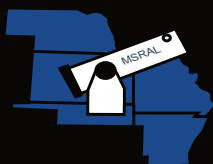


The Prairie Astronomer

August 2022 Volume 63, Issue #8



IN THIS ISSUE: Nebraska Star Party
Webb Captures Cartwheel Galaxy



Night Sky Network



The Newsletter of the Prairie Astronomy Club

The Prairie Astronomer



NEXT MEETING AND PROGRAM

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

The James Webb Space Telescope has opened a new chapter of exploration into the origins of our universe, star formations, and life itself. Webb's ability to peer deep through the dusty materials surrounding nebulae and galaxies allows us for the first time to see how stars and planets are formed. By focusing on infrared light Webb will look back into time to within 300 million years after the Big Bang when the first generations of stars and galaxies were beginning to form. The Prairie Astronomy Club is honored to host guest speaker Kevin Gallagher, NASA Solar System Ambassador, for a presentation on Tuesday, August 30th starting at 7:30 PM at the Hyde Observatory near Holmes Lake. Kevin Gallagher will share and explain the first images just released from the James Webb Space Telescope. August 30th at 7:30pm at Hyde Observatory. Meetings are open to the public.

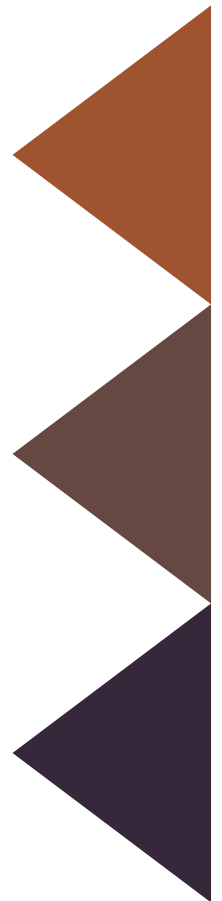
FUTURE PROGRAMS

September: NSP Review
October: Club Viewing Night
November: How To Buy a Telescope
December: Holiday gathering

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Cover: Aerial view of the Nebraska Star Party observing field, July 26, 2022, by Mark Dahmke.



CALENDAR

PAC Meeting
August 30, 7:30pm at Hyde Observatory
JWST Image Release with NASA Ambassador

Branched Oak Observatory Fall StarBQ
September 24, 5pm

PAC Meeting
September 27, 7:30pm at Hyde Observatory
Review and photos of the Nebraska Star Party

Lunar Viewing Night (tentative)
October 1

PAC Meeting
October 25, Club Viewing Night

2022 STAR PARTY DATES

	Date	Date
January	28	2/5
February	25	3/4
March	25	4/1
April	22	29
May	20	27
June	17	24
July	22	29
NSP	7/24	7/29
August	19	26
September	23	30
October	21	28
November	18	25
December	16	23

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

CLUB OFFICERS

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Shop through Amazon Smile to automatically donate to PAC:
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www.prairieastronomyclub.org

The President's Message

Bob Kacvinsky



Hot days and nights and late sunsets make observing this time of year a little more challenging. Fortunately, we have not been inundated with the western fire smoke like much of the last couple of years. NSP was smoke free and good seeing for 2 of the 5 nights I attended. Transparency and seeing has been average with the hot air more saturated than usual.

By now you have probably seen the first images released from the James Webb Space Telescope. The telescope is exceeding expectations in almost every way possible. Webb's multiple instruments can collect data simultaneously, so each image has several companions. At last count there were 287 images listed on the website capturing 8 different objects/spots in space. The spectrograph information from galaxies 11 to over 13 bly away help explain the "red shift" affect into the infrared

spectrum. Every "photo" shows a number of "firsts" that are being discovered. This is an exciting time for Astronomy.

Kevin Gallagher, NASA Solar System Ambassador, will be our guest speaker for our August 30, 7:30 PM, PAC meeting. We are hyping the program in Facebook and with local media to encourage more public attendance. Kevin spook at our May meeting has will walk through each of the major 7 images and highlight some of the key discoveries. We are truly blessed to have him provide us the latest updates from James Webb Space Telescope. You will not want to miss this program.

August and September PAC is focused on highlighting the JWST First Image releases. We have already had two public programs in Lincoln and the second Expert Panel program from NASA by the time you read this. August 20th will be the Branched Oak

Observatory presentation of JWST images from 7-9 PM with a star party following. If you want to bring out your telescopes and join in the fun please make plans.

August 29th PAC has been invited to present the JWST First Image program at the Bennett Martin Library downtown from 6:30-7:30 PM. September 9th at 6 PM will be the third NASA Expert Panel webinar at 6 PM. If you are a member of a group or club and would like to have a presentation on the JWST Images, please let me know.

At our next PAC meeting we will be recognizing and awarding the 10 PAC members who completed the Astronomical League Galaxy Observing Challenge. The next AL Challenge is Globular Clusters in Ophiuchus and Sagittarius. The challenge requires observing 12 globular clusters out of 32 selected

with 14 being Messier objects. Katelyn Farneth at the last PAC star party logged 20 globulars in about 2 hours. Let's see if we can get more club members to complete the challenge and turn in your logs to Jim Kvasnicka for submission. If you just do the Messier objects each quarter you will be over a third of the way to the AL Messier Observing Award program.

If you have been taking Astrophotos this summer, we will be sharing them for the September PAC

meeting. We will send out a request with details for sharing in September so start getting them together.

September and October we have public observing night requests to set up telescopes for public viewing. We are watching and learning from public safety people on our best course going forward. Please consider your own circumstances and help where you can with these public events. We want to share our love of the night sky but also want you to

feel safe doing so. If you have any concerns or issues, please let me know.

October 1st has been selected for the AL's Astronomy Day and has been designated as a Lunar Observing Night. Please mark your calendars as we are planning to have a Lunar night. Stay tuned to messages from the NightSky Network.

Mentor Program, Special Observing Challenge

Congratulations to the following mentors and mentees for completing the Special Observing Challenge – Galaxies. Twelve galaxies had to be observed from a list of twenty-two provided by the Astronomical League.

