The Prairie Astronomer September 2024 Volume 65, Issue #9

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Hubble Examines a Busy Galactic Center
Webb Peers into the Extreme Outer Galaxy
From the Archives: Solar Viewing at Gateway
Astrophotography





Night Sky Network



The Newsletter of the Prairie Astronomy Club

The Prairie Astronomer

The next club meeting is September 24th at 7:30pm at Hyde Observatory

NEXT MEETING AND PROGRAM

The September Program will be "Cosmic Messengers: Exploring the Universe Through Ultra-High Energy Neutrinos" by Ilya Kravchenko, Professor and Vice Chair, Dept of Physics and Astronomy at UNL.

This talk will focus on the realm of neutrino astronomy, where we seek to uncover the secrets of the universe by detecting ultra-high energy neutrinos emitted from the most powerful cosmic accelerators, such as Active Galactic Nuclei.

UPCOMING PROGRAMS

To be announced

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Cover: Western Veil Nebula - by David Dickinson



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.

CALENDAR

Cosmos and Cocktails September 21st, Morrill Hall

PAC Meeting *Tuesday, September 24th, 7:30pm at Hyde Observatory* Program: The IceCube Neutrino Project

Hoot 'n Howl Fall Festival - outreach event October 12, 5-8pm at Spring Creek Prairie

October PAC Meeting Location and date to be announced

PAC Meeting *Tuesday, November 26th, 7:30pm at Hyde Observatory*

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



www.prairieastronomyclub.org

2024 STAR PARTY DATES

	Date	Date
January	5	12
February	2	9
March	1	8
April	3/29	5
May	4/26	3
June	5/31	7
July	6/28	5
NSP	7/28	8/2
August	7/26	2
September	8/30	6
October	9/27	4
November	11/22	29
December	20	27

Dates in BOLD are closest to the New Moon.

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President

Vice President

Secretary

Treasurer

Editor

2nd VP (Program Chair)

Club Observing Chair

Outreach Coordinator

Website and Newsletter

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Notices

Newsletter Page View Format

How to Adjust Adobe Acrobat Settings for Two Page View

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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: <u>https://newsletters.prairieastronomyclub.org/</u>

Pay Dues Online

<u>https://www.prairieastronomyclub.org/</u> <u>dues/</u>

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 <u>GoogleGroups</u> 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: <u>pac-</u> <u>list@googlegroups.com</u>

The President's Message

Jason O'Flaherty

Dear PAC Members,

Please excuse the brevity this month. I'll surely be back to my usual verbosity next month.

Our next meeting is on September 24th. We will welcome Ilya Kravchenko, Professor and Vice Chair of the **Department of Physics** and Astronomy at UNL. He will present "Cosmic Messengers: Exploring the Universe Through **Ultra-High Energy** Neutrinos," highlighting how modern astronomy uses methods like neutrino detection to uncover the mysteries of the universe. It will be a fascinating talk, so feel free to invite any friends or family who might be interested.

At our last meeting, I mentioned that our October meeting may take place at Branched Oak Observatory. Due to a scheduling conflict, the usual date was unavailable, but I'll provide more information at our September meeting about any changes to the date or venue.

September also marks the time for Club Officer nominations. If you've ever considered taking on a more significant role in the club, now is the time to express your interest. Feel free to contact me; I can provide details on what's involved. We know we will need to fill the role of Second VP next year, as



Bill has informed me that he won't be able to continue in his role.

It sounds like our August 30th Star Party had a great turnout, with eight telescopes, two SeeStars, and a dozen observers. It's great to see such a good turnout!

Wishing you all clear skies and a wonderful start to the fall season.

Best regards,

Jason O'Flaherty

President, Prairie Astronomy Club

New Members

Donald Dukat, Rushville, NE Welcome to the club!

