



The *Prairie Astronomer*

The Official Newsletter Of The Prairie Astronomy Club, Inc.

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DECEMBER'S PROGRAM:

The December speaker will be **Larry Stepp**, former president of the Prairie Astronomy Club and currently the Optics Manager for the Gemini Project, which is building twin 8-meter new technology telescopes: one atop Hawaii's Mauna Kea and the other atop Chile's Cerro Pachon. These ground based telescopes will use active optics, adaptive optics and infrared optimization to achieve images that should, in some respects, outperform Hubble Space Telescope. Larry will speak about progress on the Gemini Project, which is nearing first light for the Mauna Kea telescope.



MEETINGS & EVENTS

PAC MEETING

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

NSP PLANNING COMMITTEE MEETING

THURSDAY, JANUARY 14, 1999, 7:30 PM
at Mahoney State Park Lodge

CLUB STAR PARTY

FRIDAY, JANUARY 15, 1999, Sunset 'till ?
Olive Creek SRA (see Page 12 for directions)

UNL STUDENT OBSERVATORY

Open to the public
FRIDAY, JANUARY 22, 1999 (7:00 PM to 10:00 PM)

PAC MEETING

TUESDAY, JANUARY 26, 1999, 7:30 PM
at Hyde Memorial Observatory

CLUB LIBRARY: The Prairie Astronomy Club has a library with scores of astronomy related books, which are available for loan at no cost to its 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: Larry Hancock reports that he still has some extra hats and shirts for sale. Please see Larry at the next PAC meeting to purchase one. Payment is due upon receipt. T-shirts are \$7, polo shirts are \$14 & hats are \$5.

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.

WEBSITES OF THE MONTH:

Starmaster Telescopes

<http://www.icstars.com/starmaster/index.html>

Optical Group for the Gemini Project

<http://www.gemini.edu/optics/optics.html>

Santa Tracking Website

www.noradsanta.org

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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 \$20/yr, Family \$22/yr.** Address all new memberships and renewals to: **The Prairie Astronomy Club, Inc., PO Box 80553, Lincoln, NE 68501.** 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 or jeffrey892@aol.com,** no less than ten days prior to the club meeting. The Prairie

SECRETARY'S REPORT

By: Willa Penney

This is my first meeting as Secretary; please bear with me if I make any errors in my terminology. I am learning as I go.

I got to the meeting early in November and sat in on the Hyde Steering Committee meeting. It was a good way to learn about the workings of the Observatory. The committee is composed of a knowledgeable and dedicated group of people. It sounds like they can always use good volunteers and it would be a good way to increase your knowledge and have fun at the same time!

Dave Knisely opened the meeting by asking our guests to introduce themselves: Jeff Koski (had attended Saturday night), John Lawler and his son (saw us on the internet), and Brad Robinson (a friend of Mark Damke).

Dave and others recounted their excitement from observing the Leonid meteor shower. Dave reported 150-200 per hour; many of them very bright. He said that the Kansas City Astronomical Society, using a full sky lens, thought they had gotten a good shot. There are predictions that next year may be good viewing also.

Dave reported that Jupiter and Saturn are good viewing. There is a new disturbance on Jupiter, larger than the red spot, that is visible in a 6" or larger scope. Solar activity remains high. The Geminid meteor shower (December 13/14) could produce 60-90 meteors per hour.

The next Star Party will be Friday, December 18, at Olive Creek. A map was in last month's newsletter; and you do need a park permit.

The UNL observatory will not be open in December; the next open night will be January 22. I went to the November night; the skies were very clear and viewing of Saturn and Jupiter were awesome. (In spite of the fact that there was a football game going on in Memorial Stadium next door and the lights were all on.)

We're still looking for a spring date to go to the Cosmosphere in Kansas: maybe in April?

The Nebraska Star Party committee meets the 2nd Thursday of each month at the Mahoney State Park Lodge. On December 10th, they will be stuffing envelopes for a mailing. Anyone is welcome, and the meetings are a good chance to get involved in the planning for this event. Brian Skiff from the Lowell Observatory will be the featured speaker at the 1999 event. (The next NSP will be August 7-14, 1999, at Merritt Reservoir in Valentine.) Last summer, there were over 400 people in attendance; someone had brought a 40" scope.

Liz Bergstrom, Treasurer, reported that there is over \$500 in the checking account. We approved 3 amendments to the Astronomical League by-laws. In case you want to know what you approved, the changes were 1) that the Vice-President will chair national award committees, promote presentation of annual awards and serve on League award committees; 2) a change in the numbering system of the Nominating Committee provision (no change to the wording) and 3) Repeal of the Consumer Affairs/Testing Committee due to liability issues and the fact that the committee has been inactive.

Larry Hancock reported that there were still some PAC items for sale: T-Shirts are \$7, hats \$5 and Polo shirts \$14. See him if you are interested.

Larry also had arranged for us to have coffee and cookies from HyVee at our meeting. It was approved that we spend \$15 per month from the club treasury to continue this.

Jack Dunn reported that the UNL Planetarium will have a model of the new space station; it will be added to as the real one is completed.

The meeting was then adjourned for our program.

