PROJECT 10073 RECORD CARD

1. DATE 18 October 1957	**2. LOCATION** 9 Mi W of Benson, Arizona	**12. CONCLUSIONS** ☐ Was Balloon ☐ Probably Balloon ☐ Possibly Balloon ☐ Was Aircraft ☐ Probably Aircraft ☐ Possibly Aircraft ☐ Was Astronomical ☐ Probably Astronomical ☐ Possibly Astronomical ☒ Other Possible artificial meteor ☐ Insufficient Data for Evaluation ☐ Unknown
3. DATE-TIME GROUP Local 1827 GMT 19/0127Z	**4. TYPE OF OBSERVATION** ☒ Ground-Visual ☐ Ground-Radar ☐ Air-Visual ☐ Air-Intercept Radar	
5. PHOTOS ☐ Yes ☒ No none rec'd	**6. SOURCE** Civilian	
7. LENGTH OF OBSERVATION 6 minutes	**8. NUMBER OF OBJECTS** one / **9. COURSE** NNW	
10. BRIEF SUMMARY OF SIGHTING A group of civilians had set up a camera to view and photograph expected Russian satellite. Satellite was not sighted, but a bright object appeared over SE horizon and traveled rapidly across the sky disappearing over the NNW horizon. The object was brighter than any star, but less bright than Venus. The light exhibited a yellowish hue giving the impression of reflected sunlight. Three photos were taken.	**11. COMMENTS** Around this time artificial meteors were being shot into the upper atmosphere to heights of between 35 and 50 miles at which heights they glowed brightly enough to be photographed.	

ATIC FORM 329 (REV 26 SEP 52)

-18 19/0130z

Mutti

Repro No. -1

51

UFO Case File: 19 Oct 1958 - Center, Kansas

SMITHSONIAN INSTITUTION
ASTROPHYSICAL OBSERVATORY

OTher

(POSS ARTIFICIAL METEOR)

SECTION OF UPPER ATMOSPHERE STUDIES
IGY OPTICAL SATELLITE TRACKING PROGRAM
60 GARDEN STREET
CAMBRIDGE 38, MASSACHUSETTS

June 13, 1958

Captain George T. Gregory
Air Technical Intelligence Center
Wright-Patterson AF Base
P. O. Box 9307
Dayton, Ohio

Dear Captain:

The enclosed may be of interest to you!

Cordially,

Allen Hynek

J. Allen Hynek

JAH:lc

Encls.

Please return at early date. JAH.

7-3745-47

(2)

Form No. 6
SMITHSONIAN INSTITUTION
(Feb. 1, 1941)

MEMO ROUTING SLIP

TO THE FOLLOWING IN ORDER INDICATED

NAME OR TITLE	INITIALS—DATE
1. Dr. J. A. Hynek	
2. Capt. Gregory--please return when finished	
3. Sgt Bolan: Note and file	Reproduce dupl. file. orig
4.	

Your information	[x]	Note and return	[x]
Your comments	[ ]	Proper signature	[ ]
Necessary action	[ ]	Note and file	[ ]
Prepare reply	[ ]	See me	[ ]
Your recommendation	[ ]	Your initials	[ ]

REMARKS

Have made record of this as well as memo attached.

Thanks for another interesting job!

FROM: [illegible]

DATE: June 9/58

PHONE

U. S. GOVERNMENT PRINTING OFFICE 16—63966-1

(3)

June [illegible], 1958.

Dr. J.A. Hynek.

UNIDENTIFIED OBJECT [illegible] SEEN AT BENSON, ARIZONA.

Station Coordinates: 31° [illegible], 110° [illegible] 05" W.
Time: 18 October 1957. 18.27 to 18.3[illegible] MST (= 19 Oct., 01.3[illegible] UT)
Direction of Travel: SE-NNW
Magnitude: Probably about -1 or -2.
Angular Velocity: 0°.3/sec.

