

Night Visions

Happy
New Year!

January 2023

Newsletter of the Baton Rouge Astronomical Society

Flaming Star Nebula, photographed by BRAS member Scott Louque, see [Page 11](#) for details.

Monthly Meeting January 9th at 7:00 PM, in person

*You may also join this meeting via meet.jit.si/BRASMeet
(Monthly meetings are held on 2nd Mondays of the month, at Highland Road Park Observatory)*

PRESENTATION: Scott Cadwallader will give an overview of the celestial calendar for 2023

What's In This Issue?



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Globe At Night
ALCON 2023

Articles: MAUNA LOA &
25 Brightest Stars In The Sky



HRPO EVENTS

OBSERVING NOTES – Lepus – The Hare

***Like this newsletter? See PAST ISSUES online back to 2009
Baton Rouge Astronomical Society Facebook Page
BRAS YouTube Channel – Monthly Speakers via Jitsi***



President's Message

2203 is upon us with new (and old) projects to grapple with. The major challenge facing us is to pull off a successful international ALCON convention in July. Our committees still need volunteers. Please let Steven or John know what you're willing to do.

We are looking forward to Outreach opportunities this year. Check Page 8 for Ben's Upcoming Events listed in his Outreach Report. Ben (who does a great job of coordinating these events) will let us know about all outreach opportunities as they arise.

Reflector Magazine mentions 3 of our club members in its December 2022 quarterly issue: Scott Cadwallader, received the Galaxy Observing Challenge award from AL. Dr. Brad Schaefer (a lifetime BRAS member), through the Tucson Amateur Astronomy Association, has received the Analemma Observing Program award from AL. Krista Lemoine (a former member), through the Salt Lake Astronomy Society, has received three AL awards – the Beyond Polaris Observing Program, the Constellation Hunter Northern Skies Observing Program, and the Outreach Special Program.

The **AAVSO (American Association of Variable Star Observers)** has a new Executive Director, Dr. Brian Kloppenborg. AAVSO, founded in 1911, works with and supplements professional astronomers with over 6,000 + observers world-wide that collectively report about 13,000 observations every night! If you want to help contribute scientific data, join the AAVSO. (I have been a member for many years).

The **BRAS Light Pollution Committee (LPC)** still needs a chairperson to replace me. I can't do both jobs. I believe that Light Pollution will become a major force in visual observing in the future. We need to combat the steady increase in light pollution and work to reduce it worldwide. You can individually help by joining the International Dark-Sky Association (IDA) (at www.darksky.org). I am also a long-time member of this organization. The BlueWalker 3, a communications satellite from AST Space Mobile, was launched in September of 2022. Unfurled, it measures more than 26 feet per side (about 8 meters per side) and can be as bright as 1st magnitude. The company plans to launch up to 6 per year with over 100 total. The satellite(s) use cell phone frequencies that are close to and encroaching on radio telescope frequency bands – they are already challenging the radio quiet zones around the radio telescopes. The IAU asks for any observations to be reported to them (you can find data on location at www.heavens-above.com). SpaceX has also sent the first 2nd generation Starlink satellites up – no precautions for light pollution on them, and the FCC has approved thousands more! The LPC has work to do!

The Library Telescope donation for Livingston Parish is ready. A date will be set for the donation, with news coverage. If you want to be at the "ceremony", Ben will send out the info when the date is set.

I am looking forward to 2203 and seeing what BRAS can do!

Several BRAS members were in attendance at **HRPO's 25th Anniversary Party** on December 30 (see photo on Page 8).

Clear Skies, and Happy New Year,

John R. Nagle

January Calendar of Upcoming Meetings

Light Pollution Committee: 6 p.m. before the Monthly meeting.

Monthly Member Meeting – 7 pm Monday, January 9th at the Observatory, in person and via Jitsi

Monthly Business Meeting: 7 pm Wednesday, January 25th (Members Only), in person and via Jitsi

MOON (Members Only Observing Night) Sometime in February or March.

ALCon 2023 ("Astronomical Gumbo") Committee Meeting
Two meetings: TBA Sunday, December ?, 2022, 7 PM and Sunday December ?, 2022, 7 PM, both online.



Monthly Meeting Minutes – December 12th

- Welcome by the president, John Nagle.
- The club provided brisket, decorations added flair, and various people brought dishes which were all enjoyed (see pics below).
- John announced that the Post Office has issued a James Webb Telescope Commemorative stamp. A sheet of these stamps was passed around so everybody could have a look. There is also a James Webb Telescope patch as well.
- Current and past members of BRAS were recognized in the recent issue of the **Reflector magazine**. Scott C. received the Galaxy Observing Challenge and Solar System Moons Challenge awards, Brad Schaefer (Tucson Amateur Astronomy Association) received the Analemma Observing Program award, and Krista (Reed) Lemoine (Salt Lake Astronomical Society) received the Beyond Polaris Observing Program, Constellation Hunter Northern Skies Observing Program, and Outreach Special Program awards.
- John displayed a big chunk of petrified wood from Jasper County, Texas, a gift from Chris and Annette for his and Michele's rock garden. It was much appreciated.
- Elections for officers were opened up for any further nominations. There being none, the current slate of officers was voted in for 2023.
- It was announced that **Artemis I** had landed back on Earth Sunday and that the James Webb Space Telescope has been hit 18 times so far by meteorites. Elon Musk has also announced that he will send people around the Moon.
- The Geminids will peak tomorrow, but the weather is not looking too good for our area.
- Trey has the **2023 Astronomy calendars** for sale at \$10 apiece.
- Ben awarded **Volunteer Pins** to those who helped with Outreach last year, showing the Ingenuity helicopter on Mars. He announced that the Makers Market on Saturday, Dec. 18th, will be our last outreach for this year. He will let us know what the schedule is for Perkins Rowe Sidewalk Astronomy for 2023.
- The December Reflector carried our **ALCON 2023 quarter-page ad** on page 10. Steven and his crew are still looking for help with this event. We will also need roughly a quarter of the club to commit to attend this convention.
- The **Zhumell 114 telescope for the Livingston Parish Library** has been modified and is ready to go. This will probably be presented in January. We would really love to expand this



2022 USA Forever Stamp

2023 Officers:

President: John Nagle
president@brastro.org

VP: Joel Tews
vice-president@brastro.org

Secretary: Roz Readinger
secretary@brastro.org

Treasurer: Trey Anding
treasurer@brastro.org

BRAS Liaison for BREC:

Chris Kersey

BRAS Liaison for LSU:

Greg Guzik

Committees/Coordinators:

al_awards@brastro.org

Merrill Hess

lightpollution@brastro.org

?????

newsletter@brastro.org

Michele Fry

observing@brastro.org

John Nagle

outreach@brastro.org

Ben Toman

public_relations@brastro.org

Scott Cadwallader

webmaster@brastro.org

Frederick Barnett

program to other neighboring parishes, but we need sponsorships to keep this going.

- The **Member's Handbook** is more or less done now.
- John announced that the **Texas Star Party registration** is open now. Since they can't have more than 500 registrants, if they get more than 500 applications, they will have a lottery to see which 500 can show up. This star party is usually scheduled for the end of April and/or the beginning of May north of Ft. Davis.
- John is almost finished work on his expanded Observing Notes.
- Our club will have 1 vote regarding revising the **Astronomical League by-laws**. There is a hardcopy of this in John's mailbox at HRPO. The club will handle this at the regular meeting in January.
- There was a moment of silence **in memory of Forrest Smith** who passed away this year.
- **Complimentary raffle** tickets were passed out, with a live poinsettia plant as the prize. Winner was Mark Canatella, who gave it to his wife Debbie to take care of, who passed it off to Ben for his wife to take care of. (Can it be that astronomy buffs are afraid of plants?)

A Few Christmas Party Pics





Business Meeting Minutes – December 28th

(meeting is the last Wednesday of the month, in person, at HRPO)

- ❖ **Astronomical League By-laws changes** – There were no changes on this issue from last month. Our club will need to register our single vote on the changes to the Astronomical League By-Laws by mid-January. John has the hardcopy from the AL; this is still in the President's mailbox at HRPO if anyone wants to access this. The club will need to come to a consensus on this by the January 9th meeting.
- ❖ **CEA (Co-operative Endeavor Agreement)** – There were no changes here from last month.
- ❖ **BRAS Member Kit** – documents/policies to be online behind a member's section of the BRAS website – Scott – Referring to the Dark Sky Site, John has been trying to call the owner, but there's no response. So he has written a letter to the gentleman to make sure we're still okay to use the site. A backup plan would be to relocate ½ mile further north in Sherburne WMA.
- ❖ **Library Telescope for Livingston Parish** – we need to set up a date for the donation – We want to make sure we get a picture of this event to post in the Club section of the Advocate. We will check with Merrill to see what day works for him and then check with the library. This should be close to being set up by the January meeting; then we can check to see who else wants to participate.
- ❖ **Magnetic Signs** – Chris K. has forwarded his email. Cypress Graphics won the bid to do the work. Chris will contact them Tuesday with the go-ahead to do the work.
- ❖ **BRAS Records** – Chris to give suggestions. This had to do with different types of official records being kept by the club as well as retention periods. Once we know what we're keeping, we'll have to decide where we're keeping this information.
- ❖ **HRPO Policies/news** – This was mostly discussion about the problems with the cylinders for the large dome. John will try to get some answers after the first of the year from Darryl Hughes as to why this is happening.
- ❖ **"Coffin"**. BRAS decide that it did not want the air track or the "coffin" it comes in. It did agree to accept it from HRPO with the idea that it would donate these items to an organization it has never donated to before.