Mark Fairchild introduced Dr. Eugene Rudd, current President of the Antique Telescope Society. Dr. Rudd was Chairman of the Physics Department at UNL from 1965-1972. He brought a Gregorian telescope from 1770 as well as an English telescope from 1650. Dr. Rudd showed slides from the Society's meetings, including shots of various observatories and antique telescopes

which are displayed at the annual meetings. Society membership is open to anyone with interest.

H-Alpha Solar Activity Report

11/30/98

By Dave Knisely

SR113098 H-alpha SOLAR ACTIVITY REPORT 11/30/98 at 1915 UTC
from Beatrice, Nebr. USA (40.29N, 96.75W)

DISCLAIMER: This report is intended only to give readers a rough idea of what is happening on the sun in H-alpha. The directions noted in the report are relative to the sky and NOT to the actual solar coordinates (ie: north is towards the North Celestial Pole and not to the true solar north pole). West is also termed "preceeding", while east will be sometimes be termed "following". For accurate solar coordinates and group numbers of the features described here, check out the Space Environment Center home page: <http://www.sel.noaa.gov/> for images and further information. For additional information about amateur observation of the sun in H-alpha, read the article:

OBSERVING THE SUN IN H-ALPHA, by David W. Knisely, on the website of the Prairie Astronomy Club:
<http://www.4w.com/pac>

INSTRUMENT: 10" f/5.6 Newtonian (stopped to 3.5" and barlowed to f/32) with DayStar T-Scanner 0.7 Angstrom H-alpha filter (104x, 150x).

CONDITIONS: Clear, Temp. 50 deg. F. Wind NW at 9 mph
SEEING: 1.5 to 2 arc seconds.

TOTAL NUMBER OF SPOTS SEEN: 35 in 3 extended areas.

LIMB DESCRIPTION: The west limb had a small low quiescent prominence. The largest prominences were along the south limb, where two large quiescents stood out well. The westerly of the two was a simple flame with detailed structure, while the eastern one was more irregular, appearing to be a tree-like hedgerow which may have been in the process of lifting off. The south-southeast limb showed several small and somewhat broken quiescents, while the east limb slightly north of due east showed a moderate to large sized hedgerow prominence with an arc-like loop at its northern side. The northern limb had two moderate sized arc or plume-like prominences, one which looked like a low squashed fan, and the other, a "Y" shaped plume which was not firmly connected to the edge of the disk.

DISK DESCRIPTION: A number of large filaments were noted on the disk, along with 3 extended active areas. A small narrow but dark filament with a very bright filament channel was seen some distance inside the west limb near the east-west line. Several large but narrow filaments were also seen around and in the active regions. A very large arch-like quiescent was also noted on the disk in the northeastern solar quadrant. Three active areas were noted on the disk, however, they may have contained two or three independent active regions which may have merely been adjacent to each other.

FIRST ACTIVE REGION: Located in the west central portion of the sun near the east-west line (possibly just south of there), this group appears to be an elongated Beta class with following plage. The leader is a moderate to large spot with fairly symmetric penumbra and a highly-elongated multi-component umbra which seemed to trail off towards the east edge of the penumbra into a small satellite umbra. Following this spot was a small umbra with either rudimentary or no penumbra. To its southeast was a large irregular area of weak plage, consisting of interlocking branch-like lanes with interesting fibril alignment. This may be the remains of a dying spot cluster. Some weak plage was noted around the leading spot area, but the group does not appear to be very active at this time.

SECOND ACTIVE REGION: This was a highly elongated train of sunspots and sunspot clusters located just north of the east-west line beginning just east of the center of the disk. The leading spot was a rather small single umbra with no penumbra, and was followed by a slightly larger umbra with rudimentary penumbra. East of these spots was a moderate sized highly asymmetric spot, with irregular

penumbra and an off-center umbra located on the leading half of the penumbra. This spot had a few penumbral fragments on its eastern side and a couple of tiny satellite umbrae. The entire spot was neatly surrounded by a narrow very bright almost circular ring of plage which really made this spot cluster stand out. I have never seen such a structure before of this brightness or narrowness, and it will be interesting to see what happens to it. The area around the ring had a few surges and somewhat chaotic fibril structure, with a dark arch filament forming just ahead of it.

Following this unusual spot was a somewhat irregular cluster of moderate sized spots. The largest was again somewhat elongated east-to-west in the umbra, with a fairly symmetric penumbra and another elongated arc of moderate sized spots to its east. This arc showed some shearing evidence, along with some very bright plage. A large filament was noted to the south of this spot, running to the southeast. Considerable irregular plage was also seen in the area. Another cluster followed this arc, consisting of two well-developed circular umbrae with penumbrae and a number of small satellite umbrae in the area. After going through another irregular plage field, the group had a "tail-end Charlie" cluster; a Trifid-like spot with a round core umbra and three other umbra all about 120 degrees apart in the same penumbra. The trailing of these three umbrae was also the smallest. Two or three rather small umbra were noted well north of the tight trio spot, and one of these had a puff-like dark surge over it. A large strongly curved filament was noted curving north and then west from the eastern half of the group, and had a large number of small bright patches of plage to its south. This central group may have 19 or 20 total umbrae contained within it. It shows evidence of continued shearing, but appears to be not quite as active as it was two days ago. However, with the amount of bright plage and highly twisted filament activity in this area, solar flares continue to be a possibility in this group.

