NORTH CENTRAL REGION

# NORTHERN LIGHTS

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## ROAMING THE REGION

A special welcome is extended to two new societies in our region. Harvey Senecal, 790 Chippewa, St. Paul, Minnesota 55107, is correspondant for the Twin City Astronomy Club serving the Minneapolis - St. Paul area. This new club has 37 members so far. Larry Jahn, 28 N. Loomis, Naperville, Illinois 60540, is correspondant for the Naperville Astronomical Association. Mr. Jahn heads a junior group that brings ten new members into the region. Best of luck to both groups.

The Racine Astonomical Society has announced completion of its ten month search for a large diameter mirror. A 24-3/8 inch diameter mirror from Tacoma Astronomers, Inc., was chosen over several others offered in response to an ad in Sky and Telescope. The mirror is figured but will require recoating. Society members are now examining several large mounts to see if they are suitable for the burden of the f/3.8 mirror and various planned accessories.

Amateur astronomers who live in or near large cities may reap an unexpected benefit from the serious energy problem that exists today. Several reports have been received of the increasing sky darkness as more lights are turned off in the cities to conserve fuel.
(cont. p.4)

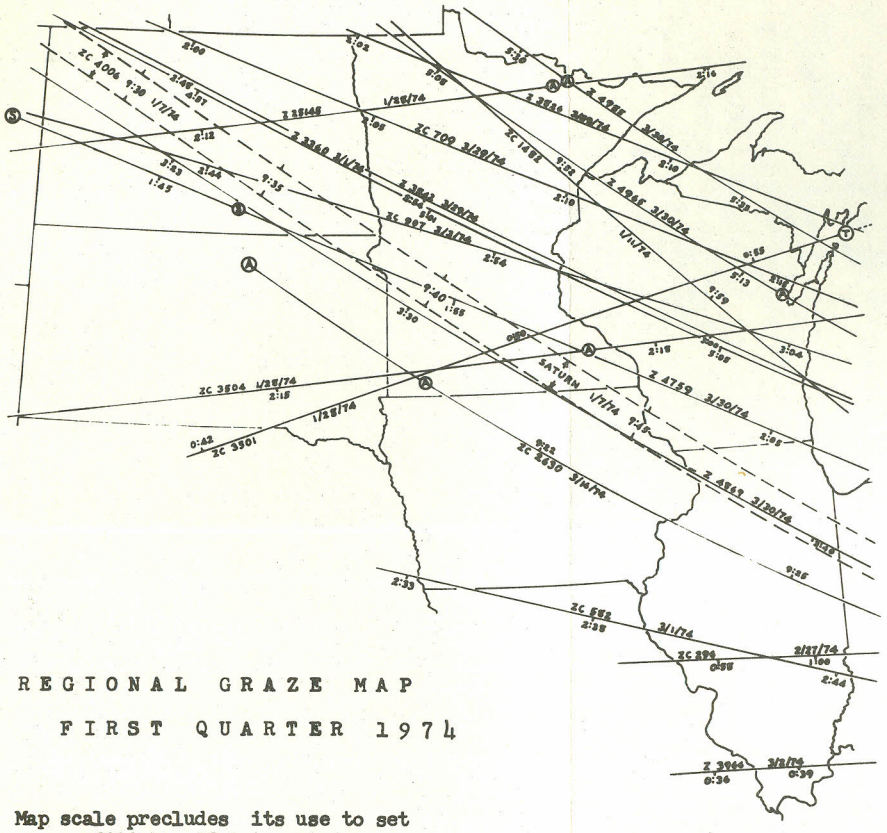
## LEAGUE KOHOUTEK PROGRAM

The program is being coordinated by League Vice President Robert Fried and will concentrate on two basic studies: (1) wide field photography to follow development of type I and type II tail structure; (2) visual observations to follow activity within the coma. To aid in uniform data reporting the League has an observer's kit available on request from Mr. Fried, Braeside Observatory, 4610 Orkney Lane, Atlanta, Georgia 30331.

Visual observations include magnitude estimates and sketches. Standard out-of-focus-image techniques are recommended for estimating magnitudes. Sketches will be made with white pencil on black paper (both supplied with the kit) and deal only with the structure or detail seen in the coma region.

