

# The *Prairie* Astronomer

The Official Newsletter Of The Prairie Astronomy Club, Inc.  
September 1998

Volume 39 Issue #9

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## September's Program:

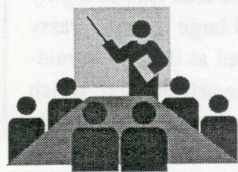
The program at the September PAC Meeting will be:

**Light pollution** - The bane of astronomer's worldwide. It creeps up on us so subtly that many times we never see it happening...until its too late. Unfortunately, it leaves one with a sense of helplessness as more and more development brings with it more and more lumens.

This is the 10th anniversary of the International Dark Sky Association. This organization is a tribute to the will power of those who believe we can make a difference, and that all is not lost. It was their vast pool of information that helped us convince the Lincoln City Council to pass a lighting ordinance in 1994. It is now time to renew those goals, access the challenge and accomplish some more.

At this month's meeting, **Erik Hubl** will provide a short history of what it took in 1994 and what might be some future directions for the Prairie Astronomy Club.

*If you would like to present a program at the monthly PAC Meeting, call Erik Hubl at 488-1698 or email at [ehubl@ci.lincoln.ne.us](mailto:ehubl@ci.lincoln.ne.us)*



## MEETINGS & EVENTS

### PAC MEETING

**TUESDAY SEPTEMBER 29, 1998, 7:30 PM**  
at Hyde Memorial Observatory

### MAHONEY STAR PARTY

**FRIDAY OCTOBER 23, 1998, Sunset 'till ?**  
Mahoney State Park – Driving Range

### UNL STUDENT OBSERVATORY

Open to the public  
**FRIDAY SEPTEMBER 25 (sundown–11PM)**  
**FRIDAY OCTOBER 30, 1998 (sundown–11PM)**

### CLUB STAR PARTY

**FRIDAY OCTOBER 16, 1998, Sunset 'till ?**  
Olive Creek SRA (see President's report for directions)

### PAC MEETING

**TUESDAY OCTOBER 27, 1998, 7:30 PM**  
at Hyde Memorial Observatory

## NOMINATION of PAC OFFICERS for 1999 at the September 29th meeting

(Election in October)

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## LOOKING FOR SOMETHING TO DO?

- Run for a PAC office.
  - Be a volunteer at Hyde Observatory.
  - Help the site committee locate a new observing site.
  - Help organize NSP-6.
  - Write an article for this newsletter.
- Contact Dave Knisely or Dave Scherping for info

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 \$20/yr, Family \$22/yr. Address all new memberships, renewals, or questions to: The Prairie Astronomy Club, Inc., PO Box 80553, Lincoln, NE 68501. For other club information, contact one of the following: Dave Knisely - President (402) 223-3968, Doug Bell V.P. (402) 489-8197, Liz Bergstrom - Treasurer (402) 464-2038. All newsletter comments and articles should be sent to: Dave Scherping, 640 S. 30th St., Lincoln, NE 68510 (402) 477-2596 or e-mail [dscherp1@aol.com](mailto:dscherp1@aol.com) ten days prior to the club meeting. Club meetings are held the last Tuesday of each month at Hyde Memorial Observatory in Lincoln, NE.



## PRESIDENT'S REPORT

*By: Dave Knisely*

At this month's meeting, nominations will be taken for next year's club officers. If you wish to nominate someone (including yourself), now is the time. Remember, the club is guided by those who you decide to elect, so it is important to consider getting involved in the nomination and election process if you really want a say in the direction the club is going.

The dates for next year's Mahoney Star Parties are being worked out. We may start shooting for a Friday closest to a fat crescent or first quarter moon, since the public seems to enjoy a peek at our nearest celestial neighbor. The NSP organizing committee is having its next meeting the evening of October 8th at the Mahoney State Park Lodge, so if you are at all interested in helping (or even finding out what is going on), be sure to attend.

On the observing site front, I have checked out a new temporary site for having our club star parties. It is Olive Creek State Recreation Area, located between Hallam and Crete. The best area is located on the west side of the lake at Area #1, and can be reached by going south of Lincoln on US 77 to Hallam Road. Go west about 8 miles (3.5 miles west of Hallam) on Hallam Road, and then turn north onto SW 100th St. Go 2.5 miles north and look for the sign for Olive Creek SRA. It is a state recreation area, so you will need a state parks permit. The Milky Way and M31 are quite easy from there, and light pollution is minimal, although you can see the light dome from Lincoln. The area isn't as highly used as Wagontrain Lake, so it may be better for our star parties. The parking area is large, and there are restrooms and large mowed grassy areas, which are good for telescope setup. Best of all, there are no yard lights in the area! Dave Hamilton and I observed at the site in mid-September, and found it to be good overall. On another observing site issue, I (hopefully) will soon be checking out some private land, which might suit our needs. We'll try to have a short meeting of the observing site committee after the club meeting adjourns. See you at the meeting!