THIRD ACTIVE REGION: Located towards the east-southeastern limb, this group again appears to be a large elongated grouping of several sub-clusters, and shows evidence of continuing activity. It is anchored by a large symmetric spot with well-developed penumbra and two round but separated umbrae inside. Following this is a small double or triple-umbra spot with rudimentary penumbra. The central spot cluster is rather irregular and roughly triangular in shape, consisting of multiple small to moderate-sized umbrae and irregular penumbrae. Considerable plage and a few small surges were noted in this central cluster. Trailing this cluster are a pair of moderate-sized symmetric spots with well-developed umbrae and penumbrae. Near the limb is a very foreshortened large spot with umbra and penumbra, encased in some rather bright plage with a short filament extending northward.

Solar H-alpha Observations

Huge Prominence!!

12/3/98

FINALLY, a MONSTER prominence appeared on the east solar limb today
(I haven't seen one this big for at least 10 years). See below.

SR120398 H-alpha SOLAR ACTIVITY REPORT 12/3/98 at 2000 UTC
from Beatrice, Nebr. USA (40.29N, 96.75W)
by David Knisely
"See disclaimer in article on page 3"

INSTRUMENT: 10" f/5.6 Newtonian (stopped to 3.5" and barlowed to f/32) with DayStar T-Scanner 0.7 Angstrom H-alpha filter (104x, 150x).

CONDITIONS: Mostly Clear, Temp. 60 deg. F., wind calm.

SEEING: 1.0 to 1.5 arc seconds (very steady)

TOTAL NUMBER OF SPOTS SEEN: 32 in 6 active regions.

LIMB DESCRIPTION: The limb activity was dominated by a gigantic and beautiful arch-like hedgerow along the east limb which may have been in the process of lifting off. This prominence is one of the largest I have ever seen on the sun, and rivals the great 1964 "Grandpa", prominence in terms of total length, although it was not as high nor as bright. The northern section was the brightest portion, and appeared as a huge bush-like area with a long dim filamentary arch which flowed well above the solar surface north to the northern footpoint of the hedgerow. Both north and south ends would have been large prominences in their own right, but the tangle of fine tendrils and other detail connecting them into an arch made the entire prominence a spectacular sight! The area under the arch showed little activity. South of this huge prominence were two smaller but still fairly good sized plume-like quiescents. The south limb had 4 small irregular plume-like quiescents. One small flame-like quiescent was noted on the northern limb, and a few very small ones noted in various other areas of the limb. Seeing was good enough to detect some of the larger individual spicules in the spicule fringe.

DISK DESCRIPTION: The solar disk was highly active, with a number of quiescent and active-region filaments noted with ease. A large irregular quiescent with diffuse detail was noted on disk approaching the northwestern limb, while two other disk quiescents were seen in the northern polar region on the meridian, and towards the northeastern limb. Several long active region filaments were seen, with the longest connecting areas between two discreet active regions. Six active regions were noted on the disk, although one of these could easily be considered as two independent groups as well. Most of the activity is in a long belt or series of closely-spaced spot groups in the northern solar hemisphere.

FIRST ACTIVE REGION: Approaching the west-southwestern limb, this group appeared to be an Alpha group with a moderate to large sunspot followed by irregular plage. The sunspot had about 3 umbra in an elongated array inside a fairly symmetric penumbra. Some plage was noted on the southern side of this spot, and a dark

surge was noted at about 2005 UT extending southward from a brighter patch of plage. The other area of plage followed the leading spot by some distance, and consisted of an irregular "Y"-shaped somewhat curved set of lanes of weaker plage with some fibril alignment.

SECOND ACTIVE REGION: This area was a large region in the central portion of the sun, perhaps along and slightly west of the solar meridian. The lead dominant spot was a large one with symmetric umbrae and penumbra, which was preceded by some distance by a pair of small spots without penumbrae and a few following pores. This lead cluster may be an old sunspot group which is dying, since there is little or no plage in its vicinity. The umbra of the large dominant spot seemed to contain multiple small umbral components in contact, and was followed by a chain of about 4 small spots and pores with rudimentary or no penumbrae. Considerable plage and fibril activity was noted between the dominant spot and the trailer, and anchored a huge active region filament which curved into this area from the east, and then trailed away from the group towards the southeast. Trailing this cluster to its northeast was a moderate-sized spot consisting of a short N.W. to S.E. arc of 3 umbrae in the same penumbra with a few penumbral fragments. A small bright arc of plage was noted just to the east of this spot, with several short but dark arch filaments forming between the spot and the plage. This group appears to be a Beta-Gamma class, and may actually be 2 or 3 discreet active regions, although linking fibril and filament structure between the clusters may mean that the spots are all related.

THIRD ACTIVE REGION: This region appeared just north of disk center, and appears to be a newly emerging spot group of the Beta Class. It showed the clear Emerging Flux Region characteristics of bright plage, small developing sunspots, and an Arch Filament System. The leader was a moderate to small sized single umbra which may be elongated slightly, but having no penumbra. Following it by some distance is a single small spot with no umbra and one or two tiny pores around it. Between the leader and the follower is an area of brilliant plage with two or three dark arch filaments leading from the leading to the trailing spots. The fibril network around the plage and spots gave the "iron-filings around the

CONTINUED ON PAGE 7

Don Gasparetti is the proud new owner of an 18" Starmaster Telescope hand crafted by Rick Singmaster of Arcadia, KS. Rick delivered the scope on November 28th. Along with Rick and Don, Mark Fairchild, Rick Johnson, and Jeff King were present to observe the great event.