The photographic program will attempt to obtain hourly photos in certain broad wavelengths of light. Light from the comet will be from three main sources: reflected sunlight, neutral molecules or ionized gases.

While film is standardized on Tri-X film, wavelength selection will be done by filters as outlined below. The filters (numbers refer to the Wratten designation) are available
(cont. p.3)




REGIONAL GRAZE MAP

FIRST QUARTER 1974

Map scale precludes its use to set up expeditions. If interested, contact H. F. DaBoll, 6N106 White Oak Lane, St. Charles, Illinois 60174, (phone 312/584-1162) for detailed predictions or information on an expedition already in your area. Include star number, date, and approximate longitude of proposed observation. Also mention whether you have had previous experience in planning graze expeditions.

If an encircled A or S (Moon or Sun altitude, respectively) is shown within a limit, increasingly larger telescopes are needed from there to the same symbol ending the limit, while "IMBSW" (it might be seen with) refers to the better part, on the other side of the intra-limit symbol. Time ticks on the south side of a limit indicate northern limit grazes, and vice versa. A dashed limit indicates central graze at the bright limb; an encircled T means just at the cusp.

| 1974 DATE | STAR NUMBER | MAG | MOON | MOON ALT | SUN ALT | CUSP ANGLE | IMBSW | NOTES |
|---|---|---|---|---|---|---|---|---|
| 1/7 | ZC 4006 | -0.2 | 98%+ | 30(?) | -40(?) | -(?)S | | A,1 |
| 1/11 | ZC 1482 | 6.3 | 88%- | 46,48 | -43,-36 | 5S,6S | 6" | B,2,3 |
| 1/28 | ZC 3501 | 5.3 | 18%+ | 35,25 | -12,-22 | 2.8S,0.3S | 2" | C,4 |
| 1/28 | Z 25145 | 8.2 | 19%+ | 24,14 | -24,-33 | 1N,3N | 6" | |
| 1/28 | ZC 3504 | 8.2 | 19%+ | 25,12 | -24,-37 | 1N,4N | 6" | |
| 2/27 | ZC 296 | 7.7 | 22%+ | 41,38 | -13,-17 | 6N,7N | 4" | 5,6 |
| 3/1 | ZC 582 | 5.8 | 42%+ | 50,42 | -27,-36 | 9N,11N | 2" | D,5,7 |
| 3/1 | Z 3360 | 8.2 | 43%+ | 31,17 | -40,-52 | 11N,12N | 6" | 8,9,10 |
| 3/2 | Z 3966 | 7.7 | 54%+ | 75,74 | -10,-11 | 5N,6N | 6" | 5 |
| 3/3 | ZC 907 | 6.9 | 65%+ | 65,58 | -20,-37 | 8N,12N | 6" | E,4,9 |
| 3/16 | ZC 2630 | 5.1 | 44%- | 3,14 | -35,-29 | 1.3S,0.5S | 2" | F,11 |
| 3/29 | Z 3826 | 7.8 | 28%+ | 43,38 | -12,-18 | 11N,11N | 4" | 2,12 |
| 3/29 | ZC 709 | 4.3 | 28%+ | 47,35 | -9,-22 | 10N,12N | 7X50's | G,3,13 |
| 3/29 | Z 3842 | 7.4 | 28%+ | 41,27 | -15,-29 | 11N,13N | 3" | 4,9,10 |
| 3/30 | Z 4759 | 8.5 | 38%+ | 60,48 | -4,-21 | 10N,13N | 6" | 8,13 |
| 3/30 | Z 4869 | 8.5 | 39%+ | 45,31 | -19,-36 | 12N,13N | 6" | 8,11 |
| 3/30 | Z 4965 | 8.2 | 40%+ | 23,15 | -34,-41 | 12N,12N | 6" | 2 |
| 3/30 | Z 4985 | 8.4 | 40%+ | 17,12 | -37,-41 | 11N,11N | 6" | 14 |

Universal times and dates are used. Moon altitude, Sun altitude, and cusp angle, in degrees, are given for the western and eastern intersection of each limit with the boundary of the North Central Region, and for the end of any limit which falls within the Region. Cusp angle is the separation of central graze from the northern or southern cusp, with negative values indicating central graze on the bright limb. IMBSW: It might be seen with. Under MOON, + means waxing, - means waning.

