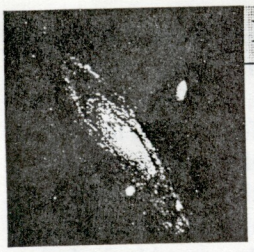
The Prairie Astronomer

December 1995 Volume 36 Issue 12



President's Report
by Dave Scherping

OBSERVING...

In these long cold months of winter, it's sometimes hard to get motivated to get out observing. These are the months where attendance at our club star parties falls off to 3 or 4 maximum. There is an advantage to winter though,... it gets dark much earlier and stays dark longer. It's great for those who don't want to stay up all night. Plus, there's a fantastic list of objects to choose from in the winter sky.

The key to enjoying winter observing is staying warm. Dress as if it's going to be 20° lower than you expect. As a minimum, wear several layers of loose fitting clothing, winter coat and warm gloves. If you intend to do a lot of winter observing, I suggest investing in a pair of down pants. Cabella's sells great winter gear. Also, take along plenty of hot drink and something to snack on and take frequent breaks throughout the night.

CLUB SCOPE & LIBRARY...

I'd like to remind everyone that PAC has a nice 13" truss-tube Dobsonian scope available to lend to our members. If you'd like to check it out or reserve it for sometime in the future, give me a call at 477-2596.

We also maintain a library of over 50 books on astronomy and related topics as well as over 10 years of Sky & Telescope. These can be borrowed by PAC members at no charge (see page 4).

NSP UPDATE...

A planning meeting for the Nebraska Star Party was held December 3rd at Mahoney State Park Lodge. We finalized the design of the brochure and began planning the other activities of NSP. By the time you receive this newsletter, we will have mailed out nearly 5000 brochures!

The 3rd annual NSP is going to be better than ever. We need a lot of volunteer support, so if you'd like to help, contact me at 477-2596.

MERRY CHRISTMAS

DECEMBER/JANUARY MEETING NOTICES:

GENERAL MEETING
DECEMBER 26th, 1995, 7:30 p.m.
at Hyde Memorial Observatory

NSP MEETING
THURSDAY, JANUARY 11th, 1996
7:30 p.m. at Mahoney State Park Lodge
Goldenrod Room

STAR PARTY
FRIDAY, JANUARY 19th
at Beaver Crossing
SATURDAY, JANUARY 20th

A MEMORABLE OCCULTATION
By Dave Scherping & Erik Hubl

It was Saturday, December 9, 1995. Being only a few of days past full moon, there were no serious plans for observing. That was until Erik reminded me about a premier occultation scheduled for early that evening. The 11th magnitude asteroid 85 IO was predicted to occult the 8th magnitude star SAO111235 in Taurus at approximately 6:42 p.m. CST.

The path from which the occultation was visible was published in the February 1995 and December 1995 issues of Sky & Telescope. This path was originally predicted to be approximately 200 km wide, extending through southern Kansas. As the time of the event drew near however, the path was redrawn 250 km farther north and posted on IOTA's web page (International Occultation Timing Association). This meant that the occultation should become visible about 80 miles south of Lincoln. Saturday afternoon, we decided to venture south to observe this event.
With a Kansas map, we found a potential observing

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site 10 miles south of Marysville, Kansas, or 1.5 hours from Lincoln. If we hurried, we would have just enough time to get there. We used MegaStar to print out several detailed star maps to assist in locating the correct star and one chart showing magnitudes of surrounding stars to allow us to estimate magnitude drop. We planned to observe through my 20" Dobsonian and Erik's 6" Newtonian. After loading up our equipment, we stopped by Hyde Observatory and picked up a WWV radio that could receive timing signals. We also brought along a portable tape recorder. Soon we were on the road.

It was an extremely clear afternoon as the sun set and stars began to appear. We closed in on our observing location, but time was running short. We found the site okay, but there were trees all around and it was right next to Hwy 77, so we headed east and found an access road leading onto farmland. There were no houses around so we decided this was it. The clock told us it was our only hope. It was after 6:20 p.m.