After Mr. Singmaster shared some interesting stories of past telescope purchasers, we ventured out to see the new scope. Rick went through a step by step process of setting up the scope, collimating techniques, and described various do's and don'ts. With a waxing gibbous moon staring at us, it didn't take long for someone to center the moon in the eyepiece to see if the telescope actually worked. No one was disappointed as along the rim of the moon was a very nice view of one of the mountain ranges. But with any new telescope purchase comes the fine print about the mandatory cloudy skies and sure enough, the clouds rolled in, ending any chance of an observing session.

From Dave Scherping

I enjoyed doing the newsletter the past couple of years, and want to thank all of those who submitted items for publication, especially those who did so on a regular basis, namely Dave Knisely, Erik Hubl, Martin Gaskell, Doug Bell and Liz Bergstrom.

Dave S.

Mars is now almost due south at dawn and this makes up for the decreasing declination. Last night the seeing was only average and I was hesitant about setting up for this morning. At 7:15 this morning the seeing was still only average but with a few good moments. The slightly larger size of Mars helped make up for the poorer seeing.

The "dull" side of Mars looked pretty normal this morning. The northern maria around (Scandia - Panchaia) were the darkest features visible. The diffuse dark markings in the Diacia - Propontis - Phlegra region were surprisingly dark in white light given that the disk was only 5.4 arcseconds across. They were almost as dark as the far southern maria (Mare Cimmerium). Perhaps this was because there was light cloud along the equator since the contrast was lessened when I used a red (W25) filter. The Nix Olympica and Elysium volcanos were cloud-free (i.e., not visible). The only bright cloud was on the sunrise limb. I thought it was the Hellas basin coming round the limb, but when I checked the longitude I saw that it was in the Mare Tyrrhenum region.

I'll be working hard on trying to draw the polar cap size correctly. What I do is hold my drawing a long way away and then see if the cap size I've drawn agrees with what I'm seeing in the telescope. If it doesn't then I take out my eraser and pencil. This morning I got the latitude of the North Polar Cap (NPC) as 74.5 degrees. That agrees with the standard shrinking curve for previous oppositions for this Martian date (May 28 on Mars) to within a degree. That's pretty re-markable since one degree of latitude on Mars corresponds to only 0.05 arcseconds right now. This means then that my polar cap measurements are about as accurate as my double-star measurements.

Organic Chemistry on Neptune

From Sky and Telescope

A short-lived hydrocarbon has been identified above Neptune's cloud decks, potentially solving a riddle that has had planetary scientists scratching their heads for years. The methyl radical, CH_3 , is highly reactive and thus rarely found by itself in nature. But European astronomers using the Infrared Space Observatory (ISO) believe they have recorded emissions from the molecule in Neptune's upper atmosphere. Methyl's presence there could explain the planet's surprisingly high concentration of ethane (C_2H_6). Ethane forms only in the presence of sunlight, which breaks down methane (CH_4) molecules into methyl and hydrogen, whereupon the methyl radicals combine to form ethane. So how can the abundance of ethane on Neptune be similar to that on Jupiter, when the former is some $5\frac{1}{2}$ times farther from the Sun and therefore illuminated much less strongly? The answer, according to Bruno Bezard (Paris Observatory), Paul Romani (NASA/Goddard Space Flight Center), and their colleagues, is that turbulent storms on the distant planet loft methane high above the cloud tops, exposing much more of it to the feeble sunlight than would be the case if it remained deeper in the atmosphere. Such a suggestion would have been laughed at before Voyager 2 and the Hubble Space Telescope showed that Neptune is a dynamic world where violent storm systems rage with surprising frequency. But methyl's telltale infrared emissions were picked up by ISO exactly where suspected -- at high altitudes above the planet -- suggesting that the chemical reactions needed to produce ethane are indeed going on there. Presumably the ethane, once formed, settles into the planet's lower atmosphere, where its puzzlingly high concentration was detected earlier.