Bob Kacvinsky (Mentor)
Katelyn Farneth (Mentee)

Brett Boller (Mentor)
David Dickinson (Mentee)

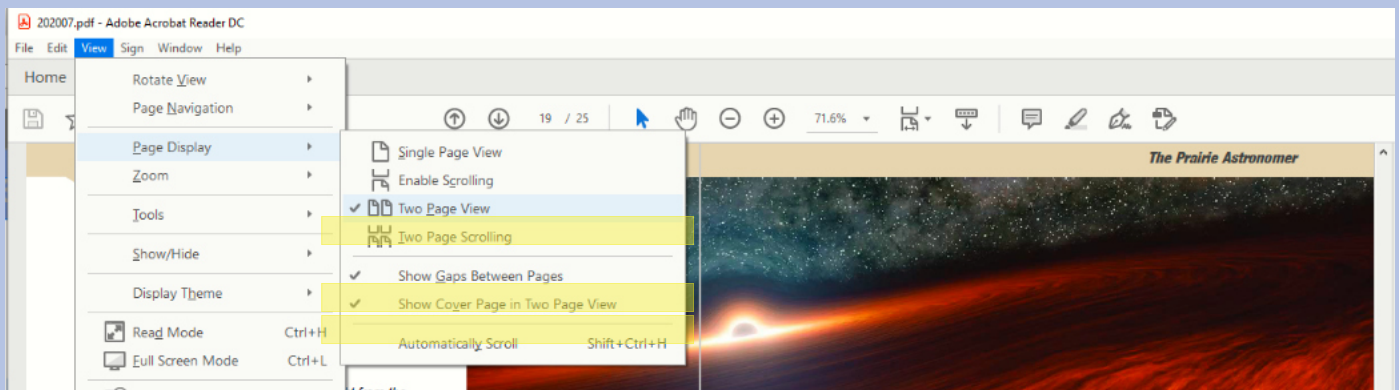
Dan Delzell (Mentor)
Gideon Johnson (Mentee)
Jenny Jo Johnson (Mentee)
Joy Ruth Johnson (Mentee)

Jim Kvasnicka (Mentor)
Starla Schleicher (Mentee)

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](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](mailto:pac-list@googlegroups.com)

Nebraska Star Party Virtual Tour

Mark Dahmke

While at the Nebraska Star Party, I shot aerial views and also a set of ground-based 360 degree panoramas of the observing site and also at Valentine High School. I used them to create a virtual tour with map for the NSP website: <https://www.nebraskastarparty.org/virtualltour/NSP/>

The viewer has a button bar for navigation and thumbnails to select other nodes (locations). Or you can click on the map icon and then select a node.



Shows direction of view



Hotlink icons jump directly to other nodes

Scrolling thumbnail views. Click to select a node

Arrow buttons or mouse allow you to rotate the field of view

Zoom

Displays a map

ARP 46

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 46 falls under Arp's category "Spiral Galaxies" Small, high surface brightness companions on arms. The big spiral, UGC 12667, is not Arp 46. Arp 46 is the much smaller, distorted spiral down to the right (southwest) of the bigger spiral. Arp 46 consists of UGC 12665, the distorted spiral and its small companion VV 314b. Arp's comment: "Companion connected to main spiral." I'm not all that convinced that is correct. There is a nice tidal arm coming from VV 314b and overlapping UGC 12665. But I see no way to tell if they are connected. Most likely they aren't. But that tidal plum is nice in the 2x enlargement.

The pair is in northern Pegasus. They are about 230 million light-years distant based on redshift and about 210 based on corrected Tully-Fisher estimates. This is quite good agreement as these things go. UGC 12665 is classed as SB(rs)d pec. Considering its northern arm is so distorted to be unrecognizable I'd have to say the peculiar designation is well earned. I find no classification of the companion. I'd say S0 pec as drawing such a tidal arm is easier from most S0 galaxies than elliptical galaxies.

This field is out of the Sloan survey area so there's not a lot of data on the other galaxies in the field except for UGC 12667. Redshift puts it at about 160 million light years so it isn't related to Arp 46 at all.

The apparent distorted edge on spiral about 10 minutes to the northwest (upper right) of Arp 46 is 2MASX J23330718+3010153. I find little on it. The apparent edge on spiral (normal) directly north of the face on spiral UGC 12667, near the top edge, is 2MASX J23334841+3012482. These two are the only other galaxies in the field that I could find any catalog entry for in NED.

Focus on Constellations: Aquila

Jim Kvasnicka

Aquila, the Eagle is probably one of the oldest constellations in the sky. The Greeks inherited it from the cultures of Mesopotamia, the Babylonians, and the Sumerians. Aquila is on the celestial equator and cut through by the Milky Way. Altair the brightest star in the constellation is 16.5 light years distant, making it one of the nearest stars to our Solar System. Altair makes up the Summer Triangle along with Deneb and Vega. The name Altair is from Arabic for "The Eagle". Though Aquila is on the Milky Way it is poor in open clusters. Part of the reason for this is the obscuring clouds of the Great Rift which block the light of distant open clusters. Aquila is rich in planetary nebulae and a good place to look for dark dust clouds. Aquila is best seen in the month of September.

Showpiece Objects

Planetary Nebulae: NGC 6781

Open Clusters: NGC 6709, NGC 6755

Multiple Stars: 11 Aquilae, 15 Aquilae, 23

Aquilae

Mythology

It is said in the old Greek myths that during the ten-year war between followers of Zeus and the giant Titans that a magnificent eagle known as Aquila was ever by the side of Zeus waiting to carry his thunderbolts that Zeus hurled down to kill the giant Titans. It was for his loyalty that the eagle was given a place among the stars as the constellation Aquila.

