BRAS meeting, which took place at the Goodwood Library. That kept me coming back off and on for years.

I remember when Mark Stauffer, who served some terms as President of BRAS, wrote an article on Double Stars for **Night Visions**. Mark also had articles on double stars published in **Astronomy Magazine**. I remember the club longing for its own telescope. And now, we have just marked the 20th Anniversary of the HRPO, which has served BRAS, the Baton Rouge community, LSU, and science amazingly well, including the discovery of fifty-five asteroids. See how far we've come?

There are so many interesting things we can do. For example, I would like us to consider starting a new astrometric program (asteroid program) if we have sufficient member interest.

I encourage every member to attend the BRAS Business Meetings and let your ideas be known.

Clear Skies, Happy New Year

Steven M. Tilley
P.S. Please let Scott Louque, our new VP and program chairman, know the item(s) you are bringing for the January meeting Show'N Tell! Reach Scott through outreach@brastro.org

OLD PRES: John R. Nagle I said my thank you's and goodbye's last month, but let me add that I am especially proud to have accomplished my main goal of getting the By-Laws updated, a project I worked on with Wally Pursell, and took charge of once we lost him. I welcome Steven to the President's job, am glad to be helping him transition in, and cannot wait to see what 2018 will bring. For starters, I'd like to announce that Steven has appointed me the new Chair of the Light Pollution Committee and I have been researching for that. I am also tossing around ideas on how to expand my Observing Chair activities.

Clear Skies, and Happy New Year

John R. Nagle

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Secretary's Summary of December Meeting

Hi Everyone,

I'm going to just give a short summary of what went on at the December 2017 meeting/Christmas Potluck as it was mostly informal (and oops, I didn't take notes.)

Of course, we had a lot of great food and cheer. About 40 or so members were in attendance. John and Michele brought a bunch of decorations to spruce up the place and it set a festive tone. In addition they scattered boxes of poppers across every table amongst the poinsettias and Santa figurines, intending (so they say) for people to bring them home for New Years. But a few of the more playful "youngsters" in our group couldn't resist popping them -- at the least appropriate times. But oh, what fun they had . . . . while the patience lasted!

After the feasting and mingling and amidst the popping of poppers, John did manage to call our attention to some business matters, as follows:

- An honorary lifetime membership was bestowed on Brad and Martha Schaefer. They will be moving to Arizona soon and the club will miss them. Hopefully we can cure Brad of his technophobia long enough to get a web chat in every now and then for a club meeting!

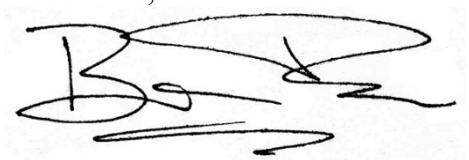
- The changes to the By-laws were presented, discussed and all approved by the membership, and also that John may send out the revised document via email – a new provision added to the by-laws in keeping with modern technology. It was established that members are responsible for keeping their contact information up to date, and that each family member can receive a copy of the newsletter.

- Don Weinell reported the closure of Hodges Gardens. John Nagle reported he is working on a new possible dark site in Mississippi.

- New officers were nominated and elected (see sidebar). With the exception of Trey, this is a completely new group of officers. Please be sure to offer them your suggestions and support as they guide us through 2018.

At this point, the Ginger Ale was going to my head so I don't remember if we said or did anything else of importance. The most important thing was that we got to hang out with each other for another great holiday party. I thank you for having me as Secretary for the past two years and I look forward to seeing you all out at the Observatory soon!

Clear Skies,



Ben Toman, outgoing Secretary

P.S. Below are Michele's pictures of the Christmas Party

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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

December Christmas Party/Pot Luck, Dec. 11, at HRPO

There were more desserts this year than cooked dishes! Nobody seemed to mind. But the "Texas Bean Bake" brought by Joel Tews was a special hit! We asked, and he graciously provided the recipe (Page 8)

John, our outgoing Pres, gets the By-law passed and holds elections, then "gives up his collar" (to Michele, me), who, in a symbolic gesture, sneaks up to Steven, our new Pres, and collars him.
And then she snaps a selfie of them both! It was a festive moment, as was the whole evening.

BRAS Outreach Report

Hi Everyone,

Here we are in 2018. The past year was a great one for our outreach endeavors. We got some new faces helping out, and we got a lot of new resources from the Night Sky Network. Now I'm hoping we can kick things up a notch for the year ahead.

We've gotten a lot of miles out of the Explore the Solar System kit from the NSN (the one with the scale model solar system) and one thing I'd really like is for us to get familiar with the newer kits we've received and find ways to use them at our upcoming events. I'd also like to work to get a nice dedicated area in the BRAS closet just for our outreach materials so they are easy to find and keep track of.