Comet LINEAR

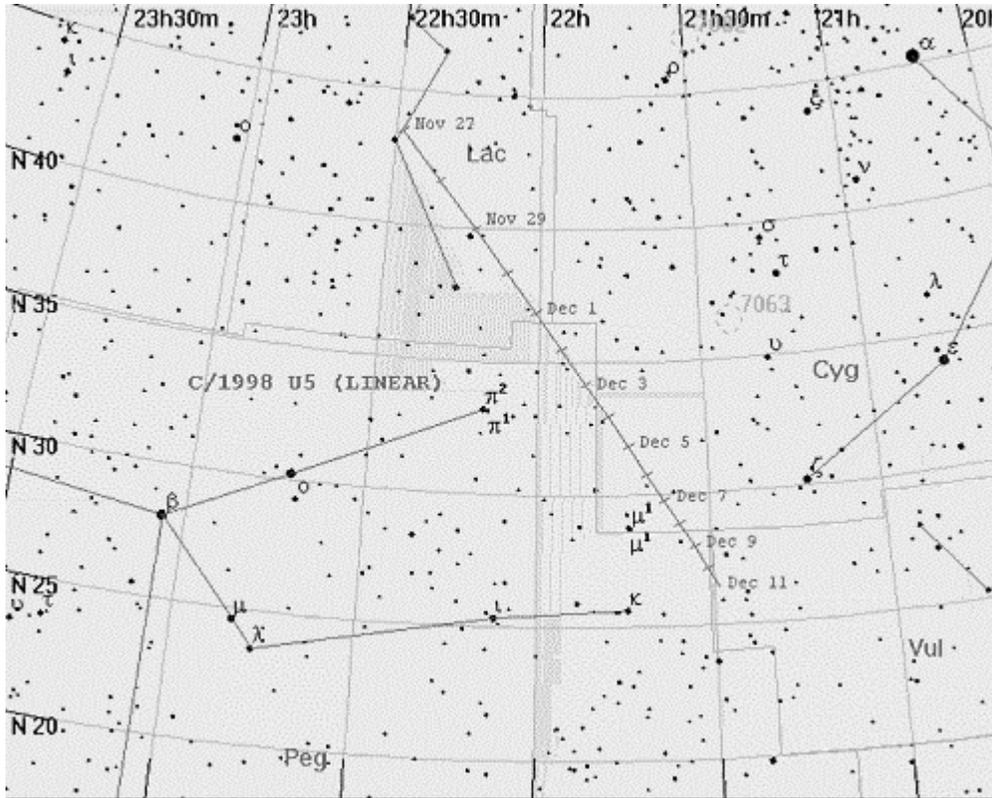
From sky and Telescope

Although far from being another Hale-Bopp or Hyakutake, Comet C/1998 U5 (LINEAR) has been putting on a surprisingly good show. Discovered in late October by MIT's Lincoln Laboratory Near Earth Asteroid Research (LINEAR) Team and later identified as a comet by team member Frank Shelly, it was not expected to brighten beyond magnitude 10.5. To the surprise of all, the comet underwent an outburst in the second week of November that brought this fast moving object within the range of small telescopes and binoculars. *Sky & Telescope* contributing editor and veteran comet observer John Bortle put the comet's magnitude at 8.2 and measured a coma diameter of 9 arcminutes for the night of November 13th. This made LINEAR the brightest comet in the sky, a shade brighter than Comet Giacobini-Zinner. The comet is still between magnitudes 8.2 and 8.5. With a 6-inch telescope from light-polluted suburban Boston, the comet was as an obvious -- if indistinct -- patch of light with no discernible tail.

In the table, *Delta* is the distance from the Earth, and *r* is the distance from the Sun, both in astronomical units. *Elong* is elongation east or west of the Sun in degrees. This ephemeris is based on orbital elements published by Brian Marsden on *Minor Planet Circular* 32866. See page 6 for finder chart.

Date UT	R.A. (2000)	Dec.	Delta	r	Elong.	Mag.	Const.
1998 Dec 29	21 12.67	+18 33.4	1.455	1.244	57.5	?	Peg
1998 Dec 30	21 12.23	+18 17.5	1.480	1.245	56.5	?	Peg
1998 Dec 31	21 11.83	+18 02.3	1.506	1.247	55.5	?	Peg
1999 Jan 01	21 11.45	+17 47.9	1.531	1.249	54.4	?	Peg

Finder Chart for Comet Linear



Events for January, 1999

- 4 Quadrantid meteor shower peaks
- 5 Venus passes 1.7° south of Neptune, 2 a.m. CST
- 9 The moon passes 3° north of Mars, 2 p.m. CST
- 19 The moon passes 2° north of Venus, 2 a.m. CST
- 21 The moon passes 1.8° south of Jupiter, 5 p.m. CST
- 22 Neptune is in conjunction with the sun, 2 a.m. CST
- 24 The moon passes 2° south of Saturn, 12 a.m. CST
- 27 The moon passes 0.5° north of Aldebaran, 1 a.m. CST

Transit Times of Jupiter's Great Red Spot

(Subtract 6 hours to get CST)

1999 January 1, 1:45, 11:41, 21:37; 2, 7:33, 17:29; 3, 3:24, 13:20, 23:16; 4, 9:12, 19:08; 5, 5:04, 14:59; 6, 0:55, 10:51, 20:47; 7, 6:43, 16:39; 8, 2:34, 12:30, 22:26; 9, 8:22, 18:18; 10, 4:14, 14:10; 11, 0:05, 10:01, 19:57; 12, 5:53, 15:49; 13, 1:45, 11:40, 21:36; 14, 7:32, 17:28; 15, 3:24, 13:20, 23:15; 16, 9:11, 19:07; 17, 5:03, 14:59; 18, 0:55, 10:51, 20:46; 19, 6:42, 16:38; 20, 2:34, 12:30, 22:26; 21, 8:22, 18:17; 22, 4:13, 14:09; 23, 0:05, 10:01, 19:57; 24, 5:52, 15:48; 25, 1:44, 11:40, 21:36; 26, 7:32, 17:28; 27, 3:23, 13:19, 23:15; 28, 9:11, 19:07; 29, 5:03, 14:59; 30, 0:54, 10:50, 20:46; 31, 6:42, 16:38.

What Do You Think?

Reprinted from the North American Meteor Network e-mail List Server

It sounds like a case for the X-Files team. But it is a Scottish fire brigade which is trying to get to the bottom of a mysterious blaze which may have extraterrestrial origins.