## SECRETARY'S REPORT

**MINUTES FROM THE AUGUST MEETING** *By: Dave Scherping*

26 people attended the August 25, 1998 meeting of The Prairie Astronomy Club, including 4 visitors. Club President, Dave Knisely, opened the meeting by introducing the visitors: Mary Jackson (Kevin Dowd's friend), Patrick Burke (new to Lincoln), Bill Clauss, and Don Wright. There was a brief review of recent club events. The club picnic was held Saturday August 15th. This year marks an all time low in attendance at the picnic. The participants included Erik Hubl, Jack Dunn and Mark Dahmke. The Mahoney star party was held August 21st. PAC members attending included Dave Scherping and Dave Hamilton. There were also about 6 OAS members and 30 visitors. The night was hazy, but we were still able to view brighter objects.

Dave Knisely related several astronomical happenings. There is a spot on Jupiter's south temperate belt that is visible through small scopes and its south equatorial belt is splitting in two. There has also been recent solar flare activity (class X). As for meteors, we have the Orionids coming up on October 15-25 (peak 22nd) and the Leonids November 12th.

There was a brief discussion about the Cosmosphere trip. The members voted whether to have it in the spring or this fall. Spring won 6 votes to zero. It will probably be held sometime in March. During the next 10 minutes or so, Jack rambled on about a guy in Kansas who is opening a "cyberdome".

Dave Knisely mentioned that the site committee will begin meeting again. Dave was planning on visiting Olive Creek SRA that night.

Liz Bergstrom gave the Treasurer's report. She was happy to say that PAC still has all of its money. There was not a motion to spend some of the PAC's cash assets on a new 36" scope for the club. The motion therefore was not seconded. However, since it was not discussed, nobody objected either. The scope will not be ordered by the September meeting and should not be expected for delivery this spring. It was mentioned that we should order the RASC handbooks earlier this year. We also briefly discussed ordering the club t-shirts & hats.

There was a brief discussion about NSP-6. Planning meetings are held at the Mahoney State park lodge the 2nd Thursday of each month. This year's coordinator is Jim Rippey of Omaha. This year's keynote speaker will be Brian Skiff.

The business meeting was adjourned and followed by an interesting presentation by John Reinert entitled "**Elliptical Arguments in Favor of the Existence of Gravity**". John did a fantastic job, especially given the unforeseen circumstances. About 5 minutes into his presentation, the light bulb on Hyde's antique overhead projector burned out. A spare could not be found. We suspect the bulb was made by Mr. Edison himself. Ron Veys quickly shifted his engineer brain into high gear, attempting to illuminate the projector using the constellation pointer and other assorted flashlights! It actually worked, but only for the central 1/4th of the screen. After analyzing the situation, solving 4 or 5 differential equations in his head, Ron decided it just wasn't going to fly. John proceeded to give his presentation on the chalk board, using skills and techniques that would make his college professors proud.



## A NIGHT WITH THE VARIABLES

By David Knisely

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 10x50'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.

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. 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.



## **GALILEO FINDS JUPITER'S RINGS FORMED BY DUST BLASTED OFF SMALL MOONS**

From MEDIA RELATIONS OFFICE, JET PROPULSION LABORATORY CALIFORNIA INSTITUTE OF TECHNOLOGY / NASA  
<http://www.jpl.nasa.gov>

Jupiter's intricate, swirling ring system is formed by dust kicked up as interplanetary meteoroids smash into the giant planet's four small inner moons, according to scientists studying data from NASA's Galileo spacecraft. Images sent by Galileo also reveal that the outermost ring is actually two rings, one embedded within the other.

The findings were announced today by scientists from Cornell University, Ithaca, NY, and the National Optical Astronomy Observatories (NOAO), Tucson, AZ, at a news briefing held at Cornell.

"We now know the source of Jupiter's ring system and how it works," said Cornell astronomer Dr. Joseph Burns, who reported on the first detailed analysis of a planet's ring system, along with Maureen Ockert-Bell and Dr. Joseph Veverka of Cornell, and Dr. Michael Belton of NOAO.

"Rings are important dynamical laboratories to look at the processes that probably went on billions of years ago when the Solar System was forming from a flattened disk of dust and gas," Burns explained. Furthermore, similar faint rings probably are associated with many small moons of the Solar System's other giant planets. "I expect we will see similar processes at Saturn and the other giant planets," Burns said.

In the late 1970s, NASA's two Voyager spacecraft first revealed the structure of Jupiter's rings: a flattened main ring and an inner, cloud-like ring, called the halo, both composed of small, dark particles. One Voyager image seemed to indicate a third, faint outer ring.

New Galileo data reveal that this third ring, known as the gossamer ring because of its transparency, consists of two rings. One is embedded within the other, and both are composed of microscopic debris from two small moons, Amalthea and Thebe.

"For the first time we can see the gossamer-bound dust coming off Amalthea and Thebe, and we now believe it is likely that the main ring comes from Adrastea and Metis," Burns said. "The structure of the gossamer rings was totally unexpected," Belton added. "These images provide one of the most significant discoveries of the entire Galileo imaging experiment."

Galileo took three dozen images of the rings and small moons during three orbits of Jupiter in 1996 and 1997. The four moons display "bizarre surfaces of undetermined composition that appear very dark, red and heavily cratered from meteoroid impacts," Veverka said. The rings contain very tiny particles resembling dark, reddish soot. Unlike Saturn's rings, there are no signs of ice in Jupiter's rings.

Scientists believe that dust is kicked off the small moons when they are struck by interplanetary meteoroids, or fragments of comets and asteroids, at speeds greatly magnified by Jupiter's huge gravitational field, like the cloud of chalk dust that rises when two erasers are banged together. The small moons are particularly vulnerable targets because of their relative closeness to the giant planet.

