PROJECT 10073 RECORD CARD

1. DATE
18 November 1963

2. LOCATION
New Paltz, N.Y.

3. DATE-TIME GROUP
Local _____
GMT 18/0905Z

4. TYPE OF OBSERVATION
☒ Ground-Visual ☐ Ground-Radar
☐ Air-Visual ☐ Air-Intercept Radar

5. PHOTOS
☐ Yes
☒ No

6. SOURCE
Civilains

7. LENGTH OF OBSERVATION
5 Minutes

8. NUMBER OF OBJECTS
1

9. COURSE
SE

10. BRIEF SUMMARY OF SIGHTING
White smoke like streak breaking into 300-400 pieces. Particles travelled through sky in V formation. Resembled ECHO or SPUTNIK. Dull faint sound of explosion. Speed estimated too fast for a/c. Observation duration 5 minutes. Estimated altitude above 50,000ft. Initial observation at 70 deg in South. Disappearing 10 deg elev in East.

11. COMMENTS
No decay for 18 Nov. Evaluated as Meteor. Much conflicting data. Assume narrative of ~~xxxx~~ speed in excess of a/c indicates motion. Rather than duration (Is correct)

12. CONCLUSIONS
- ☐ Was Balloon
- ☐ Probably Balloon
- ☐ Possibly Balloon
- ☐ Was Aircraft
- ☐ Probably Aircraft
- ☐ Possibly Aircraft
- ☒ Was Astronomical Meteor
- ☐ Probably Astronomical
- ☐ Possibly Astronomical
- ☐ Other _____
- ☐ Insufficient Data for Evaluation
- ☐ Unknown

ATIC FORM 329 (REV 26 SEP 52)

Wootea, and Larry Smith together saw 26 Leonids and 20 sporadics from Florala, Alabama. The next morning a three-hour watch began at midnight, with 30 Leonids and 36 other meteors logged by the first two observers.

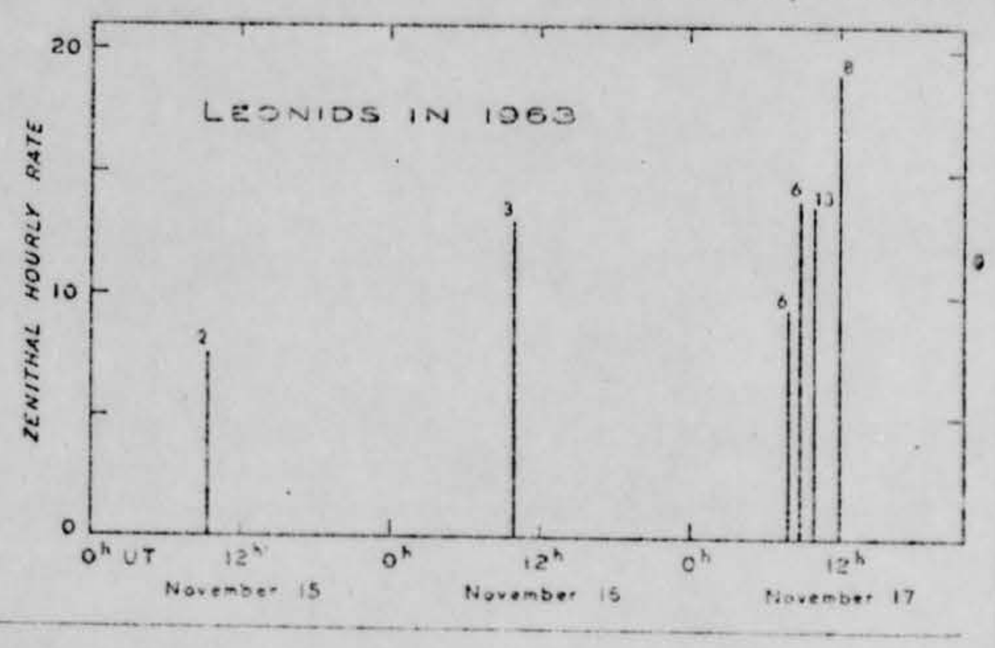
Carl McLelland, Jr., and Robert La Pierre watched on the night of November 16-17 from 9:00 p.m., Pacific standard time, until dawn. During this interval these Whittier, California, amateurs counted 178 meteors.

