

Night Visions

February 2023

Newsletter of the Baton Rouge Astronomical Society

NASA's James Webb Space Telescope peers into the chaos of the Cartwheel Galaxy, see [Page 11](#) for details.

Monthly Meeting February 13th 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: OPEN

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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



**Laissez les
bon temps
rouler!**

Our donation for our Library Telescope program took place at the **Livingston Parish Public Library/Denham Springs/Walker** on January 31st. 2 BRAS members, Susan M and Roz. R., joined me in making the presentation.

BRAS's longtime webmaster, Frederick Barnett, created and faithfully maintained brastro.org for over 20 years and did a fantastic job. We (BRAS) are very grateful to him for his long diligent service. Alas, he has resigned and we are searching for a new webmaster -- ASAP.. If interested and qualified, please contact me at president@brastro.org.

Fred was also our ALCor – Astronomical League Coordinator -- the primary contact AL has, who handles such paperwork as the ballot for the revision of the AL By-Laws. If you are interested in becoming the ALCor for BRAS, let me know at president@brastro.org.

We've acquired a few new members from the BREC course "Learn To Use Your Telescope". We heartily welcome them into our "Astro-family".

Only 6 more months until ALCon 2023, and much help is needed with registration and other duties before and during the Convention. PLEASE STEP UP and help your club.

[The Lagniappe Chapter of OLLI](#) (Osher Lifelong Learning Institute thru LSU) for the over 50's crowd) is requesting a course in basic astronomy and a course on Hubble/James Webb telescopes. OLLI offers a small stipend to the instructors (based on hours taught). If interested, a class submission (description/outline) for the Summer of 2023 is open from February 15th through March 15th. The Fall term's submission will open in May. Most of the classes are 6 weeks long. If you are interested in teaching a class, please let me know.

In the Children's Department, Goodwood Library, on the back wall, is a picture of **Apollo 12 Astronaut Alan Bean**, signed and dedicated to the "East Baton Rouge Parish Library" (see photo on Page 5). It's worth a visit to see it.

Clear Skies, and Happy New Year,

John R. Nagle

P.S. Due to a triple conjunction of Moon/Venus/Jupiter on Feb 22nd that many members want to attend (at the Burbank Soccer Complex), the monthly Business Meeting is rescheduled for Tuesday the 21st. --(see Page 13 for details.)



Calendar of Upcoming Meetings

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

Monthly Member Meeting – 7 pm Monday, February 13th at the Observatory, in person and via Jitsi

Monthly Business Meeting: 7 pm Tuesday, February 21st (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, February ?, 2023, 7 PM and Sunday February ?, 2023, 7 PM, both online.



Monthly Meeting Minutes – December 12th

- Welcome by the president, John Nagle.
- John introduced Scott C. as the speaker for the evening. The title of his topic was **2023 Celestial Calendar: What to See in '23**. This was an overview of celestial events this year including positions of the planets, meteor showers, eclipses, occultations, and comets.
- Don W. was checking for interest in the group for traveling to Lake Corpus Christi State Park, TX. for the **October annular eclipse**.
- BRAS has a new **desk blotter calendar** for this year to keep track of events for the club. This will be located on the wall behind the BRAS closet door.
- **Lunar occultation of Mars** on January 30th will be an event that HRPO will be open for from 9 pm – 1 am.
- **The Sidewalk Astronomy** outreach at Perkins Rowe will take place from 6 – 9 pm on January 31st in the plaza area across from the Cinemark Theatre.
- The change in **AL by-laws** came up for discussion. It was agreed by all present that the club cast its vote in favor of the changes.
- John shared that the **AAVSO** announced that Dr. Brad Schaefer had done work on recurrent novae; Walt Cooney was involved with this also.
- **Dark Sky Site** - John is still waiting to hear back from the 92-year-old property owner of the site. We want to make sure that we are still legal to continue to access the site.
- **Satellites**. John discussed issues with Blue Walker 3 and other satellites that are negatively impacting astronomy. The IAU now has a committee that is researching these new satellites.
- The **Makers Market** event that we do outreach for is going away, but we've been invited for a new event that will be happening in the same area.
- **Dave Thomas**, a member of the club, is currently in hospice in a care facility near Florida Boulevard and Sherwood Forest.
- Scott C. was recognized for receiving the Planetary Nebula Award.
- Steven is still looking for help with the **ALCON 2023** event. This includes help with committees as well as help in general.
- **New club members** in attendance were recognized.
- A raffle was held with coffee and cookies available for onsite attendees



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:

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Open



Business Meeting Minutes – January 25th

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

In February, however, due to a triple conjunction of Moon/Venus/Jupiter on Feb 22nd that many members want to attend (at the Burbank Soccer fields), this meeting is rescheduled for Tuesday the 21st.)

1. **AL By-Laws** – John has filled out the form to register the club’s vote in favor of the AL by-laws changes; he will now send this in to the Astronomical League.
2. **CEA** – There is nothing new to report here.
3. **Library Telescope** – There was originally some miscommunication of information about the donation event. Details are still being finalized. The proposed date should be either the 30th or 31st of January at either the Denham Springs or the Livingston branch of the parish library system. An email will be sent when everything has been decided on.
4. **Magnetic Signs** – There was a question about which bid we selected for this. We are going back through notes and talking to the club members involved to make sure we have the correct business working on this.
5. **BRAS Records** – John asked if anyone had any more input they wanted to add to this. The newsletter was discussed as to how far back to go and what format to keep it in. Mark Canatella was suggested as someone to talk to if we choose to digitize our records as this is an aspect of his business. We will probably want to keep 3 to 5 years’ worth of tax and financial records onsite in the file drawers.
6. **Membership Kit** – There is still no answer from the owners of our dark sky site. We will continue to hand out the original letter and map that we have. Except for this, these are ready to go.
7. **“Coffin”** – There are questions about what an air track is and what it does, so this will be set up at the next regular BRAS meeting for a demonstration. We will also take suggestions then for an institution to donate it to.
8. **New Webmaster** – Michele has been trying to get access to our site through a system named Coffee Cup. There was some discussion about who owns the domain name; there should be a yearly fee involved with this. Evidently at some point Mike Carambat has moved this to the cloud. John will check with Mike as we need to get this going fairly quickly. John will also ask at the regular meeting if anyone in the club is interested in our Webmaster position; otherwise we may pull someone from outside. Joel said he knows someone that can do this if we get outside help. Steven says that we need complete access to the domain and suggested we do a write-up for Fred to thank him for his service.
9. **New ALCor** – This is the point person position between our club and the Astronomical League. Fred was doing this; Trey has given the number that Fred was using to John. More research needs to be done on this position. Either Ben or Trey has been suggested as a possible person to take over this position.

New Business

1. **OLLI – Lagniappe Chapter – Mary Lou Cutrera** – Merrill received an email from this person checking to see if we would be interested in setting up an outline for an Astronomy course. This course would be aimed at the over-50 age group. If we’re interested and want to pull something together, we have until March 15th to get something in the flyer for the summer term.
2. **Laptops** were discussed pertaining to outreach as well as to ALCON. We would need roughly \$500-1,000 for one so this would have to be voted on by the club. We need a list of requirements of what the laptop needs to have before we go shopping.
3. The article **Comets for the Non-Astronomer** by Alan Hale was mentioned.