I recently participated in a webinar with the folks of the NSN and got a couple of really neat ideas that I think would also work well for our outreach, (More details to come.)

The first thing I'd like to do, though, is get everyone added into the NSN database so you can start using their website and keep track of what we're doing in the area. They also offer some pretty cool webinars on a monthly basis that are free to members.

Finally, let's not forget our upcoming outreach events already on the books:

Upcoming Outreach Events

Thursday, January 18th
6pm-8:30pm
Shaw Center (Roof Top Terrace)
(Telescope viewing to piggyback on an art lecture. Sake tasting by Tsunami, too!)

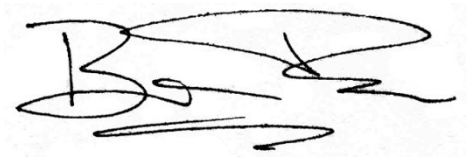
Tuesday, January 23rd
6:30pm-8:30pm
Sidewalk Astronomy at Perkins Rowe

Friday, February 2nd
6pm-8:30pm
Louisiana Key Academy on Government Street (charter school for dyslexic children)
Family Astronomy Night
(They are asking for telescope observing, but if we want to set up some of our demos, that would be great, too. It will be based on how many volunteers we can get.)

We have a blanket of requests to do some presentations at a few libraries in Livingston Parish and we are currently working out the details. More info to come on those dates/times.

Thank you again to all of the volunteers that helped out in 2017. I'd like for us to be an even bigger community presence in 2018, especially on the public nights at the HRPO. If that's going to be the case, we're going to need as much help as we can get. If you've never helped out with an outreach before, please consider lending a hand this year. I assure you, it's a great time!

Clear Skies,



Ben Toman
Outreach Coordinator

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.

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Thomas calls meeting to order
No new members, with 4 members in attendance

Old Business

- Natural Sky Conference discussed, will hold another conference in November of 2018
- Globe At Night now has 63 reports for all of Louisiana for 2017. We are falling short of our goal of 200 for the year.
- An amplified criteria for the Good Lighting Award will be published in the newsletter when completed. The committee will look into a light meter to match the requirements that are listed in the Unified Development Code, Chapter 14, which regulates lighting. The committee will also look into the possibility of said meter being donated to BRAS. A vote was taken and approved for the Good Lighting Award to be given once a year, coinciding with the Natural Sky Conference, or a designated week in November.
- Thomas gave some updated information to Ben for inclusion on the Dark Sky Advocacy web pages at http://darksky.brastro.org/
- A petition to promote the reduction of light pollution from outdoor lighting will also be placed on the Dark Sky Advocacy web pages.

New Business

- A vote was taken and approved to give the new LPC Chairperson the e-mail addresses of LPC members to facilitate communications within the committee.