New Business

- ❖ **What needs to be done at HRPO for ALCON 2023?**
This question was used to discuss improvements for the scopes and grounds of HRPO for the upcoming year.
- ❖ The question came up about the lecture for the January meeting. John is checking with Jack Heurcamp who is the US representative of MallinCam to see if he'll come share what he knows. If that doesn't work, he'll figure out Plan B.
- ❖ BRAS has a new desk blotter calendar to post events to. This will reside on the wall behind the door to the BRAS closet. The first event on it is Sidewalk Astronomy at Perkins Rowe the evening of January 31st (6 – 9 pm). The second event is a lunar occultation of Mars on January 30th from 9 – 1 am (actual occultation will take place between around 10:30 pm and 12:25 am). The observatory will be open for this.

Members attending were John N., Chris K., Scott C., Steven T., Trey A., and Roz R.

Submitted by Roz Readinger, Secretary

BRAS subreddit and a Discord server.

Our subreddit has been set up for us to reach out to the public. Please join us on there. <https://www.reddit.com/r/BRAStro/>

Our Discord server is for Members only, and requires the download of a free app. It's a fun place for us to hang out. To join the discord, email **safey2007@gmail.com** with the subject **BRAS Discord**.

To add a Flair next to your username, PM Amy Northrop.

.For Discord help, access **techsupport-faq**,

or message Amy or Justin: <https://discord.gg/6N8r8DDj>

It also has voice channels so that you can speak to people through Discord.

The best part about both of these is that you can access them on your phone with the free apps. Hope to see you there. ~ Amy Northrop

James Webb Telescope Patch,

\$8.50 + shipping, here:

[James Webb Space Telescope \(JWST\) Patch - NASA Gear \(officialnasagear.com\)](https://www.nasa.gov/officialnasagear.com/)

4" x 3.5"



THE OTHER END by Neil K. Hays



THE OTHER END COMICS .com NK
© on Wednesdays, Thursdays, Fridays



Outreach Report for December 2022

Hi Everyone,

2022 was a great return to Outreach for us after nearly 2 years of COVID lockdowns and masking, and we're ready to answer the call for 2023. We had over 30 outreach events last year--a mixture of individuals visiting libraries and Scouting groups, STEM events at community schools, the annual BREC events at the Bluebonnet Swamp and Zippety Zoo, and our regular Sidewalk Astronomy at Perkins Rowe. It's no exaggeration to say that over the course of the more than 30 events we interacted with well over 1,000 people. At the Christmas Party I was very proud to pass out **Night Sky Network Outreach Pins** to some of the 18 members who participated, and the rest will get theirs later: They are: *Annette R, Ben T, Chris R, Coy W, Craig B, Don W, James E, Joel T, John N, Merrill H, Michele F, Nat B, Roz R, Scott C, Scott L, Steven T, Trey A, and Troy B*



Ingenuity NSN Outreach Pin

Outreach is something for which we as a club can be very proud. We are providing a valuable community service completely free of charge to our community. A lot of folks whom we interact with may get a little bit of information about astronomy and then move along never thinking twice about us. But just for those of you that don't know, it was through a public outreach event that the club enticed ME into becoming a member. I'm very thankful for the people I've met and all the lessons I've learned because of my association with the club. None of that would have happened were it not for a few club volunteers spending some time to share their love of the night sky out in the community.



December 2022, Sidewalk Astronomy at Perkins Rowe. John, Scott, Coy and Chris R. are all engaged with patrons. (That's MY telescope in the foreground, but I'm behind the camera at the moment!)

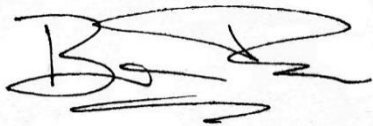
We're sure to have plenty of requests in the coming year and we'll do our best to heed the calls. My hope for this new year is that we can get even more of our members interested in volunteering for these events. Maybe you've even got some of your own ideas on things that would be fun to do at them. Please consider becoming an active volunteer member for the club this year. It's great community service, it's a great way to learn more about something you already enjoy, and it's the best way to get to know some of your fellow club members and night sky enthusiasts better.

We're usually pretty slow in January so we have a little time to catch our breath after the holidays. Our only January event will be our Sidewalk Astronomy at Perkins Rowe. The 1st

quarter Moon phase has been shifting around enough that we're going to be having these toward the end of the month for a bit. These Sidewalk Astronomy events are a lot of fun. There's plenty of room for you to bring out a scope if you'd like to help out. I don't even mind if you show up unannounced to these events because we are never worried about being over-staffed. It's a great way to ease your way into Outreach and see if you like it. Come on out and join us!

One last note, sadly, the Mid City Makers Market people have announced that they will no longer be holding the Market events. They said there are enough places/opportunities around town for makers to exhibit their wares so it is no longer necessary to have the get togethers. We always had a good time and good response at the Markets. Sidewalk Astronomy is popular with our club members AND the community so maybe we'll start looking around for more opportunities there.

Clear skies,



Upcoming Events

Tuesday, January 31st

6pm-9pm

Sidewalk Astronomy at Perkins Rowe

Pushed back a few months due to scheduling conflicts, HRPO finally staged their anniversary party. Several BRAS members stepped up to assist. Alas, too few of the public attended, due it being the holiday weekend.





LPC (Light Pollution Committee) Report

This committee meets at 6:00, same day as the 7:00 BRAS Business Meeting
Everyone is welcome to join in.

There was no LPC meeting in December

John Nagle, LPC Chair

Globe At Night

The target for the Globe at Night program is Orion and Canis Major
from January 13th through January 22nd

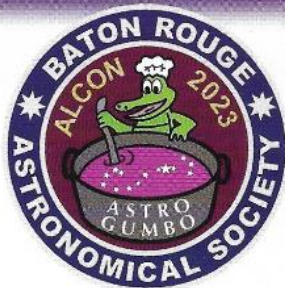
If you would like to participate in this citizen science program, you can find instructions at
<https://www.globeatnight.org>

P.S. The “Loss of the Night” app can be used for information and for reporting your observations.

Get ready for ALCON 2023 BATON ROUGE
Hosted by your own Astronomy Club. Get on board. PARTICIPATE.

BIENVENUE EN LOUISIANA! (WELCOME TO LOUISIANA!)

Join us for this unique and exciting amateur astronomy gathering!



ALCON 2023

July 26-29, 2023

Hilton Baton Rouge
Capitol Center Hotel

201 Lafayette Street,
Baton Rouge, LA 70801

KEYNOTE SPEAKERS

- ★ David Eicher—writer, editor-in-chief of *Astronomy Magazine*
- ★ Fred Espenak—co-author of *Totality: The Great American Eclipses of 2017 and 2024*
- ★ More to be announced

FIELD TRIPS

- ★ Irene W. Pennington Planetarium
- ★ LIGO (Laser Interferometer Gravitational-Wave Observatory) Livingston*
- ★ Louisiana State University Physics & Astronomy
- ★ Highland Road Park Observatory

*Spaces are limited for this field trip

Brought to Baton Rouge by the **Baton Rouge Astronomical Society**
Registration info coming soon! Check brastro.org

2023 Astronomical League Convention Update!

We now have our own ALCON Web Page. Check it out. Bookmark and watch it grow.

<https://alcon2023.org/>

HELP! We Need More Sponsors!!!

From now on, we will be doing planning and work by way of subcommittees, making use of small group meetings, e-mail, phone, etc, without the need to have the full committee meeting. We have a lot to get done. If you like to help, please EMAIL Steven M. Tilley smtilley@alcon2023.org

We are looking for Sponsors, please check with the ALCon 2023 committee before, so we do not re-ask anyone.