- 4. Note was made of the **new exoplanet** discovered in a spot where it doesn't make good sense for it to be.
- 5. **Presenters:** There was discussion about what to do for the lecture for the February meeting as we have nothing scheduled yet. We have the representative for Mallincam coming in March, a member of the AAVSO coming in April, and Colin Turley coming in May.
Members attending this evening were John N., Chris K., Scott C., Steven T., Trey A., Joel T., Ben T., 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 orJustin: <https://discord.gg/6N8r8DDj>

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

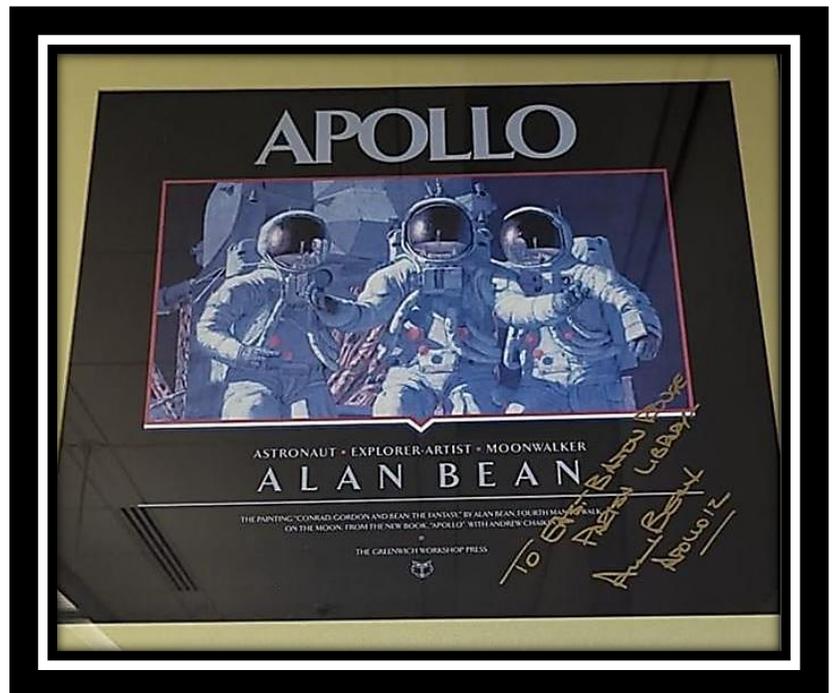
The best part about both of these is that you can access them on your phone with the free apps. Hope to see you there. ~ Amy Northrop

James Webb Telescope

Patch, \$8.50 + shipping, here:

[James Webb Space Telescope \(JWST\) Patch - NASA Gear \(officialnasagear.com\)](#)

4" x 3.5"





Outreach Report for January 2023

Hi Everyone,

We made it through January already and even had a fun event come up at the last minute that was excellent. (More on that in a second.) This is always a very busy time of year for me travelling back and forth to New Orleans for carnival gigs so I start to feel a little disconnected from the club, but working up outreach events and getting out to the couple we have lets me catch up with people and it's always fun to see the general public so excited to see cool objects through our scopes.

As I said, we had a last minute outreach opportunity come up thanks to Don W. He worked with the **Ascension Parish Libraries** and set up a Sidewalk Astronomy evening at the Gonzales branch on Thursday, January 26th. I joined him there and we had perfectly clear skies for the folks in attendance. The library staff was elated with what we provided! Don had his new 12" dob set up and I brought my 10" GOTO Dob and also used my Mallincam attached to give some fantastic views of the Orion Nebula. A few of the people attending were very young and some of the older ones had eyesight issues so they were very excited to be able to see live images easier on the laptop screen. It also gives me the opportunity to point out structure in the nebula and features like the Trapezium easily.

We were also happy to learn that the library branch has a 6" Orion Skyquest Dob that is constantly checked out. It even has a lengthy waiting list! As fortune would have it, it had just been returned that day so Don was able to give it a good once over and a collimation. It's still in great shape. This event is going to be a regular monthly event so be on the lookout for the upcoming dates.

Of course, at the time I'm writing this, we have one more event for the month of January. Tuesday, January 31st is our scheduled Sidewalk Astronomy at Perkins Rowe. Unfortunately, it's looking pretty dismal as far as cloud cover prediction. Keep an eye on the Facebook page for updates. If I have to cancel, it will happen around 12pm on Tuesday, after I've submitted this report.

We're starting to get our regular requests like Rockin' At The Swamp and Zippity ZooFest, too. Hopefully we get some good weather for those!

I hope your New Year's resolutions included doing more outreach with the club! We'd love to see some new faces to add to the veteran volunteers. (Or to see some faces return that we haven't been able to see for a bit.) I've said it many times, but I'll say it again. Participating in these outreach events can be a lot of fun! Sure, there are a lot of calls for your free time, but I have yet to regret going to any of these outreach events. People LOVE to learn about astronomy! And again, I always seem to end up learning more and more myself every time I volunteer. It's a win-win, so come on out and join the fun!!

Clear skies,

A handwritten signature in black ink, appearing to be 'B. W.', written over a light blue grid background.

Upcoming Events

Tuesday, February 28th 6pm-9pm
Sidewalk Astronomy at Perkins Rowe

Saturday, March 4th 6pm-9pm
Spring Gala at the Louisiana State Archives
Telescope viewing

(We will be limited to the number of volunteers for this, I think, so reply soon if you want to be in for it. I've been told food and beverages will be available to us, as well.)

Saturday, March 11th 9am-4pm
Rockin' At The Swamp
Bluebonnet Swamp and Nature Center
Several volunteers needed for shifts throughout

Tuesday, March 28th 6pm-9pm
Sidewalk Astronomy at Perkins Rowe

Don and Ben at the Ascension Parish Library in Gonzales.



Ben shows off the Orion Nebula through the eyepiece. . . .



. . . and helps a budding young astronomer see the Orion Nebula via the Mallincam astro video camera attached to his scope.



Don gives Library patrons great Jupiter and Moon views



. despite the cameraperson's insistence on using flash photography, haha!



LPC (Light Pollution Committee) Report (Dec. 12)

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

1. Discussed the letter for new developments/construction. Form letter to have general points listed, but will be tailored to the individual circumstances.
2. Discussed a contradiction in the UDC. Will contact the UDC Committee for clarification.
3. Chris K. plans to complain to DOTD about uncontrolled “security” lights shining in his eyes at night when he’s driving.
4. Discussed “scripts” for short informational You-Tube videos (on the BRAS Channel) on Light Pollution. What we want to have in the videos – the first to be “What Is Light Pollution”.
5. Discussed possible outreaches in North Baton Rouge Parish at BREC Recreational Centers. Chris to get contact information.
6. Discussed the Bluewalker 3 satellite.
7. Discussed a “Data Base” – to have attendance numbers at BRAS events, summary of outreaches, pictures, contacted organizations - the time people were contacted, the person contacted, result of contact, etc. Possible use of a computer program for this on the BRAS computer – maybe an office suite and a small printer?

Attending the meeting were: Chris K. John N., and Scott C.

John Nagle, LPC Chair Pro-Tem

Globe At Night

The target for the Globe at Night program is Orion and Gemini from February 12th through February 21st

If you would like to participate in this citizen science program, you can find instructions [ahttps://www.globeatnight.org](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 LOUISIANE! (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*

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

SPEAKERS ★ Pranvera Hyseni ★ Guy Consolmagno ★ Dan Davis ★ And many more

*Spaces are limited for this trip!

Brought to Baton Rouge by the **Baton Rouge Astronomical Society**
Registration info coming soon! Check alcon2023.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

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.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/>

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.