At Wooster, Ohio, William Werner and nine other members of the Wayne County Astronomical Society recorded 70 meteors during 3½ hours, beginning at 9:10 p.m. CST.

The number of Leonids an observer will count is larger the higher the radiant point is above the horizon. If the radiant were directly overhead, he could expect 10 percent more meteors than for an altitude of 60°, 30 percent more than at 45°, and 71 percent more than at 30°.

To make the tabulated counts of Leonids comparable, they must first be reduced to hourly rates, and then converted to zenithal rates. Counts made when the constellation Leo is too near the horizon cannot be safely converted.

Corrected rates, corresponding to the number of meteors that a single observer would see with the radiant in the zenith, are presented in this diagram. For simplicity, simultaneous data have been averaged. Note how the zenithal hourly rate climbed gradually to about 19 by 12h UT on November 17th. No SKY AND TELESCOPE readers reported appropriate data for the following night, so it is uncertain from this sample just when peak activity of the meteor shower actually occurred.



The increase in richness of the Leonid shower during November 15-17 is shown by these corrected counts. The length of a bar represents the number of meteors that would have been seen in one hour with the radiant exactly overhead. With each bar is the number of individual determinations that were averaged together.

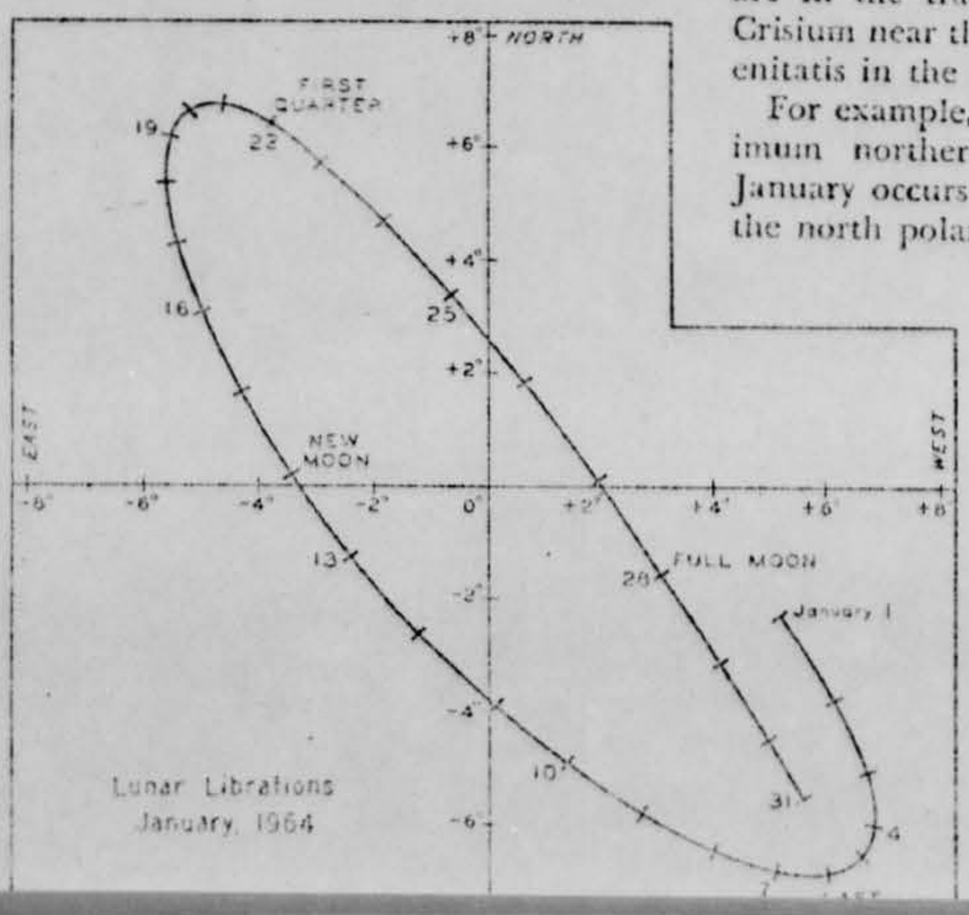
LUNAR LIBRATION CHART

LIMB REGIONS are the least observed parts of the moon. Near the moon's edge some features are always visible, but greatly foreshortened; others are only intermittently carried into view by libration. This is the apparent monthly rocking of the moon in both north-south and east-west directions.

