THE PRAIRIE ASTRONOMER

THE OFFICIAL NEWSLETTER OF THE PRAIRIE ASTRONOMY CLUB, INC.

MAY 2001 VOLUME 42 ISSUE #5

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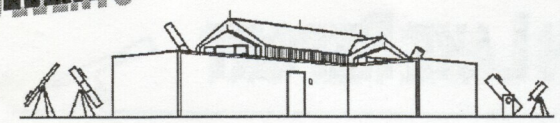
Hyde Observatory:	www.blackstarpress.com/arin/hyde/
NEB-STAR:	www.neb-star.org/

CLUB EVENTS



UNL STUDENT OBSERVATORY OPEN HOUSE
FRIDAY, MAY 25, 2001, SUNSET-??
Student Observatory

MAHONEY STAR PARTY
FRIDAY, MAY 25, 2001, STARTING AT SUNSET
Mahoney State Park

PAC MEETING
TUESDAY, MAY 29, 2001, 7:30 PM
at Hyde Memorial Observatory

NSP PLANNING COMMITTEE
THURSDAY, JUNE 14, 2001, 7:00 PM
Mahoney State Park

MAHONEY STAR PARTY
FRIDAY, JUNE 15, 2001, STARTING AT SUNSET
Mahoney State Park

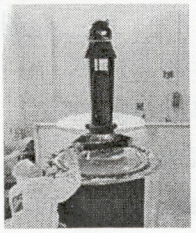
CLUB STAR PARTY
FRIDAY, JUNE 22, 2001
Wagon Train Lake
(see map on back page)

PAC MEETING
TUESDAY, JUNE 26, 2001, 7:30 PM
at Hyde Memorial Observatory

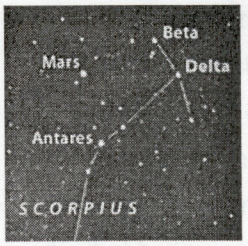
MAY'S PROGRAM:

This months program after the PAC meeting will be: "Something for Everyone: How to Choose and Use Binoculars" By PAC member Doug Bell.
Please be sure to attend this month's meeting and see Doug's program. It should prove to be fascinating and informative.

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.



SIRTF: Now fully assembled, the optical system for NASA's Space Infrared Telescope Facility (SIRTF) will be tested to make sure that its systems can endure the rigors of space. Courtesy Ball Aerospace & Technologies Corp.



DELTA SCORPII: Now that Scorpius is rising into good view as early as 11 p.m. local daylight time (look low in the southeast), more and more skywatchers are noticing the unusual brightness of the star Delta Scorpii near Antares. Normally magnitude 2.3, Delta slowly flared up last July and has generally remained bright, with some fluctuations, ever since. For the last three months it has hovered around magnitude 1.8, changing the look of the familiar row of three stars known as the head of Scorpius. Compare it with Beta, magnitude 2.6, and Antares, 1.1.

CONTENTS:

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 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 on the last page of this newsletter. Newsletter comments and articles should be submitted to: **Jeff King, 4018 South 83rd Street, Lincoln, NE 68506-5973 or jeffrey892@aol.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.

5-81

SECRETARY'S REPORT

By: Pamela L. Fiedler

Pamela was recovering from surgery and was unable to attend the meeting. These comments supplied by Dave Knisely.

We greeted a number of visitors, talked about Mars becoming visible, reviewed Astronomy Day, discussed the upcoming public star party at Hyde, mentioned the Mahoney Star Party on May 25th (PAC star party moved to the 18th), Eric Hubl mentioned his efforts at getting NASA TV on Cable vision. The program was on the Cassini mission to Saturn.

WAGON TRAIN LAKE REPORT

By Martin Gaskell

We had a fun time out at Wagon Train Lake on Friday night May 18/19, 2001). There were a lot of telescope makers and soon-to-be telescope makers. Eight of us got into Kevin Dowd's 15-seater van with Kelly Crowley's homemade 6-inch and Paul Bates's 80-mm equatorial refractor. In addition to Kevin, Kelly, Paul, and myself, our party was made up of Jan Stroem and Kristin (Jan has a 10-inch mirror kit due to arrive any day), Lon Renner (who's wanting to start making a telescope but has to get married next month first!), and Lynnea (whose husband needs to be persuaded to built her a telescope!). Needless to say a lot of the discussion in Kevin's van to and from Wagon Train centered on telescope making. The biggest project under way is Paul Bates 20-inch. He got a 20 disk of plate glass for only $100. It is thin so it is going to be a challenge, but he's getting well up on thin-mirror techniques. Paul said that the grits etc. for the 20-inch have already cost him over $100, but even if the whole mirror ends up costing him $400, that's a remarkable price for a 20-inch.

