The Prairie Astronomer

November 2022 Volume 63, Issue #11

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Webb, Pillars of Creation

Night Sky Network

The Newsletter of the Prairie Astronomy Club

The Prairie Astronomer

The next meeting is November 29th at 7:30pm at Hyde Observatory

NEXT MEETING AND PROGRAM

Blair Belt, works as an astronomer and environmentalist at Mayland Earth to Sky Park, North Carolina, which is an IDA dark sky site. Blair will talk about Dark Sky's and IDA Advocacy, what they have done to preserve their dark skies and how PAC members can get involved in their own community.

UPCOMING PROGRAMS

January: Northern Lights and a Trip to the Arctic - Mark Dahmke

May: Annual Club Dinner
June: Solar Star Party

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Cover: The Pillars of Creation (Webb MIRI Image), Credit: NASA, ESA, CSA, STScI

Background photo: Brett Boller

CALENDAR

PAC Meeting
November 29, 7:30pm at Hyde Observatory
Speaker: Blair Belt, IDA Dark Sky Site

PAC Meeting
December 20th, 7pm
Holiday Gathering, Tanner's Restaurant

Special Program: How to Use Your Telescope
January 20th at Hyde Observatory

PAC Meeting
January 31, 7:30pm at Hyde Observatory
Program: The Northern Lights and a Trip to the Arctic - Mark Dahmke

2023 STAR PARTY DATES

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

Dates in BOLD are closest to the New Moon.

CLUB OFFICERS

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Night Sky Network

www.prairieastronomyclub.org

Meeting Minutes

Jim White

PAC meeting minutes October 25, 2022 as recorded by Bill Lohrberg

The meeting was held at Branched Oak Observatory, Jason O'Flaherty presiding for Bob Kacvinsky. The meeting began at 7:30pm, with 11 attendees in person, 4 remotely participating via zoom.

Jason started with announcements for club star parties October 28, November 18 and 25, we will continue to explore using an alternate site to the Cortland site, a public use area near Clatonia.

Jason continued with the November observing report as prepared by observing chair Jim Kvasnicka, starting with planets, Messiers objects and NGC's to observe in November, and a special note about the total lunar eclipse occurring on Tuesday November 8th starting at 2 am.

For upcoming events it was announced the traditional program "how to buy a telescope" will be moved to a different date and presented as a class for PAC and open to the public. It was determined we will hold this on a Sunday afternoon before Thanksgiving – specific Sunday in November and time to be determined. Enough volunteers indicated their availability to help, and additional volunteers stated they would be willing to chip in. various examples of scopes to set up was suggested to demonstrate.

Bill Lohrberg is working with the help from Jack Dunn and others on an alternate program for the November meeting – to be announced.

The December PAC meeting was planned for Dec 20th tentatively at Tanner's restaurant – a holiday social gathering with no formal meeting or program.

Club treasurer John Reinert reported on the status of accounts, also working with Mark Dahmke, on finalizing electronic payment options for dues etc. Members can continue to pay by check, but John stressed the importance of doing this correctly and trouble free for a smooth transition to the next club treasurer and beyond. There was a question about the Amazon Smile account – details regarding this and other accounts and more specifics will be known upon the completion of the club audit. Finalizing a hold harmless agreement with Branched Oak Observatory is in process for property and scopes in storage in lieu of paying for an insurance policy. In addition to this was a discussion about the possibility of moving a CD to a higher earning savings account. This

will be an ongoing discussion for future.

The closing of nominations for new club officers and election of the following club officers was approved unanimously by all present with no objections:

President: Jason O'Flaherty

1st Vice President: Brett Boller

2nd Vice President: Bill Lohrberg

Treasurer: John Reinert

Secretary: Jim White

The meeting was adjourned at approximately 7:51 pm. Club members present were invited to observe on the B.O.O. field and observatory.