The 2023 ALCON Sponsorship Levels

Level	Price	Benefits
Galaxy	Above \$5000	Same as "Solar System" plus a 10-minute presentation[time slots are limited] during the conference.
Solar System	\$2000 to \$5000	Same as "Star" plus a large logo displayed on all conference signs and all slides used in the conference room between speakers. One full page for sponsor information in the Convention Program.
Star	\$1000 to \$1999	Same as "Planet" plus small Logo displayed on all conference signs and on schedule display. 1/4 page in Conference Program for logo and sponsor information
Planet	\$500 to \$999	Same as "Moon" plus Name displayed on Conference Hall display during breaks. 1/8 page in Conference Program for logo and sponsor
Moon	\$100 to \$499	Name listed in Conference program and can provide items for inclusion in attendee bags.

After you sign someone up, let us know and have them send a check made out to "Astronomical League" with **ALCon 2023** in the memo line, to the attention of

Carroll Iorg (AL President)
Astronomical League
9201 Ward Parkway, Suite #100
Kansas City, MO 64114

ASTROPHOTOS BY BRAS MEMBERS

Scott Louque Photos



Flaming Star Nebula, taken on multiple days, from my driveway in Paulina, La.

On Thursday Dec 16th, I took 15 – 5 min frames with a CLS-CCD light pollution filter over the sensor of my camera. On Dec 25th added 30 more 5 min frames to finish the RGB dataset for this image. On Tuesday Dec. 27th I collected 35 – 5 min frames with a 12nm HA filter over the sensor of my camera to complete the Ha dataset for this image. Once I had my two datasets done, I then loaded them into PixInsight and proceeded processing them.

Acquisition Details: I opened Stellarium on my computer to see what was available to image right now. I knew the constellation Auriga is just starting to rise in the east and I knew there were a couple emission nebulas in it. I decided on the Flaming Star nebula because it was the first one I saw when looking in Stellarium.

The first thing I do is Blink through each image to inspect them and throw out any that have smeared stars in it. Luckily all my frames were good for this image. Next I open up Cosmetic Correction and load all my light frames into it and set my parameters and then drag an instance of it onto the UI. From there I load all my frames, Bias, Darks, Flats and Lights into WBPP to calibrate debayer and set my instance of Cosmetic Correction to run during this process so all my light frames will be corrected once the script is finished. Then it's on to Registering the images and setting a reference frame so all the images are aligned to the reference frame. My final preprocessing step is Image Integration which when finished leaves me with a fully calibrated image ready for post processing.



Processing software: PixInsight

Equipment used: Orion 8" Astrograph, PHD2 guiding software, Orion 50mm guidescope, ZWO ASI120MC guidecamera, Celestron AVX mount, SGPro software, The whole optical rig was steered by a Meade LX85 GoTo equatorial mount. This picture is from 2016. I use a different scope now.

BRAS Members . . . Send your astrophotos, with descriptions, to Michele (newsletter@brastro.org) for possible inclusion in this column.

Make your own image of The Pillars Of Creation with NASA's Astrophoto Challenge January 4 thru February 28, 2023.



The challenge provides learners of all familiarity levels authentic experiences using real astrophysics data, including those from NASA space-based missions. Participants engage in the scientific practices of a scientist through accessible data tools and experiences while they create and share their composite images.

Come join NASA's Astrophoto Challenge January 4, 2023 through February 28, 2023: <https://mo-www.cfa.harvard.edu/OWN/astrophoto>.

You can also learn more about other opportunities to discover the universe for yourselves at NASA's Universe of Learning: <https://www.universe-of-learning.org/>

MAUNA LOA IS CHANGING THE SKY: To get involved in data gathering, see below:

submitted by Craig Brenden

On the Big Island of Hawaii, the world's largest active volcano is putting on a show. Mauna Loa has been erupting for days, with lava shooting [as high as 150 feet](#) on Tuesday. Tourists are flying in from all over the world to watch.

The sky is changing, too. One volcano away from Mauna Loa, the Gemini Observatory cloud camera on Mauna Kea is recording the effect of the eruption on the heavens.



Credit: Gemini Observatory/NOIRLab/NSF/AURA

Gemini cloudcam image found and processed by Frankie Lucena

This snapshot shows a [light pillar](#), which appeared on the first night of the eruption (Nov. 27th). Ice crystals in the air above the volcano caught the light from the primary vent, spreading the glare into a vertical beam.

Where did the ice crystals come from? Probably from an ordinary cirrus cloud, which happened to be floating by when Mauna Loa erupted. There is another possibility, however. The volcano itself spewed water vapor into the air, freezing when it reached cirrus cloud-altitudes. If so, Mauna Loa provided both the light and the ice.

Amateur astronomer Frankie Lucena has been monitoring Gemini cloudcam footage since Mauna Loa blew its top. On Dec. 1st he caught this fireball:



Credit: Gemini Observatory/NOIRLab

The volcano didn't create the meteor, but it did surround it with the hue of lava. Mauna Loa's glow is turning the night sky red. The mechanism may involve the scattering of light from volcanic smog, or vog, a visible haze created when sulfur dioxide (SO₂) and other emissions chemically interact with sunlight and atmospheric oxygen.

More sky phenomena may be in the offing. [According to the USGS](#), Pele's hair (strands of volcanic glass) fragments are being wafted great distances from the volcano's vent, while approximately 180,000 tons of sulfur dioxide (SO₂) are entering the atmosphere every day. **Got a picture?** [Submit it here](#).

December 3 SpaceWeather.com

SPACE WEATHER ALERTS

Instant solar flare alerts: The sun is starting to flare again.

Sign up for [Space Weather Alerts](#) to receive text messages when explosions are underway.

Basic plan \$49.95/year

Alerts include: Coronal Mass Ejections (CME), Geomagnetic Storms Predicted (class G1-G4), Planetary K-index (K5-K9, K4 for Pro Plan), Solar Flare alerts (X-Ray Flux levels and Scales), Solar wind speed alerts (500, 600, 700 and over 800 km/s), B Sub Z South-pointing episodes, Cracks in Earth's magnetic field.

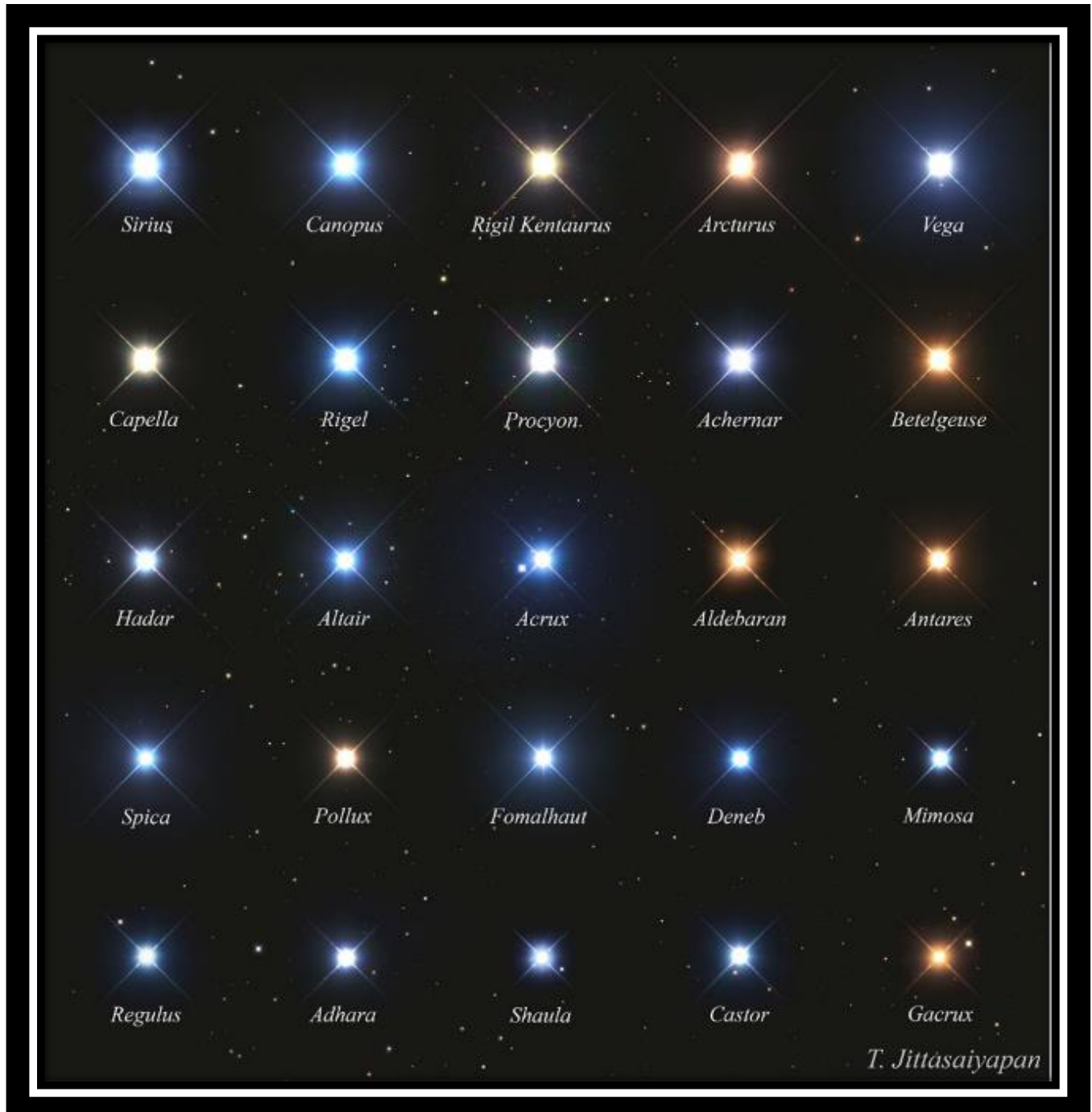
25 BRIGHTEST STARS IN THE NIGHT SKY

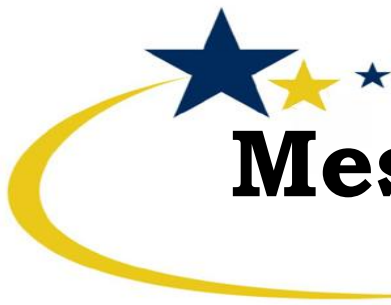
submitted by Craig Brenden

Image Credit & Copyright: [Tragoolchitr Jittasaiyapan](#)