The expedition expectations noted in this issue may be overoptimistic, in view of the probability of gasoline rationing.

NOTES:
A. Saturn
B. 14 Sextantis
C. 19 Piscium
D. 32 Tauri
E. 140 Tauri
F. 1 Sagittarii
G. 94 Tau Tauri

1. At deadline time for this issue, we do not yet have the accurate data for the partial occultation of Saturn, but have sketched-in the limits as best we can with limited information. The ring system, larger than the planet itself, will be totally hidden at mid-event for observers north and east of the upper dashed line, by the bright southern limb of the Moon. For observers south and west of the lower dashed line, Saturn and the Moon will appear to miss each other. The December or January issue of Sky and Telescope probably will carry full details. Probable Fox (Twin Cities) exp near Faribault, Mn., and 2 Ill. exp's near Yorkville and Peotone.
2. Possible Shinn (Winnipeg) exp
3. Possible Halbach (Milwaukee) exp
4. Probable Fox expedition
5. Possible Clark (St. Louis) exp
6. Probable Warren (Bloomington, Indiana) expedition
7. Possible Kriegler (Omaha) exp
8. Possible Fox expedition
9. Probable Halbach expedition
10. Possible Willcox (Fargo) exp
11. Probable DaBoll - Larson - Phelps (Northeastern Illinois) expedition
12. NCR exit point taken as Cat Is. or Stockton Is. (Apostle grp) 90°5 W
13. Possible Northeastern Ill. exp
14. NCR exit point taken as Plum Is. (in Porte Des Morts Passage) 87°0 W

## VIGNETTES

by Hubert Brueckner (3M Club A.S.)

Philip Fox, 1878 - 1944

Philip Fox was born in Manhattan, Kansas,and educated at Kansas State College. Following his service in the Spanish-American War, Fox worked at Lowell Observatory. In 1909 he became professor of astronomy and director of Dearborn Observatory at Northwestern University.

Fox's work was interrupted when he was recalled into the service during World War I. However, after the war he returned to his position at Northwestern and began publication of "Annals of the Dearborn Observatory." The first three volumes consist mainly of reports of his own research work in solar physics, double stars and stellar parallax.

He left Northwestern in 1929 to accept the position of director of the newly completed Adler Planetarium in Chicago. This was the first installation of a Zeiss planetarium in this country, and Dr. Fox had the privilege of being its first director.

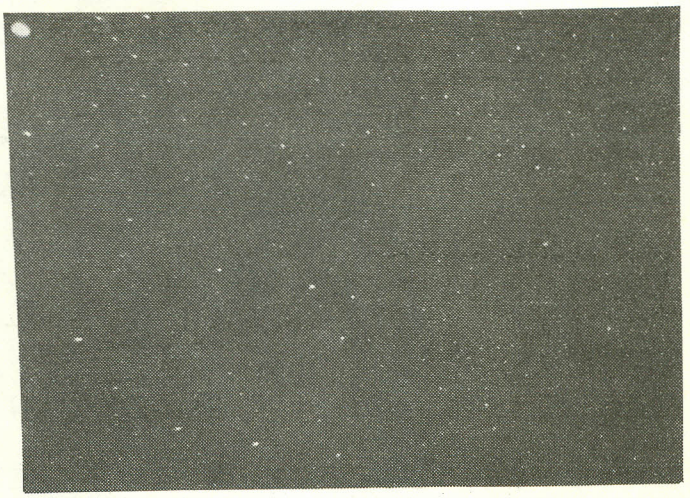
In 1937 Fox was again called to active duty and he left the planetarium to become commanding officer of the Army Electronics Training Center at Harvard. It was at Harvard, once again in service of his country, that Fox died.

## KOHOUTEK (cont.)

in gelatin squares with the entire set of five costing under $11 for the three inch size.

Wavelength and filter combinations are:

1. White light - no filters
2. Cyanogen molecules (CN) at 3883Å - #34
3. Ionized carbon monoxide ($CO^+$) at 4600Å - #44A
4. Continuum light - #2E plus #35 used together
5. Near red light 5000-6500Å - #12
6. Blue-green light 4100-5300 Å - #2E plus #44A used together.