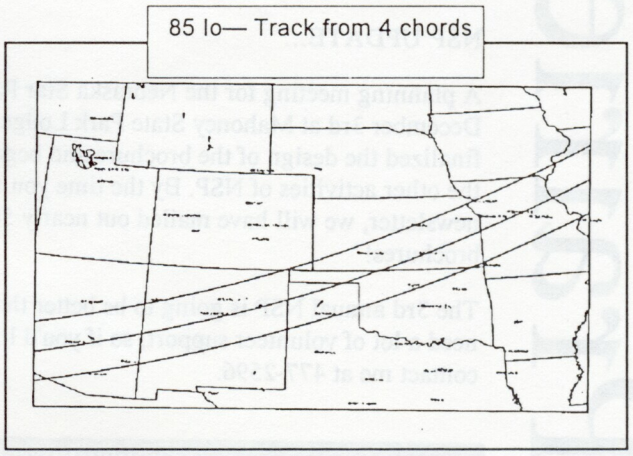
We began setting up in record time. There was snow on the ground and it was mighty cold (lower single digits). By about 6:35 we were set up and collimated. Now we had to find the star. This really put our star-hopping skills to the test, but within 3 minutes we found it and confirmed it with the charts. The asteroid was not visible; it must have been too close to the star. Then there was the inevitable problem of warm optics. The stars were much larger than usual and would oscillate. But it would have to do, so we turned on the radio and the tape recorder and began observing. The time of 6:42 p.m. came and went, as did 6:43, 6:44, & 6:45. Then just before 6:46 p.m., Erik thought he saw the star flicker, then we both saw the star began to dim and remained that way for nearly 20 seconds. We wondered if we actually saw the occultation or if it was an atmospheric phenomenon.

It was then that we realized we were cold. I hadn't even put on my boots or my winter pants yet! Climbing into the car, we turned on the radio and they reported the temperature at a mere 3 degrees Fahrenheit. After warming up with coffee, we continued observing. By now the scopes had cooled and the stars were much more pinpoint in appearance. At 7:16, a dim "star" appeared to the lower left of SAO111235. It was the asteroid! We observed it for nearly an hour and it appeared to brighten as it moved away from the star. This left no doubt that we had been watching the correct star. We only wished we had been there early enough to see the asteroid before the occultation, but all-in-all, it was a great experience. It was incredible to comprehend an asteroid 150 km cross occulting a star much larger and farther away, leaving a narrow path cutting across the midwest. It was coincidental that we drove nearly 150 km to see the event (136 to be exact)!

The following Monday, we submitted our results. Both of us were surprised to find that we had co-observed with approximately 30 other astronomers from Sweden, Newfoundland, Ontario, Missouri, Kansas, Arizona and California. The telescopes used ranged from a 4" to a 30". One pair of 11 x 80 binoculars was also used. IOTA reported that "more chords were observed for this event than any asteroid occultation event since 1991". After interpreting the results, it turns out the asteroids shadow path was really an additional 100 miles south and the event just missed our site. However our results help to define a northerly extent for a diameter measurement. Had we been in the asteroid's path, we would have seen the 8th magnitude star completely blink out - for 18 seconds.

Martin Gaskell was quite interested in our observation and attempted to help us explain what we might have seen and why is was about 3 minutes late. Was it the unsteady optics perhaps, or is there a secondary star to SAO111235? Could it be that the asteroid IO 85 has a companion? What Erik and I do know is that this event was fun to do, and we intend to observe stellar occultations in the future. The next time we won't be so rushed and we will let our optics adjust to the temperature. With e-mail and World Wide Web sites, reports can be shared easily and results known very quickly. It was a chance to participate in some real science.

Timing occultations are new to both of us but we're looking forward to many more. We encourage others to give it a try as well. If you would like more information, look up *http://www.anomalies.com* You'll see our report as well as others. Information about IOTA can be obtained from Terri & Craig McManus, 2760 SW Jewell Ave., Topeka, KS 66611, (913) 232-3693. They also have an article in both the January and February 1996 Sky & Telescope Magazines.



