

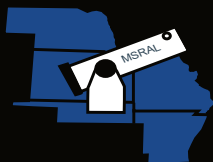
The Prairie Astronomer

December 2023 Volume 64, Issue #12



Jim White 2023

IN THIS ISSUE: JWST New Thinking on Planet Formation
The History of PAC and Hyde Observatory



Night Sky Network



The Newsletter of the Prairie Astronomy Club

The Prairie Astronomer



The next regular club meeting is January 30th at 7:30pm at Hyde Observatory

NEXT MEETING AND PROGRAM

December Holiday Gathering

Instead of our regular club meeting, we will meet for our annual holiday gathering on December 19th at 7pm at Big Red Restaurant & Sports Bar. 8933 Andermatt Dr.

UPCOMING PROGRAMS

January: How to Use Your Telescope

February: A Comparison of Several Smart Telescopes - Jack Dunn

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Cover: IC 5146 The Cocoon Nebula in Cygnus by Jim White



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.

*PAC Holiday Gathering
December 19th at 7:00pm, Big Red Restaurant & Sports Bar at 8933 Andermatt Dr.*

*PAC Meeting
Tuesday, January 30th, 7:30pm at Hyde Observatory
Program: How to Use Your Telescope*

*PAC Meeting
Tuesday, February 27th, 7:30pm at Hyde Observatory
Program: "A Comparison of Smart Telescopes" - Jack Dunn*

<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	9/26	4
November	11/22	29
December	20	27

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

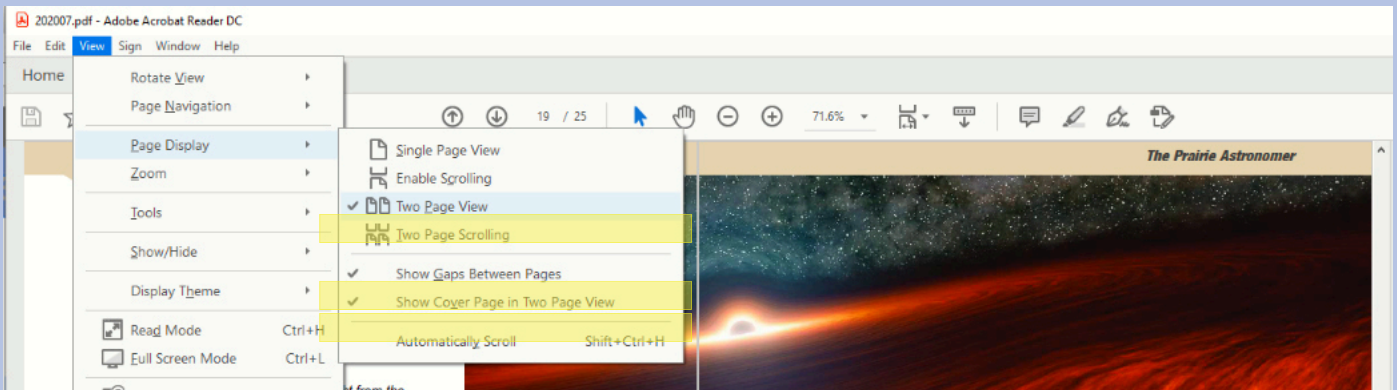
CLUB OFFICERS

President	Jason O'Flaherty jflaher@gmail.com
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2nd VP (Program Chair)	Bill Lohrberg wmlohrberg89@gmail.com
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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

The President's Message

Jason O'Flaherty

Dear PAC Members,
I hope this letter finds you well as we wind down the year. Here is a quick update on what's happening in our piece of the world.

This time of year tends to be quieter on the activities front, but we're gearing up for an enjoyable 2024. We're planning our "How to Use Your Telescope" class in January. Details are in the works, but if

someone asks you about it, have them watch our Facebook page for updates.

As a quick reminder, our December meeting will be at 7 p.m. on Tuesday, December 19th, at the Big Red Restaurant & Sports Bar (8933 Andermatt Dr, Lincoln, NE 68526) for our annual holiday party.

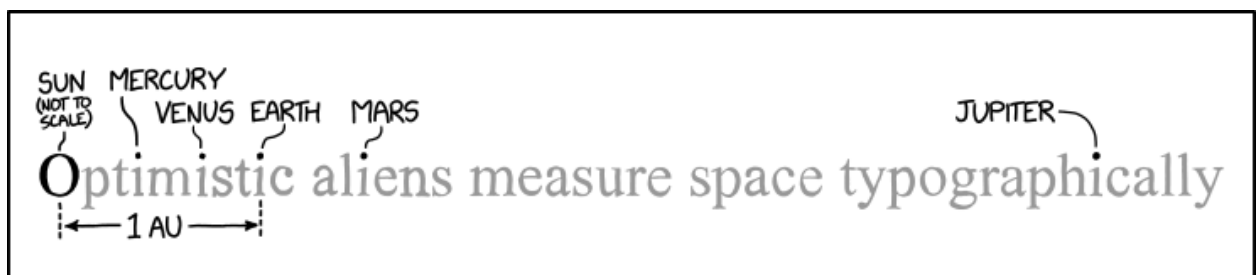
Depending on when this goes out, you have gotten or will shortly receive an email with an RSVP link.



Please fill it out so we know how many tables to reserve.

Here's to wrapping up the year on a high note. Wishing you all a happy holiday season—stay warm and healthy.

Cheers,



SPACE TIP: IF YOU'RE EVER LOST IN THE INNER SOLAR SYSTEM, YOU CAN JUST TYPE OUT THE PHRASE "OPTIMISTIC ALIENS MEASURE SPACE TYPOGRAPHICALLY" IN TIMES NEW ROMAN AND USE THE DOTS AS A MAP.

Xkcd.com

ARP 62

The Mantrap Skies Image Catalog

Arp 62 was classed by Arp under Galaxies with small high surface brightness companions on arms. It is located in Ursa Major about 280 million light-years from us. The CGCG catalog says of the pair: "Pair of neutral post-eruptive SB and elliptical compact, separation 40" northeast to southwest." In most catalogs, it is listed under one number. UGC 6865a and b, CGCG 214-035a and b, etc. A is usually the little companion as it is the westernmost of the two. But the western one is VV 286b with the main one being VV 286a just to make life more confusing.

NED classifies the main galaxy as SB, simply a barred spiral with no attempt to describe the arms. The companion is listed as E(c). I believe the c is for condensed or possibly compact. At least it sure is. Could be its outer stars have been stripped from it by the encounter leaving only a core or it really was this way from the start. I found no papers on this subject. Shouldn't be hard



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.



ARP62, continued.

to tell if the spray of stars contains a lot of stars similar to those in the small companion.

Another case of too many galaxies and too few telescopes and grad students (translate that into too little money as well).

In the annotated image there is a lot of galaxies at a distance of about 890 million light-years.

Though I found no cluster listed for that distance. In the upper left corner, I've marked a red galaxy as G/GC as it is the cD galaxy that anchors a galaxy cluster with a given distance of about 1.6 billion light-years though the galaxy itself has a

redshift of a bit under 1.5 billion light-years. Since it is the anchor I'd think it's distance should rule but in most of these cases that doesn't seem to be the case, I don't know why. The cluster is known as MaxBCG J178.72386+43.60782 and the galaxy as SDSS J115453.73+433628.2. It is in the 2MASX list as an IR source as well. MaxBCG = Maximum likelihood redshift Brightest Cluster Galaxy and can identify both the cluster and the main galaxy in the cluster as it does in this case. Both the cluster and galaxy carry the same number in this catalog, that is just its J2000 coordinates. The cluster is listed in

NED as having 16 members. The only other cluster member with a given redshift has one that agrees to the redshift of the anchoring galaxy, not that given for the cluster. There's nothing on the rest in the area.

