The Prairie Astronomer

The Official Newsletter Of The Prairie Astronomy Club, Inc.

June 2000 **Volume 41 Issue #6**

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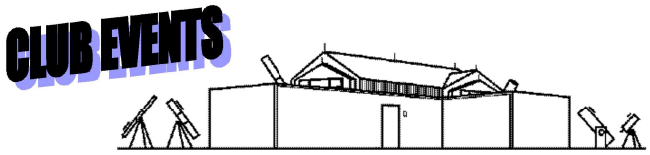

PAC MEETING
TUESDAY, JUNE 27, 2000, 7:30 PM
at Hyde Memorial Observatory

CLUB STAR PARTY
FRIDAY, JUNE 30, 2000
Wagon Train Lake
(see map on back page)

NSP 7 PLANNING MEETING
THURSDAY, JULY 13 2000
Mahoney State Park

UNL STUDENT OBSERVATORY OPEN HOUSE
NO OPEN HOUSE IN JULY
UNL Student Observatory

MAHONEY STAR PARTY
FRIDAY, JULY 7, 2000, BEGINNING AT SUNSET
Mahoney State Park

PAC YOUTH GROUP/HYDE VOLUNTEER MEETING
SUNDAY, JULY 9, 2000, BEGINNING @ 7:00 P.M.
At Hyde Memorial Observatory

PAC MEETING
TUESDAY, JULY 25, 2000, 7:30 PM
at Hyde Memorial Observatory

JUNE'S PROGRAM:

Dr. Stephen R. Platt

Dr. Stephen R. Platt will give a presentation. The exact topic is still to be announced, but all the possibilities sound fascinating!

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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.

EMPTY SPACE: This space could be yours. Please submit your articles, photos, or newsworthy items to the editor. See page 6 for similar empty space.

PLANET HUNTERS DISCOVER WORLDS WITH THE MASS OF SATURN: Astronomers searching for planets outside the solar system have just crossed a critical threshold. They have found the first planets around sunlike stars that could be less massive than Saturn.

ROSETTE NEBULA SMALLER THAN IT APPEARS:
Few objects photograph as well as the Rosette Nebula (NGC 2237–9), a complex, wreath-shaped cloud of gas and dust located 5,000 light-years away in the constellation Monoceros. In a modest backyard telescope, the Rosette appears as a fuzzy glow more than a degree across surrounding the bright star cluster NGC 2244. Yet a new study claims that this emission nebula may not be all it's cracked up to be.

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.

Secretary's Report

By: Willa Penney

Prairie Astronomy Club
May 30, 2000

Dave Knisely, President, opened the meeting by reporting that sunspot activity continues to be high; there was a tremendous aurora the previous Wednesday, which lasted all night.

Jack Dunn reported on Astronomy/Space Day activities; he said that there were 1,150 in attendance the 1st day and about 500 the 2nd. At the debriefing session, it was decided that it would be best to concentrate events at one location each day. Next year, the event will probably be held in April. Jack thanked Martin Gaskell for his lens grinding demonstration and thanked all those who brought scopes for display. There was an "item" left which is still unclaimed; please call Jack to identify and claim. Jack said that Astronaut Clayton Anderson was a "good representative of Nebraska".

The next NSP planning meeting will be June 8 at Mahoney State Park Lodge. Doug Bell has brochures for the Star Party; registration forms are available on the club website. The July meeting will be the "stuffing session".

The next Mahoney Star Party with the Omaha Astronomical Society will be June 9. The Hyde Volunteer meeting will be June 11 from 7-10:00 at Hyde. The next club star parties at Wagon Train will be June 2 and June 30 in area 6.

Larry Hancock passed around an order sheet for T-shirts, caps and polo shirts with the club logo. He will be ordering them after next month's meeting.

Dave reminded everyone that only the club president is authorized to speak to the media for the club; please refer any requests to him.

The meeting was adjourned to our program: Kent Reinhard, science instructor at Northeast High, talked about the imaging of Beta Pictoris with the Hubble Space Telescope.

New Discoveries Add to Understanding of Black Holes

By Paul Recer
The Associated Press

WASHINGTON (AP) - Supermassive black holes were once only a theory, but astronomers have now found and studied enough of them to draw some conclusions about how they form and where they can exist.

At least 33 supermassive black holes now have been found in the centers of distant galaxies, astronomers reported Monday at a meeting in Rochester, N.Y. of the American Astronomical Society.