Club members were already out at Wagon Train to greet us and the sky was beautifully clear when we got there. I can't remember the name of everybody who was there. Kelly's telescope hadn't been used all winter so it took us a long time to get it working and we made a mental note things that need to be taken care of on Kelly's telescope to get it to work more easily (like adjusting the balance). Later on in the evening someone said "Kelly you need a Telrad! They're only $40." Kelly replies "But that's what my whole telescope cost!" I think all of us out at Wagon Train last night must be cheap amateur astronomers because I don't think there was a single Telrad on the telescopes. I made a mental note that I must come up with a Telrad design for $5 or less! ("You could make it out of a Cheerios box!" said someone "Yes, I certainly could make it out of a Cheerios box!").

Unfortunately by the time we had Kelly's 6-inch running smoothly, clouds had suddenly formed over us. We persevered however, and were glad we did because eventually the sky was clear again. By the time we quit the Milky Way was shining brightly and it was easy to mistake it for the clouds that had been coming and going.

When the clouds were at their thickest just about all we could see was Mars. We first looked at it in Paul's 80-mm refractor. We put in John L's HUGE Lanthanum zoom eyepiece set at 4.5-mm. Before I tell you about Mars I have to digress and give you some comments on this eyepiece. Long-time readers of "The Prairie Astronomer" will remember Dave Scherping's "Astroman" cartoon series, and Rambo Astroman's "9-mm semi-automatic Nagler"! Dave Knisely often boasts of his "glass hand grenade". Well, I think I will christen John's eyepiece the "glass anti-tank shell" since it is more that shape than a hand grenade! This pound and a half, sky-piecing piece of hardware must clearly be made from depleted lanthanum!

Paul's 80-mm is a very well made Celestron and it held the very heavy eyepiece surprisingly well. This gave 200X on the 80-mm which is 63X per inch of aperture. Although this is a bit over the conventional rough upper magnification limit of 50X per inch of aperture this is not too much for viewing Mars with a small refractor. I was surprised at how much detail could be seen on Mars in the 80-mm. When Mars is at opposition there will be a lot to be seen even in a 60-mm refractor. Encouraged by the surprisingly good view in Paul's 80-mm (3-inch) we swung Kelly's 6-inch round to Mars (by now Kelly's telescope was the largest one we had since Lee Taylor had had to leave with his 8-inch). Despite the low altitude the seeing was great and I could make out a lot of detail through Kelly's homemade eyepiece. The seeing was great despite the low altitude and it was a fantastic view - better in fact than the view I had with some members of my intro. astronomy class through the 16-inch at the UNL Student Observatory at the end of April.. The things that Kelly's 6-inch gave over Paul's 3-inch were higher resolution and more contrast.

We looked at deep sky objects too, of course. Jeff Campbell found lots of Messiers with all the telescopes (Jeff must be getting eligible for his Messier certificate before too long!). My favorite deep sky view of the night were seeing M51, the Whirlpool galaxy, through Kelly's 6-inch at low power (a really good view showing the two galaxies nicely connected) and seeing some of the Milky Way star clusters above Sagittarius. The 6-inch showed a huge number of stars in a low-power field.

As well as star gazing, people stood around and talked a lot. Lynnea pondered what the structure of the Milky Way was really like as she scanned it through Jeff's binoculars. I think telescope making was a big topic. As well as the gang that rode in Kevin's van, we have Jeff who wants to make his own telescope, and John who told us he's got the blanks and the abrasives etc. for making a 6-inch. Speaking of homemade telescopes, some of us spent a little time cradling Kevin's little homemade mountingless 3-inch Newtonian and sweeping the sky. It occurred to me afterwards that it would have been interesting to have done some comparative viewings with Paul's 3-inch refractor.

