

The Prairie Astronomer

August 2017 Volume 58, Issue #8

ECLIPSE!



Photo by Brett Boller



Night Sky Network



The Newsletter of the Prairie Astronomy Club

The Prairie Astronomer

NEXT PAC MEETING: August 29, 7:30pm

PROGRAM

The August meeting will be a review of NSP and the eclipse. Send us your photos!

FUTURE PROGRAMS

September: Hyde's 40th Anniversary
October: Club viewing night at Hyde
November: How to Buy a Telescope
December: Holiday Gathering
January: How to Use Your Telescope

CONTENTS

- 4 NSP Photos
- 5 Observatory Update
- 7 Hyde Eclipse Report
- 8 Club officer duties
- 10 September Observing
- 11 Focus on Aquila
- 12 Eclipse Photos
- 14 More NSP Photos
- 16 From the Archives
- 17 Eclipse at Homestead
- 19 Club Information

The Prairie Astronomy Club:
Fifty Years of Amateur Astronomy



COMPILED AND EDITED BY MARK DAHMKE

Buy the book! The Prairie Astronomy Club: Fifty Years of Amateur Astronomy.

Order online from [Amazon](https://www.amazon.com) or [lulu.com](https://www.lulu.com).

EVENTS



PAC Meeting
Tuesday August 29, 2017, 7:30pm

PAC meeting
Friday, September 29, 2017, 7:30pm
Hyde Observatory's 40th Anniversary

PAC Meeting
Tuesday October 24, 2017, 7:30pm
Club Observing Night

PAC Meeting
Tuesday November 28, 2017, 7:30pm
How to Buy a Telescope

2017 STAR PARTY DATES



Photo by Brian Sivill

	Star Party Date	Star Party Date	Lunar Party Date
January	Jan 20th	Jan 27th	
February	Jan 17th	Feb 24th	
March	Mar 17th	Mar 24th	
April	Apr 21st	Apr 28th	
May	May 19th	May 26th	May 5th
June	Jun 16th	Jun 23rd	Jun 30th
July	Jul 14th	Jul 21st	
NSP	July 23rd - July 28th		
August	Aug 18th	Aug 25th	
September	Sep 15th	Sep 22nd	Sep 1st
October	Oct 13th	Oct 20th	
November	Nov 10th	Nov 17th	
December	Dec 15th	Dec 22nd	

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



PAC E-MAIL:

info@prairieastronomyclub.org

PAC-LIST:

Subscribe through [GoogleGroups](#).
To post messages to the list, send to the address:

pac-list@googlegroups.com

ADDRESS

The Prairie Astronomer
c/o The Prairie Astronomy Club, Inc.
P.O. Box 5585
Lincoln, NE 68505-0585

WEBSITES

www.prairieastronomyclub.org
<https://nightsky.jpl.nasa.gov>
www.hydeobservatory.info
www.nebraskastarparty.org
www.OmahaAstro.com
Panhandleastronomyclub.com
www.universetoday.com/
www.planetary.org/home/
<http://www.darksky.org/>



Night Sky Network

The Nebraska Star Party



Photos by Brett Boller

Observatory Update: DG 169, DG 170 and DG 171

Rick Johnson

DG 170 is a small reflection nebula in the Cygnus Rift. Unlike most reflection nebulae it is both a bit orange and faded blue in color rather than bright blue as are the other two reflection nebulae in my image. I saw it faintly in the H alpha filter but not strong enough to add that to this image so it is pure LRGB. At the lower left end (southeast) is an orange star that may be the cause of the orange parts of the nebula if it is slightly in front of the cloud. Sticking out of its lower left side is a faint orange-red blob. This

was fairly strong in my single H alpha image and is HH899 a hydrogen jet from a protostar. Likely not the orange star. The dust cloud obscures an open cluster known as the "NAME [C86] L988 e Cluster" at SIMBAD. There you can find a 2MASS deep IR image showing the cluster that is mostly invisible in visible light. The default is the visual light image so click the 2MASS button for the IR image.