from [APOD: 2022 December 18 - The 25 Brightest Stars in the Night Sky \(nasa.gov\)](#)

Many cultures have their own names for the brightest stars, but in the interest of clear global communication, the [International Astronomical Union](#) (IAU) has begun to designate standardized star names. Featured here are the 25 brightest stars in Earth's night sky, with their IAU-recognized names. Some star names have interesting meanings, which are explained in our monthly Mythology segment.





Messages from HRPO

Highland Road Park Observatory



2022 HRPO DONATION DRIVE

Goal of \$1500 exceeded!

Thanks in no small part to two very generous donations, HRPO has all the money (and then some) it needs to secure all six promised acquisitions. HRPO personnel appreciate all the donors and their incredible loyalty to the facility.



FRIDAY NIGHT LECTURE SERIES

7:30pm / For ages fourteen and older. / No admission fee.

6 January = "2022—The Space Year in Review" Every calendar year brings astonishing announcements: discoveries, celestial events, disappointments and nail-biting waiting. 2022 was no exception. Which were the most important stories?

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

20 January = "Operation Freshman" One long-forgotten aspect of World War Two was the Norwegian front. Learn about how the Nazis were intent on building nuclear weapons program and how the British were determined to stop them!

27 January = "Comet After Comet" Their origins, and the possible bright apparitions of the next two years will be outlined. (Postponed from 23 December.)



EVENING SKY VIEWING

No admission fee. For all ages.

Fridays (6, 13, 20 and 27 January) from 8:30pm to 10pm

Saturdays (7, 14, 21 and 28 January) from 7:30pm to 10pm

HRPO houses a 50-cm reflector, a 40-cm reflector and several smaller telescopes to bring the majesty of the night sky to the public. Trained operators, sharing duties via a rotating roster, work throughout the year in shifts. Each operator has a pre-planned list of objects to highlight. However, requests will be taken if there is time and if all present have viewed the previous target.



SCIENCE ACADEMY

Saturdays from 10am to 12pm.

for Cadets aged eight to twelve *\$5 per Cadet per week (\$6 if out-of-parish)
four Cadet minimum and sixteen Cadets maximum per session

7 January = "Air and Space Navigation I"

14 January = "Expedition 1"

28 January = "Planetary Missions Named"



AMATEUR ASTRONOMY COURSES

Saturdays from 3pm to 7pm / \$15 per in-parish registrant; \$18 per out-of-parish registrant. /
Must be eighteen or older.

These exciting one-day classes are tailor-made to instruct the patron in the use of a personal telescope or binocular for skygazing, or the basics of the unaided-eye Baton Rouge sky. Sign up for one or more!

Learn Your Binocular [7 January]

This class is an introduction to the unaided-eye Baton Rouge sky. We'll even go outside for some practice, weather permitting. Also included will be an overview of all major binocular events for the next twelve months. *This one-day course focuses specifically on the binocular Baton Rouge sky. [Limit twenty registrants. Registration deadline of 4 January; minimum two households needed.]*

Learn Your Telescope [28 January]

This class is an introduction to the telescopic Baton Rouge sky. We'll even go outside for some practice, weather permitting. Also included will be an overview of all major telescope events for the next twelve months. *This one-day course focuses specifically on the telescopic Baton Rouge sky. [Limit ten registrants. Registration deadline of 25 January; minimum one household needed.]*



PLUS NIGHT: "Explorer 1 65th Anniversary"

Saturday 14 January from 12pm to 2pm.

For all ages. No admission fee.

During Plus nights sky viewing starts a half-hour earlier and extra features are available to the public...

*The well-known marshmallow roast commences at the campfire ring behind the building, lasting at least one hour and ending no later than 9:30pm. (The campfire, like the sky viewing, is weather-dependent.)

*Four to eight of HRPO's collection of over fifty physical science demonstrations will be on hand to perplex and amaze. Which demos will it be?

*An unaided eye sky tour takes place, showing the public major features of the sky for that month. The tour takes place at 8pm during Standard Time, and at 9pm during Daylight Time.

*Filters are inserted into the viewing mechanisms, to show patrons "hidden" details of the

Moon, Mars and Jupiter (when they are available).

*Reveal your age, and be shown any “birth stars” in the sky at that time.



SOLAR VIEWING

Saturday 21 January from 12pm to 2pm / No admission fee. For all ages.

Weather permitting, viewing of the Sun’s image in three different manners—transferred onto a white surface, directly with safely-filtered optical light, and directly in safely-filtered hydrogen-alpha wavelength—will take place for two hours. Protective clothing and sunscreen are recommended.



STEM EXPANSION: “History of Electronics”

Saturday 21 January from 3:30pm to 7:30pm

For ages twelve to sixteen. / \$15 each per in-parish registrant; \$18 each per out-of-parish registrant. Advanced registration via WebTrac required [activity #531993].

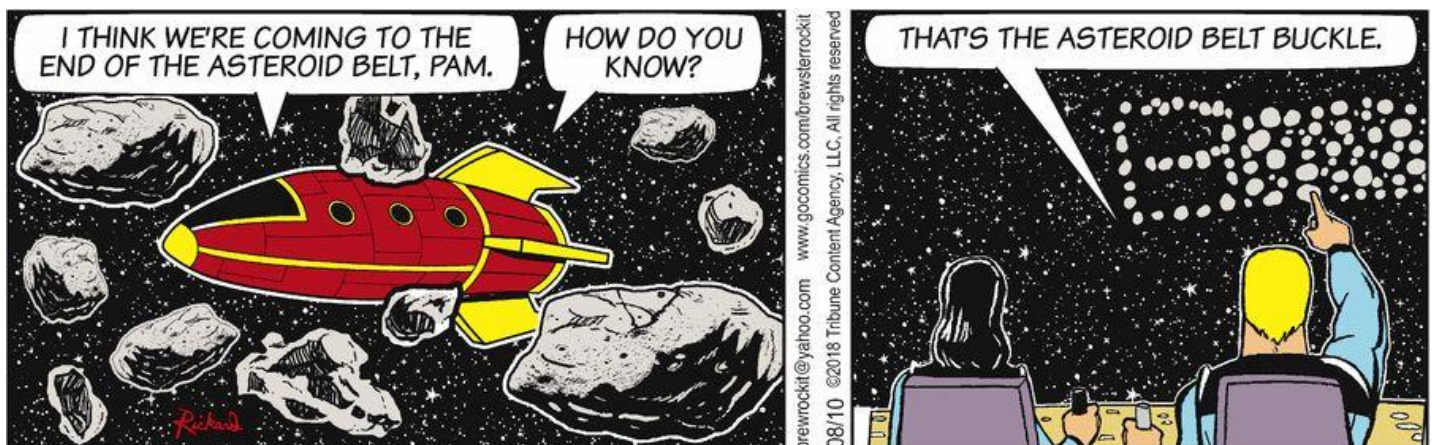
This program offers advanced topics, topic extensions and all-new games and activities to an older crowd. Certificates will be earned, and a section of archived experiments, some not seen in over fifteen years (and some *never* performed on site) take place. There are also giveaways and door prizes.