Observing Awards

Congratulations to Jim Kvasnicka for completing the Stellar Evolution Observing Program. Jim is the first PAC member to complete the Stellar Evolution Observing Program, and this is the twelfth observing program Jim has completed.

The President's Message

Jason O'Flaherty

Let me start my first message from the president by paraphrasing Stephen Hawking. 'One of the basic rules of the universe is that nothing is perfect. Without imperfection, I wouldn't be the new club president.' Another quote that comes to mind is from the Lord of the Rings. 'I don't know half of you half as well as I should like.' Yet here I am, and I thank you for your confidence in me. I will do my best to respect the club's 62 years of history while moving forward with new ideas and technologies.

We held our October meeting at the Branched Oak Observatory (BOO) on the 25th. There was good attendance, with several first-time attendees. After voting in our 2022-2023 officers, Brian Sivill opened one of the observatories and let us look through some of the telescopes. We had some fun trying to find the E.T./Stickman/Owl asterism while knowing the whole time that some members not in attendance could have found it instantly.

This year's officers are:

President:
Jason O'Flaherty

1st Vice President:
Brett Boller

2nd Vice President:
Bill Lohrberg

Treasurer:
John Reinert

Secretary:
Jim White

The unelected chairs:

Observing Chair:
Jim Kvasnicka

Outreach Coordinator:
Christine Parkyn

Mentorship Chair:
Bob Kacvinsky

Library Equipment Coordinator:
Richard Littrell

Site Manager and Newsletter Editor:
Mark Dahmke

PAC's next meeting will be on Tuesday, November 29th, at 7:30 p.m. Usually, our November meeting would be occupied with our "How to Buy a Telescope" class. This year we decided to turn that topic into a standalone class that took place on November 20th, which will be before this newsletter comes out. This new arrangement allows us to use our meeting to host another presenter. We will be

President's Message, continued.

welcoming Blair Belt-Clark, the Earth to Sky Park coordinator, out of North Carolina. Earth to Sky is an environmental park with an IDA Dark Sky designation. She will talk about what that means, how to maintain that designation, and how to help people enjoy this unique resource. Thank you to Bill Lohrberg and Jack Dunn for coordinating this.

On November 16th, I sent out the annual 2023 PAC survey. You have until the end of November 23rd to fill it out. This survey helps me and the board make decisions that reflect the club's interests. I sent it to the general Night Sky Network mailing list, so contact me if you did not receive the email. One critical question on the survey pertains to getting a headcount for our Holiday Party.

The Holiday Party will be the Tuesday before our usual club meeting night, on Tuesday, December 20th, at 7 p.m. We will not be having a club meeting at Hyde in December. I tentatively have Tanners booked again, but they've changed management and may require us to have a catered menu depending on the number of attendees. I prefer to avoid catering, so if our number exceeds their limit, I will look for other venues. I will send out an official invite by the end of November.