Number of Objects Magnitude 12.0 and Brighter

Galaxies: 1

Globular Clusters: 3

Open Clusters: 4

Planetary Nebulae: 8

Dark Nebulae: 11

Bright Nebulae: 0

SNREM: 0



The 29th Nebraska Star Party

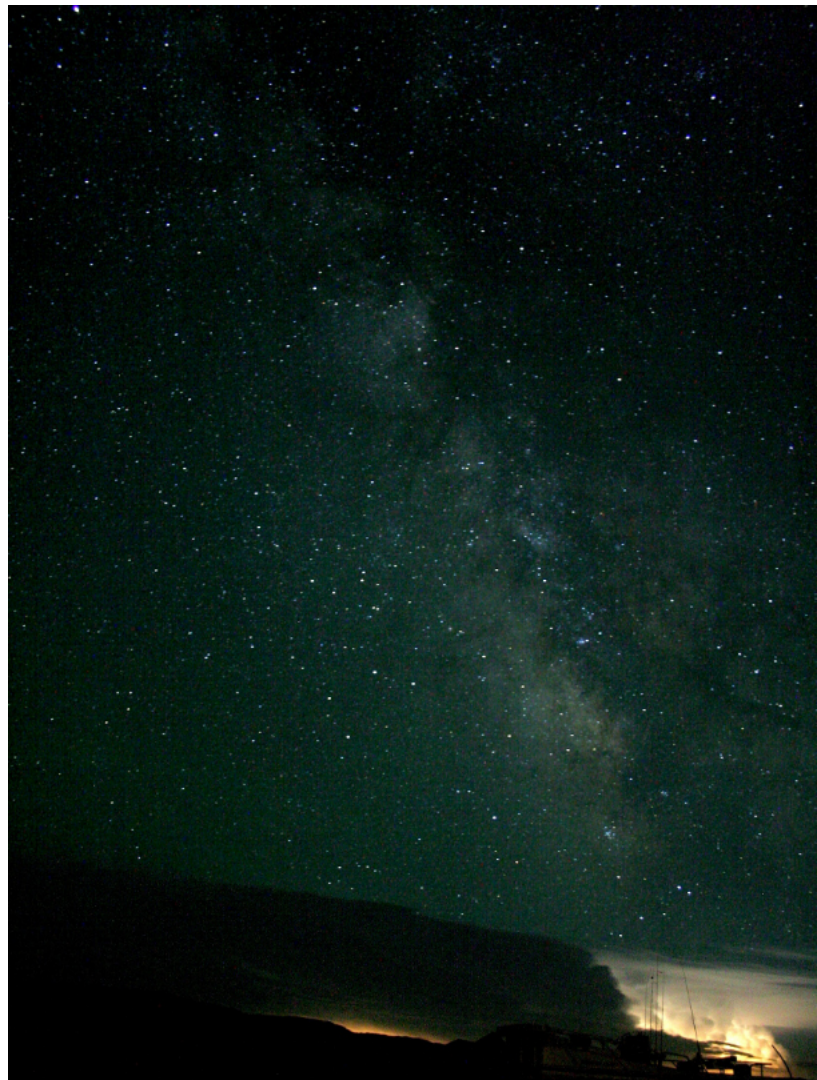
David Knisely

This year's Nebraska Star Party was one of the best ones I have ever had, with over 300 attendees and fairly decent weather for much of the week. I had gotten a "heads-up" from Eric Balcom that 60 people had already registered for just the NSP Beginner's Field School a few weeks before, so I was busy getting all the slides for our presentations ready. This year, my preparations were completed before Friday evening the 22nd, so I saw a movie and then got a good night's sleep before the next morning. After a quick stop in Lincoln to drop off my cat for boarding, I headed west on I-80 and then up Highway 2 into the Sandhills, stopping at Broken Bow for lunch. As has happened repeatedly over the years, I ran into a bunch of PAC members at Runza having lunch, so we had a few minutes to chat before getting back on the road. This is the first trip up to NSP since I retired, and this seemed to make the drive and stay much less rushed and more pleasant. This time, John Reinert and I would be staying at Lord Ranch, located about 25 road miles south of

Valentine and 22 road miles from Merritt Reservoir, but it turned out to be a great quiet place to stay. After John arrived, we went into Valentine to get a few supplies for the week, as well as to have a fine dinner at the Peppermill. We saw some clouds in the southwest, so we

drove back to the ranch to get some rest rather than go down to Merritt. However, the clouds dispersed, so we set our two scopes up right at the ranch and got down to a fine night of observing.

Unlike other years, this year was cooler overall than many others, with a



David Knisely

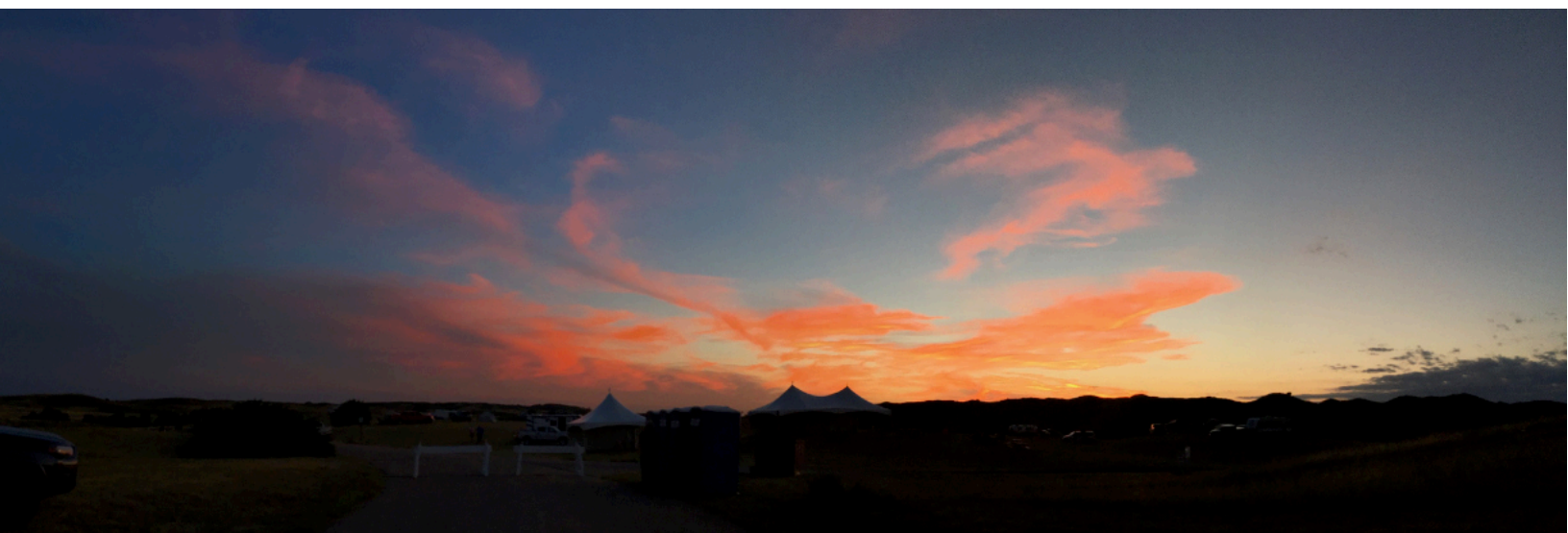
Nebraska Star Party, continued.

light breeze that kept the mosquitoes at bay but made a light jacket necessary. We started out working the northern sky with galaxies like M51 and M101 showing their spiral structure well in both John's 11 inch Celestron SCT and my 14 inch "Black Mamba" Dobsonian. We looked using different power until John found the "sweet spot" in magnification in his SCT, giving us an astounding view of the main portion of the Swan Nebula (M17), while my scope showed the faint extended outer nebulosity using a narrow-band nebula filter. We hit Draco's Trio (NGCs 5981, 5982, and 5985), and each showed up well, with NGC 5985 showing hints of tightly wound spiral structure in the outer haze. We then went south into the Milky Way to do the usual "sight seeing" with M8 and M20. M8 at about 70x to 100x

in particular showed fine filamentary structure in John's 11 inch with a narrow-band nebula filter that I had never seen before. M22 nicely resolved into a huge mass of stars, while with M16, we could see the dim dark "check-mark" near the center that marks the area known as "the Pillars of Creation" imaged by the Hubble Space Telescope. We went on up north to M27, where we cranked up the power and marveled at the fine structure in the main dumbbell portion. We hit the small elongated open star cluster NGC 6802 located on the east end of "The Coathanger" asterism (Collinder 399) and it resolved nicely into two or three distinct sub-groups of stars. We marveled at the Veil with the OIII filter in my 14 inch, although it still looked pretty good in a narrow-band filter in John's scope, and ranged

around past the Crescent Nebula (NGC 6888) which looked like a dim mottled ear with the filter in-place. We briefly stopped at the Ring Nebula before moving on north to study both the North America Nebula (NGC 7000) and the Pelican Nebula (IC 5070). A few more objects later, in my 14 inch, I showed John the "Elephant's Trunk", a dark elongated feature in the dim emission Nebula IC 1396. We looked at M31 for a bit, but then noticed the sky getting kind of murky, only to see that a fat crescent moon was rising in the east, putting an end to our deep-sky excursion, so after a quick look at Saturn and Jupiter, we packed it in around 3 a.m. Still, right before we packed up, we still had time to re-collimate John's SCT, which only required a little tweaking.