Secretary's Report

- Minutes of this meeting read and approved

Meeting adjourned

Submitted by John Nagle, Acting Secretary for this meeting

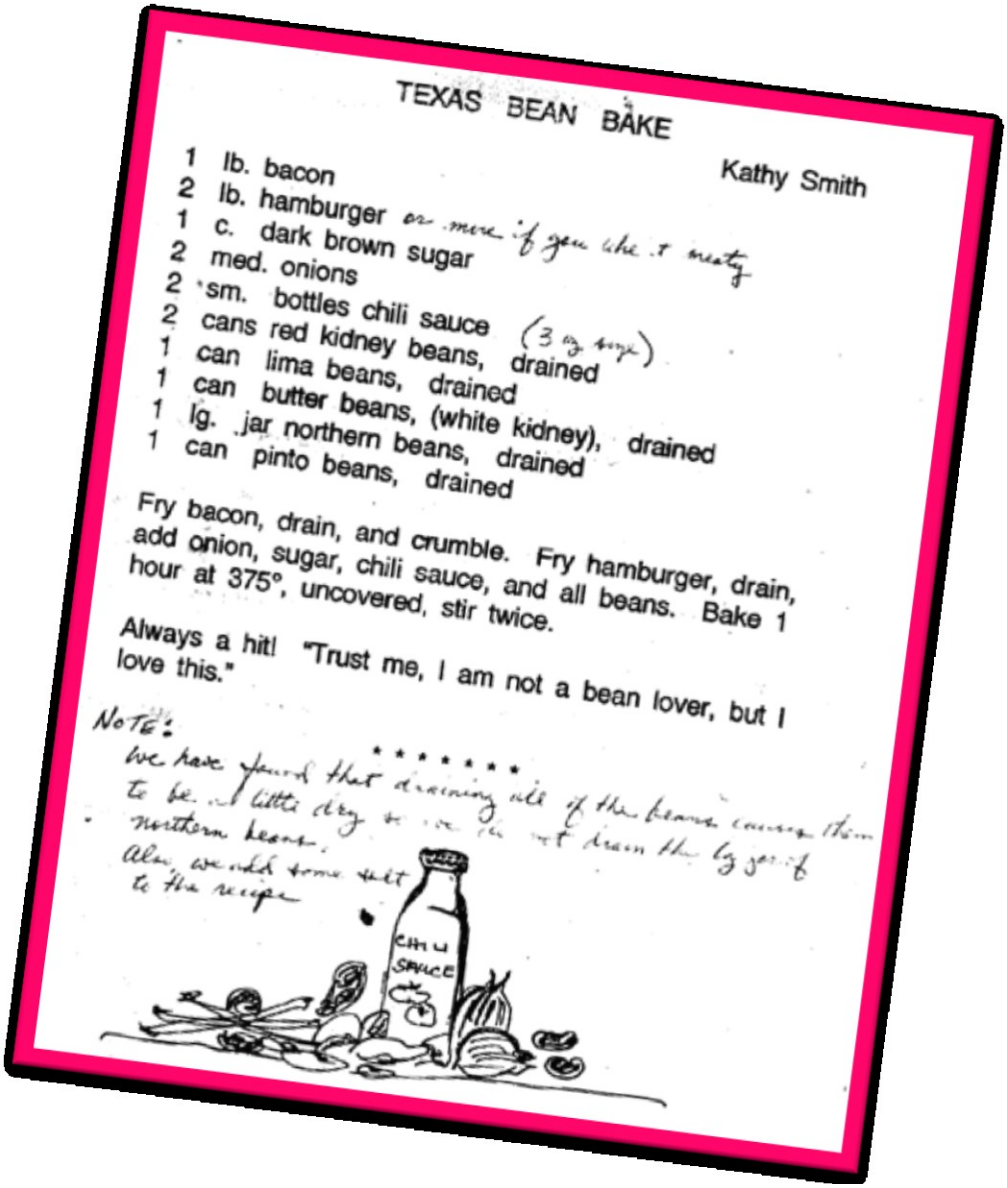
Recent Entries in the BRAS Forum

Below are selected additions to the BRAS Forum. There are also nine active polls. The Forum has reached 5000 posts.

New Documentary Highlights History of the Airplane
The Lunar Halos Return with the Cold
Iridium Flares to End in 2018
Bright Green Geminid Fireball Spotted at HRPO
First Interstellar Asteroid Observed
NanoDays Coming a Month Early in 2018
A Good Turnout for Last "Star of Bethlehem" Talk

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.



TEXAS BEAN BAKE

Kathy Smith

1 lb. bacon
2 lb. hamburger or more if you like it meaty
1 c. dark brown sugar
2 med. onions
2 sm. bottles chili sauce (3 if huge)
2 cans red kidney beans, drained
1 can lima beans, drained
1 can butter beans, (white kidney), drained
1 lg. jar northern beans, drained
1 can pinto beans, drained

Fry bacon, drain, and crumble. Fry hamburger, drain, add onion, sugar, chili sauce, and all beans. Bake 1 hour at 375°, uncovered, stir twice.

Always a hit! "Trust me, I am not a bean lover, but I love this."

NOTE:
We have found that draining all of the beans except the northern beans is a little dry so we do not drain the lg jar of northern beans.
Also, we added some salt to the recipe

CHILI SAUCE

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Messages from HRPO

Highland Road Park Observatory

FRIDAY NIGHT LECTURE SERIES

all start at 7:30pm

5 January: "2018—The Space Year in Review" The Great American Eclipse headlines the lecture that always welcomes our patrons back—an overview of the previous year!

12 January: "Wonders of the Winter Sky" BREC Education Curator Amy Brouillette will take the audience on a fascinating tour of Baton Rouge's winter season. She'll highlight the celestial gems that will sparkle throughout the *next three months*—gems visitors will be able to see live if they continue to visit HRPO!

19 January: "The Final Iridium Flares" For years these intense brief increases in light from orbiting communications satellites have thrilled families and friends. Sadly, the replacement machines are nowhere near as reflective…and so this is the end of an era. What is an Iridium flare? How does one look in the right place at the right time to see a flare?

26 January: "Apollos 4, 5 and 6" The Apollo 50th Anniversary lectures continue as Tom Northrop highlights the unmanned missions that, among other accomplishments, verified the soundness of the Lunar Module.

SCIENCE ACADEMY

Saturdays from 10am to 12pm
For ages eight to twelve. $5/$6 per child.

6 January: "Interstellar Travelers"
13 January: "Winter Day"
20 January: "Expedition 11"
27 January: "Observing the Universe—Eyes"

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ONE-TIME CALLS FOR VOLUNTEERS

***Saturday 6 January, 12pm to 2pm.** *One or two volunteers.* **Solar Viewing.** Telescope operation, physical science demonstrations, front desk duty. Low to moderate difficulty.