Meeting Minutes

Jim White

8/27/2024

Jason O'Flaherty started the meeting at 7:40 p.m. This is PAC's first formal meeting since May because June was our solar observing get together on the lawn at Hyde there was no meeting in July because of the 31st Annual Nebraska Star Party. Jason asked if there were any new members in attendance and we had one, Jaxzen Marshall, welcome to the club Jaxzen. Jason asked if there were any guests in attendance and we had two. Tonight, we will have a photo presentation of photo's submitted to Jason that club members had taken at the Nebraska Star Party and at other times this year. Tonight's guest speaker will be club member and Website and Newsletter Editor Mark Dahmke giving a presentation on Lunar Photogrammetry.

At 7:43 Jason turned the meeting over to Jim Kvasnicka, PAC's Observing Chair, for his monthly observing report. This month's star

parties will be on August 30th and September 6th, both will be held at the Clatonia Recreation Area. about 1 ¹/₂ miles north of Clatonia. Planets for the month of September, Mercury is a morning planet, Mars is a morning planet in Gemini, Saturn is in Aquarius at magnitude +0.6 with a disc that is 19.2 arc seconds wide. Jupiter is in Taurus at magnitude -2.4 and has a disc that is 40 arc seconds wide, Uranus and Neptune can be found in Taurus and Pisces, pretty dim at magnitude +5.7 and +7.8. Venus is an evening planet but can be best seen at the end of September. Jim has a couple of observing awards to present tonight to Brett Boller, Brett has completed the **Beyond Polaris Observing Program and** he got his Master Level Award for Outreach. Jim's complete observing report can be found in this newsletter.

At 7:48 Jim turned the meeting back over to Jason who then turned the meeting over to John Reinert for his monthly treasurer's report. John is the person to see if you need to get your membership up to date or want to join the club. He has a few things to take care of this month that include paying insurance, filling forms with the IRS and a roster that goes to the Astronomical League to keep Reflector subscriptions coming. John said that he still needs to get this year's audit completed. The club's current account balances are:

Checking \$4,869.75

CD #1 \$27,066.79

CD #2 \$5,249.45

PayPal \$382.65

Total \$37,568.64

At 7:50 John turned the meeting back over to Jason. Jason went over how to pay dues online or you can pay John with a check or cash. Upcoming club business, we have elections coming up in October so we will be taking nominations at the September meeting. If you are interested in helping with the club please consider nominating yourself or get in touch with Jason or one of the club officers, you can reach Jason or one of the club officers through the Night Sky Network or you can email Jason directly at Jason@Oflaherty.com, you can also find club officer contact information at the beginning of the newsletter. The October meeting will be held at **Branched** Oak **Observatory**. Volunteer opportunities that are coming up are:

Public astronomy viewing at Mahoney

State Park on September 13th

International observe the moon night on September 14th at Hyde Observatory

Cosmos and Cocktails at Morrill Hall on September 21st

Mourning Hope Camp on September 27th (Volunteer positions for this are filled, requires a background check)

Public astronomy viewing at Spring Creek Prairie/Audubon Society on October 12th

If you are interested in helping at one of these events please get in touch with Don Hain. If you aren't receiving email messages from the club and wish to please update your settings on the Night Sky Network under "My Profile" then "Edit Profile" then scroll to the bottom and select the type of notification preferences you would like to receive.

Tonight's meeting adjourned at 8:00 p.m.

The first presentation tonight was the summer astrophotography presentation.

The presentations concluded tonight with Mark Dahmke and his presentation on Lunar Photogrammetry.



NASA's Juno Mission Captures the Colorful and Chaotic Clouds of Jupiter. During its 61st close flyby of Jupiter on May 12, 2024, NASA's Juno spacecraft captured this colorenhanced view of the giant planet's northern hemisphere. Credit: Image data: NASA/JPL-Caltech/SwRI/MSSS Image processing by Gary Eason © CC BY

ARP 71 The Mantrap Skies Image Catalog

Arp 71 is one of four Arp atlas entries in the Hercules Galaxy Cluster (Abell 2151). Most galaxy clusters are made up of elliptical or elliptical-like galaxies. This one is made up of a lot of spiral galaxies which is very rare. Arp 71 belongs to his category for spiral galaxies with small, high surface brightness companions. It is located near the center of the cluster where elliptical galaxies are normally found. The main galaxy is NGC 6045 which NED and the NGC Project classifies as SB(s)c while Seligman adds a question mark. The companion, LEDA 84720, an S07 galaxy is obviously part of the cluster but may not be a true companion, but just a line of sight galaxy in the crowded cluster. NGC 6045 was discovered by Lewis Swift on June 27, 1886. I measure it at about 150,000 light-years, a very large spiral.