The Prairie Astronomer is published monthly by the Prairie Astronomy Club, Inc., and is free to all club members. Membership status and expiration date are listed on the mailing label. Membership dues are: Regular Members...$15/yr; Family Memberships...$17/yr; Address all new memberships, renewals, or questions to THE PRAIRIE ASTRONOMY CLUB, INC., P.O. BOX 80553, LINCOLN, NE 68501. For other club information contact one of the following: John Bruce (Lincoln) 483-0389, Jason Stahl (Lincoln) 423-4912, Bryan Schaaf (Lincoln) 438-4285. All newsletter comments and articles should be sent to: Bryan Schaaf, 1309 W. PLUM, LINCOLN, NE 68522 or E-mail to schaafb@aol.com (in plain text please) by the 15th of each month. Club meetings are held the last Tuesday of each month at Hyde Memorial Observatory in Lincoln, Nebraska.

Observing

Chairman's Report

by Douglas Bell

For January observing:

Next star party:	January 19
New Moon:	January 20
Lunar object:	Mare Frigoris (Sea of Cold)
Planet:	The Sun at perihelion
Messier monthly:	M 46
Top 40:	The Double cluster
Deep sky:	NGC 3172
Challenge:	Staying warm

Quote of the month: "Hey, Grandma! When I walk the Moon follows me. Come here, I'll show you." -Ariel Trouba, age 5 (Bryan Schaaf's niece)

Tip of the month: Warm up your thermos by filling it with hot water before you pour in the hot coffee.

Lunar feature: Mare Frigoris

It just seemed appropriate to use the Sea of Cold. Heck, it's better than Lacus Mortis. Anyway, it's a semi-circular Mare surrounding the northern half of the Ibrium basin and Mare Serenatatis. Look for the excellent wrinkle ridges and rimae.

Planet of the month: The Sun

Believe it or not the Earth is closest to the Sun on January 7th. That fact makes you warmer just to think about it, doesn't it?

Messier Monthly: M 46

A fine open cluster with an Easter Egg.

Top 40: The Double Cluster

Messier must have been blind. This is one of the finest views in the sky; two fine open clusters viewable in a single wide field view. Slightly visible to the naked eye as a soft knot between Perseus and Cassiopeia. Start with low power and then zoom in for details in the clusters.

Deep Sky: NGC 3172

The closest galaxy to the north pole. Try again this summer if you get snowed out.

Challenge: Keeping warm.

Need I say more?

Astro trivia: What day has the latest sunrise? Why?

Last month's answer: The red dust gives the Martian sky a pink glow. The story is that JPL release the first Viking photos and apologized for the bad color rendition. Later they had to come back and say that the pictures were right all along.

MEETING ADJOURNED...

Secretary's Report

by Bryan Schaaf

The November 28th meeting took place at Hyde Memorial Observatory and began a little late at 7:43 p.m. The following are highlights:

- The meeting began with an overview of celestial happenings including a five minute discussion about comets. Coordinates to locate the comets were provided. Comet Hale-Bopp is gone behind the sun for three months.
- Kevin Dowd and Larry Hancock were present to recieve their Messier Award Certificates. Congratulations again!
- A reminder: Dave Scherping has the Messier Observing Log book and software available for anyone that would like to pursue the Messier Award.
- John Bruce passed around the astronomy publications order list one more time before sending out orders the following Saturday.
- Kelly Erlandson volunteered to follow up with the NSP T-shirt orders. These are the ones that were re-ordered from the Nebraska Star Party last summer. Give Kelly a call at 466-9750 if you want to order, but do it soon.
- The Mahoney Star Party dates that were tentatively listed last month will be modified to include a crescent moon and possibly first quarter moon because the public usually prefer viewing it.
- In the new business section of the meeting Dave Knisely reminded everyone that the astronomy club brochure needs to be updated with the new dues rates and a piece about the annual NSP.

- Jack Dunn talked about and showed his paper weight momento of the Challenger space shuttle. There is a oxygen pump turbine blade fragment embedded inside the transparent paper weight. Max Ary, the director of the Cosmosphere in Hutchinson, Kansas, has them and other items for sale.
- The program after the meeting by Bryan and Jason was a discussion about how well or at times not so well the editorship transition occured.