To predict when a particular portion of the limb will be favorably tipped toward the earth during a month, I plot a chart like the one below. My information comes from the *American Ephemeris and Nautical Almanac*, where daily values are given for the earth's selenographic latitude and longitude (the lunar coordinates at the center of the apparent disk). Positive numbers indicate that the north or west limb is exposed. Directions are in the traditional sense, with Mare Crisium near the west limb and Mare Serenitatis in the northern hemisphere.)

For example, my chart shows that maximum northern libration (positive) in January occurs on the 21st. At this time the north polar region may be best seen.

ALIKA K. HERRING



The curved line in this chart by Alika K. Herring shows the moon's varying librations during January. Similar charts for other months can be plotted from information given in the "American Ephemeris."

PAAUCED C05 [illegible]

RR RUCD

DE RUEAKM 33 22/1720Z

ZNR

R 221725Z

23Nov63 01 40z

action 1/2/3 4xw 7E (UFO)

FM 26AIRDIV STEWART AFB NY

TO [illegible] DC

RUCS [illegible] /AFSC FOREIGN TECHNOLOGY DIV WPAFB OHIO

RUEAH /HQ USAF WASH DC

RUEAHQ/NECAF WASH DC

INFO RUEAKM/26TH ADIV HANCOCK FLD NY

BT

UNCLA E6NOIN 11-2802.

HQ USAF ATTN: AFCIN. NECAF ATTN: SAFOI. SUBJECT: UFO.

THE FOLLOWING INFORMATION IS SUBMITTED IN ACCORDANCE WITH PARAGRAPH 14, AFR 200-2. A. DESCRIPTION:

(1) WHITE SMOKE - LIKE STREAK IN SKY WHICH SHATTERED AT ITS END INTO 300-400 BRIGHT RED COLORED PARTICLES. (2) EACH OF THE 300-400 PARTICLES SIZE OF BASEBALL AT ARMS LENGTH. (3) WHITE STREAK, RED PARTICLES. (4) ONE STREAK, 300-400 PARTICLES (5) PARTICLES TRAVELLED THROUGH SKY IN "V" FORMATION

PAGE 2 RUEAKM 33 UNCLA

WITH [illegible] OF "V" CURVED TO THE OUT [illegible] AT THEIR [illegible]. ( ) [illegible] (7) [illegible]. ( ) [illegible] [illegible]. ( ) [illegible] AT [illegible] WHICH [illegible] THAT [illegible] [illegible] [illegible]

[redacted]TRENITIES. (6) RESEMBLED SATELLITE OBSERVER HAD

[redacted] YEARS AGO. (7) NONE. (8) DULL, FAINT [redacted] OF

[redacted]PLOSION WHEN OBJECT SHATTERED. (9) TRAVELLED

[redacted] PLOSION WHICH OBSERVER ESTIMATES TO BE TWO PART

[redacted] AN AIRCRAFT. E. DESCRIPTION OF COURSE OF OBJECT:

(1) INITIAL STREAK IN SKY AND DULL EXPLOSIVE NOISE.

(2) 75 DEGREES ABOVE HORIZON - SOUTH. (3) 10 DEGREES

ABOVE HORIZON - SOUTHEAST. (4) STRAIGHT LINE, E.,

BETWEEN HYDE PARK AND POUGHKEEPSIE, NY. (5) DI AP-

PEARED OVER HORIZON. (6) 5 MINUTES. G. MANNER OF

OBSERVATION: (1) GROUND - VISUAL. (2) NONE (3) N/A.

H. TIME AND DATE OF SIGHTING: (1) 100950Z. (2) NIGHT.

I. LOCATION OF OBSERVER: 3 MILES W OF NEW PALTZ, NY.

J. IDENTIFYING INFORMATION OF OBSERVERS: (1) CIVILIAN:

(A) [redacted], AGE 35; [redacted]

NY; LABORER, F-6. (B) [redacted] AGE-33 [redacted]

[redacted] ST., POUGHKEEPSIE, NY; TRUCK DRIVER, F-5.