Expected crossing of 1957 Alpha. It seems rather odd that these observers expected a crossing of 1957 Alpha on the evening of October 18, whereas this satellite was being observed by many stations in the mornings only around this date. But for Mr. [redacted] very definite mention of evenings (and his brightness comparison to Venus then in the evening sky) one might suspect a mix-up between MST and UT, and adding instead of subtracting. Seven hours from 18.13 (the time they expected Alpha) gives 11.13 which was exactly the UT at which Alpha was seen in New Mexico and at several other stations in the south.

The actual observation: If the same time correction were applied, the observation of their unknown object would coincide exactly with an ~~uni~~ unidentified object sighted at Edinburg, Texas, on Oct.19, at 11.26 UT. (18.27 minus 7 hours), but object in latter case was very faint (+6). If time is right, however, the Benson object is not associated with other hypothetically-linked objects on nearby October dates.

Identification Possibilities.

Meteor? This was about the time for Orionid meteors. The Benson object appears too slow. Could not such objects as this be large meteorites which have been slowed down by previously "skipping" through our atmosphere?

Artificial Satellite? Opposite direction of travel.

Artificial Meteor? Around this time (Oct. 16-19th) artificial meteors were being shot into the upper atmosphere to heights of between 35 and 50 miles at which heights they glowed brightly enough to be photographed by the Air Force Missile Development Centre at Alamogordo, N.M. Firing point is not clear, but they would probably have to be fired from the extreme south of Texas to take the direction of the object seen at Benson. Benson's height of about 40 miles would agree with this.

Plane ? Suggest the prints be examined with a high power magnifying glass. Suspect trail may consist of two trails very close together, one very faint (suggesting plane's wing light).

A.B.G.

(4)

Form No. 6
SMITHSONIAN INSTITUTION
(Feb. 1, 1951)

MEMO ROUTING SLIP

TO THE FOLLOWING IN ORDER INDICATED

NAME OR TITLE	INITIALS—DATE
1. JAH + RMA	
2.	
3.	
4.	

Your information	☐	Note and return	☐
Your comments	☐	Proper signature	☐
Necessary action	☑	Note and file	☐
Prepare reply	☐	See me	☐
Your recommendation	☐	Your initials	☐

REMARKS

Attn: your area

Mr. [redacted]!

Anything here?
– too far back in time.

FROM F.L.W.

DATE

PHONE

U. S. GOVERNMENT PRINTING OFFICE 16—53365-1

2101 CONSTITUTION AVENUE
WASHINGTON 25, D. C.

CABLE ADDRESS: NARECO
WASHINGTON, D. C.

(5)

NATIONAL ACADEMY OF SCIENCES
NATIONAL RESEARCH COUNCIL
OF THE UNITED STATES OF AMERICA

UNITED STATES NATIONAL COMMITTEE
INTERNATIONAL GEOPHYSICAL YEAR 1957-58

May 27, 1958

Dr. F. L. Whipple, Director
Smithsonian Astrophysical Observatory
60 Garden Street
Cambridge 38, Massachusetts

Dear Dr. Whipple:

Enclosed for your information is a detailed report of an October 18, 1957 sighting of an unidentified object. Similar information is being transmitted to Major Duff at AFCRC, except the prints, of which only one set was available. Please pass these prints on to Major Duff if you have no need for them.

Sincerely yours,

L. N. Cormier
USNC-IGY Earth Satellite Office

Enclosures

Original Report - (6)

COLLINS RADIO COMPANY

CEDAR RAPIDS, IOWA, U.S.A.

24 April 1958

Record E&O
5-19-58
LNC - Action

Dr. William H. Pickering
Director, Jet Propulsion Laboratories
California Institute of Technology
Pasadena, California

Dear Dr. Pickering:

I am enclosing a draft copy of a report together with three photographs which support the nature of this report. The report, as you will note, concerns the sighting of an unidentified object on 18 October 1957. Though this report is several months old, it was not brought to my attention until this month. In discussing it with Mr. Collins here in Cedar Rapids, he suggested that I send it to you for your information.