PRAIRIE ASTRONOMY CLUB LIBRARY

BOOKS

Amateur Telescope Making / Scientific American / 1955
Ascent to Orbit: The Technical Writings of Arthur C. Clarke / Arthur C. Clarke / 1984
Astronomy and Telescopes / Robert J. Traister, Susan E. Harris / 1983
Astronomy: A Guide to the Stars and Planets / Iain Nicolson / 1983
Astronomy for Everybody / Simon Newcomb, Robert H. Baker Ph.D. / 1942
Astronomy Made Simple / Meir H. Degani / 1963
Astronomy Maps and Weather / C. C. Wylie / 1942
Beyond the Moon/Paolo Maffei / 1978
Black Holes and Warped Spacetime / William J. Kaufmann, III / 1979
Burnham's Celestial Handbook, Volume One / Robert Burnham, Jr. / 1978
Burnham's Celestial Handbook, Volume Two / Robert Burnham, Jr. / 1978
Burnham's Celestial Handbook, Volume Three / Robert Burnham, Jr. / 1978
Cambridge Atlas of Astronomy, The / J. Audouze, G. Israel / 1985
Carrying the Fire: An Astronaut's Journeys / Micheal Collins / 1975
Celestial Mechanics: A Computational Guide for the Practitioner / Laurence G. Taff / 1985
Coming of the Age of the Milky Way / Timothy Ferris / 1988
Cosmological Distance Ladder, The / Michael Rowan-Robinson / 1985
Design of the Universe: The Heavens and the Earth / Fritz Kahn / 1957
Dictionary of Astronomy, The Facts on File / Valerie Illingworth / 1979
Dictionary of Physics, The Facts on File / Dr. John Daintith / 1981
Discover the Stars: A beginners Guide to Astronomy / Gaylord Johnson, Irving Adler / 1954
Entering Space: An Astronauts Odyssey / Joseph P. Allen, Russell Martin / 1985
Exploration of the Universe / George Abell / 1969
Field Guide to the Stars and Planets, A / Donald H. Menzel, Jay M. Pasachoff / 1983
First Light: The Search for the Edge of the Universe / Richard Preston / 1987
Fractal Geometry of Nature, The / Benoit B. Mandelbrot / 1977
From Falling Bodies to Radio Waves / Classical Physicists and their Discoveries / Emilio Segre / 1984
From X-Rays to Quarks: Modern Physicists and their Discoveries / Emilio Segre / 1976
Frozen Star / George Greenstein / 1983
Galaxies and Quasars / William J. Kaufmann, III / 1979
Grand Tour, The: Traveler's Guide to the Solar System / Ron Miller, William K. Hartman / 1981
Guide to the Planets, A / Patrick Moore / 1954
Introduction to the Special Theory of Relativity, An / Robert Katz / 1964
Leslie Peltier's Guide to the Stars: Exploring the Sky with Binoculars / L. Peltier / 1986
Life in Space / Time-Life Books / 1983
Mars & the Mind of Man / Ray Bradbury, Arthur C. Clarke, Bruce Murray, Carl Sagan, W. Sullivan / 1973
Meteorites: Their Record of Early Solar System History / John T. Wasson / 1985
Mission to Mars: Plans and Concepts for the First Manned Landing / James E. Oberg / 1982
Monsters in the Sky / Paolo Maffei / 1976
Murmurs of Earth: The Voyager Interstellar Record / Carl Sagan, F. D. Drake, Ann Drunyan, Timothy Ferris, Jon Lomberg, Linda Salzman Sagan / 1978
Observational Astronomy for Amateurs / J. B. Sidgwick / 1971
Other Worlds in Space / Terry Maloney / 1957
Pictorial Guide to the Moon/Dinsmore Alter / 1973
Report of the Presidential Commission on the Space Shuttle Challenger Accident / 1986
Skyguide: A Field Guide for Amateur Astronomers / Mark R. Chartrand III, Helmut K. Wimmer / 1982
Skyshooting-Photography For Amateur Astronomers / R. Newton Mayall, Margaret W. Mayall / 1968
Space Shuttle Operator's Manual, The / Kerry Joels, Gregory Kennedy, David Larkin / 1982
Splender in the Sky / Gerald S. Hawkins / 1961
Stars: A Golden Nature Guide / Herbert S. Zim, Ph.D. & Robert H. Baker, Ph.D. / 1951
Stars and Nebulas / William J. Kaufmann, III / 1978
Star Sailing: Solar Sails and Interstellar Travel / Louis Friedman / 1988
Starwatch / Ben Mayer / 1984
Story of the Starry Universe, The / David Todd, Donald H. Menzel / 1941
Time for the Stars / Robert A. Heinlein / 1956 / Sci Fi
To The Ends of the Universe / Isaac Asimov / 1967
Universe, The / David Bergamini and The Editors of LIFE / 1966
Webb Society Deep-Sky Observer's Handbook, Volume 1, Double Stars / Webb Society / 1986