(C) [redacted] AGE-35, [redacted] POUGHKEEPSIE, NY;

LABORER, F-6. (D) [redacted]

PAGE 3 RUEAHN 33 UNCLAS

TR[redacted]EET, POUGHKEEPLIE, NY; OCCUPATION UNK F-6.

(E) [redacted] AGE-28, [redacted] POUGH-

KEEPSIE, NY; LABORER, F-6. (2) N/A. G. WEATHER AND

WIND: (1) CLEAR, NO WIND. (2) [redacted] DEGREES AT

[redacted] KNOT. FOLLOWING WIND. ALOFT AND ESTIMATE

[redacted]

[redacted]

[redacted] T., POUGHKEEPSIE, NY; TRUCK DRIVER; P-S.

[redacted], AGE-35, [redacted] T., POUGHKEEPSIE, NY;

LABORER, P-S. (3) [redacted], AGE-32, [redacted]

PAGE 3 RUENAYED ENGLA

STREET, POUGHKEEPSIE, NY; OCCUPATION UNK P-S.

(2) [redacted], [redacted] T. POUGH-

KEEPSIE, NY; LABORER, P-S. (3) N/A. C. WEATHER AND

WINDS: (1) CLEAR, NO WIND. (2) SURFACE-112 DEGREES AT

5 KNOT. FOLLOWING WINDS ALOFT ARE ESTIMATED

ARRIVED AT BY LOCAL W O. 6,000FT - 270DEGREES AT

10 KNOT. 10,000FT - 260 DEGREES AT 40KNOT.

15,000FT - 270 DEGREES AT 50 KNOT. 20,000FT - 270 DEGREES

AT 50 KNOTS. 30,000FT - 270 DEGREES AT 60 KNOTS.

50,000FT - 270 DEGREES AT 65 KNOTS. 60,000FT - 270

DEGREES AT 65 KNOTS. 80,000FT- NO ESTIMATE AVAILABLE.

(3) CEILING - NONE. (4) VISIBILITY - 7 MILES. (5) AMOUNT

OF CLOUD COVER - HIGH, THIN, SCATTERED. (6) THUNDER-

STORMS -NONE. (7) VERTICAL TEMP. CONSTANT - UNK.

8. OTHER UNUSUAL ACTIVITY - NONE NOTED; 9. HISTORY -

NONE - NONE. 10. AIR TRAFFIC - NONE KNOWN, ACCORDING

TO CHIEF CONTROLLER, HANCOCK FLD., NY. ENDEX -

[redacted]

NNNN

18 Nov 16/0732Z DEPARTMENT OF THE AIR FORCE
MESSAGE BRANCH
RECEIVED - MESSAGE

INCOMING

OI

AF IN : 35338 (22 Nov 63) C/bfb

ACTION: NIN-9

INFO : XOP-1, XOPX-4, DIA-25, DIA-CIIC-2, SAF-OS-3 (45)

SMB C290

ZCHQE498ZCKNA773

RR RUEAHQ

DE RUEAKN 30 22/1706Z

ZNR

R 221705Z

FM 26AIRDIV STEWART AFB NY

TO RUWGALE/ADC

RUCDSQ/AFSC FOREIGH TECHNOLOGY DIV WPAFB OHIO

RUEAHQ/HQ USAF WASH DC

RUEAHQ/SECAF WASH DC

INFO RUEASN/26TH ADIV HANCOCK FLD NY

BT

UNCLAS 26NOIN 11-0002.,

HQ USAF ATTN: AFCIN. SECAF ATTN: SAFOI. SUBJECT: UFO.

THE FOLLOWING INFORMATION IS SUBMITTED IN ACCORDANCE

WITH PARAGRAPH 14, AFR 200-2., A. DESCRIPTION:

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AT ITS ESE END INTO 300-400 BRIGHT RED COLORED

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PARTICLES. (4) ONE STREAK, 300-400 PARTICLES

(5) PARTICLES TRAVELLED THROUGH SKY IN "V" FORMATION

PAGE 4 KUAKNI SS UNCLAS

BASED UPON OBSERVER'S ESTIMATE OF ALTITUDE ("ABOVE
SS,SSSFT"), COLOR OF OBJECT, EXPLOSION AND RESULTANT
SCATTERING AND SPEED. L. NONE.