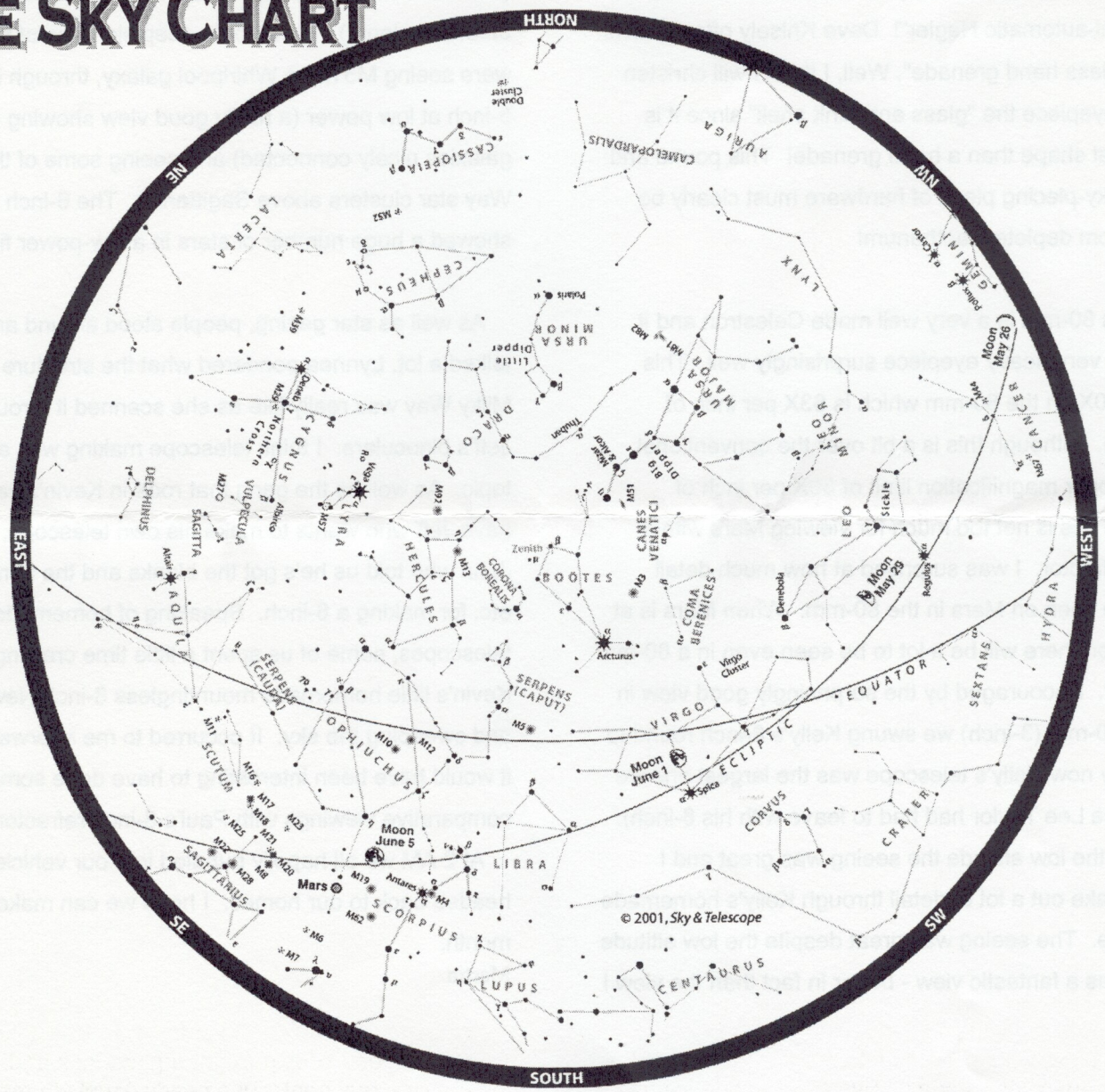
At 2 AM we all happily bundled into our vehicles and headed back to our homes. I hope we can make it next month.

Martin

HYDE JUNE SCHEDULE

June	Team Leader	Telescope Operators	Coord.	Supervisor
6/2/01	Jeff King	Bill Wells / Matt Reiling	Dave C.	Dave S.
6/9/01	Brian Sivill	Jeff Campbell / Bob Leavitt	Lee T.	Lee T.
6/16/01	Bill Wells	Joey Churilla / Dave Hamilton	Dave C.	Dave C.
6/23/01	Dave Churilla	Jeff King / Brian Sivill	Dave C.	Martin G.
6/30/01	Lee Taylor	Jeff Campbell / Bob Leavitt	Lee T.	Martin G.

JUNE SKY CHART



Deep Sky Observations

by David Knisely

DATE: May 2nd, 2001, 0900 to 1040 hrs UTC.
LOCATION: Beatrice, Nebraska, 40.283N, 96.735W, 1380 ft. (420.6m) elevation.
INSTRUMENTS: 10 inch f/5.6 Newtonian (59x, 101x, 141x, 220x, 252x, 353x, 550x)80mm f/5 Celestron "WIDE VIEW" refractor (20x, 40x, 63x, 71x, 156x)
CONDITIONS: Partly Cloudy, Temp. 77F (25C), Wind South at 10 to 20 mph.
UNAIDED EYE LIMITING MAGNITUDE: 4.8 (8.9 day moon: 66% illumination)
SEEING: 0.4 to 0.8 arc seconds (Antoniadi I to II).