Another galaxy cluster is in the lower right corner. NSCS J115213+431915 is listed at 5 billion light-years with some 37 members. No diameter is listed. The label is located at the center of the cluster as defined at NED.

Meeting Minutes

Jim White

11-28-2023

Tonight's meeting is being held at Hyde Observatory and is also available on Zoom for those that couldn't attend in person.

Jason O'Flaherty started the meeting at 7:33 pm. Jason asked if there were any new members in attendance and there were two new members that joined the meeting via Zoom, Chris Pantuso and Phil Parks. We also had a number of guests that joined tonight's meeting.

Jim Kvasnicka, PAC's Observing Chairperson, was asked to give his monthly observing report at 7:37 pm. Star parties for the month of December will be on the Friday December 8th and Friday December 15th. The current plan is to have one of the December star parties at BOO (Branched Oak Observatory) so you can expect to get further details in an email as we get closer to the star party dates, the other star party will be held at the Clatonia Recreation

Area about 1 ½ miles North of Clatonia. The Geminids Meteor shower will be the peak the nights of December 13th and 14th and you can expect to see up to 100 meteors per hour from a dark sight and the moon will not be up to interfere with viewing. Jim's full observing report can be found in this newsletter.

John Reinert, PAC's Treasurer was asked to give his treasurers report at 7:42 pm. For anyone that is a visitor and is interested in joining the club John said he would be happy to take your information and help you get signed up to be a member. The bank where the club accounts are held changed ownership earlier this year so John has been keeping an eye on any changes that may affect the club accounts. John was able to determine that PAC would be able to save on some fees that the club was being charged by changing the type of accounts that we initially had to accounts for non-profit

organizations. Dues notices were sent out via email on November 26th. John finished his report at 7:43 and turned the meeting back over to Jason.

Club business tonight is to do a final review of some last-minute changes to the club bylaws and put it to a vote to approve the updated bylaws. Approval of the bylaws requires that we have a quorum of members in attendance in person to vote on the bylaws. For tonight's vote members that are joining us online via Zoom are not allowed to vote but there is an item in the updated bylaws that if passed would allow members joining remotely to be able to vote as long as they have video enabled. To have a quorum for tonight we need to have 27 members in attendance in person which is exactly what we have. There have been a few changes that have been suggested since the bylaws have been sent out to the membership so Jason has highlighted

Meeting Minutes, continued.

those in his presentation so that we can discuss them and decide whether to make changes before we take a final vote on the bylaws. The changes that have been suggested were fairly minor so a revised version was not emailed to the membership ahead of this meeting. There was some discussion of the suggested changes and some minor verbiage changes. Once the discussions had ended Bob Kacvinski made a motion to accept the bylaws as corrected and the motion was seconded. Jason asked that all members in attendance in person that are in favor of the new bylaws raise their hand and then asked that all members in attendance that are

opposed to the new bylaws raise their hand. There were enough votes in favor of approving the new bylaws to meet the threshold of 2/3 of a quorum so the new bylaws were approved.

On December 19th we will be having our Holiday Party at 7 pm at Big Red Restaurant and Sports Bar, Jason will be sending out an email invitation with an RSVP so that we can get a reasonably accurate count of the number of attendees so the restaurant knows about how many tables we will need.

There was a question brought up about what to do if you are not receiving email notifications from the club, if you are having a problem like this please get in touch with John

Reinert or Jason and they will work on getting this fixed. The club emails come through the Night Sky Network so they will need to check and see where the error is, most likely an incorrect email address in the Night Sky Network.

Tonight's business meeting ended at 8:04 pm.

Tonight's program;

The Accelerating
Expanding Universe
Dark Matter Dark Energy
and Einsteins
Cosmological Constant

Presented by Bharat
Ratra, Ph.D.

Distinguished Professor
Kansas State University

Letter from Sky & Telescope

As the holiday season begins, we want to take the opportunity to thank you and your club members for your ongoing efforts toward furthering people's passion for and understanding of all things celestial. We know it takes a lot of time and energy to organize monthly meetings, regular observing sessions, and the all-important outreach that clubs engage in—we're very grateful for your role in sparking interest in astronomy in the community. As such, we'd like to take the

opportunity to remind you of the free material, special rates, and other resources Sky & Telescope offers clubs and their members.

Club leaders and members alike may also wish to stay up-to-date with the latest astronomy news and observing updates by subscribing to our weekly e-newsletter. Encourage your members to sign up here:

skyandtelescope.org/newsletter/#signup

Finally, for all astronomy club members, we offer a

special, discounted subscription, accessible here:

https://skyandtelescope.dragonforms.com/loading.do?omedasite=SKY_new_club

We hope this offer provides an incentive for new members to join!

We thank you again for being part of the Sky & Telescope fold, and we wish you all the best in your upcoming celestial endeavors!

Peter Tyson

Editor in Chief



**Prairie Astronomy Club
Holiday Party**

**You and a Guest
December 19th, 2023
7:00 p.m.**

**Big Red Restaurant & Sports Bar
8933 Andermatt Dr. Lincoln, NE**

Self Pay - Order from the menu

January Observing

Jim Kvasnicka

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

Planets

Venus: Morning planet at magnitude -4.0.

Mercury: Before sunrise at magnitude -0.2.

Mars: In the morning low in the southeast at magnitude +1.4.

Jupiter: In Aries at magnitude -2.6 with a disk 44" wide.

Saturn: In Aquarius at magnitude +0.9 with a disk 16.1" wide.

Uranus and Neptune: Uranus in Aries, Neptune in Pisces.

Meteor Showers

Quadrantids: Peaks the night of January 3-4, the last quarter Moon will interfere during the peak in the early morning hours.

Messier List

M33: The Pinwheel Galaxy in Triangulum.

M34: Open cluster in Perseus.

M52: Open cluster in Cassiopeia.

M74: Galaxy in Pisces.

M76: The Little Dumbbell in Perseus.

M77: Galaxy in Cetus.

M103: Open cluster in Cassiopeia.

Last Month: M2, M15, M29, M31, M32, M39, M110

Next Month: M1, M35, M36, M37, M38,



M42, M43,
M45, M78,
M79

NGC and other Deep Sky Objects

NGC 1406: Galaxy in Fornax.

NGC 1425: Galaxy in Fornax.

NGC 1857: Open cluster in Auriga.

NGC 1907: Open cluster in Auriga.

NGC 1980: Emission nebula and open cluster in Orion just south of M42.

NGC 2169: The "37" Cluster in Orion.

Double Star Program List

Beta Orionis: Rigel, bright white and dim blue stars.

Delta Orionis: Mintaka, white and blue pair.

Struve 747: White pair of stars.

Lambda Orionis: White stars.

Theta 1 Orionis: The Trapezium.

Iota Orionis: White primary with a blue secondary.

Theta 2 Orionis: Three white stars.

Sigma Orionis: White primary with three pale blue stars.

Zeta Orionis: Bright white primary with two white secondary stars.

Challenge Object

B33: The Horsehead Nebula in Orion.
Use a Hydrogen-Beta filter.

Focus on Observing Programs

Jim Kvasnicka

Planetary Nebula Observing Program

Planetary Nebulae are some of the most beautiful and interesting objects in the night sky. They exhibit complex shapes and may even show vibrant colors. It is the hope of the program to inspire your appreciation of these magnificent objects.

For this program 110 planetary nebulae were selected. The list contains examples across the entire range of planetary nebula morphology. The Planetary Nebula Program can be completed visually or by imaging.

The program offers two levels of accomplishment, basic and advanced. The basic program should be achievable with modest equipment and from less than dark skies. To earn the certificate for the basic program you must observe at least 60 objects from the list of 110.

For the advanced program you will need to observe all 110 objects on the list. The Astronomical League acknowledges that a few of the objects may be beyond detection and will allow negative observations if you show evidence of diligent effort to observe the object. To complete the program by imaging you must image 90 objects from the list.