I understand from Mr. Holladay that he has forwarded a copy of this report to the interested parties at WADC in Dayton. In response to this, an Air Force officer has visited our Tucson office and interviewed the people who made the sighting.

Just rec'd by ATC.

This report is forwarded to you in the form of a draft in order that it could be forwarded quickly. If further use of the report is desired, we can supply it in finished form. I have furthermore promised the engineers involved that I would return the report to them and so would appreciate its return to me when you have finished with it. I would be very pleased to discuss this matter with you in more detail in the future if you desire.

Very truly yours,
COLLINS RADIO COMPANY

R. L. McCreary
R. L. McCreary
Assistant Director
Research and Development
Cedar Rapids Division

dcp

A REPORT ON THE SIGHTING OF AN UNIDENTIFIED OBJECT

Location: 9 mile west of Benson, Arizona
31° 57'33" N, 110° 25' 5" W

Date: 18 October 1957

Time: 1827-1833 MST

Observers: [redacted]

[redacted]

Mrs. [redacted]

[redacted]

The above (except Mr [redacted]) are electronics engineers ~~working for~~ [redacted] and ~~are~~ may be contacted ~~through the office~~ at [redacted] Broadway, Tucson.

Observations:

On the evening of 18 October, our group was attempting to sight the Russian earth satellite, Sputnik I, or the third-stage rocket which accompanied the satellite in orbit. The satellite was scheduled to appear at 1839, and on this day the rocket was reported to be leading the satellite by twenty-six minutes. Thus, we expected that the rocket, if seen at all, would appear about 1813. A camera was set up to record what we saw.

The rocket was not seen at 1813, but we continued to watch the sky, and around 1827 a bright object appeared over the southeast horizon and traveled rapidly across the sky, disappearing over the north-northwest horizon at about 1833. The object was brighter than any star in the sky, but less bright than the planet Venus was on that night. The light exhibited a yellowish hue, and it was our opinion that it was reflected sunlight.

No intensity variations were observed. The object crossed our parallel of latitude somewhat east of us at an angle of roughly 45° relative to our location.

We later concluded that the object seen could not have been the satellite rocket, since the latter had a southwest-northeast orbit, while the object we saw traveled southeast—north-northwest. This object appeared fourteen minutes after the rocket was expected and exhibited none of the variation in light intensity which has been reported for the rocket.

The satellite itself was not seen at 1839, but its radio signal on 20.005 mc was heard from 1834 to 1845, peaking around 1839. The signal appeared again from 2002 to 2022, peaking around 2015. The difference in time of the two signal peaks is ninety-six minutes, as expected. Thus, we believe that the satellite orbit information we had was correct.

The object we sighted has, so far, not been identified. Three photographs were taken, and these show clearly that what we saw was much too bright to have been airplane lights. The pictures were time exposures taken with a 4 x 5 press camera mounted on a tripod. The exposure time was roughly five seconds, and the film was Royal Pan with an ASA speed of 400. The details of each shot accompany the respective prints.

Why??? Few!

[redacted]

11-8-57

ESTIMATE OF HEIGHT

A simple calculation will yield the minimum height of an object over our location to reflect sunlight at 1827. Local sunset occurred at 1749. We first saw the unknown object thirty-eight minutes after sunset.

The circumference of the earth at the equator is approximately

$$2\pi \times 4000 = 25{,}133 \text{ mi.}$$

At latitude 32° this becomes:

$$25{,}133 \cos 32^\circ = 21{,}313 \text{ mi.}$$

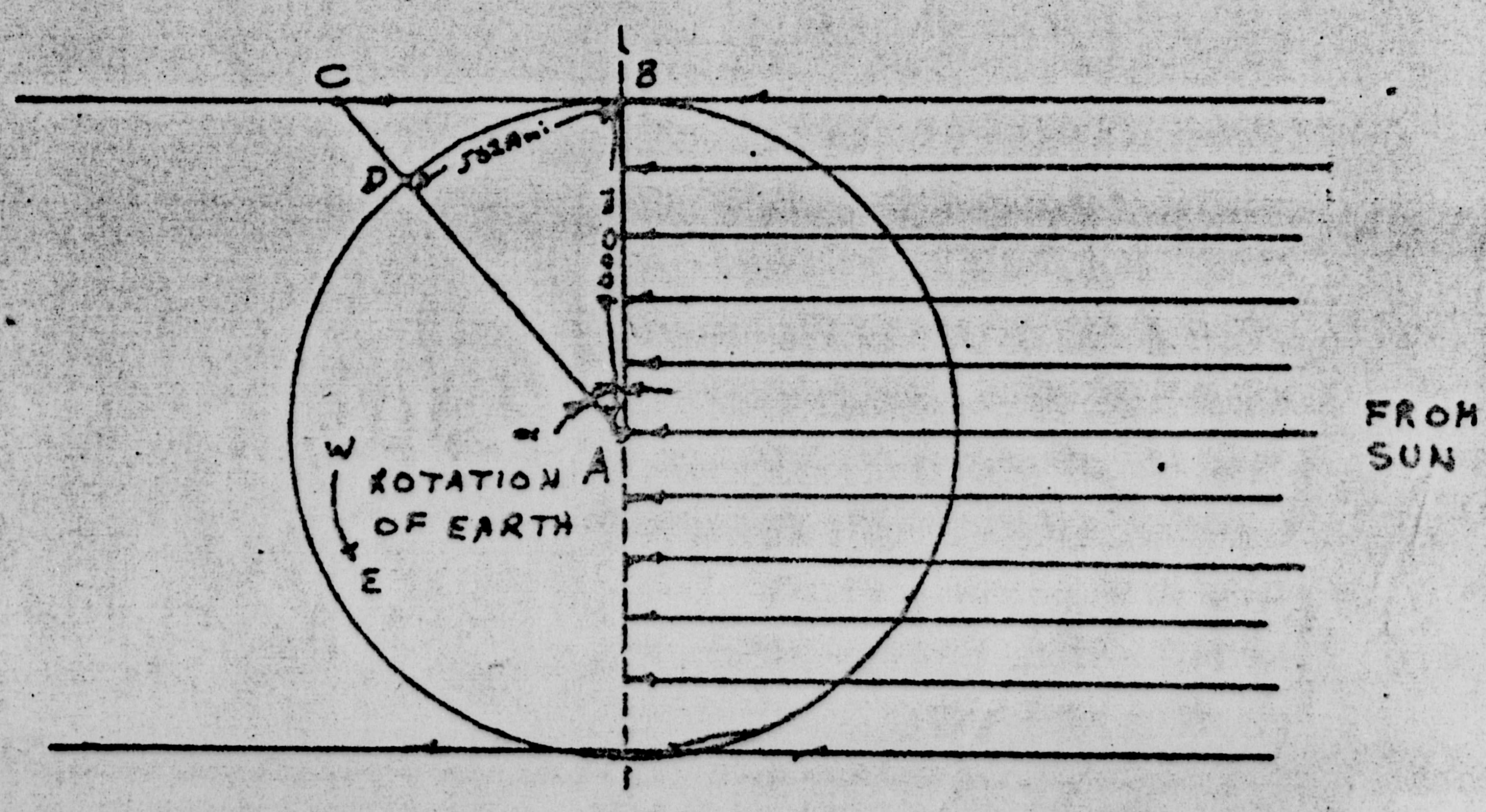
The speed of rotation of the earth at our latitude is:

$$\frac{21{,}313}{24 \times 60} = 14.80 \text{ mi/min}$$

Thirty-eight minutes after sunset, the earth has traveled:

$$38 \times 14.8 = \underline{562.4 \text{ mi.}}$$

Assuming parallel light rays arriving from the sun, the following diagram may be constructed:



The circle represents the 32nd parallel, viewed from the top (north).