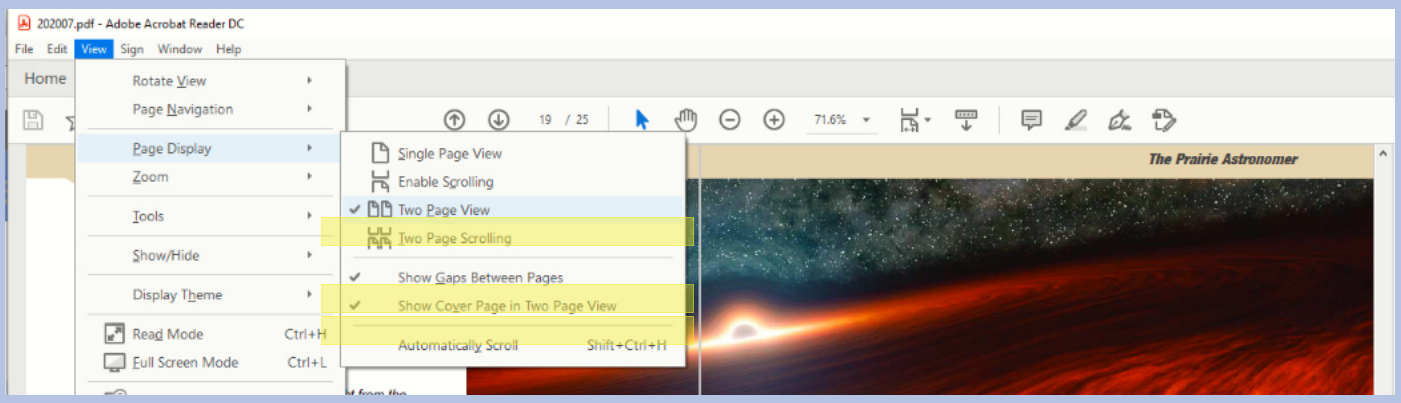
Bob Kacvinsky has been hard at work getting our loaner telescopes into a ready state so that people can check them out and have everything they need to use them. He provided some eyepieces as well as Don Hain. We also had an Orion Starblast 6i Intelliscope donated by a member at the October meeting. I apologize profusely that I've forgotten who provided it. It was dark, and I met a lot of new people. At the risk of crediting the wrong person, I will find out who gifted it to us and provide an update in next month's newsletter.

Thank you again for welcoming me to this new position. I look forward to getting to know you all more. I'll leave you with one more Hawking quote. "Remember to look up at the stars and not down at your feet."

Notices

New Newsletter 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 now available online:

https://www.prairieastronomyclub.org/newsletters

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

Hoot 'n' Howl Fest
At Spring Creek Prairie

Lazy Horse Brewery Star Party, Ohiowa, Nebraska

Bob Kacvinsky

After two years of Covid delays, weather impediments, and reschedules PAC finally accomplished a star party hosted by Lazy Horse Brewery in Ohiowa Nebraska. It proved to be a wait worthwhile.

Jason and Wendy O'Flaherty (PACs Refractor), Dave and Karen Dickinson (4" EV), Jim Kvasnicka (8" Dob), Dan Delzell (12" Dob), Brett Boller (11" SCT), and Bob Kacvinsky (12" Dob) arrived at Lazy Horse a bit before 6 PM. We arrived early to enjoy their infamous pizza and a beverage. Lazy Horse uses a stone hearth fire dome to cook their pizzas that makes them a best-in-class. Jim and Julie Stutsman, owners, welcomed our group and their staff were a lot of fun to work with. Jim told us that this was one of his best crowds, so he was happy we finally were able to get a star party arranged.

There were clouds, some light rain, and high winds throughout

much of the afternoon but Clear Sky Clock accurately predicted clearing between 6-7 pm. We started to set up at 7 pm shortly after sunset. We set up just to the NE of the Brewery between a horse pasture and old vineyard. The high winds died down to a light breeze by 7:30 as Jupiter and Saturn began to pop out.

The first patrons started to venture out shortly after 7:30 and we were met with a chorus of oohs and ahs. This was our first star party in the area and many of the guests had not experienced views in a telescope before. Even in the late twilight Jupiter and Saturn provided a great preview of the night to come. The skies turned dark and clear with very good transparency and seeing. The Milky Way was prominent in the sky all night with just a few high narrow filaments of cirrus clouds crossing over during the night. It was setting up to be a great

Star Party, continued.

Observing field at dusk. Credit Brett Boller

night to view many of our favorite objects.

Dave Dickinson was building composites of several objects using his progressive EV scope and used the computer to capture and replay the images throughout the night. He especially focused on galaxies and had some great success with M31, M101, M81, M82, M51, M57, M27, M33, M74, M16, M17.

Meanwhile in the eyepieces the rest of us throughout the evening took the crowd of over 200 for a walk-in space. We viewed many of our favorites including M51, M81 & 82, double cluster, wild duck, M57, M27, M13, M92, M11, M15, M2, M31, Alberio, Owl/ET, Veil and several others. After a difficult past couple of years, it was great to be able to experience a great night of viewing with the public. The initial feedback from our hosts and their patrons was overwhelmingly positive and we are already discussing a repeat performance in the spring.