Investigators examining a fire in farm outbuildings near Selkirk say the damage may have been caused by a meteorite strike.

Preliminary inquiries revealed the fatal spark could have come from a shooting star crashing into the farm's hay sheds.

A couple who watched the spectacular Leonid meteor storm caused by the Tempel-Tuttle comet early on Tuesday claimed an object fell from the sky and hit the ground, where it exploded on impact.

Firefighters thought at first that the blaze at High Sunderland Farm, near Selkirk, had been started maliciously. But after learning of the couple's sighting they were forced to reconsider their reports of the incident.

Tom Munro, of Lothian and Borders Fire Brigade and the station commander at Galashiels, was one of the first on the scene.

He said: "This was an extremely strange incident and it is one we are being forced to keep very open minds about.

"When I got there, the barns had been all but destroyed. I searched the barns looking for bones - to see if it had been started by someone sleeping rough inside - or other signs of a malicious cause.

"I later learned, via the police, of the reported meteor strike. I then remembered kicking a football-shaped object with my boot, which I had disregarded at the time. It had a metallic appearance and had split in half. Fire investigators later went back but could not find anything among the mud and other debris."

Professor John Brown, the Astronomer Royal for Scotland, based at Glasgow University, said: "This is certainly a fascinating account. It is perfectly possible the cause of the fire could have been a meteorite."

Graham Rule, the secretary of the Edinburgh Astronomical Society, said: "Usually in Leonid showers the debris is no bigger than grains, but it is entirely feasible that a chunk of something bigger has come to earth.

"Seconds before impact it was probably glowing red hot, so it is likely that if it hit something like a hay shed, a fire would have been the result."

Alastair McBeath, the vice president of the International Meteor Organisation and the co-ordinator of the meteor section of the Society for Popular Astronomy, said he had seen several bright meteors in the skies above the north of England during the Leonid storm.

He said: "The vital thing is to secure the object and very quick checks will establish if it is of extra terrestrial origin.

"Leonids do produce a lot of bright meteors and I have never seen so many in a single night, and many were exceptionally bright.

"However, meteorites tend to be very hot on the outer crust when they enter the atmosphere but then cool down as they free fall for the remaining 30 or 40 kilometres."

CONTINUED FROM PAGE 4

bar magnet" type of appearance, indicating a fairly simple bipolar magnetic spot group. The large active region filament running out from the third active region to the northwest has its southern end just west of this group, and a few small surges were also seen to the east of this group.

FOURTH ACTIVE REGION: This group was just north of the East-West line east of the solar meridian, and may also be a beta group. The leader is a moderate-sized spot with symmetric umbra and penumbra, followed by small pair of trailing spots. Little major activity was seen in this group, other than weak plage and one dim bow-shaped active region filament.

FIFTH ACTIVE REGION: This was one of the more active areas on the sun, and was located in the eastern solar disk about halfway from the center to the limb. It was anchored by a large spot with well developed umbra and rather irregular penumbra, along with several penumbra fragments or close satellite

umbrae. A bright patch of plage was noted on the leading side of this spot, with a possible arch filament forming alongside it. Trailing this big spot was a small cluster of two or three small umbrae imbedded in a large patchy area of fairly bright plage. A sinuous active region filament runs from the area of the big lead spot towards the trailers. A second curved active region filament runs from the area of the large leader spot towards a moderate sized spot with symmetric umbra and penumbra. Considerable fine and complex fibril structure was seen in and around these trailing spots. This group may be a Beta-Gamma.

SIXTH ACTIVE REGION: Located near the east limb of the sun, this group appears to be an alpha, with a leading spot of moderate size with symmetric penumbra, followed by some patchy weak plage.

David Knisely

Community Reaches For the Stars

Reprinted with permission from "The Journalist", November 4, 1998

By Deb Nielsen

Pat Higgins brought his 13-year old daughter Friday night to look through the telescope at NU's Student Observatory. He said he was surprised at how clearly he could see Saturn.

"It has more impact looking at it live than looking at even a great color picture in a book," he said.

Higgins and other astronomy fans were visually transported closer to Earth's celestial neighbors during Friday's public viewing at the observatory.

Located on the top of NU's Stadium Drive Parking Garage, 10th and T streets, the University of Nebraska Student Observatory brings the planets, the moon and the stars closer to students, staff, faculty and community members.

The observatory was open for a public night viewing Friday. Those who came could view Jupiter, Saturn and the moon and received an astronomy lesson from astronomy and physics Professor Martin Gaskell.

About 60 people got a closer look at the solar system through the observatory's Meade 16-inch Schmidt-Cassegrain telescope.

Gaskell said in the past people had waited in long lines to look through the telescope, and it was common for as many as 200 people to come to a viewing.

He said he thought the lower turnout Friday was caused by the cold weather and slightly overcast skies.

Gaskell said he was able to tell observers more about the planets they saw because the dome was not as crowded.

Monica Godsey said Gaskell's astronomy lessons added to the evening.

"I think it's interesting to have some information to go with what you're looking at," she said. "It provides some meaning."

Gaskell explained the formation of the moon's landscape, the weather patterns that caused the bands on Jupiter and the formation of Saturn's rings.

Gary Anderson spoke of seeing Jupiter and Saturn through the telescope.

"It's really amazing to see the bright star you've seen all your life, and then you see it through the telescope; it's amazing." He said.