To find the objects you may use any method including GO-TO and PUSH-TO. Your observing log should include all the usual information required for the observing programs. Your detailed description of the planetary nebula should include:

- Is the central star visible?

- Is a filter required to see the PN?
- How does the PN respond to different magnifications?
- Is averted vision required to see the PN?
- A detailed description or sketch of the object.

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

If you have any questions regarding the Planetary Nebula Observing Program or need help getting started in any of the observing programs please ask me and I will be glad to help.

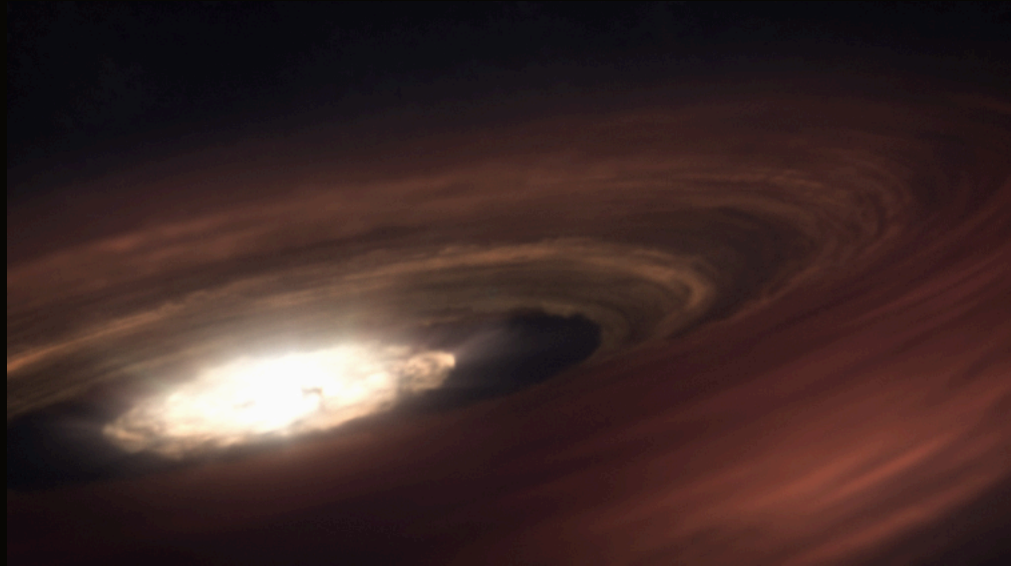
Webb Follows Neon Signs Toward New Thinking on Planet Formation

Observations by the MIRI instrument on NASA's Webb telescope are providing new clues about the time window when planets can form around a young star.

Scientists are following neon signs in a search for clues to one planetary system's future and the past of another – our own solar system. Following up on a peculiar reading by NASA's previous infrared flagship observatory, the now-retired Spitzer Space Telescope, the agency's James Webb Space Telescope detected distinct traces of the element neon in the dusty disk surrounding the young Sun-like star SZ Chamaelontis (SZ Cha).

Differences in the neon readings between Spitzer and Webb point to a never-before-observed change in high-energy radiation that reaches the disk, which eventually causes it to evaporate, limiting the time planets have to form.

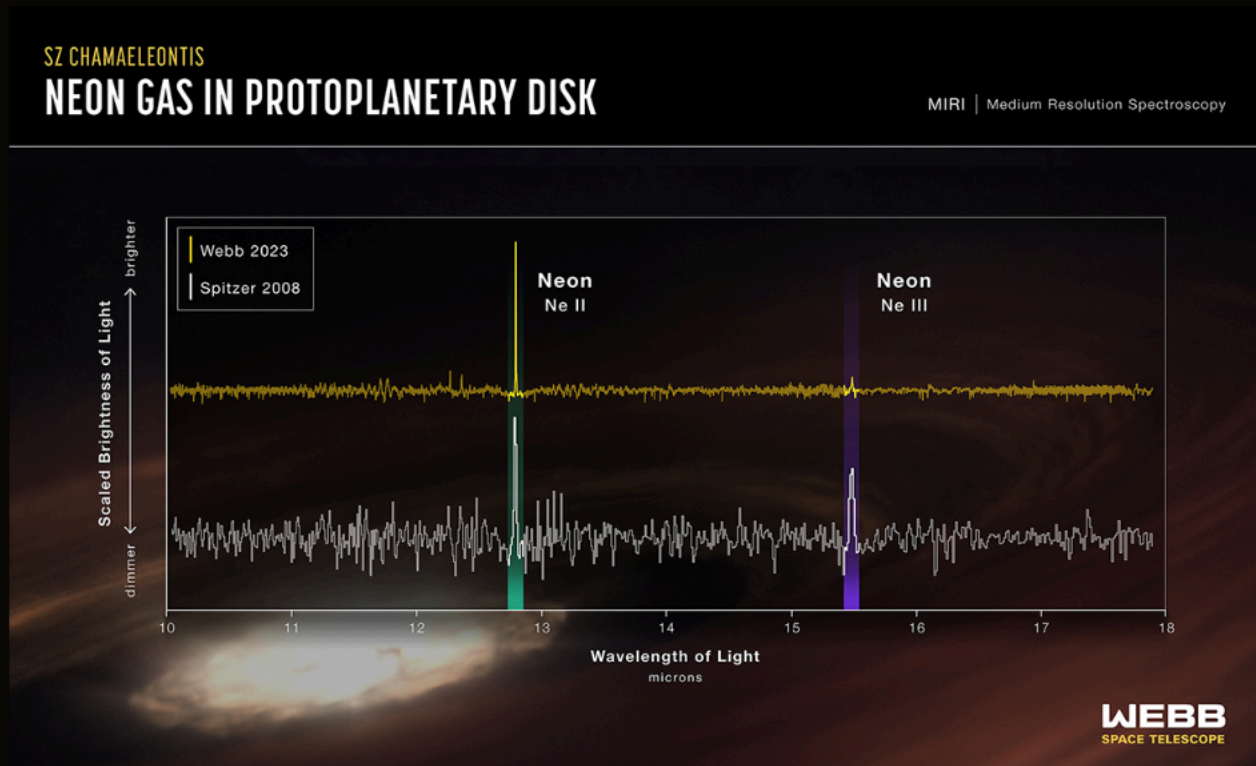
“How did we get here? It really goes back to that big question, and SZ Cha is the same type of young star, a T-Tauri star, as our Sun was 4.5 billion years



ago at the dawn of the solar system,” said astronomer Catherine Espaillat of Boston University, in Massachusetts, who led both the 2008 Spitzer observations and the newly published Webb results. “The raw materials for Earth, and eventually life, were present in the disk of material that surrounded the Sun after it formed, and so studying these other young systems is as close as we can get to going back in time to see how our own story began.”

Scientists use neon as an indicator of how much, and what type, of radiation is hitting and eroding the disk around a star. When Spitzer observed SZ Cha in 2008, it saw an outlier, with neon readings unlike any other young T-Tauri disk. The difference was the detection of neon III, which is typically scarce in protoplanetary disks that are being pummeled by high-energy X-rays. This meant that the high-energy radiation in the SZ Cha disk was coming from ultraviolet (UV) light instead of X-rays. Besides being the

Planet Formation, continued.



Data from NASA's James Webb and Spitzer space telescopes reveals a change in the disk surrounding SZ Cha in just 15 years. In 2008, Spitzer's detection of significant neon III made the star an outlier among similar young protoplanetary disks, but in 2023 Webb revealed a ratio of neon II to III within typical levels.

Credit: NASA, ESA, CSA, Ralf Crawford (STScI)

lone oddball result in a sample of 50 to 60 young stellar disks, the UV vs. X-ray difference is significant for the lifetime of the disk and its potential planets.