OBSERVATIONS: Tonight, excellent seeing near the zenith and a high 9-day old moon made for some outstanding views of the lunar surface, as well as some double stars. A quick look with the 80mm f/5 showed that the seeing was rock solid at that aperture, so I pulled the ten inch out of the garage and started in. From north to south, the moon showed all the detail which my ten inch could resolve, with only occasional shimmers or brief moments of bluring from seeing effects. The Alpine Valley was well into sunlight, which made viewing the fine rille at its bottom difficult at powers under 250x.

However, it was visible in a number of segments when the seeing settled. Plato was in a nearly perfect state of illumination, as the central crater pit was visible at all powers over 100x (even caught hints of its spot like form in the 80mm f/5 refractor). At 353x and 550x, I could easily see the central craterlet as a small well-defined pit with a noticable low rampart, as well as the other three craterlets of "the Big-4" (those craterlets larger than 1.1 miles in diameter). At times, three other tiny pits became visible, giving me a grand total of 7 (the other craterlet of "the little-4", was still in shadow). The image held up surprisingly well at 550x, but overall, I still liked 353x just a bit better. The detail in Cassini was quite good, with the floor showing a tiny rille next to the interior craterlet Cassini-A.

Moving south, I had a wonderful view of the entire length of Hadley rille, from its southern cusp-like formation, through the jog near the Apollo 15 landing site, and on to where it runs into the low foothills of the northern Apennine range. Even the maria seemed peppered with very tiny craterlets. In the western Mare Serenitatis, the tiny crater Linne showed its clear pit-like form, raised rim, and extended white ejecta blanket. I looked up Apollo 16's landing site, and noted the tiny crater pits which stradle the north and south ends of where the astronauts drove the lunar rover. Westward, the shallow walled-plain Davy showed the prominent crater chain on its floor. The Straight Wall was in fine view, along with the fine rille which runs north from near the small crater Birt. Tycho was a joy to look at using 353x as it had incredible wrinkled detail on its floor and walls, with a huge number of tiny radial secondary impact craters beyond its ramparts radiating away from the rim. Clavius was a little ways inside the terminator, and also showed fine floor detail, including the fine multiple rille-like features which run down from Rutherfurd's north rim toward the floor. 550x revealed that some surfaces which seemed relatively unmarked at low power were almost covered with tiny pits and craterlets. All in all, this was one of the finer views of the moon which my ten inch Newtonian has provided this year.

With the moon put aside for a while, I decided to go for a few more double stars. My first target was the faint double Struve 872 a few degrees southeast of Theta Aurigae. It was a fairly easy pair even at low power (mags. 6.9 and 7.9: separation 11.3 arc seconds). However, unlike the accounts in some texts, it only showed a weak color contrast between the two stars (the brighter one was yellowish white, and the fainter was more yellow).I went to look at Castor, and saw it beautifully resolved, with a wide space of dark sky between the components and clear diffraction disk/ring structure visible on both stars at 352x. Even the little 80mm f/5 resolved this double when I kicked it up to 71x. Iota Cancri then fell to my ten inch at low power, showing a beautiful yellowish primary and a bluish companion. This is one of my favorite "colorful" double stars in the spring sky. Next was a real surprise, the triple "linear" star Zeta Cancri. This one takes high power and good seeing to get a good look at, but once you do, its a real treat. Two nearly equal 6th magnitude stars are on one end with a separation of only 0.8 arc seconds, while a third 6th magnitude star sits almost exactly along the same line as the first two but only about 6 arc seconds away! The close pair (A and B) were tough to resolve at 220x, but showed plainly-separated Airy disks at 352x. Three for the price of one!

