

# *The Prairie Astronomer*

October 2023 Volume 64, Issue #10



**IN THIS ISSUE:** Hoot n'Howl at Spring Creek Prairie  
Six Things to Know about the Psyche Mission  
Webb Captures NGC346  
Proposed Changes to Club Bylaws



**Night Sky Network**



The Newsletter of the Prairie Astronomy Club



# *The Prairie Astronomer*



The next meeting is October 24th at 7:30pm at Branched Oak Observatory

## NEXT MEETING AND PROGRAM

We will get a tour of the updated facilities at Branched Oak Observatory and a radio telescope demonstration by Doug Buhrman.

## UPCOMING PROGRAMS

November: Bahrat Ratra (tentative)

December: How to Buy a Telescope

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Cover: Hoot n'Howl Event at Spring Creek Prairie, photo by Mark Dahmke.



# CALENDAR



Lincoln Parks & Recreation

Most of our club meetings are held at Hyde Memorial Observatory in Holmes Park.

The Observatory is owned and maintained by the City of Lincoln Parks and Recreation Department, but is operated by volunteers, many of whom are also members of the Prairie Astronomy Club.

International Observe the Moon Night  
Saturday, October 21<sup>st</sup>.

PAC Meeting  
Tuesday, October 24<sup>th</sup>, 7:30pm at Branched Oak Observatory  
Program: tour of BOO and radio telescope demo.

PAC Meeting  
Tuesday, November 28<sup>th</sup>, 7:30pm at Hyde Observatory  
Program (tentative): Bahrat Ratra: The Accelerating Expanding Universe

<https://www.prairieastronomyclub.org/event-calendar/>



[www.prairieastronomyclub.org](http://www.prairieastronomyclub.org)

## 2023 STAR PARTY DATES

	Date	Date
January	13	<b>20</b>
February	10	<b>17</b>
March	17	<b>24</b>
April	14	<b>21</b>
May	12	<b>19</b>
June	9	<b>16</b>
July	7	<b>14</b>
NSP	7/16	7/22
August	11	<b>18</b>
September	8	<b>15</b>
October	6	<b>13</b>
November	3	<b>10</b>
December	8	<b>15</b>

Dates in **BOLD** are closest to the New Moon.

## CLUB OFFICERS

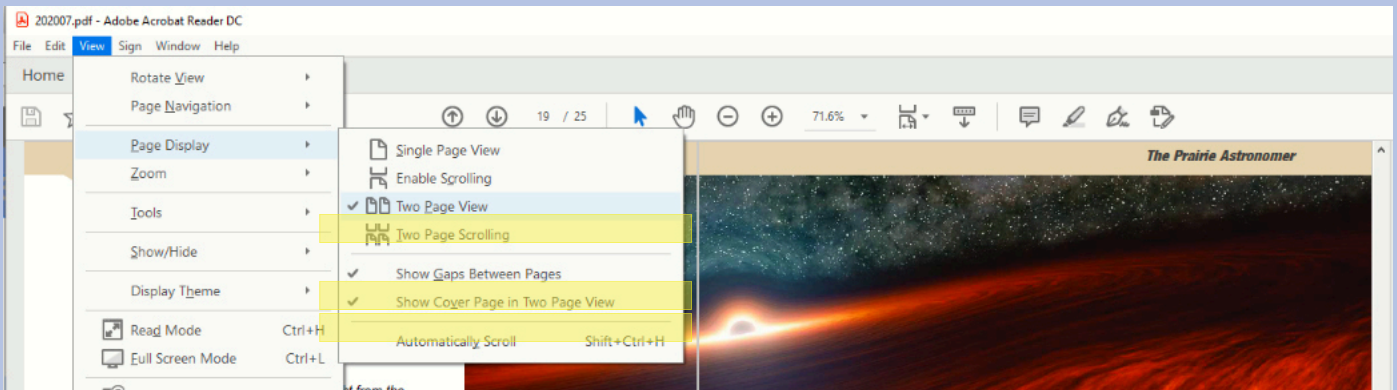
President	Jason O'Flaherty jflaher@gmail.com
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Secretary	Jim White jrwhite2188@gmail.com
Treasurer	John Reinert jr6@aol.com
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Website and Newsletter Editor	Mark Dahmke mark@dahmke.com



# Notices

## Newsletter Page View Format

### How to Adjust Adobe Acrobat Settings for Two Page View



To view this newsletter in magazine spread format in Acrobat, select View ->Page Display->Two Page View. Acrobat will then show two pages side by side. Also make sure the checkboxes “Show Cover Page in Two Page View” and “Show Gaps Between Pages” are checked. If you have it setup correctly, the cover page will be displayed by itself and subsequent pages will be side by side with the odd numbered pages on the left.

## PAC Newsletter Archive

Back issues of the *Prairie Astronomer* from 1962 to present are available online:  
<https://newsletters.prairieastronomyclub.org/>

## Pay Dues Online

<https://www.prairieastronomyclub.org/pay-dues-online/>

If you're already a member and are renewing within 30 days of your anniversary date, select the early renewal option for a discount.

## PAC-LIST

Subscribe through [GoogleGroups](#) or contact Mark Dahmke to be added to the list. You'll need a Google/gmail account, but if you want to use a different email address, just associate that address with your google account to access Google Groups. Once subscribed, you can view message history through the GoogleGroups website.

To post messages to the list, send to this address: [pac-list@googlegroups.com](mailto:pac-list@googlegroups.com)



## The President's Message

*Jason O'Flaherty*

Dear PAC Members,

I hope this letter finds you well. I wish you all a happy November as we transition into the final stretch of this year. I'm sorry for the shortness of this letter, but I only have a couple of updates to share with you this month.

As a reminder, our October meeting will be held a week early at the Branched Oak Observatory. During this meeting, we will present the new bylaws for your review. These bylaws are essential for our club's smooth

operation, so your feedback is highly valued. In November, we will officially vote on enacting the new bylaws.

Additionally, at the October meeting, we will be conducting the election for our club officers. It's important to note that you must be present to cast your vote, so please plan to attend.

For those of you who could see the Annular Eclipse, I hope it was amazing and look forward to hearing and seeing all about it.



I'll leave you with some October humor. What do you call a mollusk dressed as an extraterrestrial on Halloween?

A Snailien.

Wishing you all clear skies and happy stargazing,

Jason O'Flaherty

## Current Nominations for Club Officers

President: Jason O'Flaherty

Vice President: Brett Boller

Second Vice President: Bill Lohrberg

Secretary: Jim White

Treasurer: John Reinert

# ARP 60

## *The Mantrap Skies Image Catalog*

Another twofer deal. I keep finding it interesting that he often finds two entries in one field and other times ignores equally peculiar galaxies in other Arp galaxy fields. The pair is located in the constellation of Coma Berenices. They are located 958 and 979 light-years distant so likely members of the same group.