Webb Captures Stellar Gymnastics in The Cartwheel Galaxy



<https://www.nasa.gov/feature/goddard/2022/webb-captures-stellar-gymnastics-in-the-cartwheel-galaxy>

NASA’s James Webb Space Telescope has peered into the chaos of the Cartwheel Galaxy, revealing new details about star formation and the galaxy’s central black hole. Webb’s powerful infrared gaze produced this detailed image of the Cartwheel and two smaller companion galaxies against a backdrop of many other galaxies. This image provides a new view of how the Cartwheel Galaxy has changed over billions of years.

The Cartwheel Galaxy, located about 500 million light-years away in the Sculptor constellation, is a rare sight. Its appearance, much like that of the wheel of a wagon, is the result of an intense event – a high-speed collision between a large spiral galaxy and a smaller galaxy not visible in this image. Collisions of galactic proportions cause a cascade of different, smaller events between the galaxies involved; the Cartwheel is no exception.

The collision most notably affected the galaxy’s shape and structure. The Cartwheel Galaxy sports two rings — a bright inner ring and a surrounding, colorful ring. These two rings expand outwards from the center of the collision, like ripples in a pond after a stone is tossed into it. Because of these distinctive features, astronomers call this a “ring galaxy,” a structure less common than spiral galaxies like our Milky Way.

Other telescopes, including the Hubble Space Telescope, have previously examined the Cartwheel. But the dramatic galaxy has been shrouded in mystery – perhaps literally, given the amount of dust that obscures the view. Webb, with its ability to detect infrared light, now uncovers new insights

read the whole article here:

<https://www.nasa.gov/feature/goddard/2022/webb-captures-stellar-gymnastics-in-the-cartwheel-galaxy>



Messages from HRPO

Highland Road Park Observatory



FRIDAY NIGHT LECTURE SERIES

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

3 February = “[Explorer 1 65th Anniversary](#)” One of the hottest stretches of the Space Race was those heady yet stressful days of the late 1950s. The U.S. and the Soviet Union were rushing to see who would or could claim atmospheric domination. Though Sputnik gave us pause--and a chill--and the Vanguard fiasco humbled us, we finally made it with help from a Jupiter C rocket....

10 February = “[Chelyabinsk—Ten Years Later](#)” In a harrowing incident, a hitherto unknown asteroid exploding not too high above the ground in Russia, shattering glass and causing incredible damage and injuries. How can we protect our planet? What’s the actual risk and how does the DART mission’s recent success lead us to success?

17 February = “[Pulsars](#)” 1967. A young graduate student named Jocelyn Bell notices a strange but quite rhythmic signal from outer space. What could it be? The exciting story climaxed with a paper in the winter of 1968 that opened a new avenue of study in [astrophysics](#).

24 February = “[Our Birth Stars](#)” A person’s [birth star](#) is a star whose light took as long to reach Earth as he’s been alive. Of course, birth stars change over the course of a human lifetime and are as varied as human beings themselves! How can you see yours?



EVENING SKY VIEWING

No admission fee. For all ages.

Fridays (3, 10, 17 and 24 February) from 8:30pm to 10pm

Saturdays (4, 18 and 25 February) 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)
walk-ins welcome, but advanced registration via WebTrac strongly recommended*

*[activity #531990] * parents may stay with or leave Cadet*

Four Cadet minimum and sixteen Cadets maximum per session.

4 February = “Observatories’ Namesakes”

11 February = “Air and Space Navigation II”

25 February = “Gamma Rays, X-Rays and Ultraviolet”



PLUS NIGHT: “Asteroids”

Saturday 11 February 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 18 February 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: “Food in Space”

Saturday 18 February 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.



MOON-VENUS-JUPITER CONJUNCTION

Wednesday 22 February from 6:15pm to 7:45pm

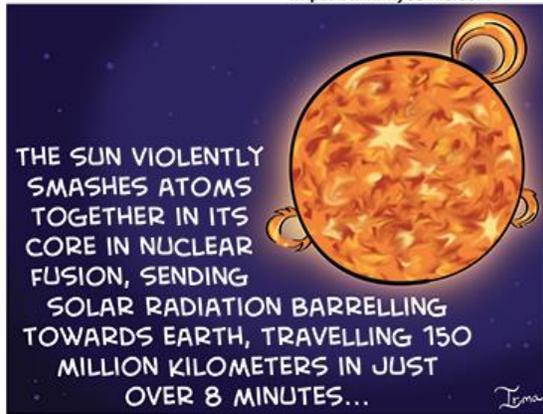
at the Burbank Soccer Complex

Triple conjunctions are so beautiful. They really shouldn't be missed and this event is no exception. While bright Venus will be fewer than eight degrees away from the others, it's the Moon-Jupiter pair that will stun. Jupiter will stay a little over one degree away from the waxing crescent Moon the entire time!

IMY © IRMA

<http://www.imycomic.com>

#928 - 'WARM SUN'





OBSERVING NOTES **FEBRUARY - 2023**

Gemini – The Twins

Position: RA 7, 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, 2022. 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

Castor (Alpha A Gem), “the Horseman”, and from the Arabic “Al-Ras al-Taum al-Mugadim” – “The Head of the Foremost Twin”, or “Al Awwal al Dhirä” – “The First in the Paw or Forearm”, also sometimes called **Aoul al Dzira and Prime Brachii**, mag. 1.90, 07 34 36.00 +31 53 19.10, is a multi-star system (all are spectroscopic binary stars). **Castor A** is a white visible dwarf binary star that has a faint companion (also a binary star) with a separation of four million miles and has an orbital period of 9.2128 days. **Castor B** (a red dwarf star), magnitude 2.88, 07 34 36 00 +31 53 19.0, has a companion at a separation of less than three million miles with an orbital period of 2.98283 days. **Castor C** is an eclipsing binary (both are red dwarf stars) and a variable star (designated as **YY Geminorum**) – a flare star – with a separation of 1.67 million miles and an orbital period of 19.5 hours. The separation of **Castor A-B** is 6” with a 470-year period, and the separation of **Castor A-C** is 72”. **Castor A** is also known as **HD 60179A, HIP 36850, WDS 07346+3153, HR 2891, Σ1110, H II-01, ADS 6175, and 66 Geminorum**. **Castor B** is also known as **HD 60178**. **Castor C** is also known as **HD 60179C, and YY Geminorum**.

Pollux (Beta Gem), formally known as Polydeuces, from the Greek for “Boxer” or “Pugilist”, also from the Arabic “Al-Räs al-Tuam al Mu’ah’här” – “The Head of the Second Twin”, and “Muekher al Dzira or Al Thänä al Dhirä” – “The Second in the Forearm” or “Al Räs al Jauzä’” – “The Head of the Twin”, and sometimes called **Posterior Brachii**, mag. 1.16, 07 45 19.36 +28 01 34.7, is an orange giant star located about 4.5° south-southeast of **Castor**. The star has one planet in orbit with a period of 590 days. Also known as **HD 62509, HIP 37826, Σ85, HR 2990, WDS 07453+2802, and 78 Geminorum**.

Alhena (Gamma Gem), from the Arabic “Al Han’ah” – “The Brand or Mark (on the neck of the camel)”, or “Al Maisan” – “The Proudly Marching One”, or “Nir al Henat” and sometimes “Prima iou al Henat”, mag. 1.93, 06 37 42.7 +16 23 57.9, is a white sub-giant star. Also known as **HD 47105, HIP 31681, HR 2421, and 24 Geminorum**.