Lazy Horse provided us a great experience with a public star party. The location has great skies, the pizza was delicious, and the beverages made for a nice finish.

There is just something special when a child sees Jupiter or Saturn for the first time up close and you hear that honest “Wow”. We all experienced many

Star Party, continued.

"wows" during the evening, and not all of them from children. I had a warm thank you from a 70+ grandmother who told me that she had no idea that she could actually see so many beautiful things in the sky. It was her first telescope experience. It's too bad she had to wait so long to experience what we sometimes take for granted.

M51. Credit Dave Dickinson 4" EV Scope.

Lazy Horse Brewery Star Party

Jason O'Flaherty

By the looks of it, we had 7 scopes setup. The servers in the bar said it was a busier crowd than usual for a Friday night and credited our event with the increased turnout. The owner was very welcoming to our club and provided us with some free drinks to keep our vocal cords well-lubricated while we explained the night sky to visitors. There was a constant stream of guests coming in and out of the bar and we stayed busy right until closing time. Saturn and Jupiter were big hits since they were prominent in the sky. Another popular topic was comparing the side view of the Dumbell planetary nebula (M27) to the top view of the Ring planetary nebula (M57). We will try to have another event in the spring.

Photos by Brett Boller

Astrophotography

Orion Nebula by Brett Boller

I took 3 different sets of images for the core and the outer regions of nebula. All these were taken with Canon T7i and The Skywatcher Esprit 150mm telescope on Celestron CGE Pro Mount. The first set was 11 - one minute images stacked. ISO 800 Total 11 minutes. The second set was 21 - two minutes images stacked. ISO 800 Total 42 minutes. The third set was 13 - 4 minute images stacked. ISO 800 Total 52 minutes. Total time 1 hour 45 minutes for the Orion Nebula. I then had 3 final images. Played with levels and color balance in Photoshop. After that I put the 3 images into a program called HDR Photo. It's less than $6. The only downside I've seen with it is that the settings stay changed even when relaunching the program. I took the 3 photos and the program turns them into a HDR. A few little setting changes in HDR Photo can really change the nebulosity and pulled out detail. It was amazing to see how much more detail was brought out in final HDR than what was seen in the original files.

Astrophotography

Milky Way at Spring Creek Prairie
Lumix GH5S, 5 seconds at ISO 3200, 10mm f/1
Mark Dahmke

ARP 49

The Mantrap Skies Image Catalog

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.

Arp 49/NGC 5665 is in Bootes. Its distance is a bit difficult to pin down. Redshift puts it about 113 million light-years distant but a recent Tully-Fisher measurement says only about 65 million light-years. A 40 year old Tully measurement agrees to its redshift. For now, I'll go with the redshift distance as being more likely closer to reality. It was discovered by William Herschel on January 30, 1784 but isn't in either Herschel 400 observing program.

Arp put it in his class of spirals with small, high surface brightness companions on the arms. His comment reads: "Appearance of wake from stellar object in eastern arm." This stellar object is NGC 5665A. Older sources consider it a separate galaxy, newer say it is part of the galaxy, not a separate one. One paper suggests this galaxy is the result of a merger that happened about a half billion years ago. Another concludes the arms couldn't be tidal in nature and its distortions are natural to the

ARP49, continued.

galaxy, not due to outside influences. The field is rather barren of any candidates that could have distorted it so that part is likely correct. But whether this is a merger or just a naturally weird galaxy seems still up for debate. There is one more galaxy at the same distance as Arp 49 in the image, LEDA 4421246 to the north. It's a dwarf and likely too small to bother Arp 49 in any way though it is possible it donated many of its stars to Arp 49 long ago.

My color data was severely hurt by varying clouds and haze so is a bit suspect. Still, it seems to agree fairly well to the Sloan image so I'll go with what I have for now.