This data was taken September 13, 2007. I didn't have the tools to do it justice back then. I need to reshoot this one. It also contains Arp 122, Arp 172



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 <u>www.mantrapskies.com</u>.





ARP71, continued

and Arp 272. Details are in the annotated image. The annotated image

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shows details on many other galaxies in the cluster and beyond it.

Arp's image



October Observing

Jim Kvasnicka

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

Planets

Jupiter: Shines at magnitude -2.4 with a disk 44" wide in Taurus.

Saturn: Magnitude +0.7 with a disk 18.7" wide in Aquarius.

Uranus and Neptune: Look for Uranus in Taurus and Neptune in Pisces.

Mars: Morning planet in Gemini.

Venus: Evening planet at magnitude -4.0.

Meteor Showers

Orionids: October 20-21. Up to 20 per hour, waning gibbous Moon will interfere.

Messier List

M11: The Wild Duck Cluster in Scutum.

M16: Open cluster in the Eagle Nebula.

M17: Omega or Swan Nebula in Sagittarius.

M18/M24: Open cluster and Small Sagittarius Star Cloud in Sagittarius.

M25/M26: Open clusters in Sagittarius.

M55/M75: Class XI and I globular clusters in Sagittarius.

Last Month: M13, M14, M22, M28, M54, M69, M70, M92

Next Month: M27, M30, M56, M57, M71, M72, M73

NGC and other Deep Sky Objects

NGC 7009:

The Saturn Nebula in Aquarius.

NGC 7293: The Helix Nebula in Aquarius.

NGC 7331: Galaxy in Pegasus.

NGC 7479: Galaxy in Pegasus.

NGC 7510: Bright open cluster in Cepheus.

NGC 7606: Galaxy in Aquarius.

Double Star Program List

8 Lacerta: Four white stars.

Beta Cephei: White and blue stars.

Struve 2816: White primary with 2 blue stars.

Xi Cephei: Pair of yellow stars.

Delta Cephei: Yellow primary with a pale blue secondary.

Eta Persei: Yellow and blue stars.

Struve 331: White primary with a light blue secondary.

Epsilon Pegasi: Yellow primary with a white secondary.

Challenge Object

NGC 7769 / 7770 / 7771: Galaxy NGC 7769 is the brightest in this trio in Pegasus.



Focus on Observing Programs

Jim Kvasnicka

Galaxy Groups and Clusters Program

This program of 250 galaxy groups and clusters is designed for detailed visual and/or CCD observation.

Most of the galaxy groups and clusters of this observing program are visually accessible with a 12.5" telescope, although there are some galaxies in the groups and clusters that are beyond almost all amateur observers.

To participate in this program you will need to purchase the Observe Galaxy Groups and Cluster observing guide from the Astronomical League Bookstore. This guide is written to support the program.

There are two categories of search methods, Manual and Device Aided. To be considered for the Manual all objects must be located manually. There are two methods of observing, visual and imaging. Of the 250 objects listed in the Galaxy Groups & Clusters Guide, you need to observe 120 objects. The 120 objects need to be from the following groups:

30 Galaxy Trios, 30 Hickson Galaxy Groups, 30 Additional Galaxy Groups, and 30 Abell Galaxy Clusters.

You can use your own observing logs to record your observations. Your observations should include: object name, date and time, power, seeing, telescope used, filters used, latitude and longitude, and your observing notes.

Once you complete the Galaxy Groups & Clusters Observing Program you will need to submit your observing logs to me for review. I will contact the program chair for approval. Once I receive your certificate and pin I will present them to you at the next PAC meeting.