"In these impacts, the meteoroid is going so fast it buries itself deep in the moon, then vaporizes and explodes, causing debris to be thrown off at such high velocity that it escapes the satellite's gravitational field," Burns said. If the moon is too big, dust particles will not have enough velocity to escape the moon's gravitational field. With a diameter of just eight kilometers (five miles) and an orbit that lies just at the periphery of the main ring, tiny Adrastea is "most perfectly suited for the job."

As dust particles are blasted off the moons, they enter orbits much like those of their source satellites, both in their size and in their slight tilt relative to Jupiter's equatorial plane. A tilted orbit wobbles around a planet's equator, much like a hula hoop twirling around a person's waist. This close to Jupiter, orbits wobble back and forth in only a few months.

Jupiter's diameter is approximately 143,000 kilometers (86,000 miles). The ring system begins about 92,000 kilometers (55,000 miles) from Jupiter's center and extends to about 250,000 kilometers (150,000 miles) from the planet.

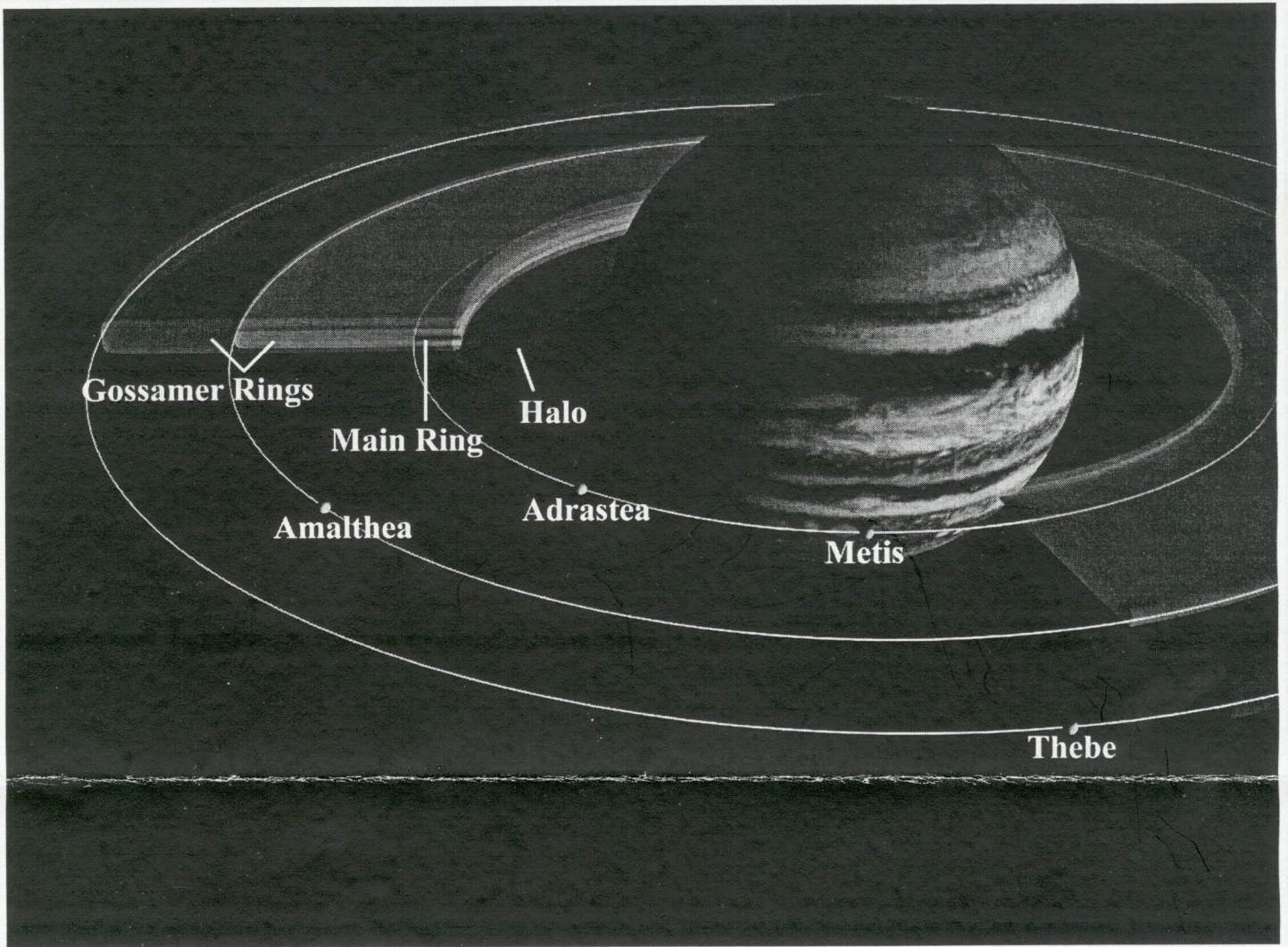
Galileo has been orbiting Jupiter and its moons for 2 1/2 years, and is currently in the midst of a two-year extension, known as the Galileo Europa Mission. JPL manages the Galileo mission for NASA's Office of Space Science, Washington, DC. JPL is a division of Caltech, Pasadena, CA. The new images, and further information on this discovery and the Galileo mission, are available on the Internet at the following websites:

<http://www.jpl.nasa.gov/galileo>

<http://photojournal.jpl.nasa.gov>

[http://www.news.cornell.edu/releases/sept98/jupiter\\_rings.html](http://www.news.cornell.edu/releases/sept98/jupiter_rings.html)





### Jupiter's Inner Satellites and Ring Components

This schematic cut-away view of the components of Jupiter's ring system shows the geometry of the rings in relation to Jupiter and to the small inner satellites, which are the source of the dust that forms the rings.