Orion Images the Earth

Received from the Orion spacecraft on Nov. 16 following liftoff of Orion atop the Space Launch System from the Kennedy Space Center in Florida just hours before.

Focus on Constellations: Cetus

Jim Kvasnicka

Cetus the Sea Monster or Whale is the fourth largest constellation covering 1,231 square degrees of the sky. It contains the star Omicron Ceti, named Mira "The Wonderful", prototype of the red giant long-period variables. Cetus is well off the Milky Way in a rather blank part of the sky. It contains no open clusters or diffuse nebulae, and has a number of galaxies. Cetus is best seen in the month of December.

Showpiece Objects

Galaxies: M77, NGC 157, NGC 247, NGC 578, NGC 1087

Planetary Nebulae: NGC 246

Mythology

In Greek mythology, Cetus is the Sea Monster of the Andromeda myth, turned to stone when Perseus exposed to its sight the severed head of the snake haired Medusa. Anyone who looked upon the Medusa was turned to stone.

Number of Objects Magnitude 12.0 and Brighter

Galaxies: 43

Globular Clusters: 0

Open Clusters: 0

Planetary Nebulae: 1

Dark Nebulae: 0

Bright Nebulae: 0

SNREM: 0

Image credit: By Till Credner - Own work: AllTheSky.com, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=20042019

December Observing

Jim Kvasnicka

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

Planets

Venus: Visible at dusk at magnitude -3.9.

Mercury: Visible at dusk after December 10th.

Mars: In Taurus at magnitude -1.7 with a disc 16.5" wide. On December 7th the Full Moon will occult Mars.

Jupiter: In Pisces at magnitude -2.6 with a disc 39.5" wide.

Saturn: In Capricornus at magnitude +0.8 with a disc 16.4" wide.

Uranus and Neptune: In Aries and Aquarius.

Meteor Showers

Geminids: Peaks the night of December 13-14 with the waning gibbous Moon rising around 10:00 pm. Under perfect conditions expect up to 100 meteors per hour.

Messier List

M2: Class II globular cluster in Aquarius.

M15: Class IV globular cluster in Pegasus.

M29: Open cluster in Cygnus.

M31: The Andromeda Galaxy.

M32/M110: Companion galaxies to M31.

M39: Open cluster in Cygnus.

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

Next Month: M33, M34, M52, M74, M76, M77, M103

NGC and other Deep Sky Objects

NGC 578: Elongated galaxy in Cetus.

NGC 779: Elongated galaxy in Cetus.

NGC 869/884: The Double Cluster in Perseus.

NGC 972: Galaxy in Aries.

NGC 1187: Galaxy in Eridanus.

Double Star Program List

Eta Cassiopeiae: Yellow primary with a rose colored secondary.

Sigma Cassiopeiae: Yellow and light blue stars.

Theta Aurigae: Bright white and pale blue pair.

1 Camelopardalis: White and pale blue stars.

32 Camelopardalis: Equal white pair.

Gamma Ceti: White primary with a pale-yellow secondary.

Chi Tauri: White primary with a pale blue secondary.

118 Tauri: White and yellow stars.

Challenge Object

NGC 697 Galaxy Group: Group of six galaxies in Aries that include NGC 678, NGC 680, NGC 691, NGC 694, NGC 695, and NGC 697.

Club Member Profile: Lee Taylor

Lee joined PAC in 1999

I grew up on a farm in Hall County between Grand Island, Kearney and Hastings in the 70's and 80's At that time, even close to those communities, I had skies about as dark as the Nebraska Star Party has now. I never appreciated that until after I started studying the space program. That started when I watched Carl Sagan's 'Cosmos' series. When my mother heard about my interest, she bought me one of Ian Ridpath's books on the subject (I don't remember the name or even if I still have it). I have been hooked on astronomy ever since. I spent several nights with a 35mm film camera and high speed film photographing the constellations in the late '80's. I bought my first telescope in 1986. One of those 'DO NOT BUY' telescopes we tell everyone to avoid. I used it to the best of my ability while I had it in high school.