Arp 60 is left of center and slightly closer by redshift measurement. It is in his category of Spiral galaxies with small, high surface brightness companions on an arm. One of his larger categories. NED had no redshift data on its "companion" so not certain it really is one. Though there is what might be a third arm on that side that is fainter and less well formed as if tidal effects may have helped cause it. While I see no connection between the two in my image or Arp's images, NED says of it; "small, high surface brightness companion on end of arm M51 Type." What do they see that causes this statement? The SDSS shows it both as a galaxy and a quasar! That seems highly questionable. It is also in the 2MASX catalog of infrared





## **Rick Johnson**

*Rick Johnson, a founding member of the Prairie Astronomy Club, passed away in January, 2019. His legacy lives on through his comprehensive catalog of over 1600 images at [www.mantrapskies.com](http://www.mantrapskies.com).*



## ARP60, continued.

sources. I'm not sure it was in any catalog before Arp put it in his atlas. NED only lists it in catalogs that are far newer. Could it be he found it when he added Arp 196 to the atlas? The "companion" is SDSS J131446.02+260629.8. NED shows it in no other catalog. NED doesn't attempt to classify either member of the pair though the main one is clearly a spiral. The other may be S0 or an edge on spiral. I lean to S0.

Arp 196 is likely a real pair of interacting galaxies. Arp put them in his odd category: Material ejected from Nucleus. Does he think one was ejected from the other or both

ejected their tidal plumes? Back when the atlas was compiled tidal plumes weren't well understood. Still, I have problems with most galaxies in this category.

Both show severe distortion unlike Arp 60. The smaller, southern member is listed in the 2MASX catalog as an IR source and the SDSS as a galaxy. The pair carry the designation CGPG 1312.2+2623. This catalog dates back to at least 1971 and may have been partly compiled by the time Arp was looking for his peculiar galaxies. Again, NED shows no other catalog entry for the pair that could have existed at the time of the atlas. These would

likely be unknown galaxies if not for inclusion in his atlas. The only comment at NED on the pair reads: "In a post-eruptive interconnected pair of neutral compacts. 45 arcsec [south-south-west] of CGPG 1312.2+2623 NED01. Barlike." The northern member also made the PGC catalog as PGC 046054. Other than that it is quite obscure as well. NED makes no attempt to categorize either member.

The annotated image shows three other galaxies that are about the same distance as these two so likely members of the same group.



# Meeting Minutes

*Jim White*

Jason O'Flaherty started the meeting at 7:34 pm. Jason started by announcing that we have some new members according to the newsletter, Matthew, Carol, Michael, Lester and Amos. Carol introduced herself and said that she volunteered at Hyde in the past. Matt introduced himself and his son. Amos introduced himself and said he has previously been a member and just renewed his dues. We also had some guests in attendance.

At 7:37 Jason asked Jim Kvasnicka for his observing report. Star parties for the month of October are on Friday the 6th and Friday the 13th at the Clatonia Recreation Area, approximately 1 ½ miles north of Clatonia NE. On Saturday October 14th parts of the western and southern U.S. will experience an Annular Solar Eclipse, in Nebraska we will experience a partial eclipse. The eclipse will begin at 10:23 am and reach maximum at 11:45 am and end at

1:15 pm. If it is clear on the 14th Hyde will be open for the eclipse and is encouraging those with scopes with safe solar filters to bring them out and set them up in the lawn at Hyde. Do not try and observe the eclipse directly without proper solar filters! Hyde will have some eclipse glasses available for guests of the observatory on the 14th. Branched Oak Observatory is also giving out eclipse glasses on Sunday afternoons thru Sunday October 8th. October 21st is International Observe the Moon Night, Jim is planning on hosting a lunar party at his house and is encouraging club members and their families and friends to come out and observe the moon and if you have a telescope you are encouraged to bring it along and share the view. There is one meteor shower in October, the Orionids, which will peak the night between the 21st and 22nd. Jim's complete observing report can be found in the newsletter. Jim's report ended at 7:43

pm.

Jason then turned the meeting over to John Reinert for his treasurer's report. John said that his report would be "short and sweet" and that he is "the fellow that is responsible for the administrative excellence of the club," John stated that our membership roster currently has about 75 names on it. John is hoping that with the upcoming changes to the club bylaws we can transition from a monthly dues system to an annualized dues system, basically changing from a member's dues being renewed in the month that they originally joined the club to a system where all members' dues are paid in the same calendar month, preferably in the September - October time frame. John finished his report at 7:46 pm.

Jason went over the membership options and costs and the benefits of becoming a member.

## Meeting Minutes, continued.

New club business, tonight is the night we begin taking nominations for officers and nominations will remain open until we vote on nominations at the October club meeting. Jason went over a brief description of the duties of each office. Jason opened up the nominations, starting with President and Jason was nominated, for Vice President Brett Boller was nominated, for Second Vice President Bill Lohrberg was nominated, for Secretary Jim White was nominated, for Treasurer John Reinert was nominated.

Elections will be held at our October meeting which will be held at Branched Oak Observatory. Please note that our October meeting will be on Tuesday the 24th since the last Tuesday of the month falls on Halloween. Along with our October meeting being at Branched Oak Observatory we will have a tour of the new facilities at BOO along with a presentation on

the radio telescope. Hopefully we will also have the chance to bounce a signal off the moon with the radio telescope. Branched Oak Observatory is located south of Raymond Road on West 98th (on the east side of 98th street).

The Bylaws Committee has finished reviewing and updating the club bylaws and has sent them to the PAC Board to be reviewed. Mark Dahmke has recommended that once the bylaws have been approved by the Bylaws Committee and the PAC Board it may be a good idea to have an attorney review the bylaws.

Hopefully the bylaws can be finalized by the October meeting so that it can be presented to the membership and then be voted on at the November meeting. According to the current bylaws we need to have 2/3 majority of a quorum and a quorum is 1/3 of the membership which means we need to have a minimum of 27 members present to vote on the bylaws.

Volunteer opportunities, we have the Hoot and Howl on October 7th at 6:30 at Spring Creek Prairie and the partial solar eclipse at Hyde Observatory.

We want to congratulate Lee Taylor who received the Hyde Volunteer of the Year Award at the Hyde Volunteer Banquet.

Bob Kacvinsky let Jason know about a program available on the internet from Nasa at <https://moon.nasa.gov>, if you have a chance check it out.

Tonight's meeting ended at 8:02 pm.

Tonight's program is presented by Ethan Van Winkle and is titled "A More Complete List of Young Stellar Object Candidates in AFGL 490."



## Bylaws Committee Meeting Minutes

Date: 9-20-2023  
By Jim White

The Bylaws Committee met at Hyde Observatory at 6:00 pm on 9-20-2023 to review changes that have been proposed to PAC's existing bylaws that have been in place since 1994. The committee consists of PAC members Mark Dahmke, Bob Kacvinsky, John Reinert and Jim White. The goal of the meeting was to review and finalize the recommended changes to the bylaws so that they can be

presented to the PAC Board for review. If the PAC Board approves the new bylaws they will then be presented to the club membership to be voted on.

The Bylaws Committee members have been exchanging emails containing a copy of the current bylaws along with rough drafts of the proposed changes since the middle of May. Mark Dahmke has been keeping a master revision as proposed changes have been made to keep things as up to

date as possible and keep things from getting lost or missed. At the end of the meeting the committee determined that the modified bylaws were ready to be reviewed by the PAC Board so Mark was going to make any final changes that we came across tonight and then email a copy of the revised bylaws to the PAC Board members. Tonight's meeting lasted until 6:55 pm.