The reflection nebula below is DG 170 that is mostly a blue bar

above a blue star is DG 171. The larger and brighter reflection nebula to the right deep in a dark nebula is DG 169. The dark cloud appears to be DOBASHI 2870.

I was first drawn to this field by an Italian Master's student who was doing a thesis that somehow involved an object she



[14" LX200R @ f/10, L=4x10' RGB=2x10', STL-11000XM, Paramount ME](#)

called [B77] 32. Not having the faintest idea what that was and sure I'd not taken it I told her sorry but I'd not taken an image of it and forgot about it. A year or two later I saw that email and looked further and saw it at SIMBAD under the DG 170 designation and added it to my

to-do list. Then a few weeks ago I saw this field as a small part of a wide angle shot posted in the Cloudy Nights forum <https://www.cloudynights.com/topic/584469-cygnus-dark-nebulae-field-ldn-998> . That caused me to up its priority on my to-do list and on a

questionable night cut short by clouds the computer obtained this image. I'd scheduled some Ha data but all but 10 minutes of that was blocked by clouds. I decided that showed the H alpha to be so weak it wasn't worth trying again and went with what you see here.



Hyde Observatory Eclipse Report

Lee Thomas

It was touch and go with the weather, clouds rolling in from thunderstorms down south in Kansas, but we never got completely socked in. In fact, about an hour before totality, a slot opened up that, with the exception of some high cumulostratus, was virtually cloud-free. What could have been a sucker hole just stayed right over us – amazing! Then, when the temperature began to drop, things cleared even more. With the Parks & Rec-supplied portable PA and a iPhone app, I was able to time the eclipse for the crowd precisely, and got a lot of compliments about that afterward. Totality was gorgeous, and the crowd was wowed. We probably overdid trying to hide Hyde from eclipse-

seekers because we ended up with probably 200-250 people, but many more were scattered through the park. We had a modified version of the trailer (minus the stuff about staying in your own backyard) running on a loop in the classroom, and most stopped to see it. I tried getting the NexStar and CPC to track the sun, but they resolutely refused to recognize that the sun was visible in their sky – why, I don't know, because the week before they both worked just fine. (Could they be so sophisticated that they thought the sun was eclipsed by the moon, which they did report, therefore invisible? Nah! Who would believe that?) Anyway, there wasn't much to see through a telescope, just a bigger

version of what everyone was seeing through glasses, and they were much more content to just stretch out on the grass and peer at the spectacle. Plenty of help courtesy of Parks & Rec, CIP and other volunteers. But note: We have about 3,000 eclipse glasses left over for 2024!

Only 1:30 of totality, but every bit as awe-inspiring as what I saw in Russia in 2008. A good day for astronomy in Lincoln! Hmm... I may want to start chasing these things myself.

Eclipsed-out and ready to return to a normal life, I am...

Lee Thomas.



Welcome visitors! On Saturday August 19 Hyde Observatory had several visitors who were here for the eclipse. Graham Winstanley and Dave Manton came from Lincoln, UK and are members of the Lincoln Astronomical Society. Anthony Kelly is a member of Astronomy Ireland from Dublin, and Helen is from Fox Observatory (South Florida Amateur Astronomers Association).

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 non-elected officers:

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 HTML, 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.

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 Chairman** 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.

September Observing: What to View

Jim Kvasnicka

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

Planets

Jupiter: Starts the month just 10° high in the WSW.

Saturn: In Ophiuchus at magnitude 0.5. Its rings are the most open in 15 years.

Neptune: In Aquarius.

Uranus: In Pisces.

Venus: Rises about 4 am to start September.

Mars and Mercury: Very low in the east in the morning twilight.

Messier List

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

M14: Class VIII globular cluster in Ophiuchus.

M22: Class VII globular cluster in Sagittarius.

M28: Class IV globular cluster in Sagittarius.

M54: Class III globular cluster in Sagittarius.

M69: Class III globular cluster in Sagittarius.

M70: Class IV 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 6960: Veil Nebula – Western Segment in Cygnus.

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

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

NGC 6891: Planetary nebula in Delphinus.