Wasat (Delta Gem), or **Wesat**, from the Arabic “Al Wasat” – “The Middle”, or “Ta Tsun” from the Chinese for “The Great Wine Jar”, mag. 3.50, 07 20 07.39 +21 58 56.4, is a yellow-white sub-giant star in a triple star system. It’s companion, an orange dwarf star at magnitude 8.2, is a spectroscopic binary star orbiting the primary with a period of 6.1 years. The third star has a period of over 1200 years. Also known as **HD 56986, HIP 35550, Σ1066, WDS 07201+2159, HR 2777, and 55 Geminorum**.

Mebstuta (Epsilon Gem), “Al Mabsutät” or from the Arabic “adh-Dhirä’u l-Mabsütah” – “The Outstretched Paw” (the Paw also contains **Melboula and Meluda**), mag. 3.06, 06 43 56.93 +25 07 52.2, is a yellow-white super-giant star with an optical companion at magnitude 9.2 and a separation of

110". This star marks **Castor's** outstretched right leg. Also known as **HD 48329, HIP 32246, HR 2473, ADS 5381, and 27 Geminorum.**

Mekbuda (Zeta Gem), from the Arabic "adh-Dhirä'u l-Magbúdah" – "The Folded Arm", mag. 4.01, 07 04 06.54 +20 34 13.1, is a variable (classical Cepheid) yellow supergiant double star. Its magnitude varies from 3.62 to 4.16 over a period of 10.148 days. The companion star has a magnitude of 7.6 at a separation of 96.5" (according to *Burnham*). There is a third companion (according to *Burnham*) at a separation of 87.7" at a PA of 84°. Also known as **HD 52973, HIP 34088, WDS 07041+2034, OΣΣ 81, SHJ 77, HR 2650, and 43 Geminorum.**

Praepes (Eta Gem), or "Tejat Prior" from the Arabic "al Tahäyī", and from the Chinese "Yuë" – "Battle Axe", mag. 3.31, 06 14 52.70 +22 30 24.6, is a triple star system – a spectroscopic binary with a dwarf star orbiting them. The primary is a red giant semi-regular variable star (with a period of 232.9 days), and its close companion has a period of 2983 days. The secondary star is also a red giant star at magnitude 6.0, orbiting the primary star with a period of 8.2 years. Also known as **HD 42995, HIP 29655, β1008, ADS 4841, HR 2216, and 7 Geminorum.**

Propus (Iota Gem), in Latin it means **forefoot**, mag. 3.78, 07 25 43.68 +27 47 53.8. Also known as **HD 58207, HIP 36046, and 60 Geminorum.**

Jixīn (Kappa Gem), mag. 3.57, 07 44 26.87 +24 23 53.3, is a binary star. The primary is a yellow giant star, and the secondary is a blue giant star (magnitude 8.1 at a separation of 7.1" and a PA of 240°). Also known as **HD 62345, HIP 37740, WDS 07444+2424, OΣ 179, ADS 6321, and 77 Geminorum.**

Tejat Posterior (Mu Gem), or "Nuhätai" – "Back Foot", and "Calx" – "Heel", also called "Pish Pai", mag. 2.87, 06 22 57.59 +22 30 49.9, is a semi-regular red giant variable star with a period of 72 days. The ADS says there is a 10th magnitude companion at a separation of 122" and a PA of 141°. The companion is a close double star with a separation of 0.8". Also known as **HD 44478, HIP 30343, β1059, and 13 Geminorum.**

Nucatai (Nu Gem A), mag. 4.13, 06 28 57.79 +20 12 43.8, is a blue giant double star. The secondary star, **Nu Geminorum B**, is at magnitude 8.0, at 06 28 53.70 +20 14 20.0. Also known as **HD 45542, HIP 30883, WDS 06290+2013, OΣΣ 77, SHJ 77, and 18 Geminorum.** Nu Geminorum B is also known as **HD 257937.**

Alzir (Xi Gem), "The Button", mag. 3.35, 06 45 17.43 +12 53 45.8, is a yellow-white sub-giant star that is a suspected spectroscopic binary star. The star marks the left foot of **Pollux**. Also known as **HIP 32362, and 31 Geminorum.**

Jishui (Omicron Gem), mag. 4.89, 07 39 09.96 +34 35 04.7. Also known as **HD 61110, HIP 37265, and 71 Geminorum.**

Propus (1 Gem), mag. 4.16, 06 04 07.22 +23 15 49.1. Also known as **HD 41116, and HIP 28734.**

Geminga, from "gh'eminga" – "its not there", mag. 25.5, 06 33 54.15 +17 46 12.9, is a pulsar neutron star – the result of a supernova about 300,000 years ago. The name is also short for *Gemini gamma-ray source*. It is the first unidentified gamma-ray source to be discovered as well as the first example of a radio-quiet pulsar.

Deep Sky:

M35 (NGC 2168), mag. 5.1, 06 10 31 +24 20 00, 28'x28' in size, is an open cluster that contains about 434 stars with the brightest at magnitude 8.2. In the northern chain of stars is the star **OΣ 134** (magnitude 7.3 and 9.1, 31" separation at PA 188°), and the eastern chain of stars end at the star **5 Geminorum** (mag. 5.83, 06 11 32.31 +24 25 13.4). Located about 2° north and 1.5° west of **Eta Geminorum**. Also known as **OCl 466, OCl 466.0, Cr 82, Lund 207, Mel 41, Raab 31, and C0605+243.**

Cr 89, also called "9-12 Geminorum", mag. 5.7, 06 18 00 +23 38 00, 60'x60' in size, is an open cluster of about 20 stars in a semi-circle that is concave to the south (stars **9 – 12 Geminorum** are in it) with end of the arc marked by **9** and **10 Geminorum** (**IC 444** is around **12 Geminorum** and **IC 443** is

to the south). Also known as **OCI 473**, **OCI 473.0**, **IC 444**, and **C0615.4+236**.

NGC 2129, mag. 6.7, 06 02 32 +23 19 16, 6'x6' in size, is an open cluster of about 73 stars with the brightest star at magnitude 7.36. Also known as **OCI 467**, **OCI 467.0**, **H8-26**, **Cr 77**, **Lund 293**, and **C0538+223**.

IC 444, mag. 7.03, 06 31 12 +23 06 34, 38'x40' in size, is a large, faint, glowing reflection nebula illuminated by and surrounding the star **12 Geminorum** (magnitude 6.95, 06 19 22.52 +23 16 28.2). Also known as **LBN 840**, **Ced 74**, **DG 108**, and **SIM 0614+22.0**.

Abell 21, the “Medusa Nebula”, mag. 7.68, 07 30 21 +13 12 17, 12.4'x8.48' in size, is a planetary nebula (center star at magnitude 16.0), believed to be a supernova remnant until the 1970's, near the border with **Canis Minor**. The filaments of glowing gas are evocative of the serpent hair of the Gorgon **Medusa**. Its surface brightness is between magnitudes 15.99 and 25.0 – it will take an 8-inch telescope at least with an O III filter to find it. Also known as **PNG 205.1+14.2**, **PK 205+14.1**, **Sh2-274**, and **YM 29**.

NGC 2395, mag. 8.0, 07 28 31 +13 33 37, 12'x12' in size, is an open cluster of about 53 stars; detached; brightest star is magnitude 10.0. Also known as **OCI 502**, **Cr 144**, **Lund 338**, and **C0724+136**.