## PAC Board Meeting Minutes

Date: 10-10-2023  
By Jim White

The PAC board met on 10-10-2023 at 7:30 pm via Zoom to review the updated PAC Bylaws that have been presented to the board by the bylaws committee. In attendance for tonight's meeting were Jason O'Flaherty, Bill Lohrberg, John Reinert and Jim

White. Brett Boller could not be present for tonight's meeting so he reviewed the proposed changes to the bylaws and then forwarded a copy to Jason with notes for things that may need looked at by the board. The board reviewed the proposed changes to the bylaws and Jason took notes about items that the board

had questions on or that we thought needed changed. Jason is going to compile the notes and proposed changes and send it back to the committee for review. John was only available for the first half of tonight's meeting. The meeting concluded around 8:45 pm.

# November Observing

*Jim Kvasnicka*



This is a partial list of objects visible for the upcoming month.

## Planets

Mercury and Mars: Not visible.

Jupiter: At magnitude -2.9 with a disk 49.5" wide in Aries.

Saturn: At magnitude +0.7 with a disk 17.8" Aquarius.

Uranus: At magnitude +5.6 with a disk 3.8" wide in Aries.

Neptune: At magnitude +7.8 with a disk 2.3" wide in Pisces.

Venus: Morning planet at magnitude -4.4.

## Meteor Showers

Leonids: Peaks the night of November 17-18. Expect up to 15 meteors per hour. The Moon will not interfere.

## Messier List

M27: The Dumbbell Nebula in Vulpecula.

M30: Class V globular cluster in Capricornus.

M56: Class X globular cluster in Lyra.

M57: The Ring Nebula in Lyra.

M71: Class XII globular cluster in Sagitta.

M72: Class IX globular cluster in Aquarius.

M73: Asterism in Aquarius.

Last Month: M11, M16, M17, M18, M24, M25, M26, M55, M75

Next Month: M2, M15, M29, M31,

M32, M39, M110

NGC and other Deep Sky Objects

NGC 7662: The Blue Snowball in Andromeda.

NGC 128: Elongated galaxy in Pisces.

NGC 247: Galaxy in Cetus.

NGC 253: The Silver Coin Galaxy in Sculptor.

NGC 288: Class X globular cluster in Sculptor.

NGC 457: The E. T. Cluster in Cassiopeia.

## Double Star Program List

Iota Trianguli: Yellow primary with a pale blue secondary.

Gamma Arietis: Two equal white stars.

Lambda Arietis: Yellow and pale blue stars.

65 Piscium: Yellow pair.

Psi 1 Piscium: Equal bluish white pair.

Zeta Piscium: White primary with a secondary.

Alpha Piscium: Close white pair.

Gamma Andromedae: Almach, gold and greenish blue pair.

## Challenge Object

NGC 193 and NGC 194: Two small round galaxies in Pisces that fit in the same FOV.



# Focus on Observing Programs

*Jim Kvasnicka*

## Caldwell Observing Program

Like the Messier Observing Program the Caldwell Program consists of various deep sky objects to observe. Sir Patrick Caldwell-Moore has put together a list of 109 beautiful and interesting objects to go out of your way to observe.

The 109 objects on the Caldwell list range from magnitude 1 through 13, and Declination  $+85^\circ$  to  $-80^\circ$ . To observe all 109 objects would require some travel.

The Caldwell Program has been broken into two award categories: 70 objects, and the complete list of 109 objects. The 70 object award includes the objects that can be seen from northern latitudes. The 70 object award will count towards the Master Observer Award.

## Caldwell 70 Object List by Type

Open Cluster - 14 objects  
 Globular Cluster - 4 objects  
 Planetary Nebula - 10 objects  
 Bright Nebula - 10 objects  
 Galaxy - 32 objects

A detailed list of the Caldwell objects can be downloaded from the

Astronomical League website.

To qualify for the Caldwell award you must observe and record your observations. Your observations should include a detailed description of the object and a sketch if you want to include one. All the other information required by the Astronomical League must be included in your observing logs. The objects in the Caldwell list must be located manually, no GO-TO or PUSH-TO are allowed to find the objects.

When you complete the Caldwell Observing Program you will need to submit a copy of your observing logs to me for review. If your logs are accurate and complete I will submit your name to the Caldwell Observing Program chair for approval. The chair will mail to me your Caldwell certificate and pin which I will present to you at the next monthly PAC meeting.

If you have any questions regarding the Caldwell Observing Program or any other observing program, or need help getting started please contact me and I will be glad to help.

## Six Things to Know About NASA's Asteroid-Exploring Psyche Mission

The first-ever mission to study a metal-rich asteroid, Psyche aims to help scientists learn more about the formation of rocky bodies in our solar system.

With a launch readiness date set for Thursday, Oct. 12, NASA's Psyche spacecraft will travel 2.2 billion miles from NASA's Kennedy Space Center in Florida to a metal-rich asteroid in the far reaches of the main asteroid belt between Mars and Jupiter. Trailing a blue glow from its thrusters and powered by a pair of massive solar arrays, the orbiter will use its payload of science instruments to learn more about the asteroid Psyche.

Here are six things to know about the mission:

1. Learning more about the asteroid Psyche could tell us more about the origins of our solar system.

Based on data obtained by Earth-based radar

and optical telescopes, scientists hypothesize that the asteroid Psyche could be part of the metal-rich interior of a planetesimal, a building block of a rocky planet that never formed. Psyche may have collided with other large bodies during its early formation and lost its outer rocky shell. Humans can't bore a path to Earth's metal core, so visiting Psyche could provide a one-of-a-kind window into the history of violent collisions and accumulation of matter that created planets like our own.

2. The asteroid could also suggest a different story of how solar system objects formed.

While rocks on Mars, Venus, and Earth are flush with iron oxides, Psyche's surface doesn't seem to feature much of these chemical compounds. This suggests that Psyche's history differs from standard stories of planetary formation.