NGC 6905: The Blue Flash Nebula in Delphinus.

Double Star Program List

Otto Struve 525: Yellow primary with a blue secondary in Lyra.

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

Zeta Aquarii: Yellow and white pair.

94 Aquarii: Yellow and pale blue stars.

Alpha Capricornus: Wide pair of yellow stars.

Beta Capricornus: Yellow and blue stars.

36 Ophiuchi: Equal pair of yellow orange stars.

Omicron Ophiuchi: Yellow and light yellow stars.

70 Ophiuchi: Yellow and orange pair.



Challenge Object

Palomar 12: Class XII globular cluster in Capricornus. Good skies required.



Full Moon before the Eclipse, by Mark Dahmke. This photo was taken on August 7 from Sun Valley Blvd just north of 'O' Street. Panasonic Lumix GX8 with Nikon 28-300mm lens, effective focal length was 600mm. ISO 400, 1/4 second.

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



Photo: Till Credner -
Own work:
AlltheSky.com

Eclipse Photos



Photos by Brett Boller



Sunspots, by Brian Sivill



Eclipse Party in Jim Kvasnicka's back yard



View along north and south horizon showing sunlight reaching clouds brightly while in totality where we stood. - Bob K



At 12:30 it was still overcast west of Adams, NE so my sister and I drove south and east to about a mile north of Filley. I found the only hole in the clouds for miles around. While far from perfect, it was pretty good. I did get to see Venus. I was surprised at how quickly totality came and how dark it got in those few seconds. When we stopped, I had only minutes to setup my tripod and no time to take pics of the sunset colors. The storm clouds were very beautiful in that odd faint light.

Photos by Mark Dahmke



More NSP Photos



Photos by Mark Dahmke

More NSP Photos



Milky Way by Brian Sivill



The Prairie Astronomer





Photos by Bob Kacvinsky



From the Archives: August, 1970

Perseids

On the night of August 12-13, a group of observers consisting of Ed Woerner, Brian Dodson, and Monte Cole left Lincoln at about 1:30 A.M. to go out to Hickman to look for Perseids. Upon arriving, they were surprised to find our president in a sleeping bag on his front lawn. We settled down, and in the first hour, possibly 25 meteors were seen. After that the rate dwindled to almost nothing. The average Perseid seen was about third magnitude, being fast and yellowish. All in all, the Perseids this year were somewhat better than they have been in the past.

* * * * *

Partial Eclipse

The partial lunar eclipse of the 16th was fairly impressive in Lincoln. For the most part, it was observed through thin clouds, but from time to time, the clouds went away and a much better view was obtained. Several members noted that the shadow of the Earth on the Moon was unusually dark. Most people were sensible and looked out a window at the eclipse, but a few hardy souls felt that they must set up their scopes to look at it. One of them said that it looked better by eyeball.

* * * * *

Hints and Kinks

There is a tendency for the beginner in mirror-making to test the mirror, see an atrocious figure, and then try to figure out a stroke that will take care of it. This is not the way to do it. If a terrible figure shows up, just polish for three or four hours before testing again. This will generally reduce your difficulties.

Rick Johnson suggests that for both high-resolution astrophotography and low contrast visual observing the wide-angle lens of a good-quality movie camera will surpass any other eyepiece. I have seen his lunar pictures taken with such a lens, and I can vouch for it's high performance.

P.S. Although Rick has not tried it, I suspect that a telephoto lens of the same movie camera would make an admirable eyepiece for deep-sky work, especially for locating galaxies and faint nebulosity. The field of view would be somewhat restricted, but the view would be worth the trouble of using it. The Editor

Success (barely) from the Homestead National Monument

Dave Knisely

Well, after a week of last minute preparations, a couple of radio interviews, and my last public eclipse talk, I was ready for the eclipse. PAC members Dave Hamilton, John Lammers, and myself formally represented the club in this rare form of outreach for the National Park Service. We met at my house in north-eastern Beatrice at about 5:30 a.m. to finish our loading of equipment into my van, which was the only vehicle the Homestead would allow us to park on the observing fields.