John Kormendy of the University of Texas said that it is clear now that big galaxies, with massive bulges of stars around their center, contain huge black holes, some with a mass equal to a billion or more suns.

Galaxies with smaller bulges, such as the Milky Way, the home galaxy of the sun, contain smaller black holes. The Milky Way's central black hole is thought to contain a mass equal to about three million suns.

The studies also suggest that disc galaxies, which have no center bulge, do not have a black hole at their center, or have black holes too small to be detected.

Kormendy said an analysis also shows that galaxies with stars that are moving more rapidly are more likely to have the biggest supermassive black holes.

Stars in a galaxy tend to orbit about the center of the galaxy and the more massive the black hole, the more rapid the motion, he said.

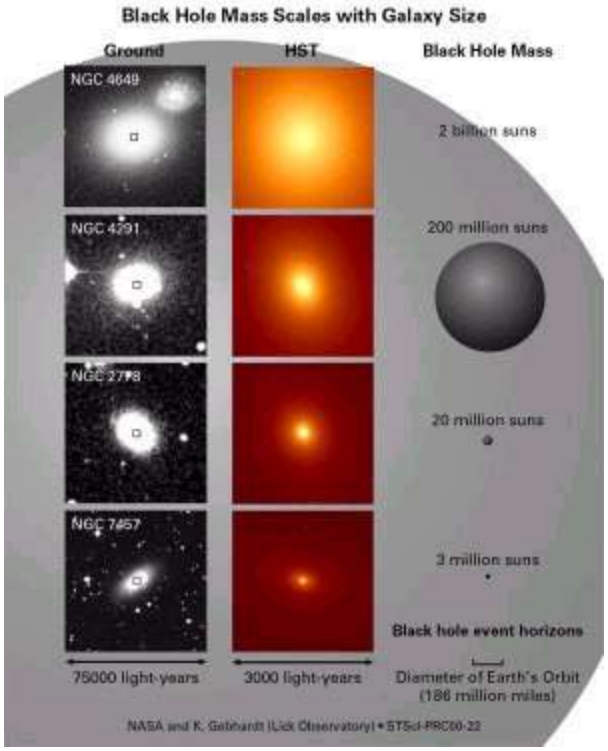
Astronomers also have a better understanding of how black holes formed. Once, there was a question of which came first - the black hole or the galaxy.

Now, said Kormendy, it is clear that black holes and the galaxy around them formed together, with the black holes growing from a diet of gas and stars sucked in from the host galaxy.

A black hole is an object in space with such a great mass that it has collapsed under its own gravity. The force of its gravity so intense that nothing can escape, not even light. Thus, the black hole, itself, cannot be seen.

Instead, astronomers observe the rapid motion of stars and gas swirling around the black hole. As the matter is accelerated to extremely high speeds, it heats to temperatures and gives streams of electromagnetic radiation. Some black holes have jets of X-rays and gamma rays that move at millions of miles an hour away from the center.

Understanding of black holes has been advanced by observations from the Hubble Space Telescope, which has identified 10 galaxies with black holes. The orbiting observatory is able to precisely measure the movement of gas and stars around a galactic center. From this motion, the mass of the galaxy's black hole can be calculated.



Astronomers are concluding that monstrous black holes weren't simply born big but instead grew on a measured diet of gas and stars controlled by their host galaxies in the early formative years of the universe. These results, gleaned from a NASA Hubble Space Telescope census of more than 30 galaxies, are painting a broad picture of a galaxy's evolution and its long and intimate relationship with its central giant black hole. Though much more analysis remains, an initial look at Hubble evidence favors the idea that titanic black holes did not precede a galaxy's birth but instead co-evolved with the galaxy by trapping a surprisingly exact percentage of the mass of the central hub of stars and gas in a galaxy.

Credits: *NASA and K. Gebhardt (Lick Observatory)*

NSP Update

The 7th Annual Nebraska Star Party will be held the week of July 29th through August 5th, 2000 at Merritt Reservoir, 27 miles south of Valentine, Nebraska. NSP has established itself as the premier summer dark-skies star party. In addition to excellent skies, Merritt Reservoir and the surrounding area offers many daytime activities for the entire family. We invite YOU to attend.

Update: we will have six speakers this year, including Tom Clark, Pete Smitka, Nick Schneider, Erica Ellingson, Bob Denny, and Dave Knisely. They will talk about subjects ranging from Amateur Telescope Making to Jupiter's Magnetosphere, to ASCOM, the Astronomy Common Object Model.