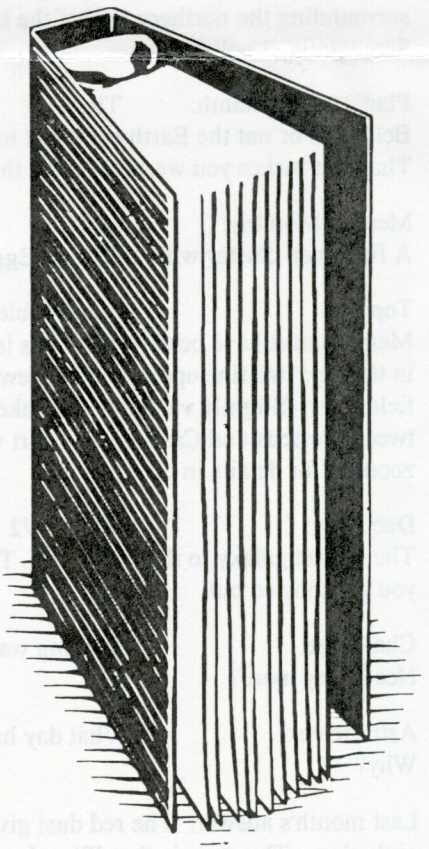
MAGAZINES

Sky & Telescope magazine issues: August 1982-July 1984, November 1984-October 1987, December 1987-July 1992
Final Frontier magazine bi-monthly issues: April 1988-February 1991

POSTCARDS

Would you like to check out a book from our club library? If so, just give me a call shortly before a club meeting and leave a message on my answering machine or e-mail a message. You need only to say your name and the name(s) of what library material(s) you want or think you want to check out and I'll bring the them to the meeting. I want to make it as easy as I possibly can for you to have access to the library.