***Saturday 6 January, 7pm to 10pm.** *One or two volunteers.* **Evening Sky Viewing Plus.** Telescope operation, physical science demonstrations, front desk duty. Easy to moderate difficulty.

***Saturday 20 January, 5:30pm to 7:30pm**. *One or two volunteers.* **Learn Your Binocular.** Showing patrons how to care for and use their personal binoculars. Moderate difficulty.
***Saturday 27 January, 5:30pm to 7:30pm**. *Three or four volunteers.* **Learn Your Telescope.** Showing patrons how to set up and use their personal telescopes. Moderate difficulty.
***Saturday 24 February, 2pm to 6pm**. *One or two volunteers.* **NanoDays.** Front desk. Experiments and demonstrations related to nanotechnology. Low to moderate difficulty.
***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.

GLOBE at Night: 6 to 15 January [Orion]

Instructions to participate in this project are at…
http://www.brastro.org/phpBB3/viewtopic.php?f=29&t=2760

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Adult Astronomy Courses

Saturday in January from 3:30pm to 7:30pm
For ages eighteen and older.
$15 per in-parish registrant; $18 per out-of-parish registrant.

13 January: Learn Your Sky

major stars and constellations in Baton Rouge / major lunar features and how to find them / basic skygazing terminology / how to distinguish planets from stars / what meteors, conjunctions and "visible passes" are, and how to see them / major unaided-eye features of our Milky Way Galaxy / solar viewing safety, and how to view the Sun without store-bought equipment / how to darken the sky from your home / upcoming unaided-eye events / benefits of belonging to an astronomy club / actual practice identifying stars, asterisms and constellations (weather permitting)

20 January: Learn Your Binocular

how to operate your binocular / how to care for your binocular / major binocular features in the Baton Rouge sky, and how to find them / how to darken the sky from your home / upcoming binocular events / actual practice aiming and focusing on celestial objects (weather permitting)

27 January: Learn Your Telescope

how to set up your telescope / how to care for your telescope / major telescopic features in the Baton Rouge sky, and how to find them / how to darken the sky from your home / upcoming telescopic events / actual practice aiming and focusing on celestial objects (weather permitting)

IT IS F-F-F-F-FREEZING COLD, Tom said icily.

Yep, it has been down into the 20's here lately, windy, and with snow. Most unusual for BRLA folk.

... And that's why you should always wear a helmet while playing chess."

Observing Notes:

by John Nagle

Lepus – The Hare

Position: RA 6, Dec. -20

Named Stars:

Arneb (Alpha Lep), "amab", "the hare", mag. 2.58, 05 32 43.81 -17 49 20.3, is a lower luminosity yellow-white supergiant star believed to be about 13 million years old, and has a faint companion (mag. 11), and a separation of 35.5" – the star is probably not a true companion. The primary is a very old, dying star which is either still expanding or has passed through the supergiant stage and is now in the process of contracting and heating up. It is expected to end its life in a supernova explosion.
Nihal (Beta Lep), "camels quenching their thirst", mag. 2.81, 05 28 14.73 -20 45 33.2, is a yellow bright giant star, and a double star – possibly a binary star. The companion star is at magnitude 11, and has a separation of 2.58 arc seconds, and is a suspected variable star.
Hind's Crimson Star (R Leporis), mag. 7.71, 04 59 36.50 -14 48 21.0, is a carbon star and a Mira variable star, noted for its striking red color, that varies in magnitude from a minimum of 11.7 to a maximum of 5.5 in a period of 418 to 441 days (with a secondary period of about 40 years). The star appears reddest when it is dimmest, which occurs every 14.5 months. The star is located 3.5° northwest of **Mu Leporis**.

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Deep Sky:

M 79 (NGC 1094), mag. 8.0, 05 24.5 -24 33, 6' in size, is a globular cluster with a medium concentration of stars; pretty large, extremely rich, very well resolved; very faint stars. **M 79** contains 150,000 stars, and is believed to have originated in the Canis Major Dwarf Galaxy. This cluster was discovered by the French astronomer Pierre Méchain in 1780 and was included in the **Messier** catalogue. The cluster is sometimes described as having a "starfish" shape. **M 79** is one of the few globular clusters visible in the Northern Hemisphere in winter.
IC 418 (Spirograph Nebula), PK215-24.1, mag. 9.3, 05 27.5 -12 42, 12" in size, is a planetary nebula with a ring structure; very small, bright; photo mag. 10.7; central star is mag. 10.2. The name, **Spirograph Nebula**, comes from the intricate arrangement of shells-within-shells of gas and dust which seem like they were traced with a spirograph. There is yet no clear explanation of the mechanisms and forces at work within the nebula.
NGC 2017 (h3780), 05 40 05 -17 50 21, is a group of the five stars in a multiple star system. The magnitudes of the stars range from 6th to 10th magnitudes. Two of the stars are close binaries, but to split the components a telescope of at least 6-inches is required. Components A (mag. 6.7) and B (mag. 7.8) have a separation of 0.5"; A and C (mag. 8.9) have a separation of 89.3"; A and E (mag. 7.9) have a separation of 75.6"; A and F (mag. 8.3) have a separation of 133.9"; and A and G (mag. 9.5) have a separation of 59.8". **NGC 2017** is located 7 arc minutes due east of Alpha Leporis.
Asterism – "Arsh al Jawŝa", The Throne of Jawŝa", or "Kursiyy al-Jawŝa' al-Mu'akhkhar", "the Hindmost Chair of Jawŝa', and "al-Nihal", "the Camels Quenching Their Thirst" in Arabic,