John Reinert



Sunday morning was probably one of my best morning wake-ups in years. The sun was shining in a cool morning sky with a pleasant breeze and few clouds, so having a leisurely breakfast out on the “porch” was the thing to do for us. With a beautiful view and wonderfully pleasant temperatures, I could have sat there for hours but we did drive into town for a late lunch. After going back to the ranch for a nap, we did the 22 mile drive through the Valentine Wildlife Refuge over to Merritt around 4 p.m. to pick up our packets at Boardman campground and renew a bunch of old friendships. We then went over to the Snake Campground for the catered meal (very fine chicken), but the skies were not clear enough to set up, so after some more meeting-up with friends afterwards, we just drove back to the ranch for the night.

Monday was partly cloudy and I had to be in Valentine early to get set up for my presentations at Day-1 of the Beginner’s Field School, so we had an early lunch at The Coach Light Inn and then did some shopping at The Plains Trading Company Booksellers and Young’s Western Wear before heading over to the High School. For once, all my electronics behaved themselves and we had around 50 students present to hear Jim

Hopkins and I do our first day session of the Field School. We even got to give away a couple of door prizes (binoculars and a red flashlight). With the weather not looking great, we headed out to Merritt for the evening

around 3 a.m., the ranch got pounded with a massive thunderstorm that dumped a huge amount of rain and wind on the area.

Tuesday was initially cloudy and cool, but



John Reinert

catered Beef BBQ meal on the observing fields, and while there were a few sucker holes, it was cloudy enough that we didn’t stay too long and headed back to the ranch. It was lucky we did, as

again, it was into Valentine for Day-2 of the Field School. Once again, the session went off without a hitch, and we got to give away some more door-prizes. After we closed up shop at the

Nebraska Star Party, continued.

high school, it was back to the ranch to load up our charging batteries and equipment, because **THE SKY WAS CLEAR!** Another drive over to Merritt and we got another nice meal (Hamburger BBQ), along with door prizes. It was then time to set up for what turned out to be the best night of all the week, as it was clear from dusk to dawn. I had set up my 14 inch "Black Mamba" Dobsonian on Dob Row with John having his CPC-11 set up not far away, so we did a lot of observing together. Sky and Telescope Observing Editor Diana Hannikainen, who was speaking on Wednesday, was there on the fields just taking the whole scene in, and I gave her a good look at the Trifid in my 14 inch. I worked the sky in a method I like to call, "point and shoot", where I pick some object at random on my laptop's filtered computer screen, find it, and then find as many objects in its vicinity as I can. I probably worked over a half dozen brand new targets (mostly faint galaxies in Draco) before Brian Sivill came by and made a request for an object to show some kids he had tagging along. I put the scope on the globular cluster M22 and blew them away with

the mass of stars the scope easily showed. I did a little more "sight seeing" before John discovered that his SCT's corrector plate was starting to dew over. I shut my computer down and moved its big external battery out of the van and over to his scope so that John could run his mini heat gun long

stay warm. We finally broke down our setups around 3:30 a.m. and headed back to the ranch to get some sleep.

Wednesday it was back into town for the talks and daytime presentations at the High School, which, as usual, were quite varied and interesting. UNK's Adam Jensen



John Reinert

enough to clear the dew off. From there, we just used his scope and I gave him targets to look at either from memory or from my copy of the Pocket Sky Atlas. Even with my jacket and observing hood on, I was getting kind of cold with the temperatures in the upper 50's and a moist southerly breeze, so I put things away and huddled behind John's truck to

gave a talk about planet atmospheric detection from transits of stars, while young Astronomy Ambassador Libby White from Bentonville, Arkansas gave an exciting talk about her activities in astronomy and her time at Space Camp. Keynote speaker Dianna Hannikainen of Sky and Telescope gave a 2-part talk on microquasars and the

things going on at Sky and Telescope magazine. This was followed by door prizes and the astrophotography contest awards. After all the activities, we linked up with eastern Nebraskans Leona Barratt (daughter of former PAC president Earl Moser), Brad Severa, Brian Wilson, and Dennis Barratt, to have dinner at the Peppermill (where else?). A good steak for me can at least partially make up for the potential of cloudy skies, so I enjoyed my E.K.V. Filet. From there, it was back out to Merritt and the Snake Campground, but other than viewing some double stars through a few sucker holes, the sky was mostly cloudy, so we packed up early and went back to the ranch.

Thursday we kind of went "here and there." I had a Nebraska Star Party annual board meeting to go to at noon, so I was committed to that for the afternoon, but I headed back to the ranch via the southern route through the Valentine National Wildlife Refuge so I could take some pictures of the beautiful landscape there. We did go back over to Merritt for the final catered meal (Deli sandwiches), and again, it was partly cloudy. We set up John's scope for a while, and did get some observing done, but not long after that, clouds forced us to pack up. It turned out we should



John Reinert

got to the ranch, a huge thunderstorm complex was raging in the south with the beautiful summer Milky Way rising up out of it. We quickly got our cameras out and started shooting as much as we could before the clouds once again filtered in.

Friday dawned hazy and variably cloudy, so I did a little more picture taking before we headed over to the Merritt Resort where the Nebraska Star Party staff and invited guests always gather for a final outdoor BBQ wing-ding. I

hamburgers, some sweet corn, and minty ice cream, while John chowed down on a couple of steaks. We were not confident about the weather for the Public Star Party to be held that night, but once again, we were wrong, as the skies cleared and we had good crowds in the remaining telescopes despite a brisk southern wind. In particular, I got to try out a pair of Explore Scientific 5-inch binoculars which gave a spectacular view of M81 and M82, as well

as showing an almost photographic view of the Andromeda Galaxy. Since we had to drive home the next morning, we packed up around 2 a.m. and went back to the ranch for at least a few hours of sleep.

Saturday was once again a very nice day for a drive home from the wonderful Nebraska Sandhills, with the only bad thing being that NSP was once again over for this year. Stay tuned for next year, as the 30th Annual Nebraska

Star Party will be held July 16th through July 22nd, 2023 at the Snake Campground of Merritt State Recreation Area.

Editor's note: take a look at Diana Hannikainen's [blog post about NSP](#) on the Sky and Telescope website.



September Observing

Jim Kvasnicka



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

Planets

Mercury: Not visible.

Jupiter: In Pisces at magnitude -2.9 with a disc 48.7" wide.

Saturn: In Capricornus at magnitude +0.3 with a disc 18.7" wide.

Uranus and Neptune: Look for Uranus in Aries and Neptune in Aquarius.

Mars: In Taurus at magnitude -0.1 with a disc 9.8" wide.

Venus: In the dawn sky at magnitude -3.9 with a disc 10.1" wide.

Messier List

M13: The Great Hercules Cluster, Class V globular cluster.