LUNAR OCCULTATION OF MARS

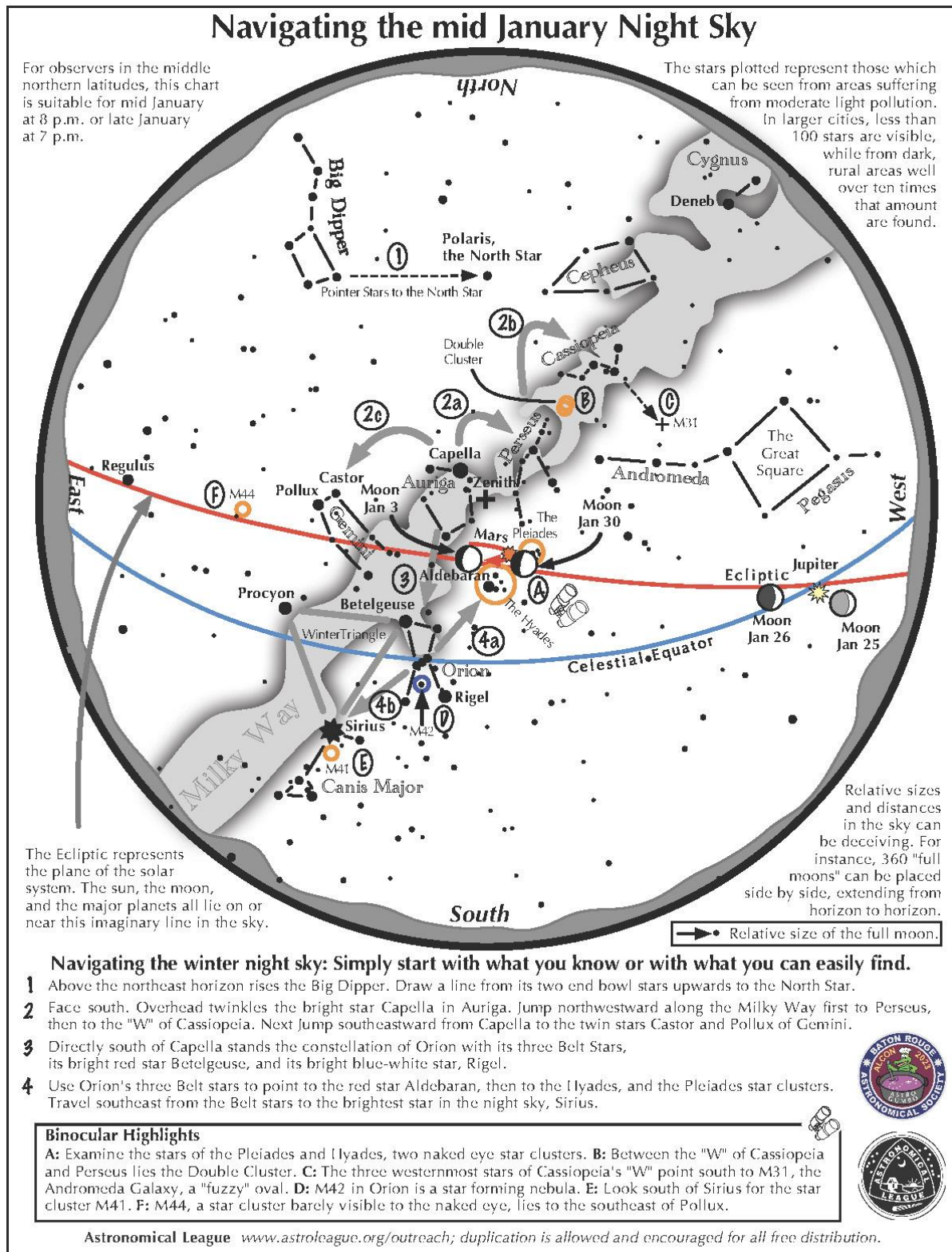
Monday 30 January from 9pm to 1am / No admission fee. For all ages. Binoculars required.

This is an extremely rare event from any particular location on Earth. The Moon will slide in front of the Red Planet, hiding or *occluding* it for a period of time.



Here's this month's sky chart for our neck of the woods, provided by JPL

[Navigating the Night Sky for January 2023 - Monthly Starmaps from the Astronomical League](#)
[| Night Sky Network \(nasa.gov\)](#)





OBSERVING NOTES **JANUARY - 2023**

Lepus – The Hare

Position: RA 6, Dec. -20°

Note: For six years I wrote these Observing Notes, featuring the 60 constellations we can see before midnight from Baton Rouge, containing objects above magnitude 10. For the next three years I expanded that information and put all my research in the same format, ending last April. Beginning with last May, Named Stars, Deep Sky and Other Stars are repeated here, for convenience. Monthly updates will be made to Sky Happenings and all that appears below that title.

Named Stars

Arneb (Alpha Lep), or “Amab” from the Arabic “Elarneb” “the Hare”, and “Arsh”, mag. 2.58, 05 32 43.81 -17 49 20.3, is a lower luminosity yellow-white supergiant star that is believed to be about 13 million years old with a faint 11th magnitude companion at a separation of 35.5” – probably not a true companion. **NGC 2017 (h3780)** is 1.7° to the east. Also known as **HD 36673, HIP 25985, ADS 4146, Gould 54, SAO 150547, and 11 Leporis.**

Nihal (Beta Lep), “Camels”, mag. 2.81, 05 28 14.73 -20 45 33.2, is a bright yellow giant star and possibly a double star. The companion is a blue star, magnitude 7.3, at a separation of 2.58” and is a suspected variable star. Also known as **HD 36079, HIP 25606, SAO 170457, ADS 4066, Gould 51, β 320, h3761, and 9 Leporis.**

Hind’s Crimson Star (R Lep), 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. It varies in magnitude from a maximum of 5.5 to a minimum of 11.7 in a period of 455 days. The star will appear reddest when it is dimmest, which occurs every 14.5 months. Located 3.5° northwest of **Mu Leporis**. Also known as **HD 31996, HIP 23203, Gould 4, and SAO 150058.**

Deep Sky:

M 79 (**NGC 1904**), mag. 7.7, 05 25 09 -24 30 10, 8.7’x8.7’ in size, is a globular cluster with a medium concentration of stars; pretty large, extremely rich, very well resolved; very faint stars. It contains about 150,000 stars and is believed to have originated in the **Canis Major Dwarf Galaxy**. The cluster is sometimes described as having a “starfish” shape. It is one of the few globular clusters visible in the **Northern Hemisphere** in winter. Also known as **ESO 487-007, ESO 522-245, GCI 10, Bennett 34, Mel 34, 1E 0522.1-433, and C0522-245.**

IC 418, “**Spirograph Nebula**”, “**Raspberry Nebula**”, mag. 9.3, 05 28 33 -12 40 40, 12” in size, is a planetary nebula with a ring structure; very small, bright. The center star is **HD 35914** at magnitude 10.7. The name **Spirograph Nebula** comes from the intricate arrangement of shells-within-shells of gas dust which seems like they were traced with a spirograph. Also known as **PKS 0525-127, ARO 03, IRAS 05251-1244, PKS B0525-127, PK 215-24.1, PKS J0527-1241, PNG 215.2-24.2, and ZZ Leporis.**

NGC 2017, 05 40 18 -17 50 07, is a group of 8 stars in a multiple star system. The magnitudes range from **A=6.4; B=7.9; C=8.5; D=9.2; E=8.4; F=8.1; G=9.5; and H=2.4.** The **AB** pair is also known as **β 321**. Separations are **AB 0.5”; AC 89.3”** at a PA of 136°; **CD 1.5”** at a PA of 357°; **AE 75.6”** at a PA of 7°; **AF 133.9”** at a PA of 299°; **AG 59.8”** at a PA of 49°; and **AH 41.8”** at a PA of 310°. Two of the stars

are close binaries – to split the components a telescope of 6” or larger is needed. Located 7° due east of **Alpha Leporis**. Also known as **ADS 4254**, and it contains **HD 37643** (the A component) located at 05 39 16.23 -17 50 57.9 and is also known as **HIP 26602**, **Gould 57**, **SAO 150652**, and **h3780**.

Objects in Lepus: 1 Messier; 32 NGC; 25 IC; 133 ESO; 6 AM; 1 LGG 129; 2 NPM1G; 1 ARO; 18 ESO; 10 AGC; 2 VV; 113 MCG; 1 UGC; 5 UGCA; 1 HCG; 10 IRAS; 1 ARP; 10 PwG; 1 Quasar; 3 Radio galaxies; 19 SGC; 13 Herschel; 1 [PKL98]; 5 A or ACO; 2 O’Neal; 7 Abell; 1 Snow; 1 Allen; 1 vdB; 1 Str; 1 DeHt; 1 Anon; 1 LoTr; 1 GSC; 2 2MASX; 3 LBN; 2 PNG; and 3 PK for a total of 440 objects.

Other Stars:

Zeta Leporis, mag. 3.55, 05 46 57.35 -14 49 19.0, is a white main sequence star. A massive asteroid belt was confirmed in the star’s orbit in 2001. This is the first extra-solar asteroid belt ever discovered. Also known as **HD 38678**, **HIP 27288**, **Gould 66**, **SAO 150801**, and **14 Leporis**.