“Planets are essentially in a race against time to form up in the disk before it evaporates,” explained Thanawuth Thanathibodee of Boston

University, another astronomer on the research team. “In computer models of developing systems, extreme ultraviolet radiation allows for 1 million more years of planet formation than if the evaporation is predominately caused by X-rays.”

So, SZ Cha was already

quite the puzzle when Espaillat's team returned to study it with Webb, only to find a new surprise: The unusual neon III signature had all but disappeared, indicating the typical dominance of X-ray radiation.

The research team thinks that the differences in neon signatures in the SZ

Planet Formation, continued.

Cha system are the result of a variable wind that, when present, absorbs UV light and leaves X-rays to pummel the disk. Winds are common in a system with a newly formed, energetic star, the team says, but it is possible to catch the system during a quiet, wind-free period, which is what Spitzer happened to do.

“Both the Spitzer and Webb data are excellent, so we knew this had to be something new we were observing in the SZ Cha system – a significant change in conditions in just 15 years,” added co-author Ardjan Sturm of Leiden University, Leiden, Netherlands.

Espailat’s team is already planning more observations of SZ Cha with Webb, as well as other telescopes, to get to the bottom of its mysteries. “It will be important to study SZ Cha, and other young systems, in multiple wavelengths of light, like X-ray and visible light, to discover the true nature of this variability we’ve found,” said co-author Caeley Pittman of Boston

University. “It’s possible that brief, quiet periods dominated by extreme UV radiation are common in many young planetary systems, but we just have not been able to catch them.”

“Once again, the universe is showing us that none of its methods are as simple as we might like to make them. We need to rethink, re-observe, and gather more information. We’ll be following the neon signs,” said Espailat.

This research has been accepted for publication in *Astrophysical Journal Letters*.

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 the Canadian Space Agency.

MIRI was developed through a 50-50 partnership between NASA and ESA. NASA’s Jet Propulsion Laboratory 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.

For more information about the Webb mission, visit:

<https://www.nasa.gov/webb>

The entire body of scientific data collected by Spitzer during its lifetime is available to the public via the Spitzer data archive, housed at the Infrared Science Archive at IPAC at Caltech in Pasadena,

Planet Formation, continued.

California. JPL, a division of Caltech, managed Spitzer mission operations for NASA's Science Mission Directorate in Washington. Science operations were conducted at the Spitzer

Science Center at IPAC at Caltech. Spacecraft operations were based at Lockheed Martin Space in Littleton, Colorado.

For more information about the Spitzer mission visit:

<https://www.jpl.nasa.gov/missions/spitzer-space-telescope>

Perseverance's Parking Spot During Conjunction

NASA's Perseverance rover captured this view of the location where it will be parked for several weeks during Mars solar conjunction, a period when engineers stop sending commands to spacecraft at the Red Planet. During this time, Mars and Earth are on opposite sides of the Sun, which expels hot, ionized gas that can interfere with radio signals sent between the planets. This image was taken by the rover's left navigation camera on Nov. 1, 2023, the 960th Martian day, or sol, of the mission. Credit: NASA/JPL-Caltech. Visit the [JPL site for more information](#).



Astrophotography



"Pleiades rising in Yosemite"

Taken November 10th 2023 at Yosemite National Park.

By Leona Barratt

Nikon Z6 15mm f/2.4 30 seconds ISO 2000

Astrophotography



Jim White 2023

IC 5146 The Cocoon Nebula in Cygnus, by Jim White. The Cocoon Nebula is approximately 4000 light years away and approximately 15 light years across.

108 - 4 minute light frames (7.2 hours of exposure on the nebula on two nights). 20 - 4 minute dark frames, 20 bias frames, 20 flat frames, 20 dark flat frames

Equipment details: Celestron 925 EdgeHD telescope, ZWO ASI2400MC Pro (24MP, Full frame, cooled, cmos color camera), Camera gain was set at 158 and the offset was set at 10 and cooling was set at -10 degrees C., Celestron OAG (Off axis guider). ZWO ASI174MM Mini monochrome guide camera., Celestron CGX Equatorial mount.

Mount control: Windows 11 laptop running, CPWI (free from Celestron), Stellarium (free download), PHD2 (free download), N.I.N.A. (free download). Processing:

Light frames, dark frames, bias frames, flat frames and dark flat frames were calibrated, stacked and processed in PixInsight. PixInsight is an image processing software (platform) specializing in astrophotography.

Astrophotography



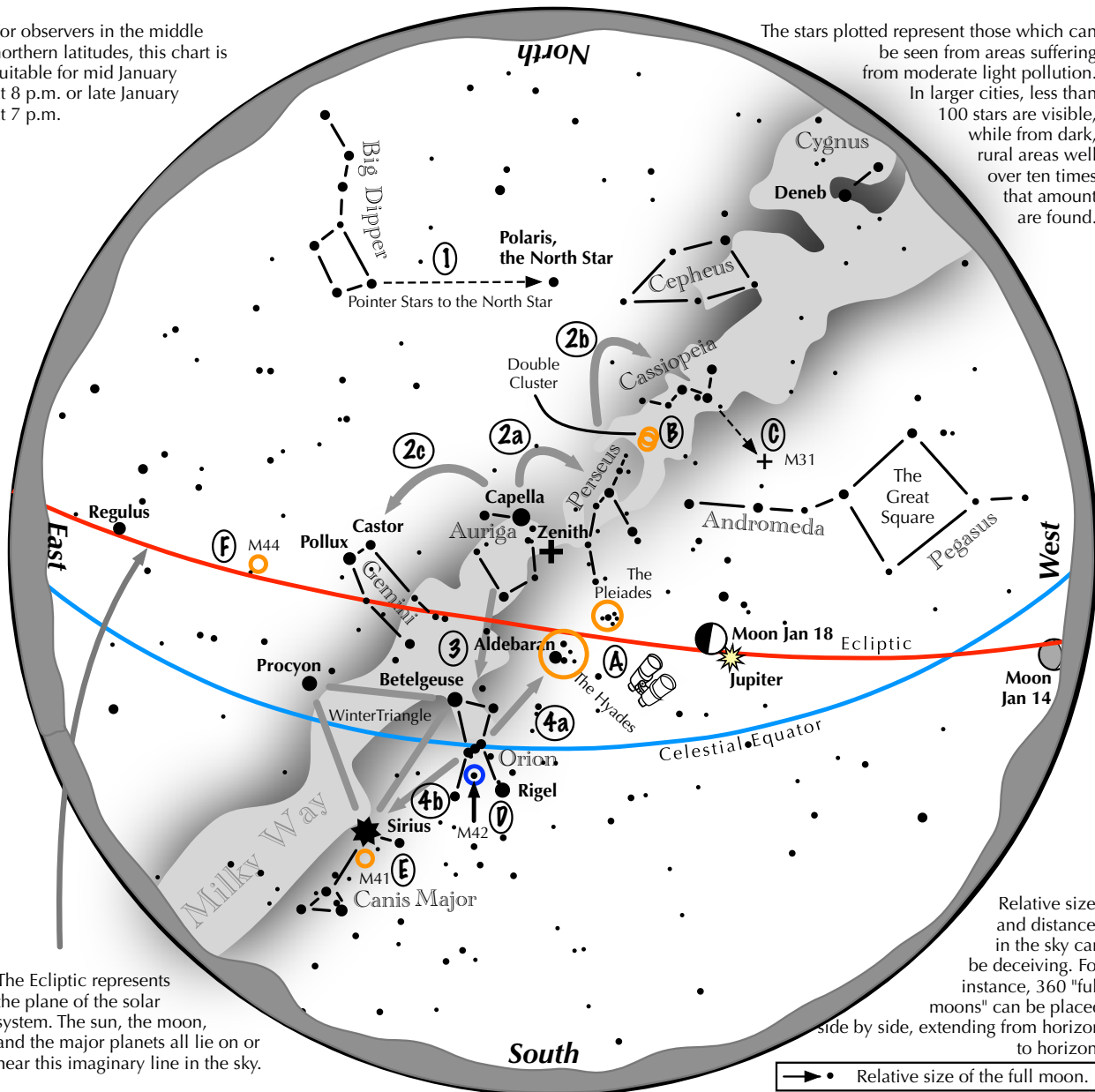
M1 by Jack Dunn

*M1 shot with SeeStar S50. 45 minute exposure. Stacked by
SeeStar (FITS). Processed in Siril, Topaz and a little
Photoshop.*

Navigating the Mid-January Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid January at 8 p.m. or late January 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.