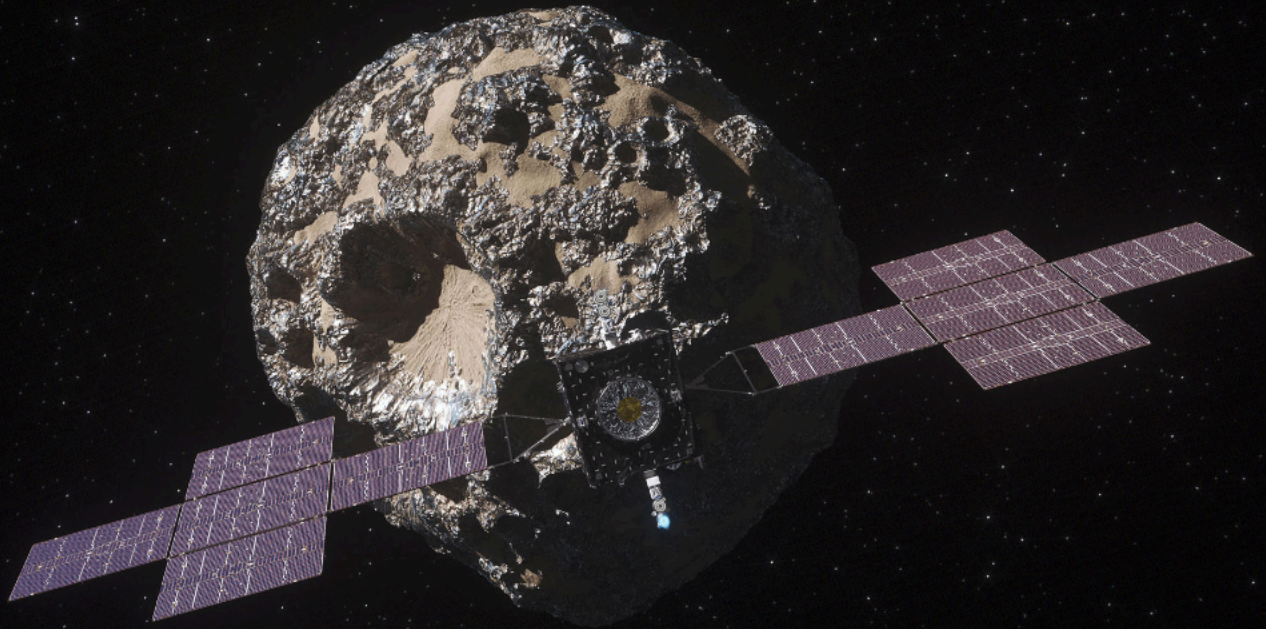
If the asteroid proves to be leftover core material from a planetary building block, scientists will learn how its history resembles and diverges from that of the rocky planets. And if scientists discover that Psyche is not an exposed core, it may prove to be a never-before-seen kind of primordial solar system object.

3. Three science instruments and a gravity science investigation will help sort out these solar system origin stories and more.

The spacecraft's magnetometer will look for evidence of an ancient magnetic field at the asteroid Psyche. A residual magnetic field would be strong evidence the asteroid formed from the core of a planetary body.

The orbiter's gamma-ray and neutron spectrometer will help scientists determine the chemical elements that make up the asteroid – and better understand

## Psyche, continued.



*This illustration, updated in April 2022, depicts NASA's Psyche spacecraft. Set to launch in August 2022, the Psyche mission will explore a metal-rich asteroid of the same name that lies in the main asteroid belt between Mars and Jupiter. The spacecraft will arrive in early 2026 and orbit the asteroid – also shown in this illustration – for nearly two years to investigate its composition.*

*Scientists think Psyche may be the core of a planetesimal, one of the building blocks of the terrestrial (rocky) planets in our solar system: Mercury, Venus, Earth, and Mars. If so, it could provide a unique opportunity to study how planets like our own formed. But scientists are also prepared to be surprised and may find that Psyche is some other type of primordial solar system object never before studied.*

*Arizona State University in Tempe leads the Psyche mission. JPL is responsible for the mission's overall management, system engineering, integration and test, and mission operations. Maxar Technologies in Palo Alto, California, supplied the spacecraft's high-power solar electric propulsion chassis. The development of the multispectral imager is led by ASU, in collaboration with Malin Space Science Systems in San Diego.*

*Credit: NASA/JPL-Caltech/ASU*



## Psyche, continued.

how it formed.

The spacecraft's multispectral imager will provide information about the mineral composition of Psyche as well as its topography.

The mission's science team will harness the telecommunications system to conduct gravity science. By analyzing the radio waves the spacecraft communicates with, scientists can measure how the asteroid Psyche affects the spacecraft's orbit. That information will help them determine the asteroid's rotation, mass, and gravity field, offering additional insights into the composition and structure of the asteroid's interior.

4. The spacecraft will use a very efficient propulsion system for the first time beyond the Moon.

Powered by Hall-effect thrusters, Psyche's solar electric propulsion system harnesses energy from large solar arrays to create electric

and magnetic fields. These, in turn, accelerate and expel charged atoms, or ions, of a propellant called xenon (a neutral gas used in car headlights and plasma TVs) at such high speed, it creates thrust. The ionized gas, will emit a sci-fi-like blue glow as it trails behind Psyche in space. Each of Psyche's four thrusters, which will operate one at a time, exert the same amount of force that you would feel holding three quarters in the palm of your hand. In the frictionless void of space, the spacecraft will slowly and continuously accelerate.

This propulsion system builds on similar technologies used by NASA's Dawn mission, but Psyche will be the agency's first mission to use Hall-effect thrusters in deep space.

5. Psyche is a collaboration.

The mission draws on resources and know-how from NASA, universities, and industry. The principal

investigator, Lindy Elkins-Tanton, is based at Arizona State University. By enabling collaboration with students nationwide, the partnership offers opportunities to train future instrument and mission leads in science and engineering, and to inspire student projects involving art, entrepreneurship, and innovation. Over a dozen other universities and research institutions are represented on the mission team.

NASA's Jet Propulsion Laboratory in Southern California manages the mission for the agency's Science Mission Directorate in Washington. Managed for NASA by Caltech in Pasadena, JPL is also responsible for system engineering, integration and test, and mission operations.

NASA's Launch Services Program at Kennedy Space Center manages launch operations and procured the SpaceX Falcon Heavy rocket.

## Psyche, continued.

Maxar Technologies' team in Palo Alto, California, delivered the solar electric propulsion chassis – the main body of the spacecraft – and most of its engineering hardware systems.

6. The Psyche mission wants you to be part of the journey, too.

Space exploration is for everyone. The mission's "get involved" webpage highlights activities and opportunities, including an annual internship for college students to interpret the mission through artistic and other creative works, as well as classroom lessons, craft projects, and videos. Information on how to participate in a virtual launch experience is at [nasa.gov/specials/virtualguest/](http://nasa.gov/specials/virtualguest/).

The mission websites [nasa.gov/psyche](http://nasa.gov/psyche) and [psyche.asu.edu](http://psyche.asu.edu) will post official news about the spacecraft's journey. NASA and ASU will also post regular social media updates on Facebook, Instagram, and X.

NASA's Eyes on the

Solar System, a free web-based 3D visualization tool, will track the location of the spacecraft in real time. Visit [go.nasa.gov/45k0OVY](http://go.nasa.gov/45k0OVY) to see where Psyche is in the solar system.

About two months after launch, as the team performs an initial checkout of the spacecraft and science instruments, the mission expects to receive its first images. Once the team confirms the imager is functioning as expected, a webpage will feature the unprocessed, or raw, images flowing straight from the spacecraft.

### More About the Mission

A technology demonstration called Deep Space Optical Communications (DSOC) will fly on Psyche in order to test high-data-rate laser communications that could be used by future NASA missions. JPL manages DSOC for the Technology Demonstration Missions program within NASA's Space

Technology Mission Directorate and the Space Communications and Navigation program within the Space Operations Mission Directorate.

Psyche is the 14th mission selected as part of NASA's Discovery Program, managed by the agency's Marshall Space Flight Center in Huntsville, Alabama.