is composed of four stars in the constellation (**Alpha, Beta, Gamma, and Delta Leporis**) that form a quadrilateral shape.
Beyond magnitude 10 there are the following objects: 29 NGC; 10 IC; 11 MCG; 29 ESO; 3 UGCA; 1 PGC; 1 Arp; 1 Abell; 1 HCG; 1 vdB; and 1 AGC.

Other Stars:

Zeta Lep, mag. 3.55, 05 46 57.35 -14 49 19.9, is a white main-sequence star. A massive asteroid belt was confirmed in the star's orbit in 2001. This was the first extra-solar asteroid belt ever discovered. It is believed to be 231 million years old.
HD 42659, mag. 6.77, 06 11 21.75 -15 47 35.0, is a rapidly oscillating Ap star.
HD 31527, mag. 7.48, 04 55 38 -23 14 31, has three planets in orbit.
HD 33283, mag. 8.05, 05 08 01.01 -26 47 50.9, has one planet in orbit.
HD 33142, mag. 8.13, 05 07 36 -13 59 11, has one planet in orbit.
Gliese 229, mag. 8.14, 06 10 34.62 -21 51 52.7, is a low activity red dwarf flare star, with a brown dwarf star as a companion.

Sky Happenings:January, 2018

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

Jan. 1st - **Mercury** is at greatest western elongation (23°) before sunrise in the southeast,
The **Moon** is at the year's closest perigee (221,559 miles from **Earth**) at 3:49 AM CST,
Full Moon (largest of 2018, with a disk of 33.5' across) occurs at 8:24 PM CST.
Jan. 2nd - Asteroid **Flora** is at opposition at 12:00 noon CST,
Uranus is stationary at 3 PM CST.
Jan. 3rd - **Earth** is at perihelion (91.4 million miles from the **Sun**) at 12: midnight CST,
Quadrantid meteor shower peaks under a **Full Moon**.
Jan. 4/5 - Night; The **Moon** slides past **Regulus** in **Leo** and will occult the 1st magnitude star for viewers in parts of northern **Canada** and **Alaska**.
Jan. 5th - The **Moon** passes 0.9° north of **Regulus** at 2 AM CST.
Jan. 6th - Dawn: **Mars** and **Jupiter** are less than ⅓° from each other, with **Alpha Librae** sparkling 2°to the upper right of the pair.
Jan. 7th - **Mars** passes 0.2° south of **Jupiter** before dawn.
Jan. 8th - **Last Quarter Moon** occurs at 4:25 PM CST.
Jan. 9th - **Venus** is in superior conjunction with the **Sun** at 1 AM CST,
Pluto is in conjunction with the **Sun** at 4 AM CST.
Jan. 11th - The **Moon** passes 4° north of **Jupiter** at 12:00 midnight CST,
The **Moon** passes 5° north of **Mars** at 4 AM CST,
Dawn: **Jupiter** and **Mars** are joined by the waning crescent **Moon** less than 4° to the north,
The **Moon** passes 0.4° south of asteroid **Vesta** at 10 PM CST.
Jan. 13th - **Mercury** passes 0.6° south of **Saturn** at 1 AM CST,
Dawn: **Mercury** and **Saturn** are less than ½° apart in the southeast just before sunrise, with the **Moon** 6° to the upper right of **Saturn**.
Jan. 14th - The **Moon** passes 3° north of **Saturn** at 8 PM CST,
The **Moon** is at apogee (252,565 miles from **Earth**) at 8:10 PM CST.
Jan. 15th - The **Moon** passes 3° north of **Mercury** at 1 AM CST,
Dawn: The thinnest sliver of a waning crescent **Moon**, having just been at its most distant apogee for the year during the night, joins **Mercury** and **Saturn** to form a compact triangle.
Jan. 16th - **New Moon** occurs at 8:17 PM CST.
Jan. 20th - The **Moon** passes 1.6°south of **Neptune** at 2 PM CST.
Jan. 23rd - The **Moon** passes 5° south of **Uranus** at 7 PM CST.