We got to the monument around 6 a.m. and discovered that our previously approved "site" north of the Heritage Center was now occupied by a large number of satellite trucks and media vehicles. We had to move to the east a bit, and then discovered that our promised "sign" to be made by the Parks Service to let other people know that we were there for them was nowhere to be found! I should have listened to my instincts and just gotten the club banner last week, but I guess hindsight is 20/20.

We just said "oh well" and started setting up. Dave Hamilton had his Celestron 102 mm Celestron NexStar 102-SLT refractor with a white light filter, while John Lammers had a very effective projection setup with his 8 inch f/5 "Mortar" that projected a huge bright image of the sun onto a white grease board screen set up on an easel. Indeed, we had several news photographers get images and video off of that white screen before the partial phases began. My

little EQ-1 mount for my Coronado PST had its drive fail a while back, so I put the PST in the finderscope rings of my 9.25 inch SCT, and then created an off-axis filter for the 9.25 using some Baader solar filter material Brian Sivil had given me.

Unlike most times when "Mr. Murphy" comes to call at the last minute, this setup worked perfectly, providing people with good detail in the sunspots in white light, as well as peeks of "things to come" with the PST in H-alpha light. I also brought my old Orion 100mm f/6 refractor with my Seymore Solar white light filter installed inside its dew shield, which got a lot of complements about the quality of the view (other than the fact that it was a yellowish-orange hue instead of the faint bluish-white seen in my 9.25 SCT).

We got a lot more action before the eclipse started, as we showed people in the area views of the sun. We got imaged and interviewed by both WOWT Channel 6 from Omaha, as well as both the Omaha World Herald and the Journal Star. However, other than a brief shot of our setup from a distance seen on the 5 p.m. Channel 10 news, I don't think much of that material ever got used. The crowds were really building, with estimates ranging from 10,000 to as high as 15,000 people present at the Homestead (and we were right in the middle of it). Now, we just had to wait a while for first contact. We continued to show people the sun, and the extended sunspot group on the disk

(along with a new one just inside the limb) appearing quite well. Unfortunately, the clouds began to move in with some thunderstorms brewing, forcing us to take the huge blue tarp that Dave Hamilton had brought as ground-cover and put it over our scopes as the sprinkles began (we had to do that twice during the eclipse). The light rain abated quickly, but the clouds hung around, preventing us from viewing first contact. We began eating our ham sandwiches and our chips and pop while we waited for something to happen. However, about half an hour later, they relented and we once again were "in business," showing people the "half-eclipsed" sun. The clouds would come back from time to time, and even between those cloudy periods, the sun was hazed-over and indistinct.

Finally, as totality rapidly approached, we could see a brilliant slender crescent in the sky that was narrowing by the second. I could see the blue sky in the gaps in the clouds turn that dark purplish blue hue I had seen from Hyde in 1979, and in the northwest where the horizon was still light blue, some of the puffy clouds started turning dark! "SHADOW," I shouted, but not a lot of people turned that way to watch, as they were still mesmerized by that narrow crescent shining through the broken clouds. The whole landscape was turning darker, but not nearly as dark as I