→ • Relative size of the full moon.

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

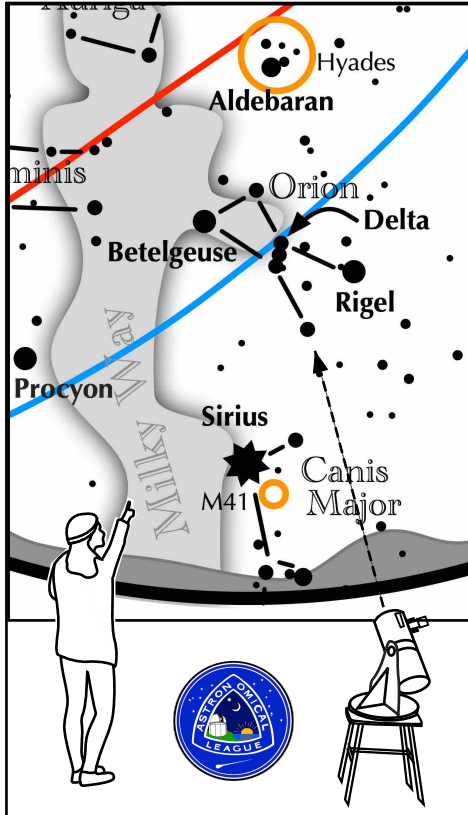
- 1 Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star.
- 2 Face south. Overhead twinkles the bright star Capella in Auriga. Jump northwestward along the Milky Way first to Perseus, then to the "W" of Cassiopeia. Next Jump southeastward from Capella to the twin stars Castor and Pollux of Gemini.
- 3 Directly south of Capella stands the constellation of Orion with its three Belt Stars, its bright red star Betelgeuse, and its bright blue-white star, Rigel.
- 4 Use Orion's three Belt stars to point to the red star Aldebaran, then to the Hyades, and the Pleiades star clusters. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius.

Binocular Highlights

A: Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **B:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster. **C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **D:** M42 in Orion is a star forming nebula. **E:** Look south of Sirius for the star cluster M41. **F:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux.



Astronomical League's Double Star Activity



Other Suns: Delta Orionis (Mintaka)

How to find Delta Orionis on a January evening

Face southeast. Look at Orion above Sirius. Orion's Belt is the three stars of equal brightness between bright Rigel and Betelgeuse. Delta Orionis is the western star of the Belt.

Delta Orionis

A-C separation: 53 sec

A magnitude: 2.4

C magnitude: 6.8

Position Angle: 0°

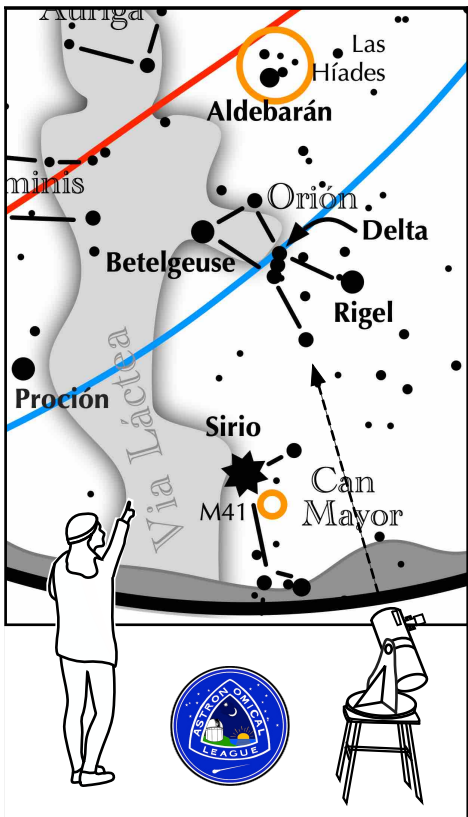
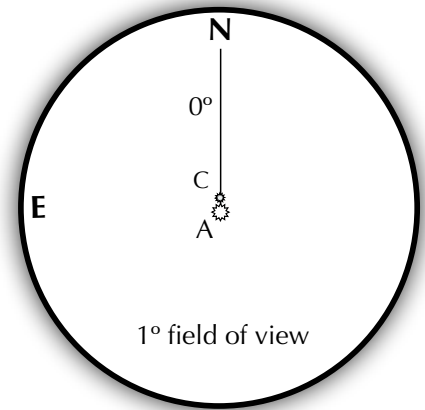
Colors:

yellow-white

blue-white

Component B is a 14th magnitude star, not visible in most small telescopes.

Suggested magnification: >20x
Suggested aperture: >3 inches



Otros Soles: Delta Orionis (Mintaka)

Cómo encontrar a Delta Orionis en una tarde de Enero

Mira al Sureste. Mire a Orión sobre Sirio. El cinturón de Orión son las tres estrellas de igual brillo entre las brillantes Rigel y Betelgeuse. Delta Orionis es la estrella occidental del Cinturón.

Delta Orionis

A-C separación: 53 sec

A magnitud: 2.4

C magnitud: 6.8

PA: 0°

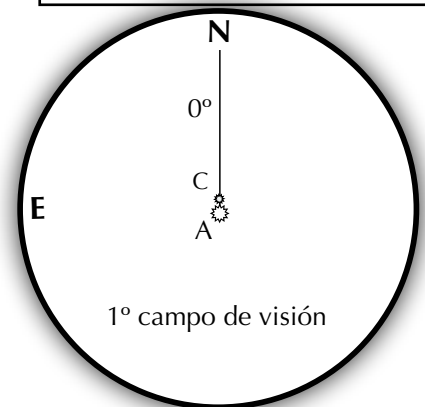
Colores:

amarilla-blanca

azul-blanca

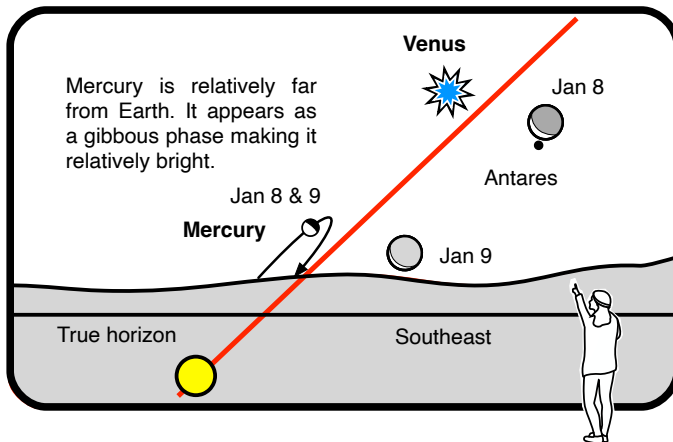
El componente B es una estrella de magnitud 14, no visible con telescopios pequeños.