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Jan. 24th - **First Quarter Moon** occurs at 4:20 PM CST.
Jan. 27th - The **Moon** passes 0.7° north of **Aldebaran** at 5 AM CST, but for northwestern **North America** the **Moon** will occult **Aldebaran**.
Jan. 30th - The **Moon** is at perigee (223,068 miles from **Earth**) at 3:57 AM CST.
Jan. 31st - The dwarf planet **Ceres** is at opposition at 7 AM CST,
The 2nd **Full Moon** of the month (a **Blue Moon**) occurs at 7:27 AM CST,
A total **Lunar Eclipse** will take place for northwest **Canada, Alaska**, most of **Asia**, most of **Australia**, and for most of the **Pacific** nations. Varying partial eclipse will be seen by most of the **United States** and **Canada**. **East Coast** will see the **Moon** set while it is entering the umbra; **Mid-America** will see the **Moon** set during the total eclipse; **Southwest America** will see the **Moon** set while leaving the umbra; and **Northwest America** will see the **Moon** set while leaving the penumbra.

Planets:

Mercury – Mercury will be to the lower left of **Mars** and **Jupiter** during January's first three weeks. **Mercury** reaches greatest western elongation (23°), standing 11° high in the southeast 30 minutes before sunrise on January 1st. The planet will shine at -0.3 magnitude, with a disk spanning 6.7", and appearing 62% lit. On January 1, **Mercury** and **Jupiter** are just over 2° apart, and less than 1° apart on the 5th through the 8th. On the 6th, only ⅓° will separate them, with **Alpha Librae (Zubenelgenubi)** some 2° to their upper right. As the month progresses, **Mars** retreats from **Jupiter.** On January 10th, **Mars** (losing altitude each morning) is still 8° high a half-hour before sunup, dropping to 4° by the 20th, staying at -0.3 magnitude. On January 13th, **Mercury** and **Saturn** (magnitude 0.5) are only 0.6° apart, low in the southeast 30 minutes before sunrise.
Venus – Venus reaches superior conjunction (behind the **Sun**) on January 8th/9th, to reappear low in the evening sky in late February.
Mars – On January 1st, **Mars** stands 2.6° west of **Jupiter**, with the pair rising more than four hours before the **Sun. Mars**, at magnitude 1.5, shines while **Jupiter**, at magnitude -1.8, dazzles. The two planets straddle **Alpha Librae** (magnitude 2.8 **Zubenelgenubi**), a fine double star. On January 2nd, **Mars** passes 0.6° north of the star. On January 7th, **Mars** and **Jupiter** stand just 16' apart, closer than they have been since January of 1998. **Mars** spans 5", with **Jupiter** spanning 34". On the 11th, a waning crescent **Moon** joins the two planets in a pre-dawn display. **Mars** will stand 4.6° south of the **Moon** while **Jupiter** lies 2.1° west of **Mars. Mars** will then speed across **Libra** and enter **Scorpius** on the 31st, having brightened to magnitude 1.2, and standing 9° northwest of magnitude 1.1 **Antares**.
Jupiter – Jupiter starts January with **Mars** only 2.6° west of the planet. The two planets travel together until mid-month –see **Mars** above. **Jupiter** starts the month with a 33" diameter disk, and fattens to 36" by the end of the month. In mid-January, **Jupiter** stands some 30° high in the southeast shortly before twilight starts to paint the morning sky. On January 10th, at 4:28 AM CST, two of Jupiter's moons**, Io** and **Europa**, simultaneously disappear into the planet's shadow, and they repeat the occultation again on the 24th.
Saturn – Saturn appears very low in the eastern horizon at the beginning of January, climbing progressively higher with each passing day. On January 13th, **Saturn** will lie just 0.6° north of **Mercury** in the bright twilight – you will probably need binoculars to see the 0.5 magnitude **Saturn.** By the end of the month, **Saturn** appears 10° high in the southeast before sunrise.
Uranus – Uranus shines bright in eastern **Pisces**, at magnitude 5.8. To find **Uranus**, home in on the 5th magnitude star, **Mu Piscium. Uranus** remains nearly stationary during January some 3° north of the star. **Uranus** stands nearly 60° above the southern horizon as darkness falls. That is the best time to view **Uranus** through a telescope. A medium power view reveals a 3.5" diameter disk and a distinct blue-green color.
Neptune – In early January, the planet stand 30° above the southwest horizon at the end of twilight. **Neptune** glows at magnitude 7.9 among the background stars of **Aquarius** near the 4th magnitude star **Lambda Aquarii**. On the 1st, the planet lies 0.5° southeast of **Lambda Aquarii**. By the 31st, the planet stands 1.1° due east of the star. A telescope shows **Neptune**'s blue-grey disk, which spans 2.2".