Assuming triangle A B D is a right triangle, the angle α is:

$$\alpha = \tan^{-1}\frac{562}{4000}$$

$$\alpha = 8°0'$$

We may now calculate the hypotenuse A C of triangle A B C:

$$AC = \frac{4000}{\sin\alpha} = \frac{4000}{.99027} = 4039.3 \text{ mi.}$$

Since line A D is 4000 mi, line C D is 39.3 mi. This is the minimum height of the object above the earth.

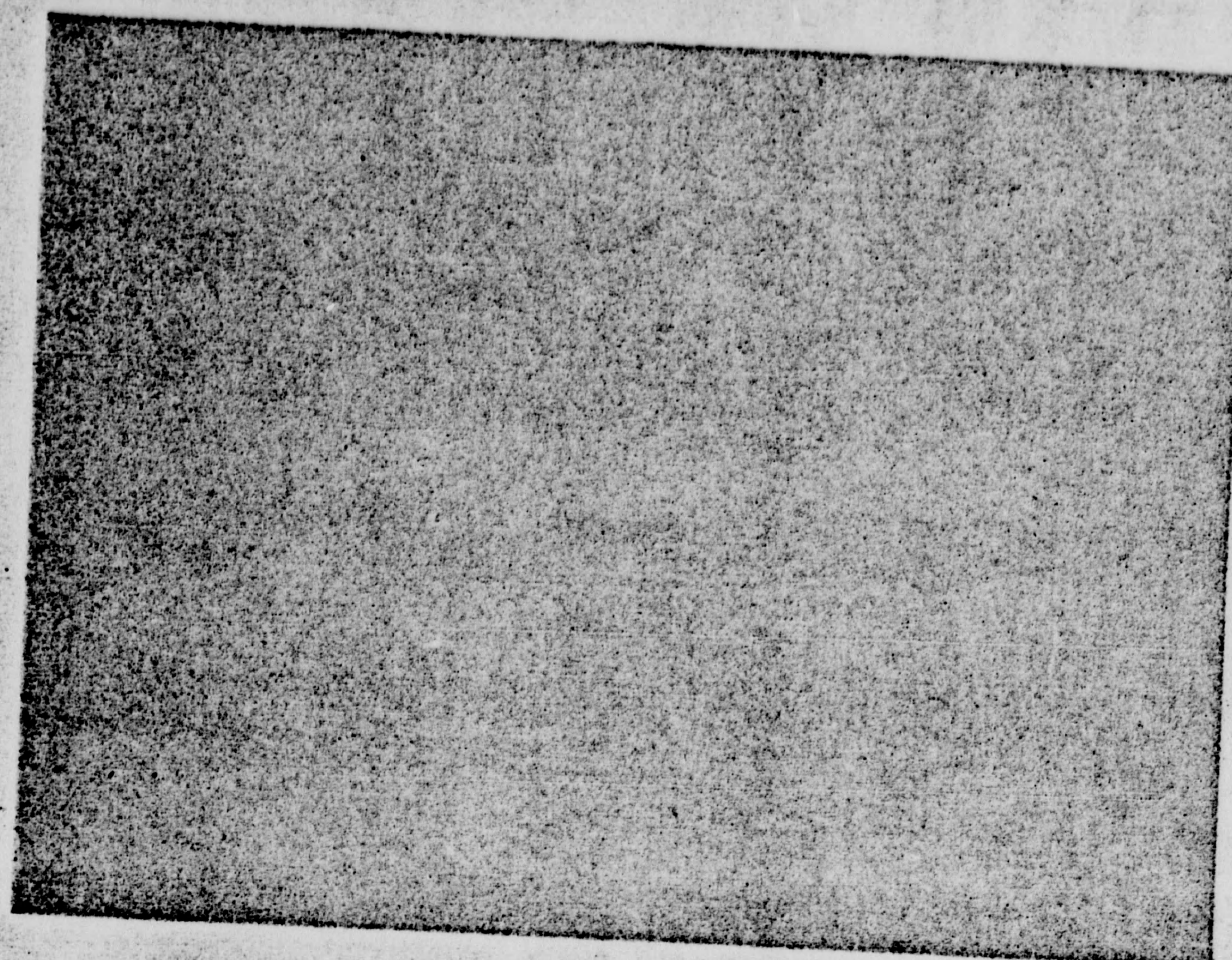
This calculation is based on an object directly over our location and reflecting the sun's rays thirty-eight minutes after sunset. This is a considerable simplification of the actual case. If the diffraction of the sun's rays by our atmosphere causes sunset to occur three minutes late (at 1752), then the distance C D is reduced to about thirty-five miles. However, the object was to the east of our location when seen at 1827, therefore the minimum height for reflection of sunlight should be increased. The above calculation was intended only to give a rough estimate of the heights involved, ~~and 39.3 mi. appears to be the absolute minimum height~~