17 Leporis, mag. 4.92, 06 04 59.3 -16 29 03.9, is a rotating ellipsoidal variable star. Also known as **HD 41511**, **HIP 28816**, **Gould 85**, **SAO 169981**, and **SS Leporis**.

HD 32436, mag. 5.01, 05 02 09.77 -26 16 29.4. Also known as **HR 1628**, **HIP 23430**, **SAO 169947**, and **Gould 20**.

HD 42659, mag. 6.77, 06 11 21.75 -15 47 35.0, is a rapidly oscillating Ap type star. Also known as **HIP 29365**, **Gould 101**, **SAO 151199**, and **UV Leporis**.

HD 33844, mag. 7.30, 05 12 36.08 -14 57 04.27, has two planets in orbit. Also known as **HIP 24275**.

HD 31527, mag. 7.48, 04 55 38 -23 14 31, has three planets in orbit. Also known as **HIP 22905**.

HD 33203, mag. 8.05, 05 08 01.01 -26 47 50.9, has one planet in orbit. Also known as **HIP 23889**.

HD 33142, mag. 8.13, 05 07 36.0 -13 59 11.0, has one planet in orbit. Also known as **HIP 23844**.

Gliese 229, mag. 8.14, 06 10 34.62 -21 51 52.7, is a low activity red dwarf star, with a brown dwarf star companion, and a suspected flare star. Also known as **HD 42581**, and **HIP 29295**.

Stars of interest beyond magnitude 10:

WASP-49, mag. 11.35, 06 04 21.47 -16 57 55, has one transiting planet in orbit.

WASP-61, mag. 12.5, 05 01 12.0 -26 03 15, has one transiting planet in orbit.

ASTERISM: Arsh al Jawza, “The Throne of Jawza”, or “Kursiyy al-Jawza al-Mu’akhkhar”, “The Hindmost Chair of Jawza”, also called “al-Nhal”, “The Camels Quenching Their Thirst”.

The asterism consists of 4 stars that form a quadrilateral shape – Alpha, Beta, Gamma, and Delta Leporis.

Stars in Leporis: 14 Greek; 24 ADS; 20 Numbered; 11 β; 6 Σ; 1 B; 1 I; 37 Lettered; 1 Cor; 1 Hd; 16 h; 1 Hn; 1 Ski; 4 S; 2 Lal; 1 Arg; 2 See(λ); and 5 A for a total of 148.

Sky Happenings: January 2023 *(what follows pertains ONLY to the current month. Material above is good year after year.)*

Jan. 1st - The **Moon** passes 0.7° north of **Uranus** at 4 PM CST. Most of **North America** will see an occultation.

Jan. 3rd - The **Moon** passes 0.5° south of **Mars** at 2 PM CST,
Evening: High in the east-southeast the **Moon** and **Mars** are about 2.5° apart above **Aldebaran**,

Quadrantid meteor shower peaks.

Jan. 4th - **Earth** is at perihelion (91.4 million miles or 147,098,925 km from the **Sun**) at 10 AM CST.

Jan. 6th - A double shadow transit on **Jupiter** will occur at 6:50 AM CST,

Full Moon occurs at 5:08 PM CST,

Evening: The full **Moon**, **Castor**, and **Pollux** form a triangle in the east.

Jan. 7th - **Mercury** is in inferior conjunction at 7 AM CST,

Pollux is 1.9° north of the **Moon** at 8 AM CST.

- Jan. 8th** - The **Moon** is at apogee (252,562 miles or 406,458 km from **Earth**) at 3:19 AM CST, Asteroid **2 Pallas** is at opposition at 1 PM CST.
- Jan. 10th** - Dawn: In the west the waning gibbous **Moon** is some 4° from **Regulus**.
- Jan. 12th** - **Mars** is stationary at 2 PM CST.
- Jan. 14th** - **Last Quarter Moon** occurs at 8:10 PM CST.
- Jan. 18th** - **Mercury** is stationary at 6 AM CST,
Dawn: The thin waning crescent **Moon** and **Antares** rise together in the southeast with about 1.5° separation,
Pluto is in conjunction with the **Sun** at 9 AM CST.
- Jan. 20th** - The **Moon** passes 7° south of **Mercury** at 2 AM CST,
Jupiter is at perihelion (460 million miles from the **Sun**) at 6 AM CST.
- Jan. 21st** - **New Moon** occurs at 2:53 PM CST (Lunation 1238),
The **Moon** is at perigee (221,562 miles or 356,568 km from **Earth**) at 2:57 PM CST.
- Jan. 22nd** - **Venus** passes 0.4° south of **Saturn** at 2 PM CST,
Uranus is stationary at 9 PM CST.
- Jan. 23rd** - The **Moon** passes 4° south of **Saturn** at 1 AM CST,
The **Moon** passes 3° south of **Venus** at 2 AM CST.
- Jan. 25th** - The **Moon** passes 3° south of **Neptune** at 12 midnight CST,
The **Moon** passes 1.8° south of **Jupiter** at 8 PM CST.
- Jan. 26th** - Asteroid **6 Hebe** is at opposition at 3 AM CST.
- Jan. 28th** - **First Quarter Moon** occurs at 9:19 AM CST,
Dusk: the first-quarter **Moon**, high in the south, is about halfway between **Mars** and **Jupiter** with **Venus** and **Saturn** completing the line closer to the horizon in the west-southwest,
The **Moon** passes 0.9° north of **Uranus** at 10 PM CST.
- Jan. 30th** - **Mercury** is at greatest western elongation (25°) at 12 midnight CST,
The **Moon** passes 0.1° south of **Mars** at 10 PM CST. The southern **United States** will see an occultation.

Planets:

Mercury – **Mercury** will set within an hour of the **Sun** on January 1st. Look 6° due west of **Venus** 20 minutes after sunset for the magnitude 1.1 Mercury. At 6° above the horizon, you will have about 30 minutes before it drops too low. By the 3rd, the planet has faded to magnitude 2.2 and will be difficult to spot. The planet will be in inferior conjunction with the **Sun** on the 7th and will then reappear in the morning sky. The planet will reach magnitude 0.6 on the morning of the 17th and will stand 5° high in the southeast 45 minutes before sunrise. On the 19th, the planet is nearly 15° east (to the left) of the waning crescent **Moon**. The planet, at magnitude 0.4, is only 1° high at 6 AM local time on the southeast horizon. The **Lagoon Nebula (M8)** is roughly midway between the two. On the 25th, the planet will reach magnitude 0.0 and will stand 8.5° high in eastern **Sagittarius** at around 6:45 AM local time. On the 30th, the magnitude -0.1 planet is about 7' northeast of the 4th magnitude star **Omicron Sagittarii** at the planet's greatest western elongation (25°) from the **Sun**. On the 31st, the planet will stand 40.5' due south of **Pi Sagittarii** and is 4° high a full hour before sunrise.

Venus – **Venus**, on January 1st at magnitude -3.9, will be low in the west-southwest standing only 9° high 20 minutes after sunset. The planet will spend most of the month in **Capricornus**. On the 22nd, the planet will meet **Saturn** with only 21' of separation. The one-day old **Moon** will hang 8° below the planets. The best time to view will be within one half-hour of sunset. The two planets will set 2 hours after the **Sun**. **Venus** will cross into **Aquarius** on the 24th. The planet will start the month with a disk of 10" and will end with an 11" disk. The planet's gibbous phase will slim from 96% to 91% between January 1st and 31st.

Mars – **Mars** is in **Taurus**, shining at magnitude -1.2 on January 1st, nearly 70° high at around 8:30 PM local time. The planet will be about 9° east of the **Pleiades** star cluster (**M45**), and 8.5° north-northwest of **Aldebaran**. The planet will span 15" and will be 97% illuminated on the 1st. By the end of the month the planet will have shrunk to 11" in diameter. The phase will slim to 92% with the magnitude fading to -0.3. On the 3rd, the **Moon** is just 2.5° to the left of the planet. On the 30th, the **Moon** will occult the planet. The

planet will take nearly 1 minute to disappear and reappear. Starting on the 1st, at about 9 PM CST, the following features are visible: **Sinus Meridian** with **Syrtis Major** leaving the disk; on the 10th – **Syrtis Major**, **Hellas**, and **Elysium**; on the 23rd – **Olympus Mons**, **Tharsis Ridge**, and **Mare Sirenium**; and on the 30th – **Tharsis Ridge**, **Valles Marineris**, **Solis Lacus**, and **Mare Erythraeum**.