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Pluto – On January 15th, **Pluto** is located at RA19 22.1 Dec. -21 40. **Pluto** is in conjunction with the **Sun** on January 9th.
Earth – Earth reaches perihelion, its closest approach to the **Sun** in its orbital path through space, at 5:33 UT on January 3rd, when it is 98.3% of its average distance from the **Sun**.
Moon – The **Moon** is full on the **North American** evening of January 1st –and will appear slightly larger than usual because it will only be about 4 hours past perigee. The **Moon** will brush past **Regulus**, in **Leo**, on the left in the middle of the night on January 4th/5th (an occultation will be visible throughout parts on northern **Canada** and **Alaska**). The waning crescent **Moon** forms a compact triangle with **Jupiter** and **Mars** before dawn on January 11th. On the 14th, a much slimmer lunar sliver is just 6° above **Saturn**, and some 4° to the left of **Mercury** on the 15th. On January 31st, the **Moon** is full, for the second time this month making it a "***Blue Moon***", where all but the eastern part of the **North American** continent can witness that **Moon** being totally eclipsed. **Favorable Librations** are **Pascal** crater on January 1st, **Scoresby** crater on the 2nd, **Cusanus** crater on the 3rd, and **Gioja** crater on the 30th.

Asteroids **–** Asteroid **Massalia** reached opposition in mid-December, placing it high in January's evening sky and not far from its peak brightness, glowing at 9th magnitude, as it treks across eastern **Taurus.** To find, start at 3rd magnitude **Zeta Taurii**, the star that marks the tip of the **Bull**'s southern horn. Just 1° to the northwest is the **Crab Nebula (M1),** before targeting 5th magnitude **114 Tau,** 1.6° farther west. Star **109 Tau** lies 2° west of **114 Tau**. There are just three stars matching the asteroid's brightness between **109 Tau** and **114 Tau**. Your best bet to see **Massalia** move during a single session comes on the evenings of January 10th and 11th, when the asteroid slides 0.2° south of **107 Tau.**

Asteroid 1 **Ceres** arrives at opposition on January 31st – within the same hour as the total lunar eclipse, when it will shine brighter than it has in over 5 years.

Asteroids **Vesta** and **Juno**, during 2018, will undergo even more rare peaks in brightness as they reach opposition in June and November respectively.

Comets **–** Comet **PANSTARRS (C/2016R2)** glides past the head of **Taurus** during January as it heads north, and it will remain in view most of the night. Visually, the comet appears like a 10th or 11th magnitude elliptical galaxy. From the suburbs, you will likely need a 10-inch telescope to spot it, or a 4-inch under a dark sky. On the 6th of January, the comet will be about 4° to the east of **Aldebaran**, and on the 31st it will be 3°-3½° to the west of the **Pleiades.**

Meteor Showers **–** Although the **Quadrantids** rank among the year's strongest showers, it will not be memorable for 2018 because of the January 1st **Super Moon**. At peak before dawn on the 4th, the bright moonlight will wash-out faint meteors, with lucky observers seeing about 20 per hour instead of the 110 per hour that could be seen at a dark site with no **Moon**.

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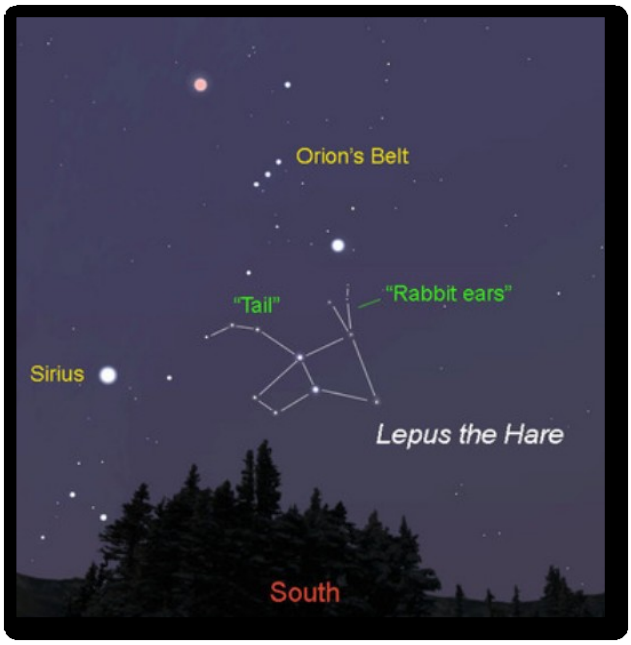
When to View the Planets:

Evening Sky		**Midnight**		**Morning Sky**	
Uranus	(south)	Uranus	(west)	Mercury	(southeast)
Neptune	(southwest)			Mars	(southeast)
				Jupiter	(south)
				Saturn	(southeast)