One of the premier attractions of NSP is the fantastic view of the summer Milky Way. Though observers will obviously spend long nights at the eyepiece, expect to spend as much time just looking up in awe at the fantastic summer sky. The NSP Milky Way truly looks like an edge-on spiral galaxy and the central bulge is clearly visible.
Some observers have reported a limiting magnitude of 7.5 to 8 with the unaided eye!!
Read Dave Knisely's NSP6 Report for more details.

Located in the heart of the sandhills of north-central Nebraska, Merritt Reservoir is truly the pearl of Nebraska's lakes. Its pure water and beautiful sugar sand beaches offer great swimming and excellent fishing. In fact, Merritt Reservoir holds many state fishing records.

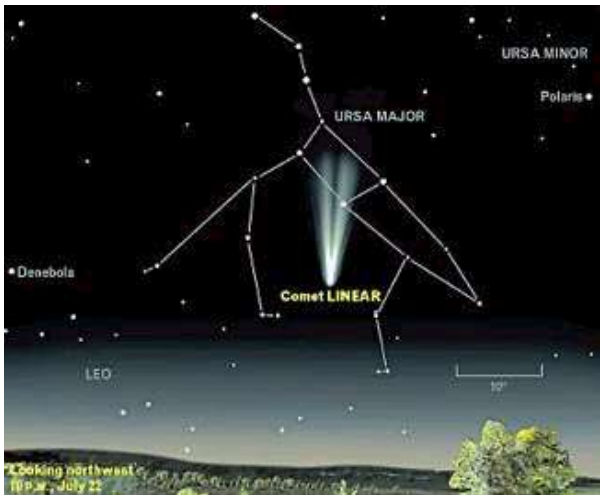
NSP T-Shirt Design
The 2000 NSP t-shirt theme is "Turn of the Century Astronomers." It features a circa-1900 sod house and several astronomers, using modern telescopes and a notebook computer

Comet LINEAR Peaks

We have eagerly awaited our cometary target since first hearing about it almost a year ago. If predictions have come true, then Comet LINEAR (c/1999 S4) will now sit at the edge of naked-eye visibility, ready to brighten by a factor of 15 this month. Enjoy every minute of it, because by early August, it suddenly fades.

This dirty snowball of ice and dust starts out in the dawn sky to the northeast, then in just one month vaults across the north below Polaris into the western evening sky. It's worth one trip in July out to the countryside because you'll get your best views away from city lights (and with the moon below the horizon).

Start on June 29 or 30, at 3 a.m., when LINEAR will be a bright binocular object of about magnitude 6.3 near the splashy star cluster M34 in Perseus. Over the next two weeks, before the moon gets in the way, watch LINEAR's tail grow, pointing almost straight up away from the morning horizon.



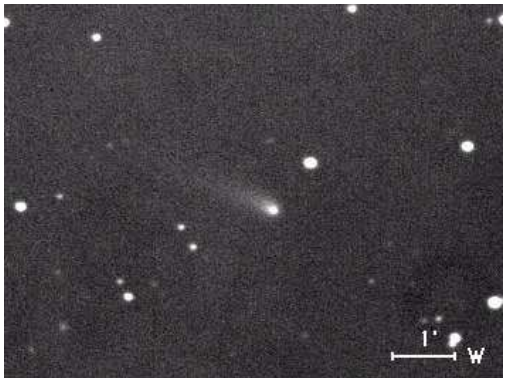
By the 13th and 14th, in the hour between moonset and dawn, 4.5-magnitude LINEAR floats near the delightful binocular splash of stars called Kemble's Cascade. Try for some nice wide-field photos.

The prettiest views will be through binoculars and low-power telescopes. But to see fascinating structure in the tail and bright inner coma, crank it up past 150x. Use a dark cloth over your head to keep stray light at a minimum.

On July 19th the moon rises after 10:30 p.m. Every night thereafter it rises about an hour later. At this point, the comet should be near its peak brightness of about magnitude 3.5. LINEAR moves under Polaris and heads below the bowl of the Big Dipper.

During the last week of July, we're in a losing battle. Each evening the comet will be lower in the sky for a given time, washing out the tail. To see it any higher means to start earlier, but then the twilight is still bright.