For more about the mission, go to:

<http://www.nasa.gov/psyche>



## NASA's Webb Captures an Ethereal View of NGC 346

*The star-forming region NGC 346 was imaged by the Mid-Infrared Instrument (MIRI) on NASA's Webb telescope. Blue represents silicates and sooty molecules known as polycyclic aromatic hydrocarbons. The more diffuse red light shows dust heated by the bri... Credit: NASA, ESA, CSA, STScI, N. Habel (JPL). Image Processing: P. Kavanagh (Maynooth University).*





## NGC 346, continued.

One of the greatest strengths of NASA's James Webb Space Telescope is its ability to give astronomers detailed views of areas where new stars are being born. The latest example, showcased here in a new image from Webb's Mid-Infrared Instrument (MIRI), is NGC 346 – the brightest and largest star-forming region in the Small Magellanic Cloud.

The Small Magellanic Cloud (SMC) is a satellite galaxy of the Milky Way, visible to the unaided eye in the southern constellation Tucana. This small companion galaxy is more primeval than the Milky Way in that it possesses fewer heavy elements, which are forged in stars through nuclear fusion and supernova explosions, compared to our own galaxy.

Since cosmic dust is formed from heavy elements like silicon and oxygen, scientists

expected the SMC to lack significant amounts of dust. However, the new MIRI image, as well as a previous image of NGC 346 from Webb's Near-Infrared Camera released in January, shows ample dust within this region.

In this representative-color image, blue tendrils trace emissions from material that includes dusty silicates and sooty chemical molecules known as polycyclic aromatic hydrocarbons, or PAHs. More diffuse red emission shines from warm dust heated by the brightest and most massive stars in the heart of the region. An arc at the center left may be a reflection of light from the star near the arc's center. (Similar, fainter arcs appear associated with stars at lower left and upper right.) Lastly, bright patches and filaments mark areas with abundant numbers of protostars. The research team looked for the reddest stars and found 1,001 pinpoint sources

of light, most of them young stars still embedded in their dusty cocoons.

By combining Webb data in both the near-infrared and mid-infrared, astronomers are able to take a fuller census of the stars and protostars within this dynamic region. The results have implications for our understanding of galaxies that existed billions of years ago, during an era in the universe known as “cosmic noon,” when star formation was at its peak and heavy element concentrations were lower, as seen in the SMC.

# Club Offices and Duties

*Nominations for next year's officers will begin at the September meeting, and remain open until election at the October meeting.*

Club officer nominations are made in September and elections are held in October. The following is a list of responsibilities of each of the officers and what is required to maintain a functioning club.

As stated in the bylaws, the club has five officers: President, Vice President, Secretary, Treasurer and Second Vice President. The business of the club is managed by a Board of Directors. The Board consists of the five elected officers. Each decision of the Board requires an affirmative vote by at least three Board members. The Board can also create additional non-elected offices as required and can initiate impeachment proceedings against officers who have been negligent in performing their duties.

The Prairie Astronomy Club has a fifty year history of service to club members and the community. Potential club officers should

have a good understanding of the history of the club, its formation and mission, its relationship with Hyde Observatory and the types of events, activities and outreach that is part of the tradition of the club. The most complete resource is the book *The Prairie Astronomy Club: Fifty Years of Amateur Astronomy*, which is in the club library or available as a PDF document.

## President

The President organizes and directs the regular monthly meetings and all other club activities. The President also prepares the meeting agenda and PowerPoint for the meeting.

The President also officially represents the club at meetings at the regional and national level where he/she is in attendance or delegates this authority. The President has the authority to call meetings of the Board and to appoint non-elected officers.

The President should have good communication skills and be comfortable interacting with the media and public, be a good public speaker, be available to do radio and TV interviews and to deliver prepared introductions and remarks at club-sponsored events.

Another duty of the President is the annual club audit. Within 10 days of assuming office, the President must appoint a committee of three club members to perform the audit. The audit must be completed within 45 days of the close of the fiscal year which is October 31.

When assuming office, the President should hold a meeting of the Board to present his/her direction and ideas for the club for the coming year, and appoint any unfilled non-elected positions.

## Vice President

The Vice President is responsible for running

## Club Offices and Duties, continued.

club meetings and other events in the absence of the President. The VP is also to be the mediator in cases of procedural dispute and must be available to assume the duties of any officer at the direction of the President. The VP also maintains control of the current inventory of all club property.

### Secretary

The Secretary handles all Club correspondence, is responsible for the distribution of information received through official club correspondence and is in charge of Club publicity (often the job of Publicity or Outreach Coordinator is delegated to a non-elected member). The Secretary also sends out membership renewal notices and delivers meeting minutes to the newsletter editor. The Secretary is responsible for maintaining an accurate club membership roster. The master copy of the roster is currently maintained on the Night Sky Network website. The bylaws also require publication of the complete roster in the

newsletter on an annual basis.

### Treasurer

The Treasurer is responsible for all Club funds and for keeping accurate records of all monetary transactions. The Treasurer must submit a written report of the club's monetary status at the request of the President or give a verbal report at the request of any member during regular meetings. He/she also prepares an annual financial report in November for publication in the newsletter and presentation at the November meeting. The Treasurer is also responsible for all tax filings and reporting requirements, to maintain the club's 501c3 status.

### Second Vice President (and Program Chair)

The Second Vice President is responsible for the formation and presentation of the monthly club programs. Ideally the 2nd VP should try to plan ahead six months to one year to build a list of potential presenters or programs. The 2nd VP

also sends out email announcements of upcoming programs to the membership, and sends a program description to the newsletter/website editors.

The club usually has several appointed positions:

The Publications Chairperson (or Newsletter Editor) is responsible for editing and publishing the Prairie Astronomer. The newsletter editor may also be the website manager/editor. The newsletter editor should have a good working knowledge of desktop publishing software (and computers in general), graphics, photo editing, some design and layout experience and some experience with social networking and Internet marketing. The Website editor needs to be familiar with WordPress (or similar CMS software) and graphics and word processing applications. Ideally the newsletter and website editor(s) should have prior experience with the publication of a newsletter or website, or demonstrated skills. The



## Club Offices and Duties, continued.

publications chairperson is also responsible for social networking for the club - posting Facebook and Twitter announcements for club meetings and events (or this responsibility might be delegated to another officer or someone appointed by the President).

If the club has an appointed Outreach Coordinator, the coordinator takes on some of the roles performed by other officers - organizes outreach events, shares in media communications tasks, puts together flyers, etc.

The Club Librarian (often the Vice President) manages the club library. He/she

keeps a current bibliographic listing of all Club library material including the archive of all back issues of *The Prairie Astronomer*. The Club Librarian and Secretary work together to maintain a record of club activities and regularly update the official club history.

The Observing Chairperson presents a monthly report at Club meetings and/or in the *Prairie Astronomer*. He/she keeps members informed of upcoming celestial events, sky objects of special interest and star parties.