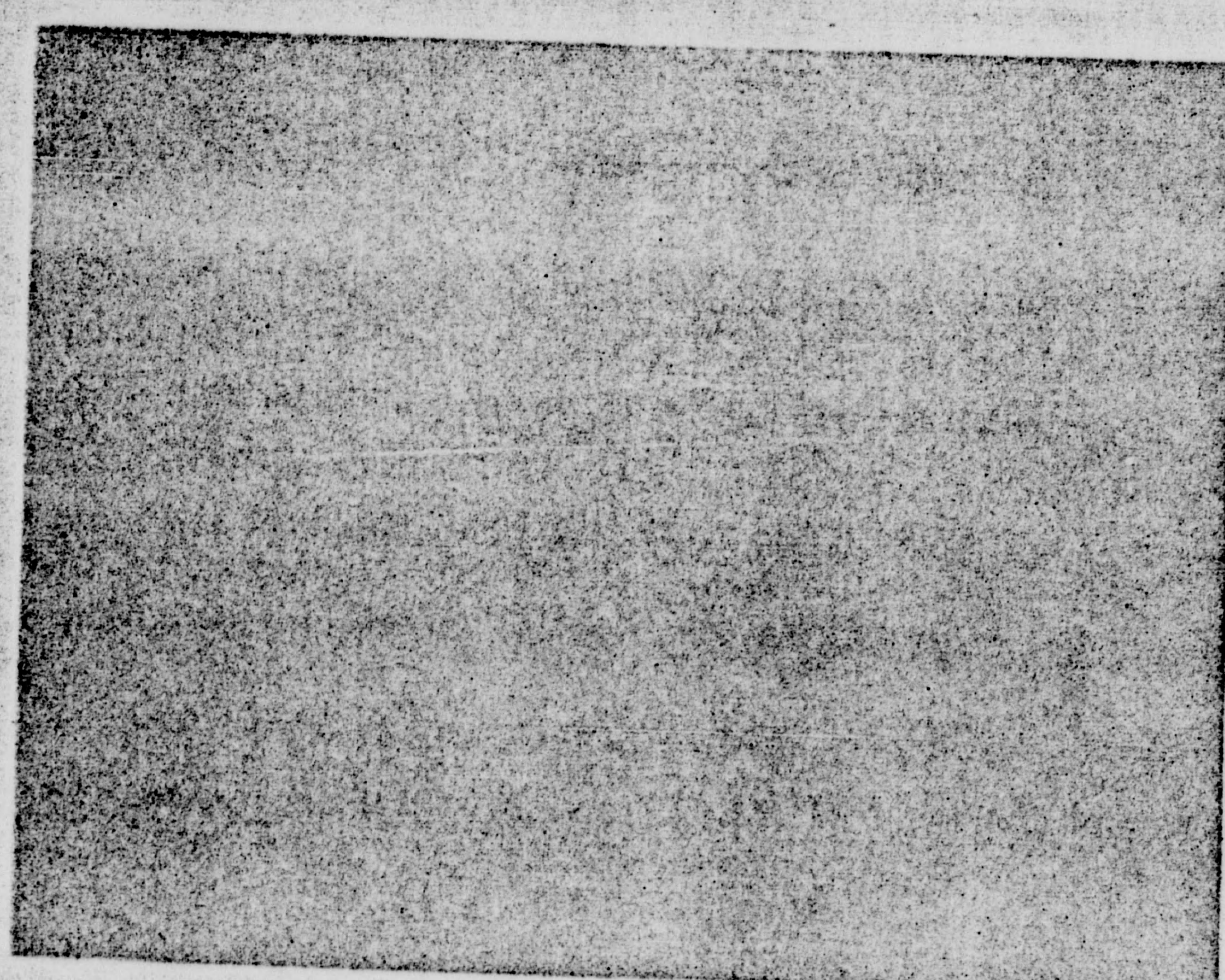
If the object we saw was illuminated by sunlight, the absolute minimum height appears to be 39.3 miles