The innermost and thickest ring, shown in gray shading, is the halo that ends at the main ring. The thin, narrow main ring, shown with red shading, is bounded by the 16-kilometer-wide (10-miles) satellite Adrastea and shows a marked decrease in brightness near the orbit of Jupiter's innermost moon, Metis. It is composed of fine particles knocked off Adrastea and Metis. Although the orbits of Adrastea and Metis are about 1,000 kilometers (about 600 miles) apart, that separation is not depicted in this drawing. Impacts by small meteoroids (fragments of asteroids and comets) into these small, low-gravity satellites feed material into the rings. Thebe and Amalthea, the next two satellites in increasing distance from Jupiter, supply dust which forms the thicker, disk-like "gossamer" rings. The gossamer rings, depicted with yellow and green shading, are thicker because the source satellites orbit Jupiter on inclined paths

These small satellites all orbit closer to Jupiter than the four largest "Galilean" satellites, Io, Europa, Ganymede and Callisto, which were discovered nearly 400 years ago. The orbital distances of the moons are drawn relative to the size of Jupiter.

The Jupiter image was created from a map based on data obtained by the Hubble Space Telescope.



# A HISTORY OF THE PRAIRIE ASTRONOMY CLUB 1961-1997

By David Knisely

The Prairie Astronomy Club can trace its beginnings back to November 7th, 1960, when the planet Mercury transited the sun. The upcoming event prompted an article in the newspaper which mentioned that Professor Carroll Moore was going to observe the transit from Nebraska Wesleyan University. Several astronomy enthusiasts joined Professor Moore in viewing the transit from the Wesleyan campus, and afterwards decided to meet again as a group sometime in the near future. Widespread media publicity brought the attention of others interested in Astronomy, and informal meetings began in the basement of Van Fleet Hall of Science at Wesleyan.

In April, 1961, a constitution was adopted by the 14 charter members, and the Prairie Astronomy Club of Lincoln was formally established. The charter members were:

Walter Erbach	Harlan Franey	Faun Fritz	Dick Hartley	Philip Johnson	Rick Johnson	Werner Klammer
Jim Hoskins	Carroll Moore	Tom Pansing	Philo Prell	Pete Schultz	Jess Williams	Eugene Robertson

The meeting place was moved to the upstairs lecture hall in the Van Fleet building later in 1961, and an informal newsletter was started late that year by Jess Williams. On June 30th, 1961, the first club star party was held at the home of Dick Hartley. On April 6th, 1962, the first issue of club's official monthly publication, THE PRAIRIE ASTRONOMER, was produced, edited by Pete Schultz. Club activities expanded to showing the public the heavens through club members' telescopes, when on August 9th, 1962, the first monthly Gateway Shopping Center Sky Show was held. In October of 1962, the club was first affiliated with SKY AND TELESCOPE, offering the magazine to its members as a direct benefit of membership.

In 1963, the club moved its meetings to the University of Nebraska State Museum. From 1964 to 1965, the meeting place was changed to Union Loan & Savings at 56th and "O" street.

With telescopes in short supply, in July of 1965, the club began discussing some form of club observatory, which later led to the purchase in August, 1967, of a 12.5 inch f/6 equatorially mounted Newtonian from an Idaho amateur. The telescope's cost was paid for partly through member donations over several years, and the club's "mortgage" on the scope was later burned in a spectacular ceremony by placing it at the telescope's focus and pointing the instrument at the sun! The club scope made numerous trips to the monthly Gateway shows, where it attracted much attention and a few new club members. It was later housed in a tilt-off metal building at Earl Moser's rural residence near Hickman.

In December of 1965, the Prairie Astronomy Club was formally incorporated as a non-profit educational corporation through the efforts of Philip and Rick Johnson. In 1966, the club again moved its meeting place back to the Van Fleet Science building on the Wesleyan campus, where it remained for three years. On June 9th, 1967, club members first attended an Astronomical League Mid-States Regional Convention to see what the League could offer. In August of that year, the club officially joined the League, and changed eastern Nebraska from North Central to Mid-States Region affiliation.

In August of 1968, the first annual club family picnic and star party was held at Wagontrain Lake east of Hickman. In 1969, the club moved its meeting location to the main lecture hall of the newly completed Olin Hall of Science on the Wesleyan campus. Meetings were generally held on the last Tuesday of each month at 7:30 p.m. Professor Carroll Moore often used the Jensen Planetarium downstairs for a preliminary program and star-talk, while a business board meeting was held upstairs in the lecture hall.