Europa Seen Up Close by Juno's SRU. This black-and-white image of Europa's surface was taken by the Stellar Reference Unit (SRU) aboard NASA's Juno spacecraft during the Sept. 29, 2022, flyby. The chaos feature nicknamed "the Platypus" is seen in the lower right corner. Credit: NASA/JPL-Caltech/SwRI



Don Hain dhain00@gmail.com, 402 440 5318

My stargazing got reignited a few years ago in the middle of fall. Being 40° north of the equator combined with the 23.5° tilt of the earth means that as the season progresses, the mid-day sun will be much lower in the sky. Fresh feelings of evening sunsets with a bit of chill in the air become more and more common. When daytime gets left behind as the planet turns farther toward objects shadowed from the glow of our own star, the beautiful and bright stars

of winter begin to rise in the east. This is when I first began to finally grasp our ability to visually interact with the various neighborhoods of our universe that we get to see. Hopefully you will get a chance this fall to share with someone a bit about what we will be seeing as we turn toward the Orion Arm of our Milky Way galaxy. Some of the brightest stars the night sky has to offer will be coming into view.

The next couple public events that PAC

members are helping out have the volunteer slots filled. However, you are definitely welcome to ioin in the activities (Cosmos and Cocktails \$45 fee, Saturday, 9/21). The last item listed below ("Hoot 'n Howl") welcomes as many PAC folks as can make it out to Spring Creek Prairie. That will be on Saturday, 10/12 if you are able to make it - this has been a great way to interact with folks from around the area for the last few years.

Saturday, 9/21/2024, 5:15PM(setup), 6:00PM-9:00PM

Where: UN State Museum, Morrill Hall and Planetarium, 645 N 14th St, Lincoln NE What: Cosmos and Cocktails: Dreaming of Autumn

(opportunity for adults in Lincoln community to learn about astronomy) Sponsored by: University of Nebraska State Museum Needs: two volunteer slots already filled – feel free to attend the event

Friday, 9/27/2024, 8:30PM(setup), 9:00PM-10:00PM Where: Camp Carol Joy Hollings, 27416 Ranch Rd, Ashland, NE What: Camp Erin Sponsored by: Mourning Hope Needs: three volunteer slots (already filled)

Saturday, 9/28/2024, 12:30PM(setup), 1:00PM-4:00PM Where: Education Building of the Pioneers Park Nature Center Sponsored by: City of Lincoln (Parks and Recreation, I assume) Needs: Members having telescopes with solar filters / willing to answer visitors astronomy related questions

Outreach Calendar, continued

Saturday, 10/05/2024, sundown-??? Where: Grand Island Sponsored by: Grand Island Library Needs: volunteers other than those from the Platte Valley Astronomical Observers, as they will be at a Cozad star party

Saturday, 10/12/2024, 5:00PM-8:00PM with astronomical viewing until 9:00PM (9:30PM if attendees are still interested) Where: Spring Creek Prairie, 11700 SW 100th St, Denton, NE Sponsored by: Spring Creek Prairie / Audubon Society Needs: as many volunteers as want to come – please let me know so I can get an estimate

Hubble Examines a Busy Galactic Center

This NASA/ESA Hubble Space Telescope image features the spiral galaxy IC 4709 located around 240 million light-years away in the southern constellation Telescopium. Hubble beautifully captures its faint halo and swirling disk filled with stars and dust bands. The compact region at its core might be the most remarkable sight. It holds an active galactic nucleus (AGN).

If IC 4709's core just held stars, it wouldn't be nearly as bright. Instead, it hosts a gargantuan black hole, 65 million times more massive than our Sun. A disk of gas spirals around and eventually into this black hole, crashing together and heating up as it spins. It reaches such high temperatures that it emits vast quantities of electromagnetic radiation, from infrared to visible to ultraviolet light and X-rays. A lane of dark dust, just visible at the center of the galaxy in the image above, obscures the AGN in IC 4709. The dust lane blocks any visible light emission from the nucleus itself. Hubble's spectacular resolution, however, gives astronomers a detailed view of the interaction between the quite small AGN and its host galaxy. This is essential to understanding

supermassive black holes in galaxies much more distant than IC 4709, where resolving such fine details is not possible.