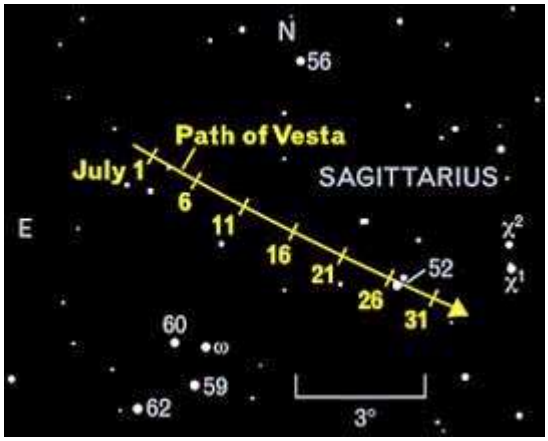
In the first week of August, LINEAR plunges southward and fades as the crescent moon rises and brightens.



The CCD image was taken at Kuma Kogen Astronomical Observatory on 2000 March 9.43, using a 0.60-m f/6 Ritchey-Chretien telescope

Viewing Vesta without Optical Aid

While you're up in the wee hours checking out Comet LINEAR, turn around and face the southern sky, where 5.7-magnitude 4 Vesta is sliding across the dark expanse east of Sagittarius. Use the chart to pinpoint the 300-mile-wide (500-km) hunk of rock. Relax and shade your eyes from any stray light. You may want to use binoculars first just to get your bearings.
On the weekend of the 28th, Vesta may be too close to the star 52 Sgr to see with the naked eye, but by Saturday night it could be just in reach, one moon width farther west.

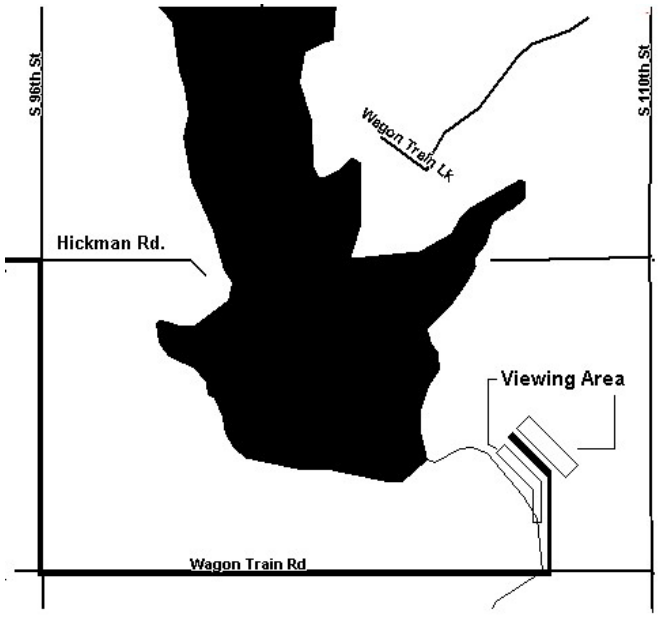


THE PRAIRIE ASTRONOMY CLUB CALENDAR
For July 2000

Sun	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*
					Club Star Party	**1** Hyde Observatory open to the public Sunset-11 PM **NEW MOON** 
2	**3**	**4**	**5**	**6** **1ST QUARTER** 	**7**	**8** Hyde Observatory open to the public Sunset-11 PM
9 **Volunteer Practice Night**; 7 p.m. to 10 p.m. @ Hyde *PAC Youth Group 7-8:30 p.m. @ Hyde*	**10**	**11**	**12**	**13** NSP planning committee meeting	**14**	**15** Hyde Observatory open to the public Sunset-11 PM
16 **FULL MOON** 	**17**	**18**	**19**	**20**	**21**	**22** Hyde Observatory open to the public Sunset-11 PM
23	24 **3RD QUARTER** 	**25** **PAC Meeting 7:30 PM Hyde Observatory**	**26**	**27**	**28**	**29** Hyde Observatory open to the public Sunset-11 PM
30 **NEW MOON** 	**31**					

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.



OFFICERS
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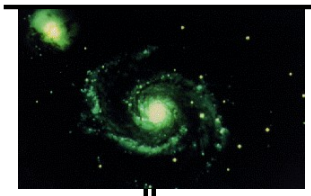

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c/o The Prairie Astronomy Club, Inc.
P.O. Box 5585
Lincoln, NE 68505-0585

First Class Mail

Next PAC Meeting
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