I graduated from Hastings College with a bachelor's degree in physics in 1992 and attended UNL for a couple of years, hoping to get into graduate school in astronomy.

Life sent me in other directions before I found PAC and Hyde.

I have worked at several places since leaving graduate school. Today, I work at Veriv, in Lincoln, we make power and data strips for industrial applications. My job is basically metal fabrication.

I found Hyde Observatory in 1998 and joined PAC shortly thereafter. Getting to know Rick Johnson, Ron Veys and the rest of the veteran PAC members was one of the most enjoyable times of my life.

Years ago, I helped with several outreach events, including astronomy day at Morrill Hall and the annual Halloween event at Homestead National Monument. I still volunteer regularly at Hyde Observatory. I have been to NSP four times, each a treat for me. I have served as PAC secretary twice, and program chair once. Being an officer can be quite a bit of work, but serving the membership was very rewarding for me.

I bought an 8-inch Meade Starfinder equatorial telescope in 1999, shortly after joining PAC. Brian Sivill and I built a dobsonian mount for it in 2008. I also acquired a Lunt solar 'scope for the 2017 solar eclipse, which I watched with friends in the Grand Island area. I also bought a Skyview Pro mount for it, but after some consideration, I decided that mount needed its own night time telescope. I settled on an Orion 120mm refractor for it in 2018. I didn't get much use out of it for several reasons not the least of which was the pandemic. Today, take it out to Branched Oak and Hyde whenever I can help those places with it.

I have not completed any observing clubs, but I have wanted my Messier pin since I heard about it in college. I have worked on it sporadically and even have a notebook with observations... somewhere.

Haunting Portrait: NASA's Webb Reveals Dust, Structure in Pillars of Creation

Webb, continued.

This is not an ethereal landscape of time-forgotten tombs. Nor are these soot-tinged fingers reaching out. These pillars, flush with gas and dust, enshroud stars that are slowly forming over many millennia. NASA's James Webb Space Telescope has snapped this eerie, extremely dusty view of the Pillars of Creation in mid-infrared light – showing us a new view of a familiar landscape.

Why does mid-infrared light set such a somber, chilling mood in Webb's Mid-Infrared Instrument (MIRI) image? Interstellar dust cloaks the scene. And while mid-infrared light specializes in detailing where dust is, the stars aren't bright enough at these wavelengths to appear. Instead, these looming, leaden-hued pillars of gas and dust gleam at their edges, hinting at the activity within.

Thousands and thousands of stars have formed in this region. This is made plain when examining Webb's recent Near-Infrared Camera (NIRCam) image. In MIRI's view, the majority of the stars appear missing. Why? Many newly formed stars are no longer surrounded by enough dust to be detected in mid-infrared light. Instead, MIRI observes young stars that have not yet cast off their dusty "cloaks." These are the crimson orbs toward the fringes of the pillars. In contrast, the blue stars that dot the scene are aging, which means they have shed most of their layers of gas and dust.

Mid-infrared light excels at observing gas and dust in extreme detail. This is also unmistakable throughout the background. The densest areas of dust are the darkest shades of gray. The red region toward the top, which forms an uncanny V, like an owl with outstretched wings, is where the dust is diffuse and cooler. Notice that no background galaxies make an appearance – the interstellar medium in the densest part of the Milky Way's disk is too swollen with gas and dust to allow their distant light to penetrate.

How vast is this landscape? Trace the topmost pillar, landing on the bright red star jutting out of its lower edge like a broomstick. This star and its dusty shroud are larger than the size of our entire solar system.