This image incorporates data from two Hubble surveys of nearby AGNs originally identified by NASA's Swift telescope. There are plans for Swift to collect new data on these galaxies. Swift houses three multiwavelength telescopes, collecting data in visible, ultraviolet, X-ray, and gamma-ray light. Its X-ray component will allow SWIFT to directly see the X-rays from IC 4709's AGN breaking through the obscuring

Hubble, continued

dust. ESA's Euclid telescope — currently surveying the dark universe in optical and infrared light — will also image IC 4709 and other local AGNs. Their data, along with Hubble's, provides astronomers with complementary views across the electromagnetic spectrum. Such views are key to fully research and better understand black holes and their influence on their host galaxies.



This NASA/ESA Hubble Space Telescope image features the active spiral galaxy IC 4709. ESA/Hubble & NASA, M. Koss, A, Barth

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NASA's Webb Peers into the Extreme Outer Galaxy

Astronomers have directed NASA's James Webb Space Telescope to examine the outskirts of our Milky Way galaxy. Scientists call this region the Extreme Outer Galaxy due to its location more than 58,000 light-years away from the Galactic Center. (For comparison, Earth is approximately 26,000 light-years from the center.)

A team of scientists used Webb's NIRCam (Near-Infrared Camera) and MIRI (Mid-Infrared Instrument) to image select regions within two molecular clouds known as Digel Clouds 1 and 2. With its high degree of sensitivity and sharp resolution. the Webb data resolved these areas, which are hosts to star clusters undergoing bursts of star formation, in unprecedented detail. Details of this data include components of the clusters such as very young (Class 0) protostars, outflows and iets. and distinctive nebular structures.

These Webb observations, which came from telescope time allocated to Mike Ressler of NASA's Jet Propulsion Laboratory in Southern California, are enabling scientists to study star formation in the outer Milky Way in the same depth of detail as observations of star formation in our own solar neighborhood.

"In the past, we knew about these star-forming regions but were not able to delve into their properties," said Natsuko Izumi of Gifu University and the National Astronomical Observatory of Japan, lead author of the study. "The Webb data builds upon what we have incrementally gathered over the years from prior observations with different telescopes and observatories. We can get very powerful and impressive images of these clouds with Webb. In the case of Digel Cloud 2, I did not expect to see such active star formation and spectacular jets."

Stars in the Making

Although the Digel Clouds are within our galaxy, they are relatively poor in elements heavier than hydrogen and helium. This composition makes them similar to dwarf galaxies and our own Milky Way in its early history. Therefore, the team took the opportunity to use Webb to capture the activity occurring in four clusters of young stars within Digel Clouds 1 and 2: 1A, 1B, 2N, and 2S.

For Cloud 2S, Webb captured the main cluster containing young, newly formed stars. This dense area is quite active as several stars are emitting extended jets of material along their poles. Additionally, while scientists previously suspected a sub-cluster might be present within the cloud, Webb's imaging capabilities confirmed its existence for the first time.

"We know from studying other nearby star-forming regions that as stars form during their early life phase, they start emitting jets of material at their poles," said Ressler, second author of the study and principal investigator of the observing program. "What was fascinating and astounding to me from the Webb data is that there are multiple

Webb, continued

jets shooting out in all different directions from this cluster of stars. It's a little bit like a firecracker, where you see things shooting this way and that."

The Saga of Stars The Webb imagery skims the surface of the Extreme Outer Galaxy and the Digel Clouds, and is just a starting point for the team. They intend to revisit this outpost in the Milky Way to find answers to a variety of current mysteries, including the

relative abundance of stars of various masses within Extreme Outer Galaxy star clusters. This measurement can help astronomers understand how a particular environment can influence different types of stars during their



Scientists used NASA's James Webb Space Telescope to examine select star-forming areas in the Extreme Outer Galaxy in near- and mid-infrared light. Within this star-forming region, known as Digel Cloud 2S, the telescope observed young, newly formed stars and their extended jets of material. This Webb image also shows a dense sea of background galaxies and red nebulous structures within the region. In this image, colors were assigned to different filters from Webb's MIRI and NIRCam: red (F1280W, F770W, F444W), green (F356W, F200W), and blue (F150W; F115W). NASA, ESA, CSA, STScI, M. Ressler (JPL)

Webb, continued

formation.