I went farther north into Ursa Major to try the faint double Sigma-2 UMa. It has a somewhat off-white

magnitude 4.8 primary and a faint 8th magnitude companion which looked to be possibly slightly bluish, but it was difficult to tell. I moved back down south to take a quick look at Gamma Virginis, an equal pair of magnitude 3.5 stars separated by only 1.8 arc seconds. With seeing so good, I went back to looking up colorful doubles and stopped at Izar (Epsilon Boo). It was quite easy to resolve in the ten inch, and, like Alberio, showed a bright yellowish primary and a bluish companion (separation was 2.8 arc seconds, so a good 3 inch should split this one). For a bit greater challenge, I hit Zeta Bootis, a nice but close (0.8 arc second) pair of nearly equal stars (mags. 4.5 and 4.6) which showed their duplicity at 220x, but required 353x to get a clean separation of their Airy disks. I finshed the night off at lower power with the somewhat wider system Xi Bootis, which has a little color contrast. The primary is a mag. 4.7 off-white star, and the companion is a faint slightly reddish (mag. 6.8) star about 6.6 arc seconds away. All in all, with the great seeing, it was a nice night for doubles.

Stellafane and State Prison Reach Agreement

Since the 1920s, the Springfield Telescope Makers club has made Breezy Hill in Vermont its base of operations. Amateur astronomers throughout the Northeast participate in monthly club meetings and other events at the site. Of particular note is Stellafane, the granddaddy of all telescope conventions. The annual event brings some 2,000 astronomers from around the world to the dark skies of central Vermont for a weekend of telescope making, astronomical observing, and camaraderie.

The darkness of the skies above Stellafane was severely threatened two years ago when the citizens of Springfield voted in favor of building the state's largest prison just four miles from the astronomers' happy haunt. The club members worried that the prison would fill the region with light pollution.

That potential disaster was averted this week with the announcement from the Springfield Telescope Makers, that the prison planners and astronomers have reached a compromise concerning the facility's lighting design. Under the agreement, the prison will employ only full-cutoff lighting. The design will also minimize light pollution, yet maximizing visibility for guards.

Despite the lighting design, it is estimated that some 150,000 lumens of light will still shine into the night sky through reflection off the ground. To combat this, the state of Vermont has agreed to take light-reduction measures off-site with the Springfield Telescope Makers acting as consultants.

As former club president Maryann Arrien explains, "This is really a win-win. Not only will this agreement reduce electric costs [for the prison], it will help to preserve the view of the stars for all the citizens in the area."

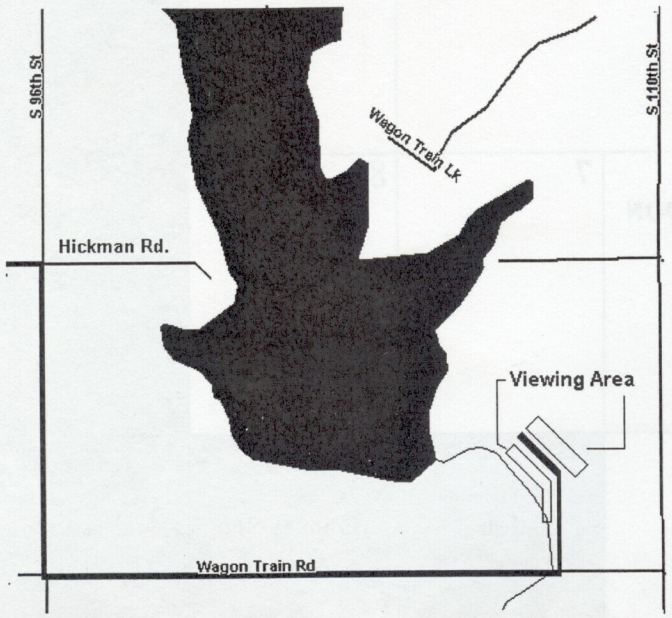
— David Tytell

THE PRAIRIE ASTRONOMY CLUB CALENDAR
For June 2001

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
					1	2 Hyde Observatory open to the public sunset-11:00 p.m.
3	4	5	6 **FULL MOON** 	7	8	9 Hyde Observatory open to the public sunset-11:00 p.m.
10	11	12	13	14 **NSP Planning Meeting Mahoney State Park** **3RD QUARTER** 	15 **Mahoney Star Party**	16 Hyde Observatory open to the public sunset-11:00 p.m.
17	18	19	20	21	22 **Club Star Party**	23 Hyde Observatory open to the public sunset-11:00 p.m. **20 NEW MOON** 
24	25	26 **PAC Meeting** 7:30 p.m. Hyde Observatory	27	28 **1ST QUARTER** 	29	30

Directions to Wagon Train Lake Observing Site

From Hickman, NE, turn East on Hickman Road. Go until you reach 96th Street, then turn RIGHT. Drive until you reach Wagon Train Road, then turn LEFT. Area 6 is about 3/4 of a mile East. Turn LEFT into Area 6.



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Next PAC Meeting
May 29, 2001
7:30 PM
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