This scene was first captured by NASA's Hubble Space Telescope in 1995 and revisited in 2014, but many other observatories, like NASA's Spitzer Space Telescope, have also gazed deeply at the Pillars of Creation. With every observation,

Facing page: NASA's James Webb Space Telescope's mid-infrared view of the Pillars of Creation strikes a chilling tone. Thousands of stars that exist in this region seem to disappear, since stars typically do not emit much mid-infrared light, and seemingly endless layers of gas and dust become the centerpiece. The detection of dust by Webb's Mid-Infrared Instrument (MIRI) is extremely important – dust is a major ingredient for star formation. Credits: NASA, ESA, CSA, STScI; Joseph DePasquale (STScI), Alyssa Pagan (STScI)

astronomers gain new information, and through their ongoing research build a deeper understanding of this star-forming region. Each wavelength of light and advanced instrument delivers far more precise counts of the gas, dust, and stars, which inform researchers' models of how stars form. As a result of the new MIRI image, astronomers now have higher resolution data in mid-infrared light than ever before, and will analyze its far more precise dust measurements to create a more complete three-dimensional landscape of this distant region.

The Pillars of Creation is set within the vast Eagle Nebula, which lies 6,500 light-years away.

From the Archives

November, 1976

Lincoln Will Have a Community Observatory!

A formal announcement is expected in December that the Community 0bservatory fund has reached its goal of slightly over $70,000, according to committee chairman Carroll Moore.

Some details are still to be arranged with the principal donor and the Lincoln City Parks Recreation Department.

However, Moore says he expects that bids on construction will be accepted starting January 1. Bids will be let February first, with construction to commence around the first of March. Allowing three or four months for completion of the project, Lincoln's community observatory should be ready for the public in late Spring, 1977.

The observatory, which will house a 14-inch Celestron Schmidt-Cassegrain telescope on a permanent pier, will be located next to the Holmes Park golf course, just off the road to the boat docks. When completed, it will also contain an eight-inch rich field telescope, constructed and donated by the Prairie Astronomy Club and one other telescope, probably an 8 inch Celestron or Dynamax.

The observatory will also house a lecture-meeting room, and will have a large permanent solid slab on the exterior facilitate viewing through portable telescopes.

Plans developed by the observatory committee for operation of the facility which will be owned by the City of Lincoln, call for members of the Prairie Astronomy Club to conduct regular public observation nights, to participate actively in activities at the observatory, as well as having access to its instruments for research.

Hyde Observatory and the Prairie Astronomy Club

The relationship between Hyde Observatory and the Prairie Astronomy Club goes back to the founding of Hyde in 1977.

The Prairie Astronomy Club was formed in 1962 and later incorporated as a 501 (c)(3) non-profit educational organization.

In the 1960s several club members had the idea of building a public observatory, but it wasn't until 1976 that a committee was formed to come up with a design concept and look into funding sources. A meeting was organized by Duane Hutchinson and included Carroll Moore, Don Taylor of the UNL Physics Department, Jack Dunn from Mueller Planetarium, Dick Hilligas from City Parks, Dale Rathe from Lincoln Public Schools, John Gallagher from UNL and Esther Bennett from Chet Ager Nature Center.

Funding was obtained through donations and Hyde was built on city property and was to be maintained by Lincoln Parks and Recreation, with the intent that it would be operated by volunteers.

Although many Hyde volunteers are also members of the Prairie Astronomy Club, it is not a requirement.

As a supporting organization, PAC was able to move its club meetings from Nebraska Wesleyan's Olin Hall and star parties at Gateway Mall to Hyde Observatory.

Hyde thus became the home of the Prairie Astronomy Club and the focus of its activities and volunteer work, but the Observatory is owned and operated by Lincoln Parks and Recreation.

Hyde has its own "steering committee" that usually meets right before PAC meetings on the last Tuesday of the month, since many but not all committee members are also PAC members.

For a more detailed history of the founding of Hyde Observatory, visit the Hyde Website at:

http://www.hydeobservatory.info/the-history-of-hyde-memorial-observatory/

Binoculars: A Good First Telescope

David Prosper

This article is distributed by NASA's Night Sky Network (NSN). The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

Do you want to peer deeper into the night sky? Are you feeling the urge to buy a telescope? There are so many options for budding astronomers that choosing one can be overwhelming. A first telescope should be easy to use and provide good quality views while being affordable. As it turns out, those requirements make the first telescope of choice for many stargazers something unexpected: a good pair of binoculars!