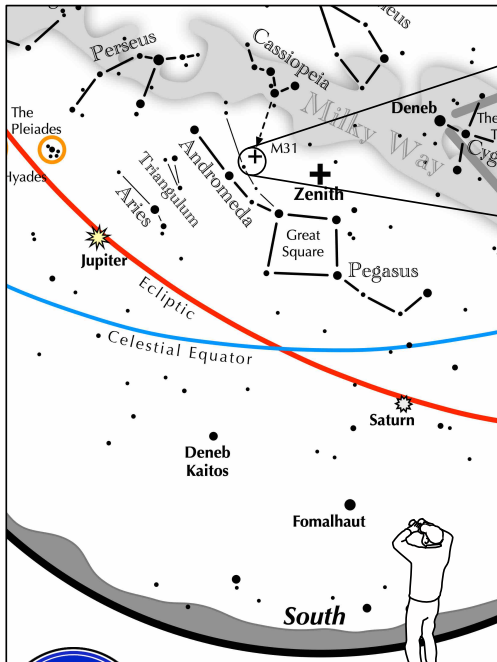
The Recording Secretary (often the Club's elected Secretary) is responsible for keeping the minutes of the club meetings and

filing a copy with the Club Secretary. Minutes need to be kept in a systematic fashion as they record the history and life of the club and need to be published in the *Prairie Astronomer* on a monthly basis.

The Site Chairperson (if one is appointed) is responsible for establishing a site committee to oversee the maintenance and security of the club observing site.

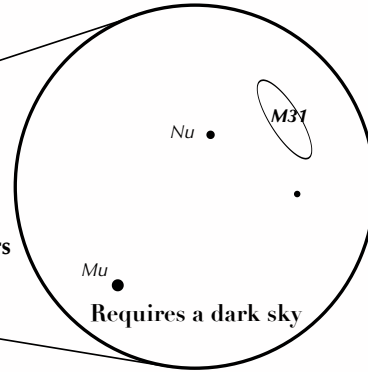
While not a requirement of the bylaws, all club officers and appointees should have good computer and social media skills, should be accessible and responsive via email and phone. §

If you can observe only one celestial event this month, consider this one:



South  
90 minutes after sunset

View through 10x50 binoculars



Requires a dark sky

**Have you seen M31, the Andromeda Galaxy?**

Look high in the south 90 minutes after sunset in November.

- Find the Great Square nearly at the zenith.
- Identify the line of four stars beginning at the northeast corner of the Great Square and extending northeast.
- Identify a second but dimmer line extending more northeasterly than the first line. These two lines represent Andromeda.
- Identify the third star on each line.
- A line passing through those two stars and extending northwest for the same length lands on M31.

OR ...

- Draw an arrow pointing southward through the three westernmost stars of Cassiopeia's "W."
- Extend that line for the same length as Cassiopeia is wide.
- It ends on M31.

**SIM UNIVERSE V1.4**



*"The humans in the simulation launched another space telescope. I'm going to change the Hubble Constant again just to mess with them."*

# Astrophotography



*The full moon by Dave Knisely*

*September 29<sup>th</sup>, 9.25 inch f/10 SCT using a  
0.63 focal reducer, 1/4000 sec. exposure at  
ISO800.*



# Astrophotography



*The Milky Way at Spring Creek Prairie, by Mark Dahmke*

*October 7, 2023, 8pm*

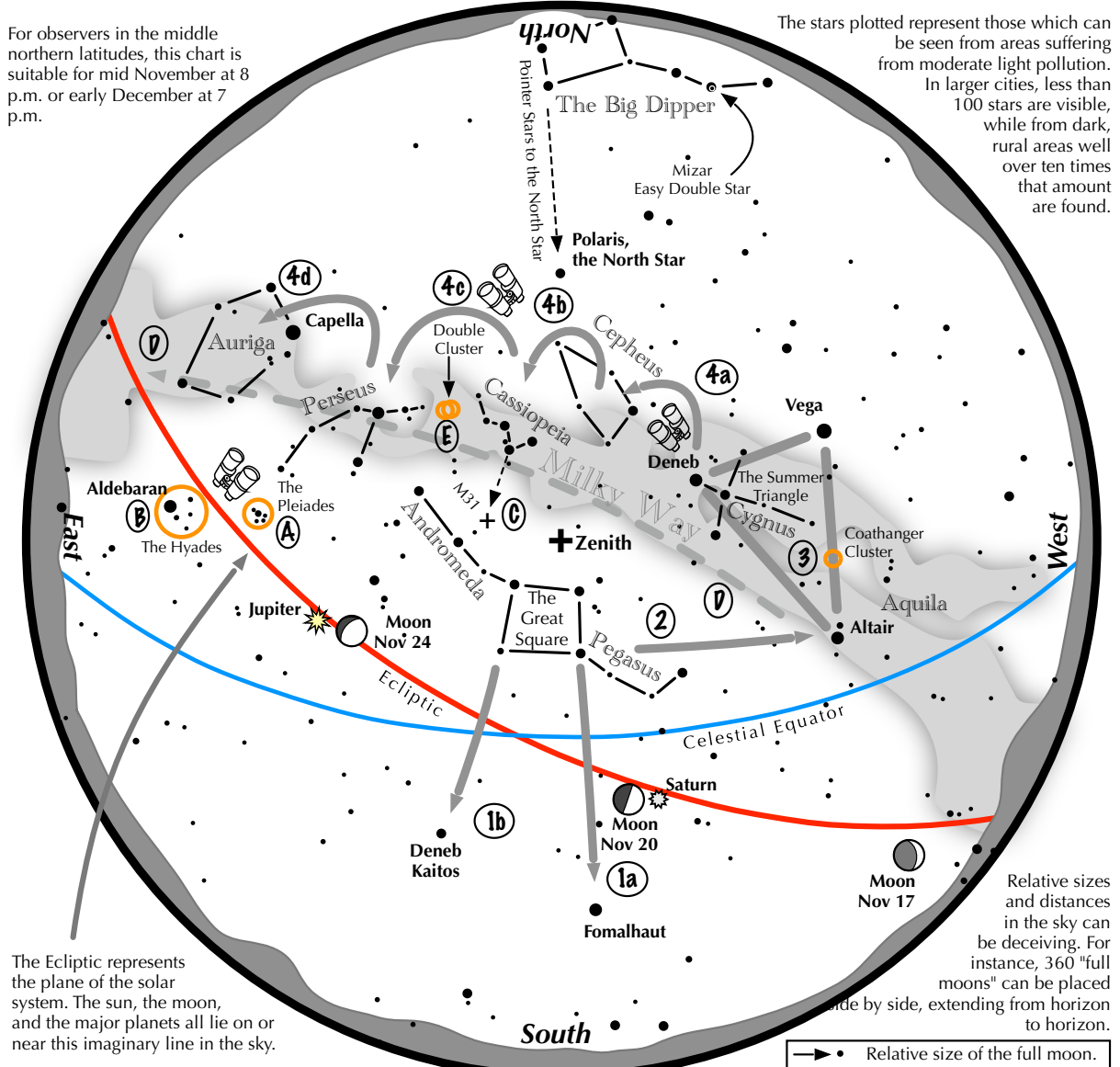
*Panasonic Lumix GH5s, 10mm Voigtlander f/0.95 lens,*

*ISO 3200, f/1, 8 seconds*

# Navigating the November Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid November at 8 p.m. or early December at 7 p.m.