NGC 2420, mag. 8.3, 07 39 47 +21 31 11, 10'x10' in size, is an open cluster of about 304 stars; detached, strong concentration of stars; brightest star is magnitude 11.1. Also known as **OCI 488**, **H6-001**, **Cr 154**, **Lund 364**, **Mel 69**, **Raab 56**, and **C0735+216**.

Cr 80 (Tr 4), mag. 8.4, 06 05 00 +24 00 00, 6' in size, is an open cluster of about 56 stars with the central star being **GSC1864-00819**. **IC 2156** is 6' to the northwest. Also known as **IC 2157** (06 06 13 +24 04 04, 5' in size), **Lund 204**, **OCI 465**, and **C0601+240**.

NGC 2331, mag. 8.5, 07 08 27 +27 13 25, 18'x18' in size, is an open cluster of about 30 stars that include a 1' oval asterism of 7 stars at 07 07 32 +27 11 12. Also known as **OCI 475**, **H8-40**, **Cr 126**, and **C0704+274**.

NGC 2158, mag. 8.6, 06 08 51 +24 05 30, 5'x5' in size, is an open cluster of about 973 stars; rich, detached, weak concentration of stars. It is a wedge-shaped cluster with the brightest star at magnitude 12.4. Located about 0.4° southwest of **M35**. Also known as **OCI 468**, **H6-17**, **Cr81**, **Lund 205**, **Mel 40**, **Raab 30**, and **C0604+241**.

Leiter 1, mag. 8.9, 06 36 54 +24 11 23, 5.6'x0.5' in size. **M1-7** is 12' to the northwest.

NGC 2392, “The Eskimo Nebula”, “The Clown Face Nebula”, mag. 9.1, 07 30 33 +20 51 45, 54” in size, is a planetary nebula in a bipolar double shell with a central star at magnitude 10.5 (**HD 59088**, **BD+21°1609**). It has a faint halo and features resembling a human face wearing a parka. It has a bluish-green tint of ionized oxygen. Located about mid-way between the stars **Kappa** and **Lambda Geminorum**. Also known as **C39**, **PNG 197.8+17.3**, **PK 197+17.1**, and **H4-45**.

NGC 2266, mag. 9.5, 06 44 46 +26 56 41, 7'x7' in size, is an open cluster of about 50 stars in a triangle shape; detached; brightest star is magnitude 11.0. Also known as **OCI 471**, **H7-21**, **Cr 113**, **Lund 250**, **Mel 50**, **Raab 38**, and **C0640+270**.

NGC 2355, “The Jedi Knight Cluster”, mag. 9.7, 07 18 18 +13 42 26, 9'x9' in size, is an open cluster. Also known as **H6-06**, and **NGC 2356**.

NGC 2304, mag. 10.0, 06 56 33 +17 57 42, 5'x5' in size, is an open cluster of about 30 stars. Also known as **OCI 484**, **H6-02**, **Cr 120**, **Lund 269**, **Mel 155**, **Raab 42**, and **C0652+180**.

IC 443, “The Jelly Fish Nebula”, 06 18 02 +22 31 19, 59.4”x59.4” in size, is a faint emission nebula in a crescent shape that appears filamentary and wispy. It is a galactic supernova remnant, near **Eta Geminorum**, that created a neutron star, and is believed to be a Type II Supernova. Also known as **PGC 2817561**, **4C+22.15**, **PKS0615+22**, **LBN 844**, **PKS0618+2239**, and **Sh2-248**.

Sh2-247, 06 14 24 +21 36 25, 9'x9' in size, is an H II region in a circular shape. Also known as **LBN 843**.

Objects in Gemini: 64 NGC; 41 IC; 158 UGC; 23 Herschel; 191 MCG; 9 Radio Galaxies; 4 Quasars; 130 CGCG (C); 67 CGCG+(C+); 6 Mel; 11 Cr; 6 Holm; 86 IRAS; 9 FSR; 52 NPM1G; 8 Ark; 1 Haro; 149 PGC; 204 LEDA; 21 KPG; 24 KUG; 18 SDSS; 9 PK; 2 Abell; 26 2MASX;

3 Teutsch; 1 1ES; 13 Lund; 5 Raab; 5 AGC; 4 LBN; 4 KTG; 2 Teutsch; 2 Alessi; 6 [CSS95]Cl; 1 [DB01]; 2 LGG146; 1 CTB; 1 Frr; 1 KIG; 1 SAI; 1 Tr; 8 LS; 4 ANON; 1 Arp; 2 Ced; 1 Caldwell; 1 Leiter; 1 HaWe; 1 HoCr; 1 Monti; 1 Semeis; 1 Jonkheere (J); 2 Alessi; 1 Min; 1 Kronberger; 1 Mayer; 2 LDN; 1 Kron; 1 Kn; 4 Cl; 7 FGC; 15 PKS; 9 PNG; 1 DG; 1 Gem OB; 16n OCl; 4 VV; 3 Ring Galaxies; 7 Triple systems; 4 Flat galaxies; 2 variable galaxies; and 1 Small Galaxy for a total of 1477 objects.

Other Stars:

HD 67087

HD 59686, mag. 5.45, 07 31 48.37 +17 05 10.4, has one planet in orbit. This star is part of an obsolete constellation known as **Cancer Minor**. Also known as **HIP 36616**.

HD 45314, mag. 6.64, 06 27 15.78 +14 53 21.22, is a Be type star. Also known as **HIP 30722**, and **PZ Geminorum**.

HD 50554, mag. 6.86, 06 54 42.83 +24 14 44.0, has one planet in orbit. Also known as **HIP 33212**.

HD 63433, mag. 7.0, 07 49 55.0 +27 21 48, has two planets in orbit. Also known as **HIP 38228**.

R Geminorum, mag. 7.68, 07 07 21.40 +22 42 13.0, is a technetium star and a Mira type variable star. Also known as **HD 53791**, and **HIP 34356**.

HD 67087, mag. 8.05, 08 07 40.0 +31 33 05, has two planets in orbit. Also known as **HIP 39767**.

Stars beyond magnitude 10 that are of interest:

HD 262389 (HAT-P-56), mag. 10.91, 07 23 43.59 +20 24 58.7, has one transiting planet in orbit.

HAT-P-20, mag. 11.34, 07 27 40 +24 20 11, has one transiting planet in orbit.

HAT-P-39, mag. 11.42, 07 35 02.0 +17 49 48, has one transiting planet in orbit.

HAT-P-24, mag. 11.82, 07 15 18 +14 15 44, has one transiting planet in orbit.

HAT-P-33, mag. 11.89, 07 32 44 +33 50 06, has one transiting planet in orbit.

HAT-P-54, mag. 13.51, 06 39 35.5 +25 28 57, has one transiting planet in orbit.

U Geminorum, mag. 14.9, 07 55 05.24 +22 00 05.1, is a proto-type dwarf nova and an eclipsing binary star. It is a white dwarf star orbiting a red dwarf star with an orbital period of 4 hours and 11 minutes. About every 100 days or so it undergoes an outburst that greatly increases its brightness (from the combined apparent magnitude of between 14.1 and 15.0) to 9th magnitude. Although the average outburst interval is 100 days, the period is highly irregular, varied from as little as 62 days to 257 days. Also known as **HD 64511**, and **BD+22°1807**.

2MASSW J0746425+200032, mag. 17.7, 07 46 42.56 +20 00 32.2, is a binary brown dwarf star.

WD J0651+2844, 06 51 33.34 +28 44 23.4, is a binary white dwarf star.