Plans for the observatory had been in the works since early 1993, but the astronomy department had to find an acceptable place for the telescope and dome.

Gaskell said the original plan was to locate the observatory on the roof of Ferguson Hall, but those plans changed when fire and building codes changed, and the department could no longer use the roof for student observing.

The new parking garage provided the solution to the problems facing the planned observatory.

Gaskell said that the top of the garage worked well for observations because he could turn off the lights on the garage to reduce light entering the dome.

Although there was some concern initially about vibrations from cars driving through the garage, Gaskell said cars were not a problem, but trains coming through town caused the whole structure to vibrate.

One advantage to the observatory's being on the parking garage is that it is visible to people on campus and people driving by, Gaskell said.

Lori Svehla, NU vice chancellor for research, said she and her husband, Tom, came to the public viewing because she had read about it in "The Scarlet", a newspaper for NU faculty and staff.

"We just thought we'd come and see what the new telescope is like," she said.

The next public viewing will be Friday, January 22, 1999 from 7

p.m. to 10 p.m. Those interested may call Gaskell at 472-4788 for more information.

Holmes and Watson

Sherlock Holmes and Dr Watson went on a camping trip. After a good meal and a bottle of wine they lay down for the night and went to sleep. Some hours later, Holmes awoke and nudged his faithful friend.

"Watson, look up at the sky and tell me what you see."

Watson replied, "I see millions and millions of stars."

"What does that tell you?"

Watson pondered for a minute.

"Astronomically, it tells me that there are millions of galaxies and potentially billions of planets.

Astrologically, I observe that Saturn is in Leo.

Horologically, I deduce that the time is approximately a quarter past three.

Theologically, I can see that God is all powerful and that we are small and insignificant.

Meterologically, I suspect that we will have a beautiful day tomorrow.

What does it tell you, Holmes?"

Holmes was silent for a minute, then spoke.

"Watson, you idiot. Someone has stolen our tent."

Reprinted from PAC list e-mail post by Mark Dahmke

Calendar and Almanac Orders are In!

I have finally received all the calendars and almanacs ordered by various club members and will have these items available at the December Prairie Astronomy Club meeting. For efficiency reasons, I placed the orders from home and billed my credit card. I would appreciate being reimbursed the amount owed at the December meeting so I can pay off these bills.

Both Almanacs had a price increase this year. After talking with Guy Ottwell, he agreed to lower his asking price to \$15.50 ea. I will pick up the tab for the shipping. The RASC sold for \$12.50 (shipping was included in the price of those books). The Wonders of the Universe calendars are \$11.00 ea.

See me to pick up your order – Erik Hubl.

Orders for 1999:

Guy Ottwell Calendar - \$15.50

Dave Hamilton	1
Don Gasparetti	1
Liz Bergstrom	1
Del Motycka	1
Oliver Taylor	1
Mark Fairchild	1
Bill Wells	1
Don Wright	2
Brian Weber	1
Erik Hubl	2
Prairie Astronomy Club	1

Total	13

RASC Almanac - \$12.50

Dave Hamilton	1
Don Gasparetti	1
Liz Bergstrom	1
Doug Bell	2
Luke Breinig	1
Jim Atkins	1
Hubert Brown	1
Ron Veys	1
Dave Scherping	1
Dave Knisely	1
Travis Miller	1
Erik Hubl	1
Prairie Astronomy Club	1

Total	14

Wonders Of the Universe Calendar - \$11.00

Don Gasparetti	1
Erik Hubl	1

Total	2

Study Associates Asteroid or Comet Impact With Extinctions in Argentina

A paper in *Science* magazine proposes that a major ecosystem-altering asteroid or comet impact took place 3.3 million years ago - a geologically recent time - in what is now Argentina.

PROVIDENCE, R.I. -- A new study shows that a previously unknown impact from an asteroid or comet coincides with the disappearance of 35 different types of ancient mammals and a flightless bird 3.3 million years ago. The impact may have directly caused the regional extinctions or triggered a climate change that led to the disappearance of the animals in what is now southeastern Argentina.

The findings may provide an opportunity for scientists to study the cause and effect of an event that wiped out animal life similar to species on Earth today.

"Unlike what impacts did to dinosaurs and other prehistoric creatures, this was not an event that led to global extinctions," said principal investigator Peter Schultz, professor of geological sciences at Brown University and an impact specialist. "We've found something linked to much more recent land history. The advantage to studying something this young is that you can really examine the forensics.

"This is a threshold event. It may have been just large enough to cause regional damage and extinctions and may have triggered a climate change. El Niño or a volcanic eruption produces small tweaks to the climate compared to what one of these impacts can do." The cyclical cooling of the Earth's temperatures that began soon after the impact 3.3 million years ago continues today, he said.

The study is published in this week's *Science* magazine. Its co-authors are Argentinean scientists Marcelo Zarate and Cecilia Camilion; Willis Hames, an Auburn University geologist; and John King, a researcher in the Graduate School of Oceanography at the University of Rhode Island. The team studied an 18-mile-long narrow layer of greenish glass and red brick-like materials found in the high ocean cliffs of southeastern Argentina. Called escoria, the glass had puzzled scientists since it was first described in 1865.