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



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


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

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

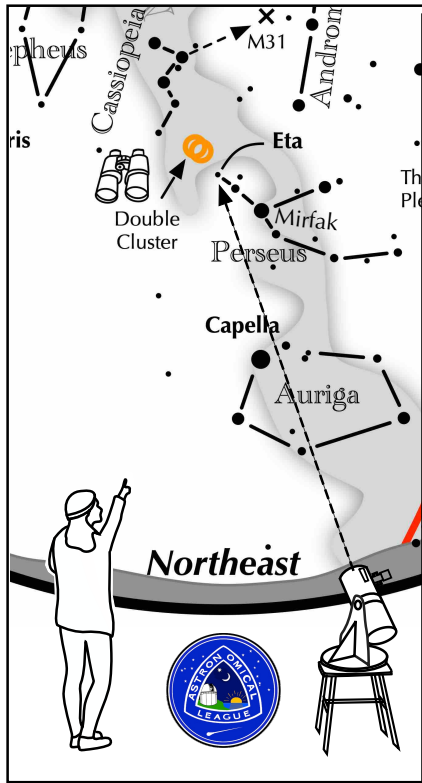
- 1 Face south. Almost overhead lies the "Great Square" with four stars about the same brightness as those of the Big Dipper. Extend a line southward following the Square's two westernmost stars. The line strikes Fomalhaut, the brightest star in the south. A line extending southward from the two easternmost stars, passes Deneb Kaitos, the second brightest star in the south.
- 2 Draw a line westward following the southern edge of the Square until it strikes Altair, part of the "Summer Triangle."
- 3 Locate Vega and Deneb, the other two stars of the Summer Triangle. Vega is its brightest member, while Deneb sits in the middle of the Milky Way.
- 4 Jump along the Milky Way from Deneb to Cepheus, which resembles the outline of a house. Continue jumping to the "W" of Cassiopeia, then to Perseus, and finally to Auriga with its bright star Capella.

**Binocular Highlights**

**A and B:** Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **D:** Sweep along the Milky Way from Altair, past Deneb, through Cepheus, Cassiopeia and Perseus, then to Auriga for many intriguing star clusters and nebulous areas. **E:** The Double Cluster.



## ASTRONOMICAL LEAGUE Double Star Activity



### Other Suns: Eta Persei

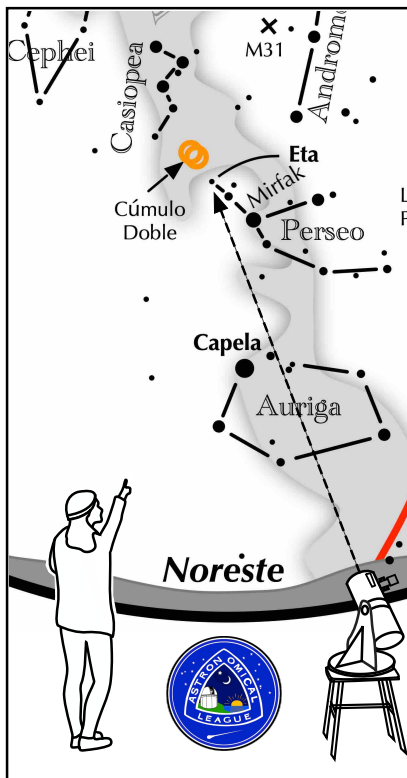
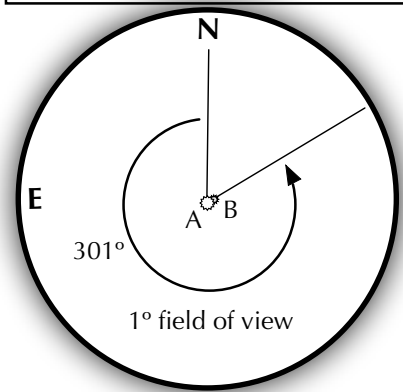
#### How to find Eta Persei on a November evening

Face northeast. Between bright Capella and the "W" of Cassiopeia, is the constellation Perseus. Eta Persei is not quite mid way between Mirfak, the brightest star in Perseus, and the eastern edge of the "W." It lies close to the Double Cluster.

Suggested magnification: 40x  
Suggested aperture: >3 inches

#### Eta Persei

A-B separation: 28 sec  
A magnitude: 3.8  
B magnitude: 8.5  
Position Angle: 301°  
A & B colors:  
yellow, blue



### Otros Soles: Eta Persei

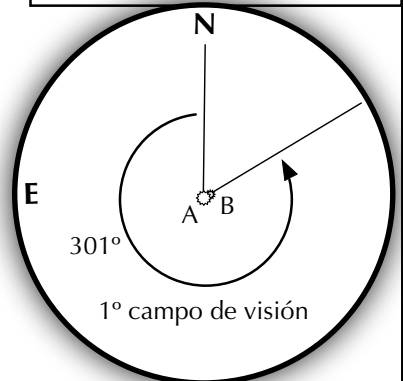
#### Cómo encontrar a Eta Persei en una tarde de noviembre

Mira al noreste. Entre la brillante Capella y la "W" de Casiopea, se encuentra la constelación de Perseo. Eta Persei no está a mitad de camino entre Mirfak, la estrella más brillante de Perseo, y el borde oriental de la "W". Se encuentra cerca del Cúmulo Doble.

Ampliación sugerida: >40x,  
Apertura sugerida: >75 mm

#### Eta Persei

A-B separación: 28 sec  
A magnitud: 3.8  
B magnitud: 8.5  
PA: 301°  
A & B color:  
amarilla, azul



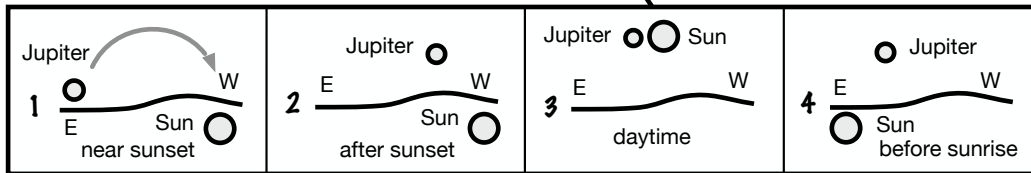
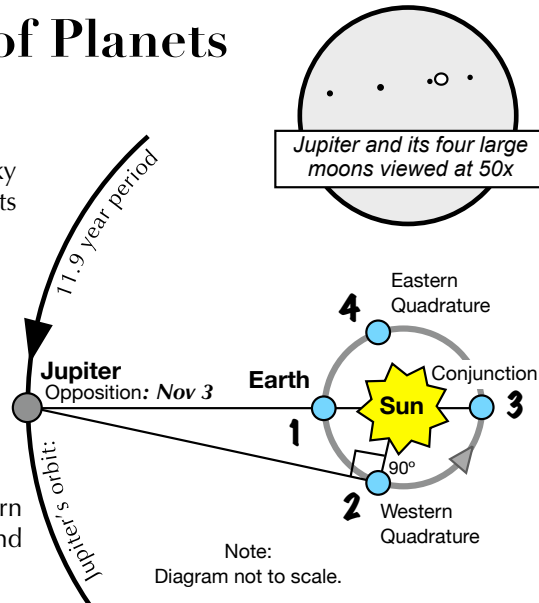