M14: Class VII globular cluster in Ophiuchus.

M22: Class VIII globular cluster in Sagittarius.

M28: Class IV globular cluster in Sagittarius.

M54: Class III globular cluster in Sagittarius.

M69: Class V globular cluster in Sagittarius.

M70: Class V globular cluster in Sagittarius.

M92: Class IV globular cluster in Hercules.

Last Month: M6, M7, M8, M9, M10, M12, M19, M20, M21, M23, M62, M107

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

NGC and other Deep Sky Objects

NGC 6826: The Blinking Planetary in Cygnus.

NGC 6905: The Blue Flash Nebula in Delphinus.

NGC 6960: Veil Nebula – Western Segment, SNR in Cygnus.

NGC 6974/6979: Veil Nebula – Central Segment, SNR in Cygnus.

NGC 6992/6995: Veil Nebula – Eastern Segment, SNR in Cygnus.

NGC 7006: Class I globular cluster in Delphinus.

Double Star Program List

Otto Struve 525: Yellow and blue pair in Lyra.

Gamma Delphinus: Yellow primary with a yellow-green secondary.

Zeta Aquarii: Yellow and white pair.

94 Aquarii: Yellow primary with a pale blue secondary.

Alpha Capricornus: Wide pair of yellow stars.

Beta Capricornus: Yellow and blue stars.

36 Ophiuchi: Yellow-orange pair of stars.

Omicron Ophiuchi: Yellow primary with a light yellow secondary.

70 Ophiuchi: Yellow and orange stars.

Challenge Object

Stephan's Quintet: Galaxy group in Pegasus containing NGC 7317, NGC 7318A, NGC 7318B, NGC 7319, and NGC 7320. Large aperture is required to identify individual galaxies.

Club Member Profile: John Reinert



John joined PAC in 1975

My earliest memories of the Prairie Astronomy Club date from the middle 1970's when I distinctly remember walking past a static display at Gateway Mall, complete with an equatorially mounted Newtonian telescope. This was when Gateway's central courtyard had no roof. PAC members must have taken a dinner break that evening or I would have spoken with you then. What followed for my dad and I was a star party at Earl Moser's house in the country near Hickman where we met dozens of members. Our future relationship was secured. My dad, Carroll, signed us up at the next PAC meeting, then held in the Olin Hall of Science on Nebraska Wesleyan's Lincoln Campus where we would faithfully attend for years. Several PAC

member faces then are all too familiar now – you know who you are...

As I continued in school both June and Carroll Moore would connect me with their passions, either with the Lincoln Youth Symphony where I was under June's baton for many memorable

concerts, or at Nebraska Wesleyan University where Carroll was my first college advisor. But I digress...

In 1952, Clifford Holmes married a cousin, Jackie, and lived many years in Riverside, CA where he drove a Dolly Madison truck delivering Twinkies

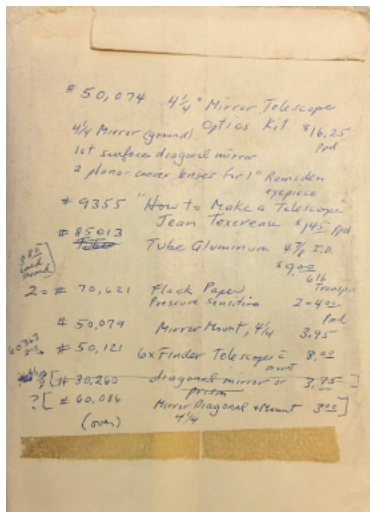


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68520
Omaha astronomical soc
R Ollen 2326 1/2 15th 68108
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John Reinert, continued.

and Ho Hos here and there. Only in retirement would he teach astronomy at a local community college and contribute in a formal classroom setting. At all other times he was plain-spoken, enthusiastic, and accessible to the public as an evangelist of sorts for amateur astronomy. He, Ashley McDermott, and one other fellow founded the Riverside Amateur Telescope Maker's Conference in the late 1960's. In 1970, when Cliff and Jackie passed through Flagstaff, Arizona they stopped to visit my grandfather precisely when my family and I were also visiting. The stars were aligned on this occasion, literally. Within a year Cliff would send a mailing tube and an instruction set for assembling what should have been my first telescope. Although the

telescope never got made, I have seen the tube (or one very much like it) recently in my family's garage. Even better, Cliff's instructions surfaced in my mother's papers; the postmark is November 22, 1971. He mentions local clubs for assistance and Jess Williams (Lincoln) and Robert Allen (Omaha) in his notes.



For nearly 50 years RTMC would attract thousands annually to the Boy Scout campground near Big Bear Lake in Southern California. I would attend this event myself over the Memorial Day weekend from 1987-1993 in uniform as a Red Cross volunteer. It was in this capacity that I would meet astronomers Clyde Tombaugh and David Levy before their talks. Many visits with friends to Mount Pinos near Frazier Park, CA would add to my observational experiences in Southern California. Lynn and Kathleen Wyett, Matt Smith and Pam Smith, Ray Delcher, Robert Van Den Heuval names but a few.

I would return to Lincoln in 1994 to rejoin a small high-end audio equipment manufacturer where my technical interests would peak. Preceding stints with environmental and aerospace R&D only added to my current records management quality role at the Nebraska Service Center (USCIS). Into the 2000s this role kept me away from most PAC meetings. While I've only given three technical talks so far, as the current PAC Treasurer I have found a way to support our members and leadership

John Reinert, continued.

by maintaining our banking records and membership lists.

My own interests in astronomy, beyond planetarium shows and reading odd books and magazines, include learning about our celestial neighborhood. I want to know where the various objects are in the night sky, be able to point them out and provide a brief synopsis of their particulars and lore. While I've yet to start an observing program with the Astronomical League, several catalogs do intrigue me.

Responsibilities in the workplace coupled with family interests plus singing with the First-Plymouth Choir and Abendmusik Chorus keep me pretty busy, as my friends can attest. Although the Nebraska Star Party has become a centering retreat of late. I first attended NSP 4 and perhaps one or two others in the 90's before inviting a friend to experience a windblown 2007 by camping on top of the hill behind Dob-row. I enjoy helping with the Beginner's Field School, sharing faint fuzzies with the public among other activities.

Observationally, I purchased a used Schmidt-Cassegrain telescope in 2015 when a former PAC member decided this was too heavy to lift reliably. Later he would part with a Matsukov-Cassegrain when leaving the hobby. The club and I have both benefited greatly from these deals. Thanks Les.

As a postscript: with an old Nikon 40x to image with and limited computing choices on the field I need to add spectrometry to the mix. This is my personal challenge. Astronomical time tells all.