PSR J0751+1807, 07 51 09.16 +18 07 38.6, is a binary pulsar/white dwarf star.

WISEP J060738.65 +242953.4, 06 07 39.08 +24 29 57.5, is a brown dwarf star.

ASTERISMS:

Al Nuhútai “The Camel’s Hump”, consists of **Mu**, **Upsilon**, **Eta**, and **Epsilon Geminorum**.

The Heavenly “G”, 06 00 00 +25 00 00, 53’x46’ in size, consists of the stars **Capella**, **Castor**, **Pollux**, **Procyon**, **Sirius**, **Rigel**, **Aldebaran**, and **Betlgeuse**.

Ho Choo consists of **Alpha** and **Beta Geminorum**.

Pih Ho consists of **Alpha**, **Beta**, **Gamma**, and **Delta Geminorum**

“The Bow” consists of **Gamma**, **Mu**, **Upsilon**, **Eta**, **Epsilon**, **Xi¹**, and **Xi² Geminorum**.

Tseih Tsing “Piled Up Fuel”, consists of **Xi Geminorum** and **Mu Cancri**.

Tung Tsing consists of **Epsilon**, **Delta**, **Gamma Geminorum**, and other stars nearby.

Woo Chow How or Woo Chow Shih “The Seven Feudal Princes of China”, consists of **Theta**, **Iota**, **Upsilon**, **Tau**, and **Phi Geminorum**.

Obsolete Constellation: There is an obsolete constellation called “**Cancer Minor**” that consisted of the following stars: **81**, **74**, **68**, **85 Geminorum** and **HD 59686**.

Stars in Gemini: 24 Greek; 91 Lettered; 85 Numbered; 15 V; 4 S; 3 Shj; 9 Ho; 45 Σ; 17 OΣ; 4 OΣΣ; 11 β; 2 Wei; 1 h; 1 AGC; and 5 A for a total of 328 stars in Gemini.

Sky Happenings: February 2023

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

- Feb. 3rd** - **Pollux** is 1.9° north of the **Moon** at 2 PM CST,
Evening: The waxing gibbous **Moon**, with **Castor** and **Pollux**, will form a line in the east.
- Feb. 4th** - The **Moon** is at apogee (252,573 miles or 406,476 km from **Earth**) at 2:55 AM CST.
- Feb. 5th** - **Mars** passes 8° north of **Aldebaran** at 1 AM CST,
Full Moon occurs at 12:29 PM CST (the smallest **Moon** of 2023).
- Feb. 6th** - Evening: The **Moon**, one day past full, trails **Regulus** by about 4.5° as they climb in the east.
- Feb. 8th** - Dwarf planet **Ceres** is stationary at 2 PM CST.
- Feb. 10th** - Evening: The waning gibbous **Moon** will rise in tandem with **Spica**, with 2.5° between them, in the east-southeast.
- Feb. 12th** - Asteroid **Pallas** is stationary at 2 PM CST.
- Feb. 13th** - **Last Quarter Moon** occurs at 10:01 AM CST.
- Feb. 14th** - **Antares** is 1.8° south of the **Moon** at 1 PM CST.
- Feb. 15th** - **Venus** passes 0.01° south of **Neptune** at 6 AM CST.
- Feb. 16th** - **Saturn** is in conjunction with the **Sun** at 11 AM CST.
- Feb. 18th** - The **Moon** passes 4° south of **Mercury** at 3 PM CST.
- Feb. 19th** - The **Moon** is at perigee (222,617 miles or 358,267 km from **Earth**) at 3:06 AM CST (large tides)
- Feb. 20th** - **New Moon** occurs at 1:06 AM CST (lunation 1239).
- Feb. 21st** - The **Moon** passes 2° south of **Neptune** at 12 noon CST,
Dusk: In the west, after sunset, the thin waxing crescent **Moon** will be 6° below **Venus**, while **Jupiter** will gleam at the upper left of the pair.
- Feb. 22nd** - The **Moon** passes 2° south of **Venus** at 2 AM CST,
The **Moon** passes 2° south of **Jupiter** at 4 PM CST.
- Feb. 25th** - The **Moon** passes 1.3° north of **Uranus** at 7 AM CST.
- Feb. 26th** - Evening: High in the west-southwest the first-quarter moon is between the **Pleiades** and the **Hyades**. Low in the west, **Jupiter** and **Venus** are less than 3° apart.
- Feb. 27th** - **First Quarter Moon** occurs at 2:06 AM CST,
Mars is 1.1° south of the **Moon** at 11 PM CST.
- Feb. 28th** - Dusk: **Jupiter** and **Venus** are only 1° apart in the west-southwest.

Planets:

Mercury – **Mercury** is low in the southeast before dawn. On February 1st, the planet will stand nearly 4° high an hour before sunrise, shining at magnitude -0.1. The planet is in eastern **Sagittarius** near the **Teaspoon** asterism. The planet will show a 67% illuminated disk spanning 6". A week later, the planet is only 1.5° above the horizon an hour before sunrise. By the 14th, the planet is brighter at magnitude -0.2, and visible 45 minutes before sunrise. On the morning of the 18th, the planet will be 7° to the upper left of the waning crescent **Moon**, just over one day from new, 30 minutes before sunrise.

Venus – **Venus** is in the southwest sky this month shining at magnitude -3.9 all month. On February 1st, the planet will set two hours after the **Sun** – it will be 10° high in a dark sky one hour after sunset. A telescope will show an 11" wide disk that is 91% illuminated. During the month the disk will grow slightly to 12" and the phase will shrink to 86%. The planet, in **Aquarius**, will be separated from **Neptune** (at magnitude 7.9) by only 33' on the 14th. **Neptune** will stand to the northeast of **Venus** – there will be two 7th magnitude stars to the west of **Venus**. On the 15th, **Venus** will be 40' northeast of **Neptune** and will have crossed into **Pisces**. During the last half of the month **Venus** will close the 14° gap between it and **Jupiter**. On the 21st, the **Moon** is 6° below **Venus**, and on the 28th **Venus** and **Jupiter** will be less than 1.3° apart. An hour after sunset the planets will stand nearly 20° high and remain visible until at least 8PM local time.

Mars – **Mars** shines at magnitude -0.2 in **Taurus**, with **Aldebaran** 8° to the south on February 1st. The

planet starts the month 10° due east of the **Pleiades (M45)**. Comet **C/2022 E3 (ZTF)** is nearby – if bright enough it will be a very faint fuzzball in binoculars about 1.5° northeast of the planet on the 10th and less than 2° south on the 11th. The planet will move across northern **Taurus** and will fade to magnitude 0.3. The month ends with the planet less than 5° southwest of **Elnath (Beta Taurii)** – the northern horn of the **Bull**. On the 27th, the planet will stand about 1.5° east of the **First Quarter Moon** in the early evening – by midnight the **Moon** will be due north of the planet with 1.1° of separation. On the 1st the planet spans $11''$ and will slim to $8''$ by the 28th.

Jupiter – **Jupiter's** disk will span $36''$ on February 1st and will drop to $34''$ by the 28th. The planet will start the month at magnitude -2.2, but will quickly dim by 0.1 magnitude. The moon **Callisto** will be $30''$ north of **Ganymede** on the 10th at about 9 PM CST. The planet, in northwest **Cetus** early in the month, will pass back into **Pisces** by mid-month. On the 22nd, the planet and the **Moon** are just 1° apart.

Saturn – **Saturn** is visible in the west for less than an hour after sunset in early February. The planet reaches conjunction with the **Sun** on the 16th and will reappear in the morning sky in March.