1970 was a banner year for the Prairie Astronomy Club, starting with the Solar Eclipse of March 7th. The club provided the public safe viewing of the eclipse at the Gateway Shopping Center, while a few die-hard members went to Mexico to view totality. From June 5th through the 7th, the Club was the host for the 1970 Mid-States Regional Convention of the Astronomical League, held on the campus of Nebraska Wesleyan University in Olin Hall of Science. In the fall of 1970, club members traveled to Beatrice to provide a public sky show at a Chevrolet dealership when the "Vega" car was introduced. Club membership varied at this time from around 35 to as many as 50 people. The Gateway public sky shows also continued on a regular basis into the mid 70's.

In the summer of 1973, the Prairie Astronomy Club and the Omaha Astronomical Society co-hosted the National Convention of the Astronomical League in Omaha. During the mid 1970's, a group of individuals headed by club member Carroll Moore began a fund drive to build a public observatory for the city of Lincoln in time for the U.S. 1976 bicentennial celebration. Although the date for construction missed the bicentennial year, a generous donation from the A.L. Hyde estate made possible the dedication of the Hyde Memorial Observatory in Holmes Park on November 6th, 1977. A number of club members participated in the planning and design of the observatory. The club built an 8 inch Newtonian telescope and donated it to the observatory. The Gateway Shopping Center sky shows were discontinued, as members turned their attention to helping staff the observatory on public viewing nights.



## A HISTORY OF THE PRAIRIE ASTRONOMY CLUB 1961-1997

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Once Hyde Observatory began operation, club membership increased to over 60 people, and the club moved its meetings to the observatory's lecture room. The February 26th, 1979 eclipse of the sun was viewed by the public from the observatory, assisted by club members and covered on local television. At the same time, Carrol Moore headed up a group of club members and others on a trip to view totality in frigid Bowbells, North Dakota. The club put on its first annual Astronomy Day display on April 7th, 1979, at the Gateway Gallery Mall to showcase the hobby of Amateur Astronomy to the public.

In March of 1981, the first of several semi-annual club trips was taken to the new Kansas Cosmosphere and Space Center in Hutchinson, to view two OMNIMAX films, along with some of the space hardware which would be put on display in the near future. Later years would bring trips to the Chicago Museum of Science and Industry, Adler Planetarium, and Behlen Observatory. In the early 1980's with money from the Junior League of Lincoln, a unique safe solar telescope was designed and constructed by club members for Hyde Observatory for use mainly by school groups. The club continued its annual Astronomy Day displays at the Gateway Gallery Mall, and membership slowly increased. The annular eclipse of May 30th, 1985 was a record breaker for both Hyde Observatory and for the Prairie Astronomy Club, as over 500 people lined up to view the sun.

The year 1986 brought the return of Halley's Comet, and with it, large crowds at Hyde Memorial Observatory. Club members provided their own telescopes outside for the public to help ease the extreme crowding in the observatory. When the comet got too low in the south to be visible from Hyde, club members staged a late night public viewing session at a rest area 15 miles south of Lincoln. An enormous crowd of nearly 2000 people observed the comet through club members' instruments from that location.

Concern over light pollution at the club observing site near Hickman in 1986 prompted the formation of a working group to establish a new dark sky site for the club. On March 24th, 1987, the club formally took possession of a decommissioned Atlas missile base for its new dark sky site. Difficulties with the Gateway Mall location for previous Astronomy Days caused the club to move its annual display to the lobby of the Ralph Mueller Planetarium on the University of Nebraska city campus, where it enjoyed great success for many years in attracting interested people.

The 1990's brought even more activity to the Prairie Astronomy Club. The club again hosted the Astronomical League Mid-States Regional Convention in June of 1993 at Nebraska Wesleyan University. Membership continued to increase, nearing 100 as the year drew to a close. In the summer of 1994, several Prairie Astronomy Club members created the first NEBRASKA STAR PARTY, bringing over 60 amateurs from locations across the country to view in the dark skies of the Sand Hills at Merritt Reservoir near Valentine. The club also built a second club telescope: a 13.1 inch altazimuth Newtonian which can be set up by one person in only a few minutes. In July of 1995, the Second Annual Nebraska Star Party drew 200 people from 11 states to attend a week of dark-sky observing and family fun activities.

The club joined forces with the Omaha Astronomical Society to put on public star parties at Mahoney State Park, halfway between Lincoln and Omaha. In March and April of 1996, Comet Hyakutake put on a fine display, and the public got wonderful views of it through club members' telescopes and binoculars Hyde Observatory. In May of 1996, the club once again held its annual Astronomy Day at Mueller Planetarium, in conjunction with the International Space Station exhibit. In August of 1996, over 250 amateurs from across the country experienced the 3rd Annual Nebraska Star Party, now co-sponsored by the Prairie Astronomy Club and the Omaha Astronomical Society. December 3rd, 1996 was a sad day in the history of the club, when charter member and club "father", Professor Carroll Moore, passed away at age 79.

The spring of 1997 brought the appearance of Comet Hale-Bopp, but due to its position in the northwestern sky, Hyde Observatory's telescopes could not view the object. Members of the club once again provided some telescopes for the large crowds which gathered at the observatory to view the comet. In May of 1997, concerns over light pollution and rural development prompted the sale of the club's Atlas observing site, and the search for a new one was begun. In early August of 1997, over 330 people from as far away as Brazil, Belgium, and Hawaii, attended the 4th Nebraska Star Party at Merritt Reservoir, again co-sponsored by the two largest Nebraska clubs. NSP was thus firmly established as an annual world-wide family "Astronomical Vacation" by the PAC and the OAS, with plans in the works for many future years of the event. The future indeed looks bright for one of the best organizations in amateur astronomy, THE PRAIRIE ASTRONOMY CLUB.