DARK SKY VIEWING - PRIMARY ON JANUARY 13TH SECONDARY ON JANUARY 20TH

Mythology:



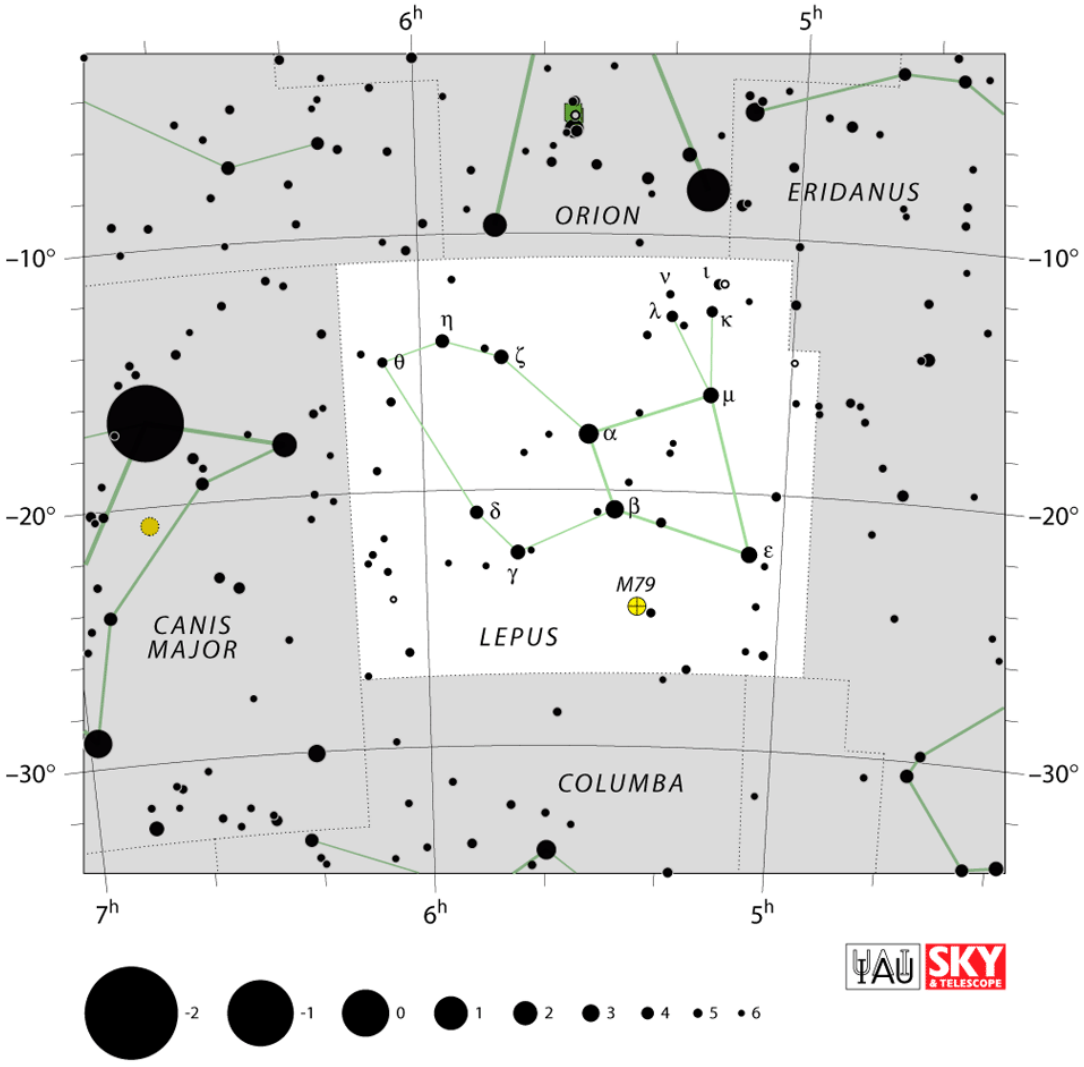
Lepus – the Hare

Eratosthenes informs us that Hermes placed the hare in the sky because of its swiftness. Both Eratosthenes and Hyginus referred to the remarkable fertility of hares, as attested to by Aristotle in his "*Historia Animalium*".

The celestial hare makes an interesting tableau with Orion and his dogs. Aratus wrote that the Dog (Canis Major) pursues the Hare in an unending race.

Hyginus tells us the following moral tale about the hare:

At one time there were no hares on the island of Leros, until one man brought in a pregnant female. Soon, everybody began to raise hares and before long the island was swarming with them. They overran the fields and destroyed crops, reducing the population to starvation. By a concerted effort, the inhabitants drove the hares out of their island. They put the image of the hare among the stars as a reminder that ***one can easily end up with too much of a good thing.***



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