Jupiter – **Jupiter** starts January at magnitude -2.4 and will dim only 0.2 magnitude to a -2.2 on January 31st. The planet is moving eastward through Pisces. The planet's disk will span 39" on the 1st and will shrink by 8% by the 31st. **Io** will be occulted on the 1st, disappearing behind the western limb around 6:45 PM CST. The next night, on the 2nd, **Io** -having made one-half of an orbit – will have its shadow transiting **Jupiter's** face, leaving transit just before 7:40 PM CST. On the 6th, there will be a double shadow transit on the planet. The event starts at about 1:20 AM CST with **Ganymede** starting transit followed by transit egress at 4:15 AM CST. Then at 5:03 AM CST **Io** will start transit with its shadow starting ingress at 6:22 AM CST. At 6:50 AM CST **Ganymede's** shadow will start transit. The double shadow transit will last until 8:33 AM CST when **Io's** shadow will exit transit. **Io** will egress transit at 7:16 AM CST. **Ganymede's** shadow will egress transit at 9:22 AM CST. On the 9th, **Io** will start a transit at 6:05 AM CST and **Ganymede** will slip out from behind the planet at around 6:09 PM CST – it will take 5 minutes to fully reappear. On the 24th, **Callisto** will be partially occulted on the north limb of the planet starting at about 6:10 PM CST. On the 25th, the **Moon** and **Jupiter** will stand 3° apart.

Saturn – **Saturn**, in eastern **Capricornus**, will descend quickly into the twilight on January evenings. The first week of the month the planet is more than 20° high in the southwest shortly after sunset. Shining at magnitude 0.8. By mid-month the planet is less than 15° high an hour after sunset. By the 31st, the planet is 14° east of the **Sun** and is quickly lost after sunset. On the 22nd, **Venus** and **Saturn** will be separated by only 21'. **Saturn** will reach conjunction with the **Sun** in February.

Uranus – **Uranus** is in the sparse southern **Aries**, where it will be all year, at magnitude 5.7. The planet is a little less than midway between **Sigma** and **Pi Arietis** on January 1st. The planet will reach a stationary point on the 22nd at 1° northwest of **Sigma Arietis**. The planet is visible all evening and will set soon after 1 AM local time by the end of the month. A telescope will show a blue disk 4" wide. On the night of the 28th/29th, the planet is only 0.5° due south of the gibbous **Moon's** southern limb.

Neptune – **Neptune** is in eastern **Aquarius** at magnitude 7.8 in the southwestern sky. In the first week of January the planet is between two 7th magnitude stars. Find the easternmost pair of a parallelogram of 4 stars each about 1° apart 5° northeast of **Phi Aquarii**. The planet will be close to the northernmost star, passing 6' due south of it on the 11th. By the 20th, the planet will sit 12' due east of the same star with the gap doubling by the end of the month. Viewing should be in early January and soon after dark when the planet is 30° high. The tiny disk will span 2" and will be hard to observe.

Moon – The **Moon's** favorable librations for January: **Mare Marginis** on January 1st; **Bailly Crater** on the 10th; **Mare Orientale** on the 15th; and **Vestine Crater** on the 25th.

Greatest North Declination on the 6th (+27.4°)

South 20th (-27.4°)

Libration in Longitude: East Limb most exposed on the 0th (+7.4°) and the 28th (+7.8°)

West Limb 16th (-7.8°)

Libration in Latitude: North Limb most exposed on the 22nd (+6.5°)

South Limb 9th (-6.6°)

Asteroids / Minor Planets – All asteroid positions, unless otherwise designated, are according to the *RASC Observer's Handbook, 2023 USA Edition*.

Asteroid **1 Ceres** – On January 6th – 12 33.76 +09 45.3, at magnitude 8.2 in **Virgo**; on the 16th – 12 40.04 +09 53.5, at magnitude 8.0 in **Virgo**; and on the 26th – 12 45.71 +10 18.1, at magnitude 7.8 in **Virgo**.

Asteroid **2 Pallas** – On January 6th – 06 51.24 -31 36.9, at magnitude 7.7 in **Canis Major**; on the 16th – 06 42.95 -30 05.9, at magnitude 7.7 in **Canis Major**; and on the 26th – 06 36.19 -27 41.0, at magnitude 7.7 in **Canis Major**.

Asteroid **3 Juno** – On January 6th – 23 58.02 -07 51.1, at magnitude 9.5 in **Cetus**; on the 16th – 00 15.14 -06 18.5, at magnitude 9.6 in **Cetus**; and on the 26th – 00 33.16 -04 38.1, at magnitude 9.6 in **Cetus**. **Juno's** positions, by my estimates, are as follows: On January 1st – about 3° southwest of the star **30 Piscium** or

about 3.2° northwest of the star **3 Ceti**; on the 5th – about 1.8° south-southwest of **30 Piscium** or about 2.6° north-northwest of **3 Ceti**; and on the 10th – about 1.2° south and a touch east of **33 Piscium** or about 2.9° north and a touch east of **3 Ceti**.

Asteroid **4 Vesta** – On January 6th – 23 17.15 -11 23.8, at magnitude 8.1 in **Aquarius**. **Vesta's** positions, by my estimates, are as follows: On January 1st – about 2.6° southwest of the star **Psi³ Aquarii**; on the 5th – about 1.6° south and a touch west of **Psi³ Aquarii**; on the 10th – about 1.4° south-southeast of **Psi³ Aquarii**; on the 15th – about 2.7° due east of **Psi³ Aquarii**; on the 20th – about 5° due east and a touch north of **Psi¹ Aquarii**; on the 25th – about 3.3° west-southwest of **30 Piscium** or about 4.3° northwest of **3 Ceti**; and on the 30th – about 1.5° west-southwest of **30 Piscium** or 3.8° north-northwest of **3 Ceti**.

Asteroid **6 Hebe** – On January 6th – 08 46.21 +10 18.9, at magnitude 9.1 in **Cancer**; on the 16th – 08 32.43 +11 45.2, at magnitude 8.9 in **Cancer**; and on the 26th – 08 27.53 +13 22.6, at magnitude 8.8 in **Cancer**.

Asteroid **27 Euterpe** – January 1st through 6th - 1° south of **Uranus**, in southern **Aries** around **Sigma** and **Pi Arietis**.

Comets – All comet information, unless otherwise stated, is from **ALPO's** journal, *The Strolling Astronomer*.

Comet **C/2017 K2 (PANSTARRS)**, an evening comet – **K2's** positions: On January 10th – 17 29.0 -56 37.6, at magnitude 8.3 in **Ara**; on the 20th – 17 59.0 -60 29.7, at magnitude 8.3 in **Pavo**; and on the 30th – 18 39.0 -64 19.6, at magnitude 8.2 in **Pavo**. We probably will not be able to see this comet from Baton Rouge.

Comet **C/2020 V2 (ZTF)** – **V2's** positions: On January 10th – 10 42.3 +79 29.2, at magnitude 9.6 in **Draco**; on the 20th – 08 09.8 +85 26.1, at magnitude 9.4 in **Cepheus**; and on the 30th – 02 42.6 +82 28.2, at magnitude 9.3 in **Cepheus**.

Comet **C/2022 E3 (ZTF)**, a morning comet – **E3's** positions: On January 10th – 15 53.0 +25 42.2, at magnitude 8.6 in **Corona Borealis**; on the 20th – 15 53.7 +27 22.5, at magnitude 8.1 in **Corona Borealis**; and on the 30th – 15 53.3 +30 16.5, at magnitude 7.4 in **Corona Borealis**. **E3's** positions, by my estimates, are as follows: On January 1st – about 2.1° northeast of **Iota Corona Borealis (CrB)**; on the 5th – about 1.9° due west and a touch south of **Rho CrB**; on the 10th – about 0.9° due north and a touch west of **Kappa CrB**; on the 15th – about 1.8° southwest of **Chi Hercules**; on the 20th – about 2.7° east and a touch north of **Theta Boötes**; on the 25th – about 1.7° southeast of **Iota Draconis**; and on the 30th – about 2.3° south-southwest of **Polaris (Alpha Ursa Minor)**.

Meteor Showers – All information given here comes from the **American Meteor Society, Ltd.** There is only one **Major (Class I)** meteor shower active in January – the **Quadrantids** – active from December 26 through January 16, peaks on January 4th with a maximum zenith hourly rate (mzhr) of 120.

There are no **Minor (Class II)** meteor showers active in January.

There is one **Variable (Class III)** meteor shower active in January – the **Volantids** – active from December 27 through January 4, peaked on December 31st.

There are 12 **Weak (Class IV)** meteor showers (with a mzhr of <2) active in January. The **Eta Hydrids** – active from November 26 through January 1, peaked on December 12th; the **Theta Pyxids** – active from December 8 through January 8, peaked on December 18th; the **December Sigma Virginids** – active from November 26 through January 24, peaked on December 22nd; the **January Leonids** – active from December 27 through January 7, peaks on January 2nd; the **Alpha Hydrids** – active from December 15 through January 22, peaks on January 5th; the **Omega Leonids** – active from December 20 through January 22, peaks on January 9th; the **Xi Coronae Borelids** – active from January 9 through January 20, peaks on January 15th; the **Gamma Ursae Minorids** – active from January 9 through January 20, peaks on January 18th; the **January Xi Ursae Majorids** – active from January 14 through January 21, peaks on January 19th; the **Eta Corvids** – active from January 7 through February 5, peaks on January 21st; the **Alpha Coronae Borelids** – active from January 26 through February 5, peaks on January 27th; and the **Alpha Antiliids** – active from January 22 through February

6, peaks on February 2nd.