ET

PAGE 2 RUEAKN 30 UNCLAS

WITH ARMS OF "V" CURVED TO THE OUTSIDE AT THEIR EXTREMITIES. (6) RESEMBLED SATELLITE OBSERVER HAD SEEN TWO YEARS AGO.,(7) NONE. (8) DULL, FAINT SOUND OF EXPLOSION WHEN OBJECT SHATTERED. (9) TRAVELLED AT SPEED WHICH OBSERVER ESTIMATED TO BE TOO FAST FOR AN AIRCRAFT. B. DESCRIPTION OF COURSE OF OBJECT: (1) WHITE STREAK IN SKY AND DULL EXPLOSIVE NOISE. (2) 75 DEGREES ABOVE HORIZON - SOUTH. (3) 10 DEGREES ABOVE HORIZON - SOUTHEAST. (4) STRAIGHT LINE, ESE, BETWEEN HYDE PARD AND POUGHKEEPSIE, NY. (5) DISAPPEARED OVER HORIZON. (6) 5 MINUTES. C. MANNER OF OBSERVATION: (1) GROUND - VISUAL. (2) NONE (3) N/A. D. TIME AND DATE OF SIGHTING: (1) 180950Z. (2) NIGHT. E. LOCATION OF OBSERVERS: 3 MILES W OF NEW PALTZ, NY. F. IDENTIFYING INFORMATION OBSERVERS: (1) CIVILIANS: (A) [redacted], AGE 35, [redacted], POUGHKEEPSIE, NY; LABORER, F-6. (B) [redacted] AGE-33 [redacted] ST., POUGHKEEPSIE, NY; TRUCK DRIVER, F-6., (C) [redacted] AGE-35, [redacted], POUGHKEEPSIE, NY; LABORER, F-6. (D) [redacted] AGE-30, [redacted]

? To East for 4 ?

PAGE 3 RUEAKN 30 UNCLAS

STREET, POUGHKEEPLIE, NY; OCCUPATION UNK, F-6.

(E) [redacted]AGE-29, [redacted] ST. POUGH-

KEEPSIE, NY; LABORER, F-6. (2) N/A. G. WEATHER AND

WINDS: (1). CLEAR, NO WIND. (2) SURFACE-112 DEGREES AT

5 KNOTS. FOLLOWING WINDS ALOFT ARE ESTIMATES

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50,000FT - 270 DEGREES AT 65 KNOTS. 60,000FT - 270

DEGREES AT 35 KNOTS. 80,000FT- NO ESTIMATE AVAILABLE.

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OF CLOUD COVER - HIGH, THIN,, SCATTERED. (6) THUNDER-

STORMS-NONE. (7) VERTICAL TEMP. GRADEINT - UNK.

H. OTHER UNUSUAL ACTIVITY - NONE KNOWN, I. INTERCEP-

TION - NONE. J. AIR TRAFFIC - NONE KNOWN, ACCORDING

TO CHIEF CONTROLLER, HANCOCK FLD, NY. BALLONS -

NONE. K. STAFF INTELLIGENCE OFFICER, DIRECTORATE

OF INTELLIGENCE, HEADQUARTERS 26TH NORAD/CONAD

REGION. OPINION FORMED IS THAT SIGHTING WAS A METEOR,

BASED UPON OBSERVER'S ESTIMATE OF ALTITUDE ("ABOVE

50,000FT"), COLOR OF OBJECT, EXPLOSION AND RESULTANT

SHATTERING AND SPEED. L. NONE.

BT NOTE: ADVANCE COPY DELIVERED TO DIA & NIN

OBSERVER'S PAGE

Universal time (UT) is used unless otherwise noted.

Many Observers Count Leonids

THIS YEAR'S Leonid meteor shower was about as active as the display in 1962 (described in this department last January). Apparently, the maximum occurred on the night of November 16-17, but hourly rates remained below those of 1961 (Sky and Telescope, February, 1962, page 64).