Ampliación sugerida: >20x,
Apertura sugerida: >75 mm

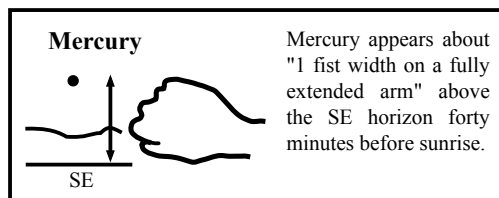


Astronomical League's Object of the Month

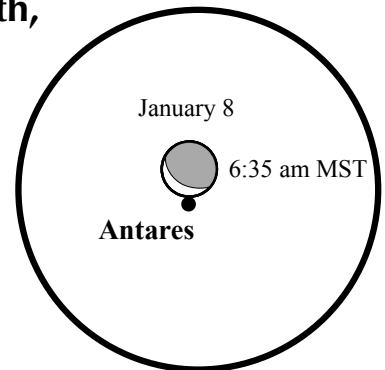
If you can observe only one celestial event this month, see this one:



**January 8 and 9, 2024:
Mercury, Venus, and the moon
forty minutes before sunrise
in the southeast**



View through 10x50 binoculars on January 8



The Scene:

The crescent moon, Antares, Venus, and Mercury in the morning twilight

On January 8, the crescent moon approaches Antares low in the southeast 90 minutes before sunrise.

- The moon occults Antares for viewers living in the southwestern portion of the US. (NM, UT, AZ, and So CA.)

- The event begins at 6:39AM MST, location dependent.

- Use common household binoculars to watch the occultation and begin viewing at 6:35 MST.

* The very bright object to the moon's left is Venus.

- 40 minutes before sunrise, look for Mercury low in the southeast to the far lower left of Venus.

On January 9, an even thinner crescent moon lies right of Mercury and below brilliant Venus.

From the Archives

December, 1983

A report by the telescope committee chaired by Ron Veys was presented at the last meeting. Following are the results. It was put forth that the club telescope should be rented to members for a small fee per month. This rental fee would help with purchasing new eyepieces, service to the scope, accessories etc.

The main point of the telescope is to make it easy to use for the members. The design of the scope should make it portable, easy to fit in any size of car. Light weight yet durable. Easy to set up and use for our junior members or those with little or no experience. Should have a fast set up time for single persons use.

No setting circles or clock drive at this time. It should include a large finder scope. Dobsonian mount with no polar alignment aid. A compromise f ratio of f/6 will allow both planetary and deep sky observation that will gradually work into more advanced observing.

The telescope is planned for spring completion date. Some of the club's funds may be needed for the finder and focuser. Spare parts and eyepieces will be graciously accepted by the members and community. Those that have ideas on the above information or new ideas should report them to Ron Veys.

The History of PAC and Hyde Observatory

Mark Dahmke

When it was founded, the Hyde Observatory was the only facility in the U.S. built and operated entirely by donations, devoted exclusively to public viewing, completely free of charge and staffed only by volunteers. To this day, few other observatories meet all these criteria.

But there is more to the story, and that's a journey into the history of Lincoln, and a story about a small group of amateur astronomers

who founded the Prairie Astronomy Club.

The Prairie Astronomy Club can trace its beginnings back to November 7th, 1960, when the planet Mercury transited the sun. The event prompted an article in the newspaper, which mentioned that astronomy and physics professor Carroll Moore was going to observe the transit from Nebraska Wesleyan University.

This is the official version of the story, but the

founding of the club has roots that go back much farther. One story comes from Rick Johnson, who became interested in astronomy in 1953. His father bought him a book on telescope making, but it included only three pages of complicated instructions. After several attempts, his father took him to meet Jess Williams. Jess owned an automotive shop at 22nd & "O" Street. Rick said that each time they'd go over

Hyde Observatory, continued.

there for help, he'd meet some of Jess's friends, and that Jess had his own little astronomy club going. Jess would point out things for Rick to look at with his telescope, but there was no such thing as an organized astronomy club in Lincoln at that time.

Later, in 1956, when Rick's parents were out of town on business, they hired a sitter, and that was Mrs. Frost, of Wells and Frost. She saw that he had an interest in astronomy, so she introduced Rick to Carroll Moore. Carroll asked Rick to add his name to a list of people interested in starting an astronomy club. Another charter member was Tom Pansing, an attorney. Pansing graduated from the UNL Law School in 1941 and was a partner in Crosby, Pansing & Guenzel. Rick said his father knew Tom, but they didn't know of their common interest in astronomy until shortly before the first club meeting.

Carroll asked Pansing to write bylaws for a club and serve as its first president. Jess Williams

and another amateur astronomer by the name of Dick Hartley joined, and the group started to have regular meetings. The club took shape in 1960 and 1961, and the first newsletter was printed in 1962. Pete Schultz, another of Rick's classmates from Lincoln Southeast, was also a founder of the club and present at the first meeting.

According to Rick Johnson, Jess Williams and Tom Pansing tried to get a club started for many years, but Tom didn't have the time. Then when Carroll Moore put together his list after the Mercury transit, he met with Jess, Tom and Dick Hartley to work out the club and its first officers. Apparently Dick and Carroll had been working together in parallel with Jess and Tom, but neither really knew of the other until Tom and Jess came to the Mercury transit.

Jess moved to Lincoln in 1900. In addition to operating an automotive spring business, he was a nationally known pianist famous for his ragtime performances, and there are stories about how

people used to gather outside his shop to listen to him play.

In 1909 he met Scott Joplin when Joplin was in Lincoln, and that meeting influenced the rest of his life. Joplin joined the 17-year-old Williams and other members of the Lincoln Musicians' Union for a jam session. He played in local bands during his student days, accompanied the silent movies at the Lyric, Majestic, and Sun theatres, was the calliope player for all the Masonic parades in Nebraska, and, at the age of 84, appeared in Washington, D. C. at the Smithsonian Institute's Bicentennial Folklife Festival. Williams wrote more than 20 songs between 1920 and 1930. It is said that music was his whole life, but he also was passionate about astronomy. Rick said that kids flocked to Jess because of the old steam calliope, and Jess had his own kid's astronomy club going prior to the Prairie Astronomy Club. No one could replace him for bringing in the kids.

Getting back to the

astronomy club, in 1962, Pete Schultz noticed an ad for a “Moonlight Madness” sale at Gateway Mall. The only problem was there was a new moon at the scheduled time of the sale. Pete suggested that they contact Gateway with the idea that the club could setup some telescopes during the sale, and figured that Hartley as president was the one to do it. Dick on the other hand recognized Pete’s potential and turned the job over to him, much to his dismay. Pete had no car so Rick Johnson was the designated driver. Rick said that even though Pete was to do all the talking, he was likely as white with fear as Pete was.

At that time Gateway was owned by Banker’s Life, now Ameritas, and they somehow managed to get in to talk with the board of directors. After making their pitch, the board not only agreed, but offered the club \$100. Rick said that they weren’t even there to ask for money! And that was the start of the club’s public service.

Now a little bit of

background on Pete Schultz. After graduating from Lincoln Southeast he got his B.A. from Carleton College in ‘66, and his Ph.D. in Astronomy at the University of Texas at Austin in ‘72. After working as a research associate at NASA Ames, and a Staff Scientist at The Lunar and Planetary Institute, he became an Associate Professor in the Department of Geological Sciences at Brown University in 1984 and was promoted to full Professor in ‘94.

He has done extensive research on cratering and was a principle researcher on NASA’s Deep Impact probe which impacted on Comet Tempel 1 in 2005 and the 2009 LCROSS probe which impacted on the Moon. He has also been interviewed for various science programs on the Discovery Channel, National Geographic and NOVA on PBS.

Sometime during those early years, Earl Moser joined the club. Earl owned an auto repair business in Hickman. He served as club president for many years and was

one of the club’s most active and dedicated volunteers. In 1967 he helped acquire the club’s first telescope. It was a 12.5” Newtonian reflector on a heavy equatorial mount. The owner was willing to sell it for \$800. Some of the money was raised through donations from club members, and the rest was financed through a small loan from a local bank.