"I'm interested in continuing to study how star formation is occurring in these regions. By combining data from different observatories and telescopes, we can examine each stage in the evolution process," said Izumi. "We also plan to investigate circumstellar disks within the Extreme Outer Galaxy. We still don't know why their lifetimes are shorter than in star-forming regions much closer to us. And of course, I'd like to understand the kinematics of the jets we detected in Cloud 2S."

Though the story of star formation is complex and some chapters are still shrouded in mystery, Webb is gathering clues and helping astronomers unravel this intricate tale.

These findings have been published in the Astronomical Journal.

The observations were taken as part of Guaranteed Time Observation program 1237.

More About the Mission

The James Webb Space Telescope is the world's premier space science observatory. Webb is solving mysteries in our solar system, looking beyond to distant worlds around other stars, and probing the mysterious structures and origins of our universe and our place in it. Webb is an international program led by NASA with its partners, ESA (European Space Agency) and CSA (Canadian Space Agency).

MIRI was developed through a 50-50 partnership between NASA and ESA. JPL led the U.S. efforts for MIRI, and a multinational consortium of European astronomical institutes contributes for ESA. George Rieke with the University of Arizona is the MIRI science team lead. Gillian Wright is the MIRI European principal investigator.

The MIRI cryocooler development was led and managed by JPL, in collaboration with Northrop Grumman in Redondo Beach, California, and NASA's Goddard Space Flight Center in Greenbelt, Maryland.

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 shall be managed by a Board of Directors, which shall have the power to spend funds from the treasury for any valid purpose.

The Board shall create additional non-elected offices as required and initiate impeachment proceedings against officers who have been negligent in performing their duties.

Each decision of the Board shall require an affirmative vote of a majority of the Board members present, with a minimum of three members present. The Prairie Astronomy Club has a sixty 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 shall organize and direct the regular monthly meetings and all other Club activities, officially represent the Club at meetings of regional and national importance where he/she is in attendance or delegate this authority, call meetings of the Board of Directors, and appoint non-elected officers.

Vice President

The Vice-President shall be responsible for meetings when the President is absent, mediate in cases of procedural dispute, temporarily assume any duties of any officer at the direction of the President, and maintain control of the current inventory of all club property.

Secretary

The Secretary shall be responsible for taking minutes at each club meeting and shall be in charge of Club publicity.

Treasurer

The Treasurer is responsible for all Club funds, communications with club members regarding the payment of dues, and keeping accurate records of all monetary transactions. In addition, the Treasurer is responsible for:

1.Sending out membership renewal notices.

2.Submitting a written report of the Club's monetary status at the request of the President

Club Offices and Duties, continued

or giving a verbal report at the request of any member during regular meetings.

3.Providing an annual financial summary to the auditing committee. The final audit report is to be completed, and final approval will be submitted to the President and club membership by the end of February.

4.Maintaining an accurate club membership roster.

5.All tax filings and reporting requirements needed to maintain the Club's 501c3 status.

Second Vice President

The 2nd Vice-President shall be responsible for the formation and presentation of monthly Club programs.

Publications Chairperson

The Publications Chairperson (or Newsletter Editor) is responsible for editing and publishing the *Prairie Astronomer*. The newsletter editor should have prior experience with the publication of a newsletter or demonstrated technical skills required for producing a newsletter.

Site Chairperson

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.

Recording Secretary

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 must be published in the *Prairie Astronomer* on a monthly basis.