Most observers agreed that the shower members were strikingly bright, left short trains, and were predominantly white. Ralph Boineau of Columbia, South Carolina, comments, "Almost all the Leonids brighter than 1st magnitude left trains that endured from two to five seconds. The trains from these swift meteors were short, none longer than 20 degrees. All the Leonids I saw were white with just a touch of orange in about half the cases."

As in past years, fireballs were sighted along with other shower members. John Smatko, Yonkers, New York, saw a Leonid fireball "as bright as the quarter moon" through a hole in the clouds 10 degrees west of the radiant. This was at 4:37 a.m. Eastern standard time on November 18th. The meteor left a train that was quickly distorted.

The table lists meteor rates by 17 amateurs who recorded individual counts over specific intervals. Beside each name the observing period is stated in Universal time. *L* is the number of Leonids counted during that interval, *S* the number of sporadic (non-Leonid) meteors. The last column indicates the direction *D* that the observer was facing. All observations were made under reportedly clear skies.

Observer	*Time (UT)*	*L*	*S*	*D*
	NOVEMBER 15			
Millard	9:00-10:00	6	5	
	10:00-11:00	8	5	
	11:00-11:15	2	3	
	NOVEMBER 16			
Millard	9:00-10:00	12	6	
	10:00-11:00	20	9	
	11:00-11:15	5	2	
Morrison	10:45-12:15	7	5	
	NOVEMBER 17			
Chapman	9:20-10:20	16	28	NE
	11:30-12:30	23	14	NE
Davis	9:20-10:20	6	7	SE
	11:30-12:30	20	8	SE
Karger	6:20- 7:20	6	8	W
	7:20- 8:20	6	11	W
	8:20- 9:20	7	8	W
	9:20-10:20	14	9	W
Key	7:00- 8:30	13	7	
Larson	9:20-10:20	10	15	N
	11:30-12:30	19	13	S
McCants	7:20- 8:20	7	8	W
	8:20- 9:20	11	7	W
	9:20-10:20	14	5	W
McDonald	9:20-10:20	14	13	NW
	11:30-12:30	16	14	NW
McLean	9:20-10:20	11	10	S
	11:30-12:30	29	11	N
Meeus	0:18- 1:03	0	2	E
Millard	9:00-10:00	5	4	
	10:00-11:00	15	4	
	11:00-11:15	6	1	
Milon	9:20-10:20	7	12	E
	11:30-12:30	30	11	E
Molinaire	6:20- 7:20	2	4	E
	7:20- 8:20	3	13	E
	8:20- 9:20	10	3	E
	9:20-10:20	7	4	E
Morrison	11:00-13:30	14	9	
Russell	6:20- 7:20	7	23	E
	7:20- 8:20	5	14	E
	8:20- 9:20	19	4	E
	9:20-10:20	18	9	E
Sears	9:20-10:20	9	10	SW
	11:30-12:30	20	14	SW
Souther	6:20- 7:20	2	7	W
Thomson	6:20- 7:20	3	9	S
	7:20- 8:20	1	10	S
	8:20- 9:20	7	4	S
	9:20-10:20	4	5	S

J. Millard at Atlanta, Georgia. J. Meeus is in Kessel-Lo, Belgium, L. Key at Fernandina Beach, Florida, and R. Morrison in Los Angeles, California.

Two teams of observers supplied the bulk of the meteor counts. C. Chapman, D. Davis, J. Fountain (timekeeper), S. Larson, L. McDonald, D. McLean, D. Milon, and W. Sears watched from Kitt Peak, Arizona. At Montgomery, Texas, another group consisted of Karger, M. McCants, B. Molinaire, Russell, and K. Thomson; Souther kept time during most of the observing session.

On the morning of November 16th, between 2:30 and 4:00 a.m., Central standard time, Randy Baldwin, Wayne

On November 17th at 2:24 a.m. Pacific standard time, Robert La Pierre of Whittier, California, photographed this Leonid of magnitude −2. He used a 35-mm. Argus camera set at f/3.5 and Plus-X film. He also recorded the Perseid meteor shown on page 299 in the November issue. That picture was incorrectly credited to William OKer, an observing companion.