The scope was used extensively at the club’s observing site, which was on Earl’s farm, and also saw a lot of use out at Gateway Mall and other events. The club hoped to find a permanent location for an observatory, but that goal was far in the future, so it was carried from place to place and mostly stored at Earl’s farm when not in use.

Someone came up with the idea that if the city would help build a small observatory, the club would donate the telescope.

Earl came to Lincoln and started scouting for a good dark sky location for an observatory. He said that Lincoln Public

Schools was also interested in a community observatory, so he checked out sites near the schools, but none were suitable. He also checked Lincoln's parks and found a nearly ideal location.

In the August, 1967 club newsletter it was reported that they'd found a site for the observatory. The telescope would be located in the south section of Holmes Park directly across from Cedars Home. Jess Williams and Tom Pansing contacted parks and recreation and they promised to help as much as possible, in regard to providing land and helping with the building.

An article in the Lincoln Journal stated that "Lincoln's recreation program could be further diversified in the near future by the addition of a high-powered telescope and a facility to house it if plans can be worked out." The Parks and Rec Board decided to investigate the matter, after a lengthy discussion of the availability of funds.

Tom Pansing was quoted as saying, "There really is a lot of interest in

astronomy. At our last showing at Gateway Shopping Center, we had about 1500 people stop and look through the scopes." He added that the club would operate the facility and give the lectures and shows for the Parks department. The Board agreed that the telescope would be a nice addition to recreational facilities.

However, it was pointed out that no capital improvement funds were available in that year's budget to allow for construction of the \$2,000 building in Holmes Park. Jim Ager said he would favor the proposal if the club could provide financing for the telescope shelter.

This proposal was ultimately turned down by Parks & Recreation due to a lack of funds. In a later club newsletter, Earl Moser proposed moving forward with a temporary observatory building or shed to house the club telescope, which was later built on his farm.

The club continued to haul the scope out to Gateway for public star parties. The remainder of the loan was paid off through additional donations and at one of

the Gateway star parties the scope's mortgage was burned by placing it at the telescope's focus and pointing it at the sun.

The idea for a community observatory did not die, and was revived in the 1970s by Carroll Moore. He chaired several committee meetings that took place in 1974 and 1975. He began a fund drive to build a public observatory in time for the 1976 bicentennial. One meeting was held in the Nebraska Union, 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.

The meeting was organized by Duane Hutchinson, who at that time was at Wesley House. Duane later became a storyteller and author, and is most famous for his ghost stories. Through 1974 and 75, the committee expanded to include representatives from Southeast Community College, the Junior League of Lincoln and

the Lincoln
vFoundation.

The planning committee set down a number of criteria for the observatory:

- That the building was to be used for public education and instruction in astronomy, rather than for research
- That the site was to be sufficiently far from the center of Lincoln that there would not be much light pollution
- That the location was to be close enough to the population to allow easy access, and maximum use.
- That the building allow a clear view of the skies from at least three permanently mounted telescopes, yet provide protection for the equipment when not in use.
- And that the building would accommodate groups of up to 50 people.

In June, 1976, Earl Moser reported that the committee had decided to delay plans for a general solicitation of businesses until late fall. There was concern

about approaching businesses that were already being solicited for funds for other larger bicentennial projects. Approximately half of the required funds had been pledged or donated, and another \$30,000 was needed to begin construction.

In July, it was reported that the design for the observatory had been finalized and would consist of a 12 x 30 foot observing deck with a roll-off roof, and three telescopes, including an 8-inch rich-field reflector, which would be built and donated by the club.

The less expensive roll-off roof idea came from Jack Dunn, who had been a student of Dr. Gilbert Lueninghoener, a professor of astronomy and geology at Midland Lutheran College in Fremont. Dr. Lueninghoener had built an observatory with a roll-off roof, and Jack suggested looking into this alternative design to hold down costs. Dr. Lueninghoener was also a cousin of Loren Eiseley, and while researching this paper, I ran across a death notice for Lueninghoener in

The Caravan, a newsletter of the friends of Loren Eiseley, written by the late Naomi Brill.

It was decided to make a presentation to the Lincoln City Council to obtain city funding for the remainder of the proposed budget. The formal presentation was made by club member Lee Thomas who at that time was station and program manager for KLMS radio, and was later an associate professor of journalism at Doane College. It was noted that due to the Viking missions to Mars and the launch of the Voyager probes to Jupiter, there was an increased interest in astronomy and it was a good time to promote the observatory project.

In the August newsletter, it was reported that there was a good turnout of club members who helped to fill the City Council chambers to overflowing. Former Nebraska Governor Bob Crosby, Dale Rathe and Lee Thomas presented the case to the Council. The Observatory Committee had raised half of the \$60,000 needed to complete the observatory, but the Council was in no mood

to add money to anyone's budget, and the proposal was dropped. The committee then realized that it should first have approached Mayor Helen Boosalis, to see if they could persuade her to add it to the budget.

By November, the committee was able to raise a total of \$70,000 so the project could proceed without money from the city. A generous donation of \$50,000 from Mrs. Flora Hyde, in memory of her late husband Leicester (pronounced "Lester"), completed the fundraising effort.

Leicester Hyde was an architect by profession and participated in the planning and development of many commercial, educational and community buildings. He was an officer of The Midwest Life Insurance Company for 18 years. He served as member of The Lincoln Foundation and a Trustee of the University of Nebraska Foundation and with his wife, funded the establishment of a chair in Architecture at the University of Nebraska.

Bids were let in February with construction to

commence in March, 1977. The building would also include a meeting room, and the club would provide volunteers to operate the observatory on regular public observation nights. The Holmes Park site earlier surveyed by Earl Moser was selected, and the building was designed by Clark Enersen Partners.

Groundbreaking for Hyde Observatory occurred in April. In the May newsletter, club president Larry Stepp reported on construction progress. Framing was well underway, and he mentioned that the lights from the nearby baseball fields were not that much of a problem. The observatory has a feature that is probably unique in the city of Lincoln - it has a switch that can turn off all the street lights on either side of the observatory.

Larry also reported on the progress of the construction of the telescope that would be donated by the club. Larry, along with Ron Veys, built the scope's mount and drive mechanism. Ron Veys joined the club in the early 70s while he was a student. He taught math

and physics at Southeast Community College and is still a member of the club.

This is where I need to tell you more about Larry Stepp. Larry joined the club in 1965 and was an active club member when he was in high school and college. He graduated from UNL and then moved to Texas, where he worked for Texas Instruments. In 1985, he took a position in Tucson with the National Optical Astronomy Observatory, a division of the Association of Universities for Research in Astronomy, known as AURA.

While in Tucson, he worked on the design of two 8-meter telescopes, one on Mauna Kea in Hawaii, and the other in Chile. These two telescopes make up the Gemini Observatory. He stayed with the Gemini project as optics manager, and is now the Telescope Department Head on the Thirty Meter Telescope project. The telescope, currently in the planning stages, will consist of a segmented mirror made up of 492 hexagons, with 10 times the light collecting area of each of the Keck

telescopes. Expected to cost about \$1 billion, it will be the largest telescope in the world.

In August of 1977, Larry reported that the observatory was due to be completed in the first week of October, and that a contract was signed with NASA to provide for a solar heating system. He also reported that the Garden Club of Lincoln had agreed to provide the landscaping around the observatory.

Dedication was held on November 6th with remarks from Robert Northrop, Chairman of the Lincoln Foundation, Lulubel Emerson Pansing, member of the Lincoln Board of Education, Don Smith, Director of the Lincoln Parks & Recreation Department, and John Massey of the Marshall Space Flight Center. Mayor Helen Boosalis performed the ribbon cutting.

The opening of Hyde was unfortunately saddened by the passing of Jess Williams. In December Jess entered the hospital in Lincoln. The evening before his surgery he played piano for his fellow patients in the hospital lounge and the

next day he died. Rick Johnson said that it was his trip to Washington in 1976, which included a command performance for President Ford that ultimately killed him. After that trip he was exhausted and never fully recovered. Even at age 83 when he played the piano, he played like a madman.