The glass and surrounding red-baked powder bear the signatures of a powerful ancient blast archived in the thick Argentine dust, say the researchers. They describe a half-dozen physical signs, from the twisted and folded shapes of the glass to its isolation from other potential sources such as volcanoes. Chemical analysis of the glass produces all the right impact signatures: unusually high levels of magnesium oxide and calcium oxide, significant amounts of iridium and chromium, and only the tiniest traces of water.

The study shows the glass occurs just below a layer of dusty deposits containing fossil evidence of a 3-million-year-old disappearance of 36 local types of animals. Extinct species include large armadillo-like creatures, ground sloths, hoofed groups of related mammals and a flightless carnivorous bird. Other fauna later appeared in their place.

By using a laser fusion technique to measure heavy to light argon atoms in the glass, and by comparing the magnetic readings of the glass layer to published records of magnetic-field changes over the eons, the researchers date the glass as 3.3 million years old, just prior to the extinctions.

Using research by other scientists that compared heavy to light oxygen isotopes in sediment cores from the nearby ocean floor, Schultz and colleagues offer evidence of a sudden drop in both atmospheric and water temperatures almost 3.3 million years ago. The finding indicates that a climate change occurred shortly after the glass appeared and just prior to the animal life turnover.

"This research is analogous to comparing several time clocks," said Schultz. "We compared a clock in the glass to a clock in the soil to a clock in the deep-sea cores. This told us the conditions at the time. We were surprised to find that the appearance of the glasses and the turnover of the fauna coincided with a temperature drop."

The research began as a simple project to determine the origin and age of the escorias. However, the work identified a series of coincidences that strongly suggest a major, ecosystem-altering event took place relatively recently, geologically speaking, he said.

<p>Peter Schultz was one of the founders of PAC. Information was posted by Rick Johnson on the PAC-List Server</p>
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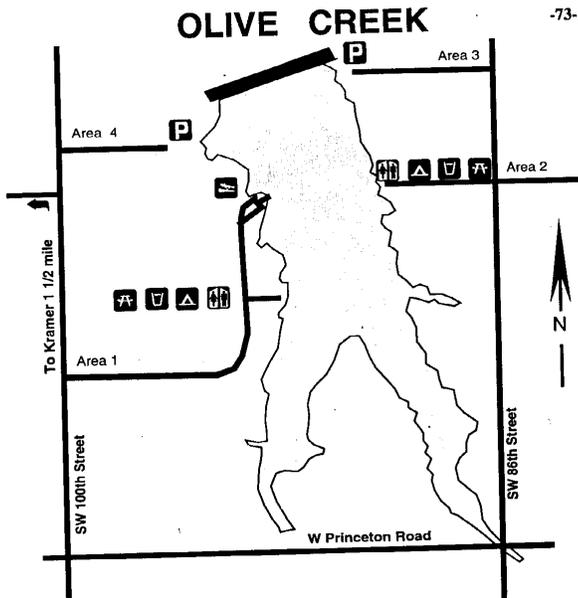
The PRAIRIE ASTRONOMY CLUB CALENDAR

for JANUARY 1999

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1999 MAHONEY STAR PARTY DATES: FRIDAY MAY 21, 1999 FRIDAY JUNE 18, 1999 FRIDAY JULY 16, 1999 FRIDAY SEPTEMBER 10, 1999 FRIDAY OCTOBER 8, 1999					1 NEW YEAR'S DAY	2 FULL MOON  Hyde open to the public 7-10 PM
3 Quadrantids Meteor Shower Peak <i>See note below</i>	4 Quadrantids Meteor Shower Peak <i>See note below</i>	5	6	7	8	9 3RD QUARTER  Hyde open to the public 7-10 PM
10	11	12	13	14 NSP Planning Meeting 7:30 PM Mahoney State Park Lodge	15 Observing at Olive Creek SRA Sunset 'till ?	16 Hyde Observatory open to public 7 - 10 PM
17 NEW MOON 	18	19	20	21	22 UNL Student Observatory Public Night 7:00-10:00 PM	23 Hyde Observatory open to public 7 - 10 PM
24 1ST QUARTER 	25	26 PAC Meeting 7:30 PM Hyde Observatory	27	28	29	30 Hyde Observatory open to public 7 - 10 PM
31 FULL MOON 	Quadrantids Meteor Shower This meteor shower is generally visible between December 28 and January 7, with a very sharp maximum of 45 to 200 meteors per hour occurring during January 3 and 4 (J2000 solar longitude=283.2 deg). The radiant is normally located at RA 229 deg, DEC +49 degrees, but there seems to be an occasional variation-possibly due to Jupiter's influence. The meteors tend to be bluish and possess an average magnitude of about 2.8.					

DIRECTIONS TO OLIVE CREEK SRA

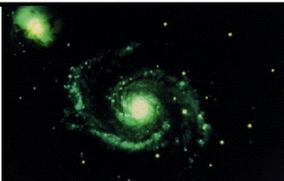
From Lincoln, take Hwy 77 south to Hwy 33. Take Hwy 33 west (toward Crete) for 9 miles to SW 114th St. Take SW 114th Street south 4 miles (almost to Kramer). Go east 1 mile on W. Panama Rd, then south 1.5 miles on SW 100th. We set up in area 1 on the west side of the lake.



OFFICERS OF THE PRAIRIE ASTRONOMY CLUB

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P.O. Box 80553
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First Class Mail

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