Binoculars are an excellent first instrument because they are generally easy to use and more versatile than most telescopes. Binoculars can be used for activities like stargazing and birdwatching, and work great in the field at a star party, along the hiking trail, and anywhere else where you can see the sky. Binoculars also travel well, since they easily fit into carry-on luggage – a difficult feat for most telescopes! A good pair of binoculars, ranging in specifications from 7x35 to 10x50, will give you great views of the Moon, large open star clusters like the Pleiades (M45), and, from dark skies, larger bright galaxies like the Andromeda Galaxy (M31) and large nebulae like the Orion Nebula (M42). While you likely won't be able to see Saturn's rings, as you practice your observing skills you may be able to spot Jupiter's moons, along with some globular clusters and fainter nebulae from dark sites, too.

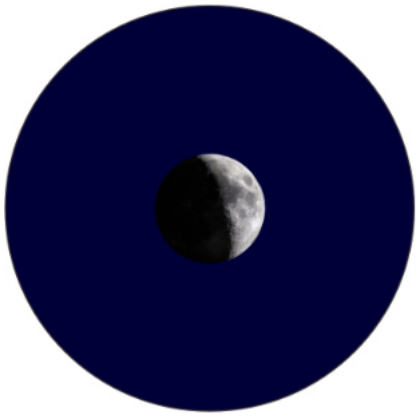
What do the numbers on those binocular specs actually mean? The first number is the magnification, while the second number is the size in millimeters (mm) of the lenses. So, a 7x35 pair of binoculars means that they will magnify 7 times using lenses 35 mm in diameter. It can be tempting to get the biggest binoculars you can find, but try not to get anything much more powerful than a 10x50 pair at first. Larger binoculars with more power often have narrower fields of vision and are heavier; while technically more powerful, they are also more difficult to hold steadily in your hands and "jiggle" quite a bit unless you buy much more expensive binoculars with image stabilization, or mount them to a tripod.

Would it surprise you that amazing views of some astronomical objects can be found not just from giant telescopes, but also from seemingly humble

binoculars? Binoculars are able to show a much larger field of view of the sky compared to most telescopes. For example, most telescopes are unable to keep the entirety of the Pleiades or Andromeda Galaxy entirely inside the view of most eyepieces. Binoculars are also a great investment for more advanced observing, as later on they are useful for hunting down objects to then observe in more detail with a telescope.

If you are able to do so, real-world advice and experience is still the best for something you will be spending a lot of time with! Going to an in-person star party hosted by a local club is a great way to get familiar with telescopes and binoculars of all kinds – just ask permission before taking a closer look! You can find clubs and star parties near you on the Night Sky Network's Clubs & Events page at bit.ly/nsnclubsandevents, and inspire your binocular stargazing sessions with NASA's latest discoveries at nasa.gov.

A pair of good binoculars can show craters on the Moon around 6 miles (10 km) across and larger. How large is that? It would take you about two hours to hike across a similar-sized crater on Earth. The "Can You See the Flag On the Moon?" handout showcases the levels of detail that different instruments can typically observe on the Moon, available at bit.ly/flagmoon. Moon image courtesy Jay Tanner



The two most popular types of binocular designs are shown here: roof-prism binoculars (left) and porro-prism binoculars (right). Roof prisms tend to be more compact, lighter, and a bit more portable, while porro-prisms tend to be heavier but often offer wider views and greater magnification. What should you choose? Many birders and frequent fliers often choose roof-prism models for their portability. Many observers who prefer to observe fainter deep-sky objects or who use a tripod with their observing choose larger porro-prism designs. There is no right answer, so if you can, try out both designs and see which works better for you.

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.

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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.