Back in the early, lean years of the club Jess practically was the Prairie Astronomy Club—at least he was the club's spirit and vitality, and it was good that he'd lived to see the construction of an observatory that was bigger—and much better—than the one he'd originally worked for.

When it opened, Hyde Observatory became the focus for the club and its activities. The largest telescope at Hyde is the 14 inch Celestron. The second-largest instrument, acquired in 2005, is the 11 inch NexStar also made by Celestron. It replaced the original 8 inch reflector, which was on loan from Nebraska Wesleyan.

Hyde also has a rear-projection solar telescope designed and built by members of the club and funded by a

\$200 donation from the Junior League of Lincoln. The fully-enclosed optical system allows several people to safely view the surface of the sun at the same time. The solar telescope is used mainly for daytime school groups or for major events like solar eclipses and transits.

Once the observatory began operation, club membership increased to over sixty and the club moved its meetings to the observatory's lecture room. The Gateway Shopping Center sky shows were discontinued, as members turned their attention to helping staff the observatory. Several club members served on the observatory's board of directors to help guide observatory operations.

The February 1979 eclipse of the sun was viewed by over 500 visitors and covered on local television. The annular eclipse of 1985 was a record breaker for both Hyde and for the Astronomy Club, as over 500 visitors viewed the event. The year 1986 brought the return of Halley's Comet, and with it, large crowds at the observatory. Club members brought their

own telescopes and set up outside to help ease the extreme crowding in the observatory.

Comet Hyakutake put on a fine display in 1996 and in 2000 a total lunar eclipse brought out nearly 600 people. Again, the observatory provided a live television feed to local TV stations.

In 1977 Lee Thomas proposed the development of several multimedia slide shows for presentation at Hyde. With the help of Jack Dunn, Merton Sprengel and other club members, scripts were written for a series of programs on subjects such as the Moon, Meteor showers and the constellations. In 1981 the observatory received a mini-grant of \$2000 in support of a project to create a series of four programs on the constellations. The project was funded through the Nebraska Committee for the Humanities. These and other slide shows were presented to visitors for over twenty years.

In December of 1996, Carroll Moore passed away at age 79. He is regarded as the father of both Hyde and the club, and in his honor there is now a memorial stone

bench and plaque next to the main entrance of the observatory. In his remembrance Rick Johnson said: "Carroll picked up our botched idea for a public observatory and turned it into a reality. Carroll put together a team of people from all walks of life and before long, but not before one heck of a lot of work, Hyde Memorial Observatory was a reality."

Carroll made it a full-time 80 hour a week effort. By making it a wide based effort it was far easier to attract the money needed, but that also meant it had to be on a bigger scale than what was originally envisioned by the club.

In a recent interview, Rick added, "As to Carroll's public observatory it was really separate from what we'd tried. We'd given up on it, when he announced that he was taking a year's leave from Wesleyan to work full-time on getting Lincoln a public observatory, if we were up to staffing it. Not many people would give up a year's salary to take on a project like this."

Because of the efforts of Carroll and the original

Hyde committee and the volunteers who staff and operate the observatory, Lincoln has an asset that is probably unique in the world, and it has gone through many changes and improvements over the years. In 2003 the old solar heating system was replaced with a solar electric system that generates two kilowatts of power and supplies almost half of the power needed to operate the observatory.

In 1999 the observatory acquired a computer projector for the lecture room. The old slide programs were supplemented with various astronomy DVDs and NASA-produced programs.

In 2007, Jack Dunn and Mark Dahmke started converting the old constellation programs over to video by scanning the slides and digitizing the audio track. They also replaced the old computer with a more powerful system with a high definition graphics display. In 2009 Hyde bought a low light CCD video camera designed for use with telescopes. The camera can be inserted in place of an eyepiece, so views of planets and other

bright objects can be displayed on the big screen in the lecture room.

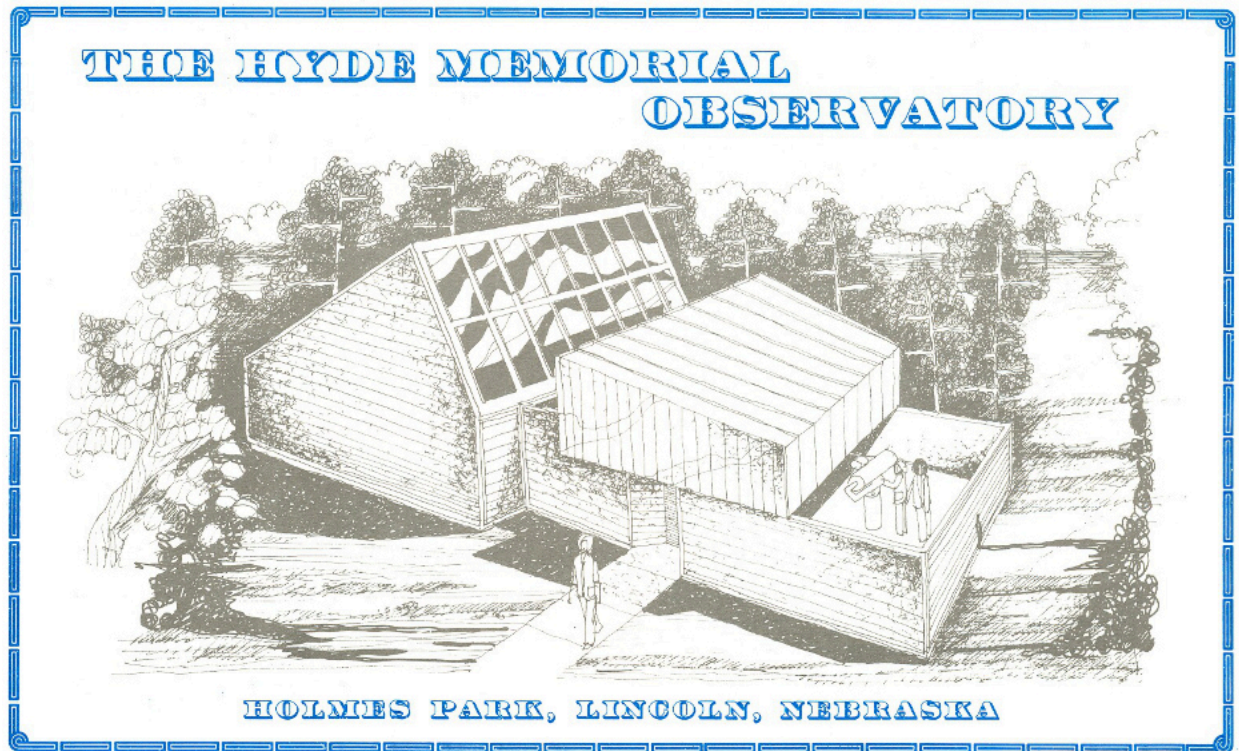
When Hyde was built, that area of southeast Lincoln was not developed, so light pollution was not really a problem. In the past 30 years the city has grown around the observatory, and several issues have emerged. Most have been resolved to everyone's satisfaction by working with developers; however a

few problem lights remain.

On at least one occasion, it was suggested by a member of the city council that Hyde should move farther from town in search of darker skies. The possibility of encroachment by city lights was considered at the time the observatory was built, and it was decided that since the purpose of the observatory is to be a public facility, not a research facility, and

therefore should be easily accessible, Hyde was to be located within the city limits.

One example often given is that of Griffith Observatory in Los Angeles. Even though in an area that is heavily light polluted, Griffith is a popular attraction, and easily fulfills its mission of education and entertainment, and to make science more accessible to the public.



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.

ADDRESS

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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, 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.