Uranus – **Uranus** is an easy target for binoculars all month, located in the sparsely populated region of southern **Aries**. Look for a triangle of stars formed by **Sigma, Pi, and Omicron Arietis** – the triangle is 6° north of **Mu Ceti**. The planet is inside this triangle and will move northeast every night. By the last week of the month, the planet will lie roughly midway between **Sigma** and **Pi Arietis**. The planet will set shortly after 11 PM local time at the end of the month. A telescope will show a $4''$ wide pale blue disk.

Neptune – **Neptune** will be only $33'$ northeast of **Venus** on February 14th. **Neptune**, at magnitude 7.8, will need a dark sky and a very clear horizon to see. On the 15th, **Venus** will be $40'$ northeast of **Neptune**. **Neptune's** disk will span only $2''$.

Pluto – **Pluto**, on February 10th, at magnitude 14.5 will be about $2'$ east and a touch south of the star **HR 7658** (magnitude 6.45, 20 03 44 -22 35 44, also known as **HD 190009, HIP 98785, SAO 188863, and BD-22 5318**) in **Sagittarius**.

Moon - Favorable Librations: **Mare Australe** on February 1st; **Malapert Crater** on February 5th; **Von Braun Crater** on February 16th; and **Neper Crater** on February 24th.

Greatest North Declination on the 2nd ($+27.4^\circ$)

Greatest South Declination on the 17th (-27.5°)

Libration in Longitude: East Limb most exposed on the 25th ($+7.3^\circ$)

West Limb most exposed on the 13th (-7.4°)

Libration in Latitude: North Limb most exposed on the 19th ($+6.5^\circ$)

South Limb most exposed on the 5th (-6.6°)

Asteroids / Minor Planets All positions given, unless otherwise stated, are from the *RASC Observer's Handbook, 2023 USA Edition*.

Asteroid/Minor Planet **Ceres** – On January 5th – 12 46.08 +10 58.5, at magnitude 7.7 in **Virgo**; on the 15th – 12 47.75 +11 52.6, at magnitude 7.5 in **Virgo**; and on the 25th – 12 44.66 +12 56.3, at magnitude 7.3 in **Virgo**.

Asteroid **2 Pallas** – On January 5th – 06 32.05 -24 32.2, at magnitude 7.7 in **Canis Major**; on the 15th – 06 31.08 -20 53.2, at magnitude 7.8 in **Canis Major**; and on the 25th – 06 33.44 -16 58.3, at magnitude 7.9 in **Canis Major**.

Pallas's positions, *by my estimates*, are as follows: On February 1st – about 2.2° due south and a touch east of **Xi¹ Canis Majoris**; on the 5th – about 0.7° due south of **Xi¹ Canis Majoris**; on the 10th – about 1.1° due north of **Xi¹ Canis Majoris** or 1.3° northwest of **Xi² Canis Majoris**; on the 15th – about 2° southwest of **Nu² Canis Majoris** or about 2.6° northwest of **M41**; on the 20th – about 2° west of **Nu¹ Canis Majoris** or about 2.5° east and a touch south of **Beta Canis Majoris**; and on the 25th – just under 3° due west of **Sirius (Alpha Canis Majoris)**.

Asteroid **6 Hebe** – On February 5th – 08 17.82 +15 02.4, at magnitude 9.0 in **Cancer**; on the 15th – 08 09.52 +16 36.5, at magnitude 9.3 in **Cancer**; and on the 25th – 08 03.55 +17 59.3, at magnitude 9.5 in **Cancer**.

Asteroid **40 Harmonia** – On February 25th – 10 54.06 +14 06.6, at magnitude 9.9 in **Leo**.

Comets – All of the positions given, unless otherwise stated, are from ALPO’s “*The Strolling Astronomer*”.

Comet **C/2017 K2 (PANSTARRS)** will not be visible for **North America** until August.

Comet **C/2020 V2 (ZTF)** – **V2’s** positions: On February 10th – 01 33 30 +51 10 00, at magnitude 8.8 in **Perseus**; and on the 20th – 01 3936 +45 51 48, at magnitude 8.9 in **Andromeda**.

V2’s positions, by my estimates, are as follows: On February 1st – about 2.7° northeast of **Theta Cassiopeiae**; on the 5th – about 2.0° southeast of **Theta Cassiopeiae** (in **Perseus**); on the 11th – about 1.4° due west of **Phi Persei**; on the 15th – about 0.3° southwest of **51 Andromeda** or about 2.5° south-southwest of **Phi Persei**; on the 21st – about 1° south and a bit east of **Chi Andromeda**; on the 25th – just over 1° southeast of **Chi Andromeda**; and on March 1st – about 1.6° east and a bit north of **Upsilon Andromeda**.

Comet **C/2022 E3 (ZTF)** – **E3’s** positions: On February 10th – 04 50 30 +29 24 48, at magnitude 5.2 in **Taurus**; and on the 20th – 04 38 54 +08 52 54, at magnitude 6.6 in **Taurus**.

E3’s positions, by my estimates, are as follows: On February 1st – about 13° northeast of **Alpha Camelopardalis**; on the 5th – about 1.5° north and a touch west of **Capella (Alpha Aurigae)**; on the 10th – about 7.5° due west of **Beta Aurigae** (in **Taurus**); on the 15th – about 1.7° due east of **Aldebaran**; on the 20th – about 3.2° due west and a touch north of **Pi³ Orionis** (in **Taurus**); and on the 25th – about 4° due west and a touch north of **Pi⁵ Orionis** (in **Taurus**).

Meteor Showers – There are no **Major (Class I)** meteor showers active in February.

There is one **Minor (Class II)** meteor shower active in February – the **Alpha Centaurids**, active from February 3rd through February 20th, peaks on February 8th with a maximum zenith hourly rate (mzhr) of six.

There are no **Variable (Class III)** meteor showers active in February.

There are six **Weak (Class IV)** meteor showers (mzhr <2) active in February: the **Eta Corvids**, active from January 7th through February 5th, peaked on January 21st; the **Alpha Coronae Borealis**, active from January 26th through February 5th, peaks on January 27th; the **Alpha Antliids**, active from January 22nd through February 6th, peaks on February 2nd; the **Theta Centaurid Complex**, active from February 2nd through February 6th, peaks on February 4th; the **Pi Hydriids**, active from February 3rd through February 9th, peaks on February 6th; and the **Gamma Crucids**, active from February 11th through February 15th, peaks on February 14th.

Mythology

Gemini – The Twins

Gemini represents the twins Castor and Polydeuces (Pollux is the Latin form of his name); they were known to the Greeks as Dioscuri, literally meaning “sons of Zeus”. However, mythologists disputed whether both really were sons of Zeus, because of the unusual circumstances of their birth. Their mother was Leda, Queen of Sparta, whom Zeus visited one day in the form of a swan (now represented by the constellation Cygnus). That same night she slept with her husband, King Tyndareus. Both unions were fruitful for Leda subsequently gave birth to four children. In the most commonly accepted version, Polydeuces and Helen (later to become famous as Helen of Troy) were the children of Zeus and hence immortal, while Castor and Clytemnestra were fathered by Tyndareus, and hence mortal.





An amphora dating between 540-530 BCE that shows Castor and Pollux.
Credit: Egisto Sani/Flickr
Read details here: <https://www.universetoday.com/20777/gemini/>

Castor and Pollux grew up the closest of friends, never quarrelling or acting without consulting each other. They were said to look alike “and even to dress alike”, as identical twins often do. Castor was a famous horseman and warrior who taught Heracles to fence, while Polydeuces was a champion boxer.