# Star Parties and Observing Etiquette

By Bill O'Donnell

Re-printed from *Stella*, the newsletter of the Omaha Astronomical Society

At the last regular meeting of the OAS, there was considerable interest in more information being made available to beginners. I'll make an attempt at it in this series of articles. If there is something that you want me to write about, let me know, and I'll do my best. This month, I want to talk about star parties. A star party is where many people of various levels of experience gather to enjoy the hobby of astronomy as a group. There are many star parties, but they basically break down into three types:

1. Public star parties. These are events that are sponsored by a club or a few individuals with the intent of informing the public about the hobby of astronomy and give people a chance to look through telescopes. This is where many of us first came into contact with astronomy.

2. Organized star parties. These are large gatherings, under dark skies, that may host hundreds of amateurs with many different types of telescopes. Good examples of these are the Nebraska Star Party, The Texas Star Party and Stellafane. They usually involve considerable travel and some added expense, but they are a great place to better your skills, since there are so many experienced people there. Workshops are often provided for observers of all levels.

3. The small star party. These are my personal favorites. I define them as a gathering of three or more people who get together for the purpose of observing. A good example is what goes on regularly at our own AstroPark.

Eventually, most all of us will attend at least a public and a small star party. There are some things that you should keep in mind when you attend these events. There are a whole set of "unwritten rules", commonly known among those of us who have been observing for awhile. Let's call it "Observing Etiquette"

I'll attempt to get as many of them down as I can for you this month. These are things that I had to learn by experience. I really wish someone had helped me out with some of these. Some are common manners; others are unique to our hobby. These are the top ten in no particular order.

**Rule #1:** NO WHITE LIGHT AFTER DARK! Flashlights should be fitted with red filters, red tape or a red (LED) bulb. White light ruins night-vision as fast as, well, the speed of light! Our eyes are not as sensitive to red light. This rule also applies to our headlight, back-up lights and interior dome lights.

**Rule # 2:** Bring all of your stuff. Take the time to make a checklist of all of the things that you will need while observing. This includes scopes, eyepieces, red flashlights, EXTRA BATTERIES, maps, charts, logbook, pens & pencils, warm clothing, bug repellent, and snacks. Another observer may be willing to lend you an OIII filter for a short time if you forgot yours, or don't have one, but their coffee is another matter, and so are their gloves.

**Rule #3:** Know your equipment. Get there early enough to set up your stuff in the light. Many observers are willing to help you with the base of that mega-scope, but the rest is up to you. They will be busy setting up their own equipment. Take the time to become familiar with setting up your scope. Practice at home a few times before going out to a star party or even by yourself. It will save you a lot of headaches.

**Rule#4:** "Don't Tread On Me!" Give observer's some space. Pick a spot that is level, not obscured and easy to get to by car, if necessary. Don't assume that because this is a star party, the astronomer next to you really wants company tonight. They might have a serious observing agenda, or their equipment might require more space than you might think. Perhaps they are expecting an observing partner. If things are a little tight, simply ask if it is all right to set up next to someone. Most will not refuse, but respect those who do, and please don't take it personally. (If you are the refuser, a little explanation will go a long ways in making/keeping friends!)

**Rule #5:** If you arrive late and are driving into the site after dark, run on your park lights as you approach the observing site. Those of you who are already there - get out there and guide them in with your red lights. A short interruption in viewing is better than 1/2 hour of no night vision. NEVER park in such a way that you will need to back up in order to load, unload or leave. Those reverse lights are white, White, WHITE! Turn off your interior dome lights as well. If you cannot turn them off, pull the fuse, or cover them with red cellophane. If you have to leave while others are observing ask for some help guiding you out with red lights, until you've gotten to a point where your park or drive lights will not bother anyone.

**Rule #6:** Watch your step!



## STAR PARTIES AND OBSERVING ETIQUETTE

- continued from page 8 -

**Rule #7:** Please don't "borrow" anything, even a view from a scope, without asking first. Turning around after getting another eyepiece to find your scope is "occupied" is likely to ruin both of your evenings.

**Rule #8:** Please do not drink, eat, smoke around another persons scope unless invited to do so . Also, don't shine a light into there scope to "see how big that sucker is". If someone is looking into the eyepiece, well, you could imagine. The scope might also be making a 35minute exposure of an object, and you are probably going to shine your light on the mirror at minute 32.