Dear Ann - 10-10-77
Well here it is finally I hope you can make it all out. By the way I could not make out the name of your street he says it is North - I decided Sun / out to photo a scope I have and perhaps with all the scribbles you might be able to make out what we are trying to say good luck. try those people in the nearby clubs but don't let them get too sophisticated - these mounts work great - they

Can help on mirror alignment etc. which will be required - well enough for now don't expect to finish by Xmas. but when you do get it done you will have a ball -
Cliff - Hecker
8642. W. W. Awards
Calif
92500

NSP Photos

By Mark Dahmke



Club Offices and Duties

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

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

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

The Prairie Astronomy Club has a fifty year history of service to club members and the community. Potential club officers should have a good understanding of the history of the club, its formation and mission, its relationship with Hyde Observatory and the types of events, activities and outreach that is part of the tradition of the club. The most complete

resource is the book *The Prairie Astronomy Club: Fifty Years of Amateur Astronomy*, which is in the club library or available as a PDF document.

President

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

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

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

Another duty of the President is the annual club audit. Within 10 days of assuming office, the President must appoint a committee of three club

members to perform the audit. The audit must be completed within 45 days of the close of the fiscal year which is October 31.

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

Vice President

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

Secretary

The Secretary handles all Club correspondence, is responsible for the distribution of information received through official club correspondence and is in charge of Club publicity (often the job of Publicity or Outreach Coordinator is delegated to a non-elected member). The Secretary also sends out membership renewal notices and delivers

meeting minutes to the newsletter editor. The Secretary is responsible for maintaining an accurate club membership roster. The master copy of the roster is currently maintained on the Night Sky Network website. The bylaws also require publication of the complete roster in the newsletter on an annual basis.

Treasurer

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

Second Vice President (and Program Chair)

The Second Vice President is responsible for the formation and presentation of the monthly club programs. Ideally the 2nd VP should try to plan ahead six months to one year to build a list of potential presenters or programs. The 2nd VP also sends out email announcements of upcoming programs to the membership, and sends a program description to the

newsletter/website editors.

The club usually has several appointed positions:

The Publications Chairperson (or Newsletter Editor) is responsible for editing and publishing the *Prairie Astronomer*. The newsletter editor may also be the website manager/editor. The newsletter editor should have a good working knowledge of desktop publishing software (and computers in general), graphics, photo editing, some design and layout experience and some experience with social networking and Internet marketing. The Website editor needs to be familiar with WordPress (or similar CMS software) and graphics and word processing applications. Ideally the newsletter and website editor(s) should have prior experience with the publication of a newsletter or website, or demonstrated skills. The publications chairperson is also responsible for social networking for the club - posting Facebook and Twitter announcements for club meetings and events (or this responsibility might be delegated to another officer or someone appointed by the President).

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

The **Club Librarian** (often the Vice President) manages the club library. He/she keeps a current bibliographic listing of all Club library material including the archive of all back issues of *The Prairie Astronomer*. The Club Librarian and Secretary work together to maintain a record of club activities and regularly update the official club history.

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

The **Recording Secretary** (often the Club's elected Secretary) is responsible for keeping the minutes of the club meetings and filing a copy with the Club Secretary. Minutes need to be kept in a systematic fashion as they record the history and life of the club and need to be published in the *Prairie Astronomer* on a monthly basis.

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

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

Webb Captures Stellar Gymnastics in The Cartwheel Galaxy

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

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

The collision most notably affected the

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

The bright core contains a tremendous amount of hot dust with the brightest areas being the home to gigantic young star clusters. On the other hand, the outer ring, which has expanded for about 440 million years, is dominated by star formation and supernovas. As this ring expands, it plows into surrounding gas and triggers star formation.

Other telescopes, including the Hubble Space Telescope, have previously examined the Cartwheel. But the dramatic galaxy has been shrouded in mystery – perhaps

literally, given the amount of dust that obscures the view. Webb, with its ability to detect infrared light, now uncovers new insights into the nature of the Cartwheel.

The Near-Infrared Camera (NIRCam), Webb's primary imager, looks in the near-infrared range from 0.6 to 5 microns, seeing crucial wavelengths of light that can reveal even more stars than observed in visible light. This is because young stars, many of which are forming in the outer ring, are less obscured by the presence of dust when observed in infrared light. In this image, NIRCam data are colored blue, orange, and yellow. The galaxy displays many individual blue dots, which are individual stars or pockets of star formation. NIRCam also reveals the difference between the smooth distribution or shape of the older star populations and dense dust in the core compared to the clumpy shapes associated with the younger star populations outside of it.

Webb, continued.



A large pink, speckled galaxy resembling a wheel with with a small, inner oval, with dusty blue in between on the right, with two smaller spiral galaxies about the same size to the left against a black background. Credits: NASA, ESA, CSA, STScI

Webb, continued.

Learning finer details about the dust that inhabits the galaxy, however, requires Webb's Mid-Infrared Instrument (MIRI). MIRI data are colored red in this composite image. It reveals regions within the Cartwheel Galaxy rich in hydrocarbons and other chemical compounds, as well as silicate dust, like much of the dust on Earth. These regions form a series of spiraling spokes that essentially form the galaxy's skeleton. These spokes are evident in previous Hubble observations released in 2018, but they

become much more prominent in this Webb image.

Webb's observations underscore that the Cartwheel is in a very transitory stage. The galaxy, which was presumably a normal spiral galaxy like the Milky Way before its collision, will continue to transform. While Webb gives us a snapshot of the current state of the Cartwheel, it also provides insight into what happened to this galaxy in the past and how it will evolve in the future.

The James Webb Space Telescope is the world's premier space science observatory. Webb will solve mysteries in our solar system, look beyond to distant worlds around other stars, and probe 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.



This image from Webb's Mid-Infrared Instrument (MIRI) shows a group of galaxies, including a large, distorted ring-shaped galaxy, known as the Cartwheel, that is composed of a bright inner ring and an active outer ring. While this outer ring has a lot of star formation, the dusty area in between reveals many stars and star clusters.

Credit: NASA, ESA, CSA, STScI, Webb ERO Production Team

Astrophotography



Whirlpool Galaxy by Brett Boller

*Canon Modded T3i, Skywatcher Esprit 150mm Refractor, Celestron CGE Pro,
30 minutes total time. Dob Row, Merritt Reservoir, DSS, Photoshop*

Astrophotography



Lagoon Nebula by Brett Boller

*Canon Modded T3i, Skywatcher Esprit 150mm Refractor, Celestron CGE Pro,
2 minutes sub exposures, 30 minutes total time.
Dob Row, Merritt Reservoir, DSS, Photoshop*

Astrophotography



Andromeda Galaxy by Brett Boller

*Canon Modded T3i, Skywatcher Esprit 150mm Refractor, Celestron CGE Pro,
2 minutes sub exposures, 30 minutes total time.
Dob Row, Merritt Reservoir, DSS, Photoshop*

Astrophotography



*Milky Way and Andromeda by Mark Dahmke
July 26, 2022 at NSP*

*Panasonic Lumix GH5s, Voigtlander 10mm f/0.95 at f/1
ISO 1600, 20 second exposure unguided*

Astrophotography



*Milky Way by Mark Dahmke
July 26, 2022 at NSP*

*Panasonic Lumix GH5s, Voigtlander 10mm f/0.95 at f/1
ISO 1600, 15 second exposure unguided*