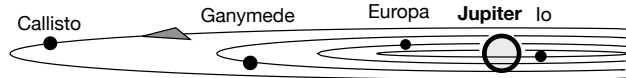
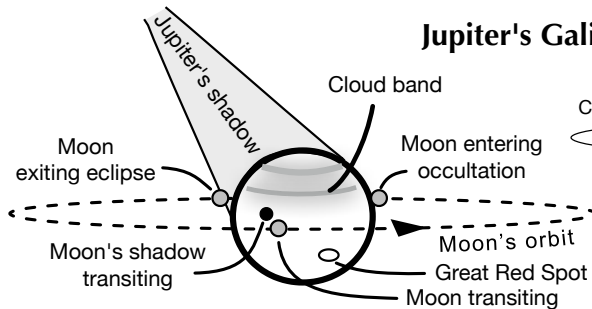
# Jupiter, King of Planets

## Orbital Aspects

- 1 At opposition – when it is opposite the sun in the sky – Jupiter is at its closest to Earth and, hence, at its brightest. It rises near sunset and is visible all night.
- 2 As Earth moves ahead of Jupiter, it is seen moving nightly towards the west after sunset. Eventually, it will set just after sunset.
- 3 At solar conjunction – when Jupiter lives on the far side of the Sun – it appears in the daytime sky near the Sun, and can't be seen.
- 4 As Earth catches up to Jupiter, it is found in the eastern morning sky moving westward away from the Sun, and rising earlier. Eventually, it rises shortly after sunset.



## Jupiter's Galilean moons



### Relative orbital distances of the Galilean moons

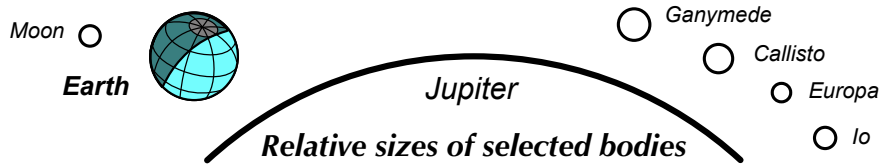
- As the four moons orbit Jupiter, they change their relative positions with each other.
- They are seen as up to four pinpoints on either side of the planet, all in a line.

### A small telescope can show:

- The planet's slight oval shape
- Cloud bands on Jupiter
- Moon entering/exiting occultation
- Moon entering/exiting eclipse
- Moon transiting the planet
- Moon's shadow transiting the planet
- The Great Red Spot rotates into view every 10 hours.



Galilean Moon	Diameter (miles)	Distance (miles)	Period (days)	Opposition Magnitude
Io	2260	262,000	1.8	5.0
Europa	1940	416,000	3.6	5.3
Ganymede	3270	665,000	7.2	4.6
Callisto	2990	1,170,000	16.7	5.7



# From the Archives

October, 1976

## THE PRAIRIE ASTRONOMER

Volume 16, Number 12

October 26, 1976

### ELECTION OF OFFICERS IS RESCHEDULED FOR OCTOBER CLUB MEETING

Members who were present at last month's meeting -- and there weren't very many of them--know that scheduled elections were postponed to the October meeting. Because terms of office begin November 1, the election must be held this month, regardless of attendance at the meeting. So all members are urged to be at Olin Hall Tuesday night, October 26, at 7:30 p.m.

No additional names were placed in nomination for the offices available in the club at the last meeting. The slate proposed by the Nominating Committee stands for election, but more names can be submitted in advance of the voting. The proposed slate of candidates is:

President -- Larry Stepp  
 Vice President -- Rick Johnson  
 Secretary -- Dr. Robert Manthey  
 Treasurer -- Lee Thomas\*  
 Program Chairman -- Jack Dunn\*

(\*indicates incumbent)

Jack Dunn will be teaching the last session of his Backyard Astronomy class the night of the meeting, but he will be sending along two films for us to choose from for the program: "Project Helios", or "Opportunities In Space", both from NASA.

There will be a short meeting of the Executive Committee at 7:15 p.m., prior to the club meeting. The pub-

lishers of the Mid States Region newsletter have informed the editor of The Prairie Astronomer that an assessment of 50¢ per member for each of the 64 listed members of the Prairie Astronomy Club is to be made to cover costs of producing and mailing the Midstates newsletter. This amounts to \$32 for the current year, and since no provision has been made for this expense in the present membership dues, a decision must be made by the Executive Committee either to raise membership dues to cover the midstates newsletter, or to decline club participation in this project.

### CLUB ACTIVITIES INCLUDE SKYSHOW

A Gateway Sky Show was held two days after last month's meeting, with a better-than-average turnout of telescopes...five in all. The night was clear, and Larry Stepp reports many Gateway shoppers took the opportunity to look at the sky.

The club also fielded five telescopes at the University of Nebraska on October 5 for Jack Dunn's Backyard Astronomer's class.

The planned Star Watch on Tuesday night, October 19, at Holmes Park succumbed to dismal gray skies, which occasionally spat the first snow flakes of the season, and a cold north wind that drove temperatures to the freezing mark.



# Hoot n' Howl Event at Spring Creek Prairie



*Dave Knisely, Jim Kvasnicka and Don Hain brought telescopes and showed the large crowd views of Saturn and other objects. It was a nice clear evening with an appearance of a group of 20 new Starlink satellites moving from NW to NE at about 7:55pm.*





# Hoot n' Howl



## CLUB MEMBERSHIP INFO

**REGULAR MEMBER** - \$30.00 per year. Includes club newsletter, and 1 vote at club meetings, plus all other standard club privileges.

**FAMILY MEMBER** - \$35.00 per year. Same as regular member except gets 2 votes at club meetings.

**STUDENT MEMBER** - \$10.00 per year with volunteer requirement.

If you renew your membership prior to your annual renewal date, you will receive a 10% discount.

Club members are also eligible for special subscription discounts on Sky & Telescope Magazine.

## CLUB TELESCOPES

To check out one of the club telescopes, please contact a club officer. Scopes can be checked out at a regular club meeting and kept for one month. Checkout can be extended for another month if there are no other requests for the telescope, but you must notify a club officer in advance.

100mm Orion refractor: Available  
 10 inch Meade Starfinder Dobsonian: Available  
 13 inch Truss Dobsonian: Needs repair  
 10 inch Zhumell: Needs mount

Buy the book! The Prairie Astronomy Club: Fifty Years of Amateur Astronomy. Order online from Amazon or [lulu.com](http://lulu.com).

## ADDRESS

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[info@prairieastronomyclub.org](mailto:info@prairieastronomyclub.org)

The Prairie Astronomer is published monthly by the Prairie Astronomy Club, Inc. Membership expiration date is listed on the mailing label. Membership dues are: Regular \$30/yr, Family \$35/yr. Address all new memberships and renewals to: The Prairie Astronomy Club, Inc., PO Box 5585, Lincoln, NE 68505-0585. For other club information, please contact one of the club officers listed to the right. Newsletter comments and articles should be submitted to: Mark Dahmke, P. O. Box 5585, Lincoln, NE 68505 or [mark@dahmke.com](mailto:mark@dahmke.com), no less than ten days prior to the club meeting. The Prairie Astronomy Club meets the last Tuesday of each month at Hyde Memorial Observatory in Lincoln, NE.