The inseparable twins joined the expedition of Jason and the Argonauts in search of the Golden Fleece. The boxing skill of Polydeuces came in use when the Argonauts landed in a region of Asia Minor ruled by Amycus, a son of Poseidon. Amycus, the world’s greatest bully, would not allow visitors to leave until they had fought him in a boxing match, which he invariably won. He stamped down to the shore where the Argo lay and challenged the crew to put up a man against him.

Polydeuces, stirred by the man’s arrogance,

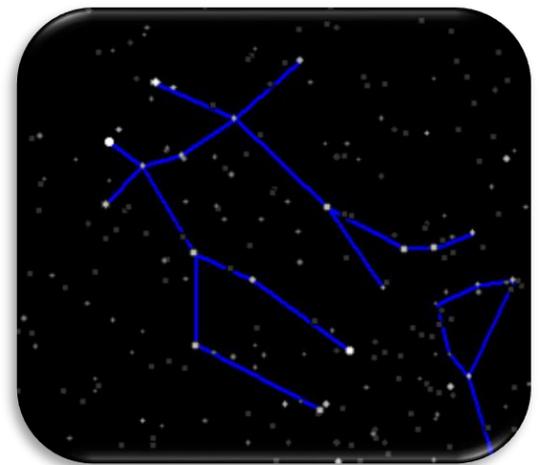
accepted at once and the two pulled on leather gloves. Polydeuces easily avoided the rushes of his opponent, like a matador side-stepping a charging bull, and felled Amycus with a blow to the head that splintered his skull.

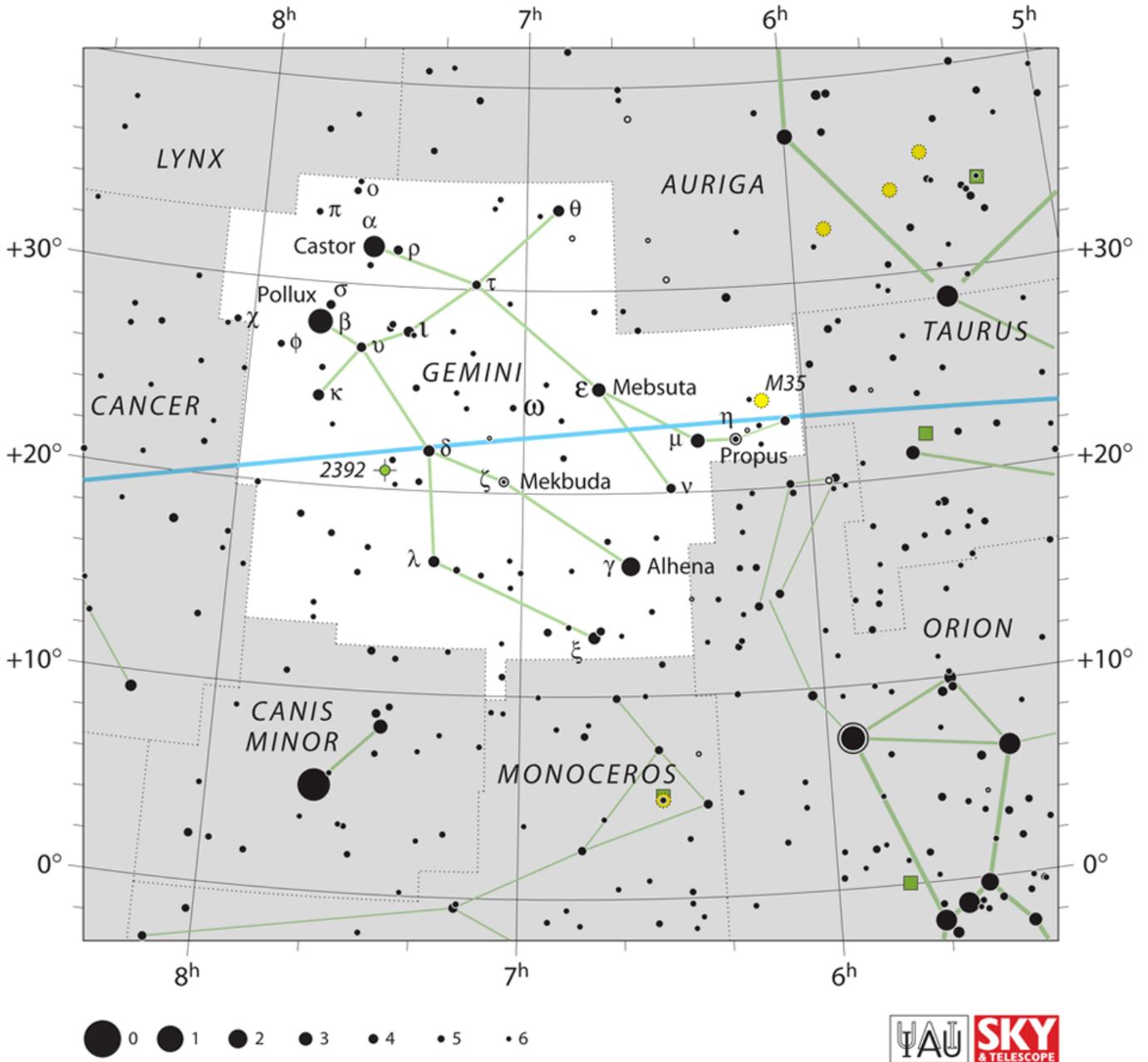
On the Argonauts homeward trip with the Golden Fleece, Castor and Polydeuces were of further value to the crew. Apollonius Rhodius tells us briefly that during the voyage from the mouth of the Rhon River to the Stoechades Islands (the present day Iles d’Hyeres off Toulon); the Argonauts owed their safety to Castor and Polydeuces. Presumably a storm was involved, but he does not elaborate on the circumstances. Ever since this episode, says Apollonius – he assures us that there were other voyages on which they were saviors – the twins have been the patron saints of sailors. Hyginus said that the twins were given the power to save shipwrecked sailors by Poseidon, the sea god, who also presented them with the white horses they often rode.

Mariners believed that during storms the twins appear in a ship’s rigging in the form of the electrical phenomenon known as St. Elmo’s Fire, as described by Pliny, the Roman writer of the first century AD, in his book ‘Natural History’; “on a voyage stars alight on the yards and other parts of the ship. If there are two of them, they denote safety and portend a successful voyage. For this reason, they are called Castor and Pollux, and people pray to them as gods for aid at sea.” A single glow was called a Helen and was considered a sign of disaster.

Castor and Polydeuces clashed with another pair of twins, Iolas and Lynceus, over two beautiful women. Iolas and Lynceus (who also were members of the Argo’s crew) were engaged to Phoebe and Hilaura, but Castor and Polydeuces carried them off. Iolas and Lynceus gave pursuit, and the two sets of twins fought it out. Castor was run through with a sword thrust from Lynceus, where upon Polydeuces killed him. Iolas attacked Polydeuces but was repulsed by a thunderbolt from Zeus.

Another story says that the two pairs of twins made up their quarrel over the women but came to blows over the division of some cattle they had jointly rustled. Whatever the case, Polydeuces grieved for his fallen brother and asked Zeus that the two should share immortality. Zeus placed them both in the sky as the constellation Gemini, where they are seen in close embrace, inseparable to the last.





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

Or scan and send a pdf to president@brastro.org