Astrophotography



M18 by Jason O'Flaherty, 19 image composite, SS 30 sec, ISO 6400, F/10, 600 mm (Fujinon XF150-600mmF5.6-8), Fujifilm XT-4



M21 by Jason O'Flaherty, 18 image composite, SS 60 sec, ISO 6400, F/10, 600 mm (Fujinon XF150-600mmF5.6-8), Fujifilm XT-4

Astrophotography



M20 by Jason O'Flaherty, 18 image composite, SS 60 sec, ISO 6400, F/10, 600 mm (Fujinon XF150-600mmF5.6-8), Fujifilm XT-4

Astrophotography



*M17 by Jason O'Flaherty, 19 image composite, SS 60 sec, ISO 6400, F/10, 600 mm,
(Fujinon XF150-600mmF5.6-8), Fujifilm XT-4*

Astrophotography



*M8 by Jason O'Flaherty, 14 image composite, SS 60 sec, ISO 6400, F/10, 600 mm
(Fujinon, XF150-600mmF5.6-8), Fujifilm XT-4*

From the Archives

September, 1998

On Wednesday evening September 9th, Dave Hamilton and I headed out to the Olive Creek State Recreation Area, southwest of Lincoln, Nebr. For some much needed observing. We were tired of the lousy observing conditions over the past few weeks, so even though the waning gibbous moon would be rising around 10 p.m., we still decided to "just do it", to satisfy our observing hunger. I arrived a little after a colorful sunset under a nice clear sky, and, after setting up my ten inch f/5.6 Newtonian, used my IOx50's to watch a nice Blue Heron do his thing on the north side of the lake just below the dam while I waited for Dave Hamilton. Dave H. pulled in and began to set up his 12.5 inch f/4.8 Portaball, with its newly-installed Telrad/secondary mirror heaters and the new Telrad "cross" reticle. The Milky Way appeared beautifully, but for once, we let the real Deep-sky take a backseat so we could experiment with a different kind of observing activity, which if successful, might just fill the nights when the moon drowns out the really faint targets.

A Night with the Variables - Dave Knisely

Dave H. has just joined the American Association of Variable Star Observers (AAVSO), so we decided to try our luck with the small group of variables which Dave H. had been assigned to monitor. We began with the long-period variable T Cephei. This one was fairly easy, as it was bright enough to show its reddish color, standing out well from the fainter stars. I don't recall what magnitude we assigned to it exactly, but it seemed to be around 8th. The AAVSO charts (provided with membership) for the star made locating and doing a magnitude estimate fairly straight-forward. The next stars on the list were V and R Cassiopeiae, which were also fairly easy, but not as bright as T Cephei. The AAVSO "a" charts sometimes were for more than one variable, and thus did not always cover the entire region around a particular target star. This occasionally made the initial location process a bit more difficult. I found that I could use my old right-angle-sweep finding technique with my equatorial mount to get to each field fairly easily, but sometimes I had to refer to the wider field of

Uranometria to make certain I had hit the right area. Since these variables were all shown on Uranometria, I quickly stopped using the AAVSO wide field charts for the location process.

I seemed to be beating Dave H. to each variable after that. R Vulpeculae gave us a few headaches, since the field was fairly rich in stars, and there was another variable next to it. After a lot of running back and forth from the charts (and putting Dave H's wide field eyepiece in my ten), we finally nailed this fainter star.

We thought we were doing pretty well until we tried T Herculis! Although the field was easy to locate, seeing which star was actually the one in question was a bit trying. I found that I liked the older Telrad ring reticle a lot better than the "cross" one in Dave H's unit. The variable was around 10th magnitude, and, with the rising of the moon, was a bit faint and more difficult to pick out from the numerous similar-magnitude stars in the area. Still, we both agreed on the magnitude estimate, and took a break to look at Jupiter.

From the Archives, continued.

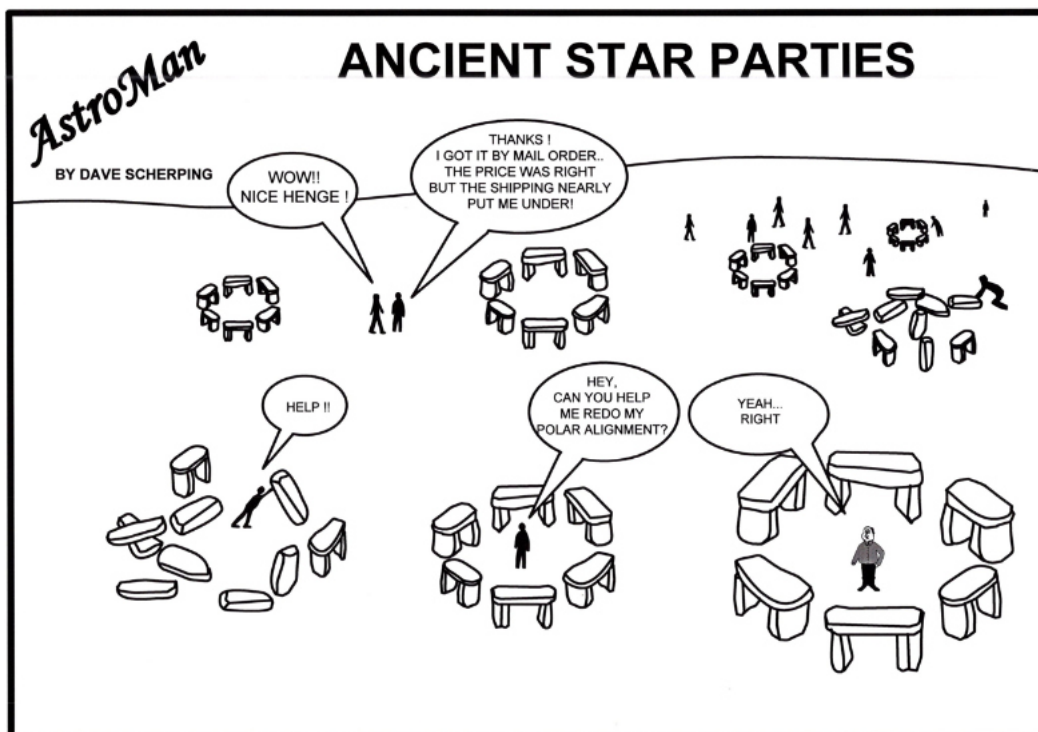
Dave bought a 5mm Pentax eyepiece, but to his chagrin, he couldn't get it to focus in the Portaball. We tried it in my ten, and with the wider focal range of my focuser, we did get a good focus. While it gave a slightly wider field of view than my 10mm Ultrascopic and 2x Barlow, the overall performance was about the same, so I wasn't all that impressed with the Pentax. However, when Dave brought over his Meade 8mm Ultrawide, all I could say was WOW! It was most impressive on the moon, and was tack sharp both at the field center and the edges. His 14mm Ultrawide was equally impressive (I guess I will need to get a new eyepiece box soon).