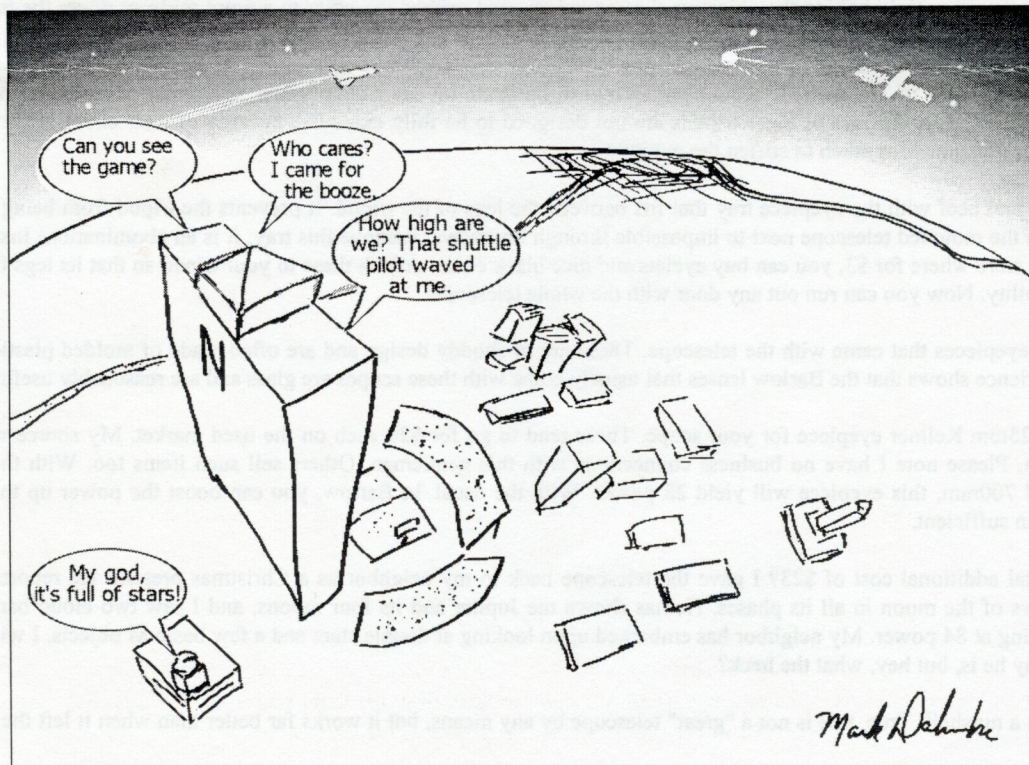
**Rule #9:** Leave the "boom box" at home, unless you want to use headphone. Some people don't mind a little music while they observe; others prefer the sounds of nature.

**Rule #10:** Don't automatically assume that because it is a star "party" everyone is willing to be sociable, or help you hunt down an object. Most might, some are there to observe for themselves. Everyone needs to respect everyone else. This happens almost all of the time when everyone heeds the above rules.

I know that this seems like a lot "don'ts". The bottom line is that when we follow these rules that are really just common "astro-courtesy", we all have a more pleasant observing experience, we are more likely to make new friends, observe through other scopes and learn something that we didn't know before we arrived.

By the way, the bulk of these rules tend to go by the wayside at public star parties. We can't expect the public to know them, and it is difficult to keep all of them ourselves. Public parties are still great, because that is the best place to get some of your own questions answered, plus, even if you can only find the Moon, you are showing it to someone who may never have seen it before.

Thanks for listening. I hope your next star party is your best. -Bill



Cartoon By Mark Dahmke



# REBUILDING A 60MM DIME STORE TELESCOPE

By Ed Turco

Re-printed from <http://kencar.simplenet.com/DeptConv.htm>

\*Note: This article was written by Ed Turco, who is one of the ops for the ATM Channel. Great article for those who would like to get even with some of those dime store telescope makers and get one to really work! Ed's article follows in its entirety.

Experienced amateur astronomers are painfully aware of low quality 60mm refracting telescopes, known as department store telescopes.

These represent the bottom of the barrel for amateur use and I do not advocate buying them at full price; however, these commonly show up at yard sales for a song. I have had two experiences now with this type of instrument and have found that they can be made into functioning telescopes, with a little bit of work. I wish to pass these useful hints along.

I will give you the example of my neighbor. He was out of work and happened upon a department store telescope for \$20 at a church sale. He asked me if I could do anything to make it work. Obviously, money was going to be a problem!

I first inspected the objective lens. As the telescope was made entirely of plastic press-fitted together, it was easy to disassemble. I found that the objective was two elements and coated to boot. Under critical optical testing, it proved to be a perfectly respectable objective lens.

Please note, if you are buying such a thing from wherever, you MUST check out this lens before buying. There are telescopes out there which have single element objectives.

THESE ARE USELESS. Walk away from these. You can do nothing with them.

A two element objective has two pieces of glass in its construction that is revealed by a line on the side of the lens which runs parallel to its rim. If you have this type of lens, it is achromatic and you definitely have something. Buy it, if the price is right.

Once you own it, do the following:

1) Looking down the tube, you will find a diaphragm which limits the amount of light passing from the objective to the eyepiece. The placement of these diaphragms are totally haphazard. My example inexplicably had two of these, both with 35mm openings, one next to the eyepiece holder, and the other right behind the objective. I removed one and pushed the other to a point midway down the tube. While this is not the most scientific way to place a diaphragm, it is a good first guess.

2) The mount will need a lot of attention. I found every screw to be loose on my example and tightening everything up did make some difference in its stiffness. Also, the legs of these tripods are not designed to be fully extended, because of their cheap materials. But locking the legs with 6" less extension does much to stiffen the mount.

I discovered I had a real beef with the eyepiece tray that fits between the legs of the tripod. It prevents the tripod from being fully folded and makes navigation of the mounted telescope next to impossible through doorways. Remove this tray; it is an abomination! Instead, go down to your local hardware store where for \$3, you can buy eyelets and nice black chain. Attach these to your tripod so that its legs fit in a 36" circle, which increases stability. Now you can run out any door with the whole telescope!