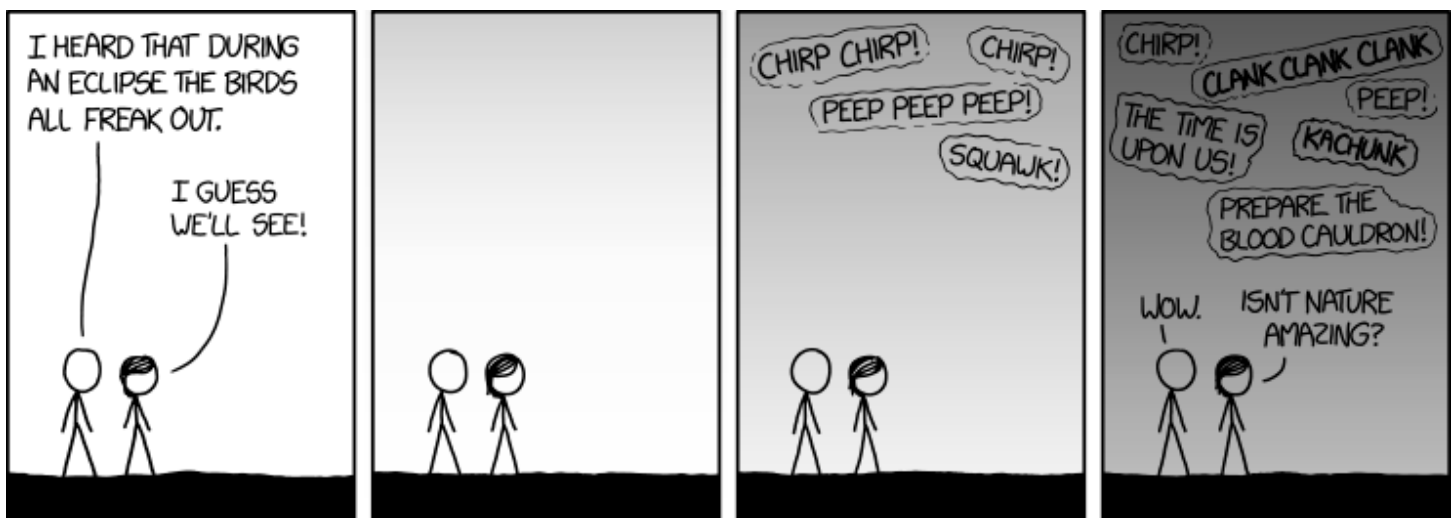
though it would be. However, just before totality, I could see the diffuse shadow's effect very quickly move across the sky, sending chills down my spine. The huge crowd was yelling and screaming as the darkness increased. Finally we got a hint of the diamond ring and then, **THE CLOUDS RETURNED!! AARGH!!** Well, it gave me a chance to look around at the landscape. It was darker with that "360 degree sunrise" effect all the way around the horizon. Unlike deep twilight, I had no trouble seeing everything around me or reading text on paper, so it was somewhat lighter than I had expected. I got my binoculars back out and looked up and saw, in the dark cloud, a ring-like glow begin to appear. I put the 10x50 binos back up and **BOOM**, there was the corona in all its beauty. Unlike the view in the PST from earlier, the prominences were really standing out in vivid pink despite me only using 10x in my binoculars, along

with the faint outer streamers of the corona. Some clouds drifted past, but the corona held its own, being especially brilliant right around the moon. The noise level was huge once the corona popped-out, sounding like the crowd roar at a Nebraska football game. The corona started getting a bit brighter on its northwestern side when I saw a brilliant pink arc appear along the moon's limb as the chromosphere came back into view. I noted a bunch of brighter tiny spots of light appearing almost like a dotted arc around the moon's limb as Bailey's Beads appeared, followed all too soon by the blast of light from the Diamond Ring formation. The corona quickly vanished and I was back to showing people that ultra-narrow crescent of the sun in my telescope.

We laughed, talked a lot to people, and generally relaxed a bit, as the tension was off and we finally had our first totality under our belts. The mass exodus

from the Homestead was beginning, but we still showed a number of people the sun as the moon continued to move off.

After about 45 minutes, we started gradually packing our stuff back into the van, but it looked like it would take hours to get out of there, as there was no place to drive yet. We went down to the food vendors and had to wait half an hour in-line for our stuff, while some of the visitors to the monument had to stand in line over an hour and a half just to get on a bus to return to town. Finally, we got a gap in the line of buses and we drove on our "back route" north and west of Beatrice to get to my house for unloading. It was a great eclipse, but almost everyone involved was expressing interest in going after yet another totality in the future.



xkcd.com

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: David Pennington
10 inch Meade Dobsonian: Lee Taylor
13 inch Truss Dobsonian: Available

CLUB APPAREL



Order club apparel from cafepress.com:



Shop through Amazon Smile to automatically donate to PAC:



CLUB OFFICERS

President	Jim Kvasnicka (402) 423-7390 jim.kvasnicka@yahoo.com
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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.