Jupiter showed the "Little Red Dot" spot in the south temperate belt, along with a wealth of other interesting detail. Saturn was also nice, but not as good as several nights previous.

As a final target, we went after the dwarf nova SS Cygni. Normally, this star is fairly faint (about 12th magnitude), and sits in a fairly rich field, so we weren't all that optimistic about being able to see it. The moon —light was really hampering finding visual guide stars, so we verbally expressed more than a little frustration as we hunted for it. Finally, the words, "GOT IT!" exited my lips. I was surprised to find that we

caught SS Cygni in one of its 8th magnitude outbursts (about 8.3 was our estimate), and it wasn't difficult at all to see. Once we finished with it, we did the usual tear-down of equipment, followed by a few minutes of just talking about all that we had done. I found David Levy's book on observing variable stars for beginners to be an interesting introduction to this fascinating aspect of our hobby, which effectively puts your finger on the pulse of a star. It looks like I too will be getting out to observe more often, as I follow the progress of these interesting stars.

Clear skies to you.



The Summer Triangle's Hidden Treasures

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!

September skies bring the lovely Summer Triangle asterism into prime position after nightfall for observers in the Northern Hemisphere. Its position high in the sky may make it difficult for some to observe its member stars comfortably, since looking straight up while standing can be hard on one's neck! While that isn't much of a problem for those that just want to quickly spot its brightest stars and member constellations, this difficulty can prevent folks from seeing some of the lesser known and dimmer star patterns scattered around its informal borders. The solution? Lie down on the ground with a comfortable blanket or mat, or grab a lawn or gravity chair and sit luxuriously while facing up. You'll quickly spot the major constellations about the Summer Triangle's three corner stars: Lyra with bright star Vega, Cygnus with brilliant star Deneb, and Aquila with its blazing star, Altair. As you get comfortable and your eyes adjust, you'll soon

find yourself able to spot a few constellations hidden in plain sight in the region around the Summer Triangle: Vulpecula the Fox, Sagitta the Arrow, and Delphinus the Dolphin! You could call these the Summer Triangle's "hidden treasures" – and they are hidden in plain sight for those that know where to look!

Vulpecula the Fox is located near the middle of the Summer Triangle, and is relatively small, like its namesake. Despite its size, it features the largest planetary nebula in our skies: M27, aka the Dumbbell Nebula! It's visible in binoculars as a fuzzy "star" and when seen through telescopes, its distinctive shape can be observed more readily - especially with larger telescopes. Planetary nebulae, named such because their round fuzzy appearances were initially thought to resemble the disc of a planet by early telescopic observers, form when stars similar to our Sun begin to die. The star

will expand into a massive red giant, and its gasses drift off into space, forming a nebula. Eventually the star collapses into a white dwarf – as seen with M27 - and eventually the colorful shell of gasses will dissipate throughout the galaxy, leaving behind a solitary, tiny, dense, white dwarf star. You are getting a peek into our Sun's far-distant future when you observe this object!

Sagitta the Arrow is even smaller than Vulpecula – it's the third smallest constellation in the sky! Located between the stars of Vulpecula and Aquila the Eagle, Sagitta's stars resemble its namesake arrow. It too contains an interesting deep-sky object: M71, an unusually small and young globular cluster whose lack of a strong central core has long confused and intrigued astronomers. It's visible in binoculars, and a larger telescope will enable you to separate its stars a bit more easily than most globulars; you'll

certainly see why it was thought to be an open cluster!

Delicate Delphinus the Dolphin appears to dive in

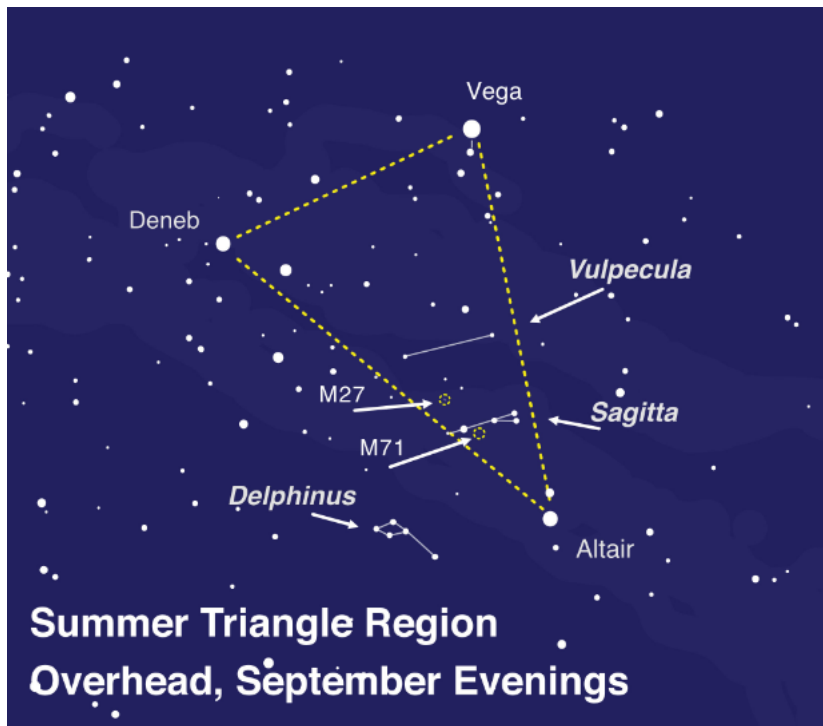


and out of the Milky Way near Aquilla and Sagitta! Many stargazers identify Delphinus as a herald of the fainter water constellations, rising in the east after sunset as fall approaches. The starry dolphin appears to leap out of the great celestial ocean, announcing the arrival of more wonderful sights later in the evening.

Want to hunt for more treasures? You'll need a treasure map, and the

Night Sky Network's "Trip Around the Triangle" handout is the perfect guide for your quest! Download one before your observing session at bit.ly/TriangleTrip. And of course, while you wait for the Sun to set - or skies to clear - you can always find out more about the objects and science hidden inside these treasures by checking out NASA's latest at nasa.gov.

Above: M71 as seen by Hubble. Your own views very likely won't be as sharp or close as this. However, this photo does show the cluster's lack of a bright, concentrated core, which led astronomers until fairly recently to classify this unusual cluster as an "open cluster" rather than as a "globular cluster." Studies in the 1970s proved it to be a globular cluster after all – though an unusually young and small one! Credit ESA/Hubble and NASA. Source: <https://www.nasa.gov/feature/goddard/2017/messier-71>



Left: search around the Summer Triangle to spot some of its hidden treasures! To improve readability, the lines for the constellations of Aquilla, Lyra, and Cygnus have been removed, but you can find a map which includes them in our previous article, Spot the Stars of the Summer Triangle, from August 2019. These aren't the only wonderful celestial sights found around its borders; since the Milky Way passes through this region, it's littered with many incredible deep-sky objects for those using binoculars or a telescope to scan the heavens. Image created with assistance from Stellarium: stellarium.org

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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