— Bryan Schaaf —
402-438-4285, schaafb@AOL.com



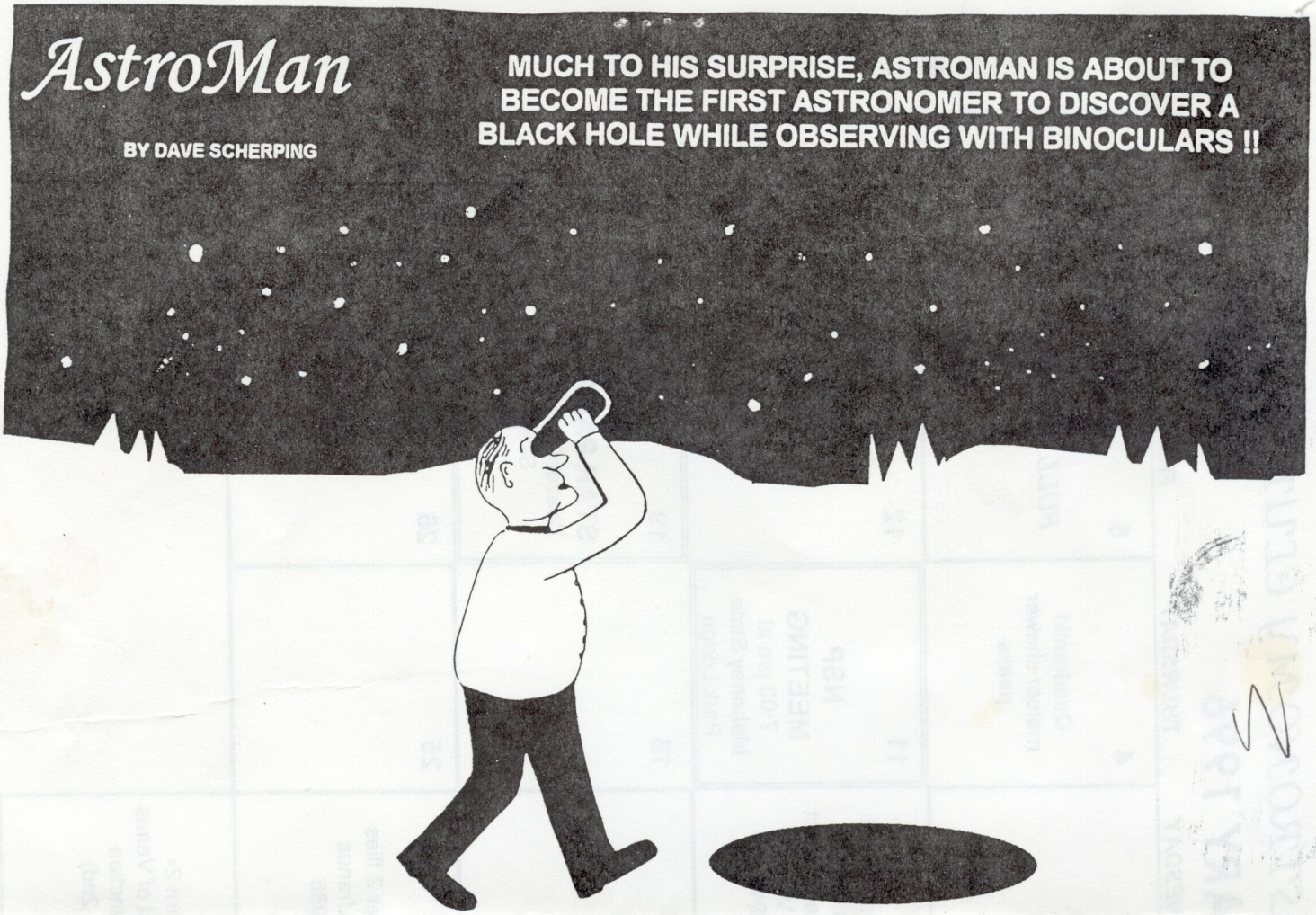
The PRAIRIE ASTRONOMY CLUB

JANUARY 1996

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1 ***NEW YEARS DAY***	2 Mercury at greatest elong (19◦, evening) Uof Florida at Opposition	3	4 Quadrantid meteor shower peaks	5 *FULL MOON*	6
7 Galileo discovered IO, Europa, & Callisto, (moons of Jupiter) 1610	8	9	10 US Army Signal Corps makes first radar contact with Moon, 1946	11 **NSP MEETING** 7:00 pm at Mahoney State Park Lodge	12	13 *3RD QTR MOON* Galileo discovered Ganymede, 1610
14 1st docking of two manned spacecraft USSR, 1969	15 Neptune is in conjunction with the Sun	16	17	18	19 **STAR PARTY** Beaver Crossing Site	20 *NEW MOON* **STAR PARTY** Rain Date
21 Uranus is in conjunction with the Sun	22	23 Moon 5◦ north of Venus (3am) Moon 5◦ north of Saturn (11pm)	24 Voyager 2 flies past Uranus 1986	25	26	27 *1ST QTR MOON* Fire on Launch pad killed Apollo 1 crew, 1967
28 Space Shuttle Challenger exploded, killing crew 1986	29	30 **PAC MEETING** 7:30 pm Hyde Observatory	31 Saturn 2◦ southeast of Venus (conjunction Feb 2nd)			

AstroMan

BY DAVE SCHERPING



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First Class Mail

LINCOLN NE
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Next Meeting
December 26, 1995

Mr. Earl Moser
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DEC