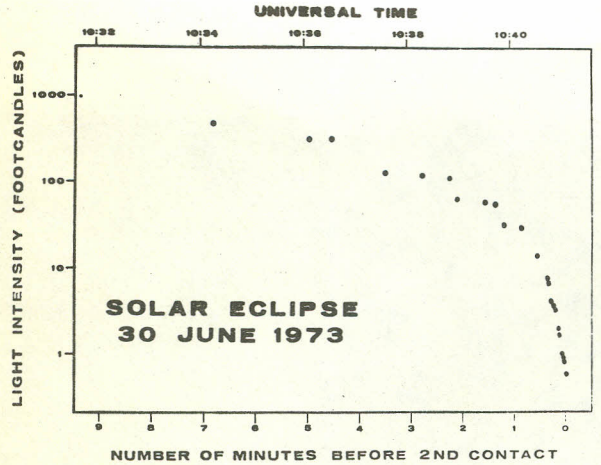


Comet Kohoutek, 11-23-73, 5 to 10 minute exposure on Tri-X film, Aero-Ektar lens, 7" fl, f/2.5. By Bruce Lundegard, 3MCAS, and Dr. Sherman Schultz, Macalester College. Spica is in the upper left corner and the comet appears as a diffuse patch 3/4" from the right edge and midway top to bottom.

Those of you who plan photographic observations of Comet Kohoutek are invited to send copies to NORTHERN LIGHTS for publication in the March issue. Of particular interest will be series of pictures taken on the same date through the various filters used in the League program. If enough photographs are submitted, a full page spread will be used for publication. 5x7 maximum size, B/W.

**REGION** (cont.)

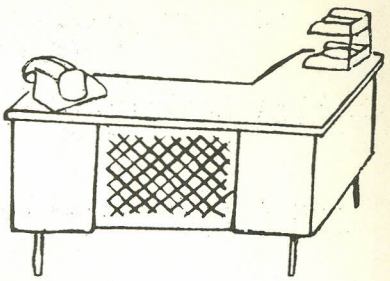
Information arrived too late for the graze map, but Mr. DaBoll can now provide full data for 1/7/74 Saturn partial (cusp angle about -15°S), as well as the nighttime bright limb Mars partial at or near the southern tip of Illinois on Thursday evening, 2/28-3/1/74, and the daytime (about an hour before sunset) Saturn partial, partly at the dark limb, Saturday, 3/2/74, which goes through or near Omaha, Neb., Ames, Ia., Madison and Port Washington, Wis.




This graph illustrates that useful eclipse observations need not be photographic nor made with expensive equipment. To record the light intensity before second contact of the June 30, 1973, solar eclipse, Cathryn DuVall (Racine A.S.) took values from a Gossen LunaSix light meter. Afterwards Bill Pohnan (RAS) reduced these readings from a tape recording and plotted this graph. The actual visual drop in intensity was just as dramatic as the graph indicates. Seven RAS members joined the Amateur Astronomers Inc., expedition to Akjoujt, Mauritania.

Start planning now for the 1974 Regional Convention to be held May 18 at Chicago's Adler Planetarium. Complete details will be announced later by Convention Chairman Burton Stevens.

**EDITOR'S CORNER**



Comet Kohoutek may well become the "comet of the century." Even if it does not reach the fantastic brightness of early predictions, the comet will probably be seen by more people than any other comet in history, simply because there are more people active today than in earlier periods of history.

1973f's closest rival for "comet of the century" honors will most likely come with the 1986 return of Halley's comet. However, Halley is over ten years away and Kohoutek is now. It behooves us as amatuer astronomers to make the most of it.

With so many people gazing at the comet in the evening sky they will naturally become curious about the object. What information sources will they have other than local radio, TV and newspapers? (I have already heard numerous errors by the likes of Walter Cronkite, of all people.) Local societies must speak out. The use of the League's publicity kit should be automatic.

Amateurs often ask, "Why doesn't the League sponsor observing projects?" Comet Kohoutek has provided the spark for exactly that. Based on the success of this program, a decision will be made as to sponsoring other program in the future. You will be looking at and photographing the comet anyway, why not take a few extra minutes to write down the observations or make an extra print to send in. It does no good for the League to sponsor programs if no one participates.

**FEBRUARY 23RD IS DEADLINE FOR MARCH ISSUE**