3) Throw away the eyepieces that came with the telescope. These are of shoddy design and are often made of molded plastic lenses. (Yuck). Ironically, my experience shows that the Barlow lenses that usually come with these scopes are glass and are reasonably useful.

You must buy one 25mm Kellner eyepiece for your scope. These tend to go for \$20 each on the used market. My source was Bill Vorce - [scopehead@aol.com](mailto:scopehead@aol.com). Please note I have no business connections with this gentleman. Others sell such items too. With the objective focal length being around 700mm, this eyepiece will yield 28 power. With the usual 3x Barlow, you can boost the power up to 84 times. These powers are more than sufficient.





The results for a total additional cost of \$23? I gave the telescope back to my neighbor as a Christmas present. He reports that he is quite happy with the views of the moon in all its phases. He has shown me Jupiter and its four moons, and I saw two cloud bands on the planet itself. Saturn has a ring at 84 power. My neighbor has embarked upon looking at double stars and a few basic M objects. I wish he would stop telling me how happy he is, but hey, what the heck?

There you have it in a nutshell. True, this is not a "great" telescope by any means, but it works far better than when it left the factory! Try it if you can!



# The PRAIRIE ASTRONOMY CLUB CALENDAR

## for OCTOBER 1998

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<b>UNL Student Observatory</b> Open to the public Friday Sept 25 (sundown-11PM)				1	2 OAS Meeting 7:30PM UNO campus Durham-Rm169	3 Hyde Observatory open to the public 7 - 10 PM
4	5	6 FULL MOON 	7	8 NSP Planning meeting 7:30 PM Mahoney State Park Lodge	9	10 Hyde Observatory open to the public 7 - 10 PM
11	12 3 <sup>RD</sup> QUARTER 	13	14	15 Orionids	16 Observing at Olive Creek SRA (See Pres. Rept for directions- page 2)	17 Hyde Observatory open to the public 7 - 10 PM
18 Orionids	19 Orionids	20 NEW MOON 	21 Orionids	22 Orionid Meteors peak	23 MAHONEY STAR PARTY	24 Hyde Observatory open to the public 7 - 10 PM
25 Orionids	26	27 PAC Meeting 7:30 PM Hyde Observatory	28 1 <sup>ST</sup> QUARTER 	29	30 UNL Student Observatory Open to the public sundown-11PM	31 Hyde Observatory Closed

### WHAT'S UP:

**JUPITER:** Jupiter continues to dominate the evening sky. Look for it well up in the east-southeast as twilight fades. Jupiter remains visible most of the night, beneath the Great Square of Pegasus and the dim "Circlet" asterism of Pisces. The Moon is just to Jupiter's right on October 3rd and to its lower left on the 4th. The Moon passes by Jupiter again on the evenings of the 30th and 31st.

**SATURN:** Saturn comes to opposition in eastern Pisces on October 23rd, appearing very slightly larger and brighter than it has in about 20 years. There are two reasons for this. Saturn is having a slightly closer opposition than usual, since it is in the part of its orbit nearest to the Sun (and Earth). In addition, Saturn's rings are currently tilting more into our view each year, showing us more of their bright face.

**MARS:** Mars is in the east before dawn. The orange planet is currently too distant to be very bright or to look like more than a tiny dot in a telescope. But for naked-eye and binocular observers, this is a special month for Mars nonetheless. Watch the blue-white star Regulus creep up closely past Mars from day to day during the first half of October. They appear closest on the morning of the 7th, just under 1° apart -- less than the width of your little finger at arm's length.

The **MOON** is near Regulus on the morning of October 15th and below Mars the next morning.



## MISCELLANEOUS

**CLUB LIBRARY:** Did you know that the Prairie Astronomy Club has a library with scores of astronomy related books, which are available for loan at no cost to it's members? These books are now located in a cabinet at Hyde Observatory, and may be checked out by PAC members at any monthly meeting of the Prairie Astronomy Club. Larry Hancock is our librarian.

**PAC SHIRTS & HATS:** The club is selling club shirts and hats with the PAC logo. Orders were taken at the August meeting and the order was placed in September. Hopefully, the orders will be available at the October meeting. Payment is due upon receipt. T-shirts are \$7, Polo shirts are \$14 & Hats are \$5. Contact Larry Hancock or Dave Knisely if you have any questions.

**NSP-5 PRINT AVAILABLE:** Mark Dahmke still has one print left. This features the design used on the NSP-5 t-shirts, and is suitable for framing. The cost is \$35. If interested, contact Mark.

**PAC-LIST:** Mark Dahmke maintains an e-mail list server for PAC. If you have an e-mail address and are not on the PAC List, you may subscribe by submitting an e-mail to list@4w.com. Write "Subscribe PAC-List" in the body of the e-mail.

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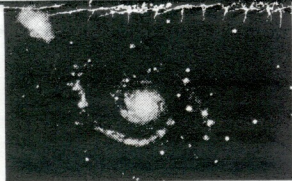
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Next PAC Meeting  
September 29, 1998  
7:30 PM  
Hyde Observatory

The Prairie Astronomer  
c/o The Prairie Astronomy Club, Inc.  
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