Librarian

The Librarian shall keep the Club library and promote its circulation among the Club members. Dated records of persons to whom books are circulated are to be kept by the Librarian. He/she shall keep a current index of all Club library materials and file updated copies with the Club Treasurer as necessary. The Club Librarian and Secretary work together to maintain a record of club activities and regularly update the official club history.

Observing Chairperson

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

Outreach Chairperson

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

All elected and non-elected officers must be accessible and responsive to club members via email and telephone or through other means of communication that are in common use. §



Volunteer at Hyde

Our crew of unpaid volunteers share an interest in Astronomy and they enjoy passing on that interest to the public.



You don't need to be an expert in astronomy or telescopes. **We'll teach you what you need to know.**



Volunteers start as telescope operators on the observing deck, which involves keeping one of the three telescopes focused on the sky objects we are showing and explaining them to our visitors. Experienced volunteers can become Deck Leaders who determine what objects to train the telescopes on, and answer the really difficult questions.

For more information, visit our website

Navigating the mid October Night Sky



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

- 1 Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the early October evening sky.
- **3** To the northeast of Arcturus shines another star of the same brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
- 4 Nearly overhead lie the summer triangle stars of Vega, Altair, and Deneb.
- 5 High in the east are the four moderately bright stars of the Great Square. Its two southern stars point west to Altair. Its two western stars point south to Fomalhaut.

Binocular Highlights

A: On the western side of the Keystone glows the Great Hercules Cluster, a ball of 500,000 stars. B: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger. C: Sweep along the Milky Way for an astounding number of fuzzy star clusters and nebulae amid many faint glows and dark bays, including the Great Rift. D: The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. E: Between the "W" of Cassiopeia and Perseus lies the Double Cluster.



Astronomical League www.astroleague.org; duplication is allowed and encouraged for all free distribution.

Astronomical League Outreach

ASTRONOMICAL LEAGUE Double Star Activity





I WANT THIS DEVICE.

Astronomical League Outreach



The **First Point of Aries** marks the intersection of the celestial equator and the ascending ecliptic which defines the location of 0 hrs Right Ascension.

Naked eye and binocular sights

Circlet. These six, maybe seven depending on sky clarity and visual acuity, 4th and 5th magnitude stars trace a squashed circle at the far southwestern corner of Pisces.



In 2024, Saturn lies 10° southwest of the Circlet and Neptune hides just 5° to its southeast.

Astrophotography



Western Veil Nebula - by David Dickinson

ISO 200. 30 second exposure. 102 stacked photos for a total exposure time of 3,060 seconds. Celestron Origin with an OIII filter. I then used Topaz Photo AI to post process.

Astrophotography



NGC 7380 The Wizard Nebula - by David Dickinson

ISO 200. 15 second exposure. 190 stacked photos for a total exposure time of 2,850 seconds. Celestron Origin with an OIII filter. I then used Topaz Photo AI to post process.

Astrophotography

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Andromeda galaxy - M31 by Leona Barratt Vespera classic - approximately 10 hours Processed with PS and Affinity Pro. Near Denton Nebraska

From the Archives September, 1969

Solar Eclipse Viewing at Gateway

The President's Report A partial eclipse of the sun on September 11 was viewed by the public at Gateway. Our club had the honor of putting on this show for a large number of interested spectators. Three of the scopes were reflectors and used the projection method for viewing the eclipse. The other two scopes were Questars, and they used their own sun filters and direct viewing. Ten club members were on hand to help in giving the

public a safe view of the sun. Thanks to our public relations chairman this event was well covered by the radio, television, and newspapers.

Although the eclipse show was well attended by club members, some of the evening sky shows in the past were not. There were times when as few as three or four showed up for a sky show at Gateway, even on clear nights. Our club was presented with another \$50 check a few weeks ago. If we want to keep receiving this money for the club, the least we could do is have a decent number of members on hand for these sky shows. So come to the Gateway shows whether you have a telescope or not. We need the extra help for answering questions and setting up equipment. You may not receive this newsletter in time for the September 18 Gateway show, but let's have a real good turn-out in October.

Earl Moser





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: Available10 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 <u>lulu.com</u>.

ADDRESS

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