Mythology

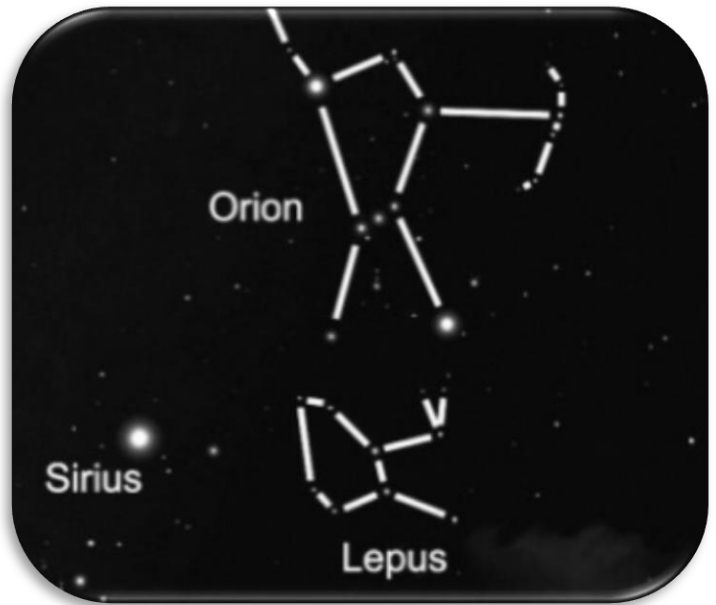
Lepus – The Hare

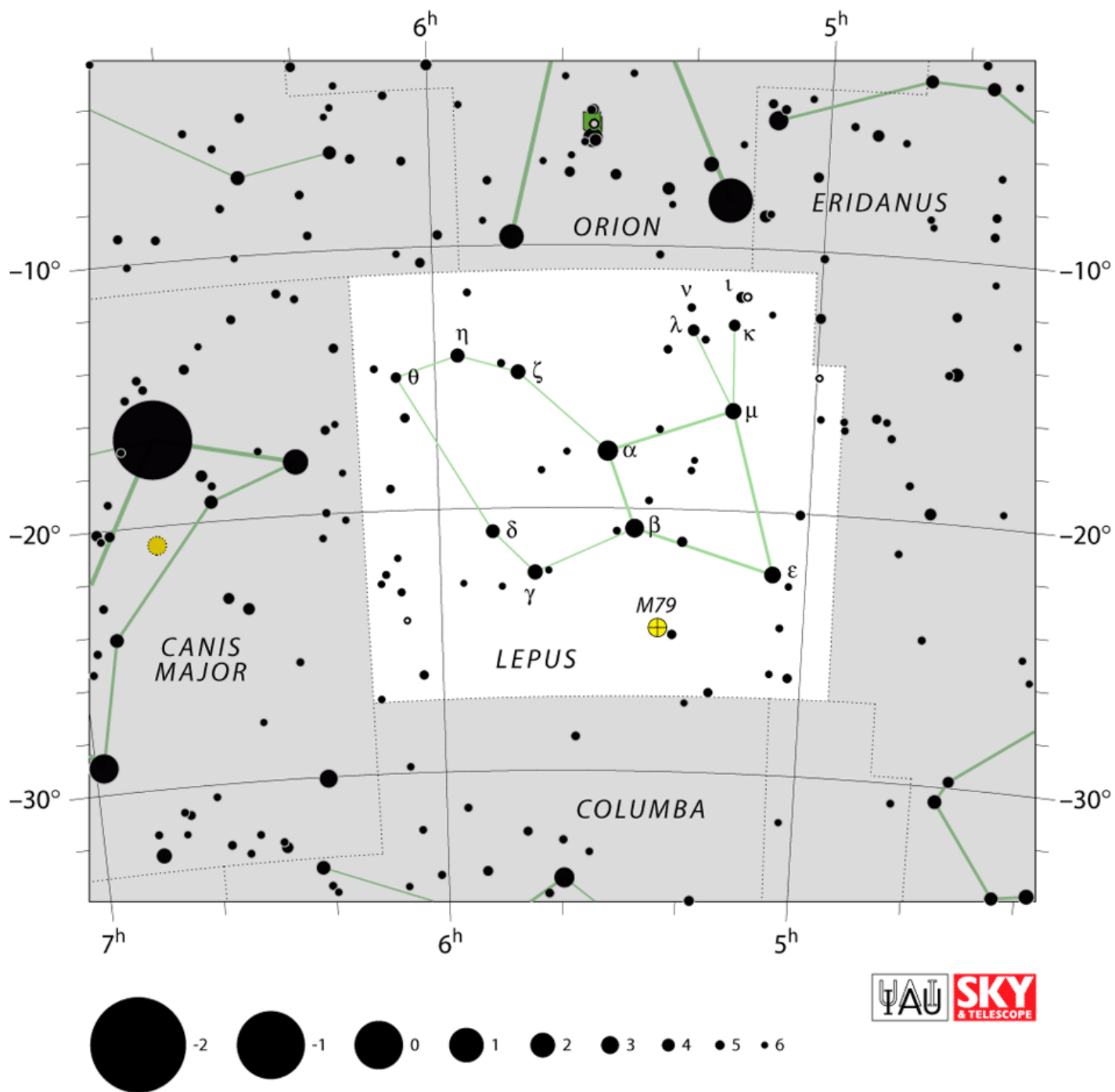
Eratosthenes informs us that Hermes placed the hare in the sky because of its swiftness. Both Eratosthenes and Hyginus referred to the remarkable fertility of hares, as attested to by Aristotle in his *Historia Animalium*: *'Hares breed and bear at all seasons, superfoetate (i.e., conceive again) during pregnancy and bear young every month. They do not give birth to their young all at once but bring them forth at intervals.'*

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: *'Close behind he rises and, as he sets, he eyes the setting hare.'* But judging by its position in the sky, the hare seems more to be crouched in hiding beneath the hunter's feet.

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 swimming 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 the 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.*

The constellation's brightest star, the third magnitude Alpha Leporis, is called *Arneb*, from the Arabic *al-arnab* meaning 'the hare'.





The End

BRAS Survey for 2022

(This information will be used for club purposes only)

Last Name _____ First Name _____

Phone (Cell) _____ (H) _____ (W) _____

Best time to reach you _____

Email _____ Do you text? (circle one) Yes No

I. Astro experience level (circle one) 0-1 years 2-5 years 6-10 years 10+ years

II. What are your current astronomy-related interests? Check all that apply.

Observing Interests	Other Interests
<input type="checkbox"/> Naked eye <input type="checkbox"/> Binocular <input type="checkbox"/> Telescopic <input type="checkbox"/> Moon <input type="checkbox"/> Planets <input type="checkbox"/> Solar <input type="checkbox"/> Meteors/Comets <input type="checkbox"/> Deep Sky <input type="checkbox"/> No special interest/general viewing	<input type="checkbox"/> Art/graphics and drawing <input type="checkbox"/> Computers and Astronomy related programs <input type="checkbox"/> Astrophotography/CCD imaging <input type="checkbox"/> Radio Astronomy/shortwave <input type="checkbox"/> Outreach/Sidewalk Astronomy (showing the sky to the public) <input type="checkbox"/> Telescope Making <input type="checkbox"/> Credentialling thru AL's stepped learning programs (earning badges and certificates) <input type="checkbox"/> Introducing my kids to astronomy
Other _____	Other _____
_____	_____
_____	_____
_____	_____
What type of program(s) would you like to see presented at our monthly meetings?	

III. I am interested in helping with:

<input type="checkbox"/> Demonstrate Astronomical Equipment <input type="checkbox"/> Give a Club meeting Program <input type="checkbox"/> Public Observing Programs <input type="checkbox"/> Advertising/Public Relations/Articles	<input type="checkbox"/> Light Pollution Committee <input type="checkbox"/> HRPO events/Other Committees <input type="checkbox"/> Coordinate refreshments at meetings <input type="checkbox"/> Donate Items to the Club's Raffle Box
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Other ways you can help: _____

What special skills or knowledge do you have (programming, newsletter, website, handyman, networking)? _____

Please bring this to the next meeting, or drop it off at the Observatory, or send to:

Baton Rouge Astronomical Society, c/o Trey Anding, Treasurer, P. O. Box 83162, Baton Rouge, LA 70884

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