1. Note!

2 - See A.F.G's analysis - Rept to Dr. Hynek dated June 9, 1958 6th paragraph ("Artificial

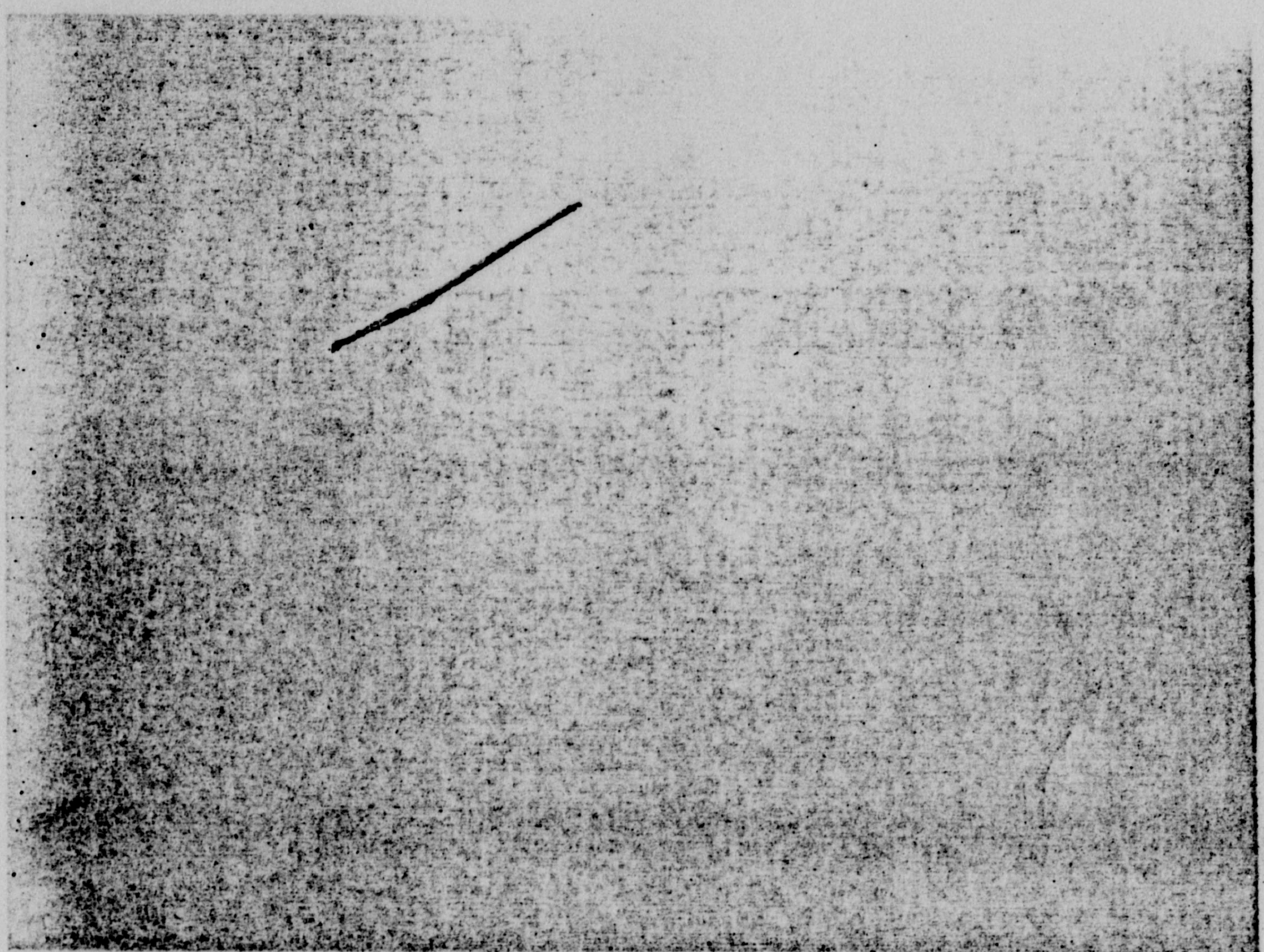
#1. SE SKY





#2. Middle of SKY

#3 superimposed in handle of big dipper - NNW sky



2101 CONSTITUTION AVENUE
WASHINGTON 25, D. C.

CABLE ADDRESS: NARECO
WASHINGTON, D. C.

NATIONAL ACADEMY OF SCIENCES
NATIONAL RESEARCH COUNCIL
OF THE UNITED STATES OF AMERICA

UNITED STATES NATIONAL COMMITTEE
INTERNATIONAL GEOPHYSICAL YEAR 1957-58

May 27, 1958

Mr. [redacted]
Assistant Director
Research and Development
Collins Radio Company
Cedar Rapids, Iowa

Dear Mr. [redacted]

Your letter of April 24, 1958 to Dr. [redacted] has been passed on to this office. We have read with interest the detailed report on the October 19, 1958 sighting of an unidentified object and we are forwarding copies of this report to the Smithsonian Astrophysical Observatory and the Department of Defense. As the report indicated, it does not appear likely that the object was associated with Sputnik I. However, the Smithsonian Astrophysical Observatory is engaged in meteor research as well as satellite tracking and will undoubtedly be glad to receive this information.

Thank you.

Sincerely yours,

[redacted]
USNC-IGY Earth Satellite Office

cc: Dr. [redacted] SAO
Major Eugene E. Duff, AFCRC
Dr. W. H. Pickering, JPL

Explorer III

Meteors Held Prelude Of Rockets to Moon

DAYTON DAILY NEWS 23 NOV 57

Launching First Apparent Breakthrough Into Space

HANSCOM AIR FORCE BASE, Mass., Nov. 23—(UP)—An Air Force scientist said today that the successful launching of artificial meteors into interplanetary space "undoubtedly" prepares the way for a rocket to the moon.

Maurice Dubin of the Geophysical Research directorate of the Air Force Cambridge Research center, said that by using a technique similar to that employed to hurl the meteors into space, scientists "could hit the moon."

He said such a moon rocket would travel under conditions similar to those through which the artificial meteorites broke out of the earth's gravitational pull.

* * *

HE SAID the rocket would take about 10 hours to travel the 250,000-mile distance to the earth's closest space neighbor since gravity would exert a greater force on the rocket than on the pellets.

The pellet experiment "should also prove very useful as a tool for controlled experiments in the physics of the upper atmosphere," Dubin said.

Last night scientists said the artificial meteorites blasted into space from over the New Mexico desert have "unquestionably" escaped into interplanetary areas.

Dubin said the 40,000-mile-an-hour speed on the ball bearing sized pellets broke through the earth's gravitational pull and are possibly being drawn into the orbit of the sun.

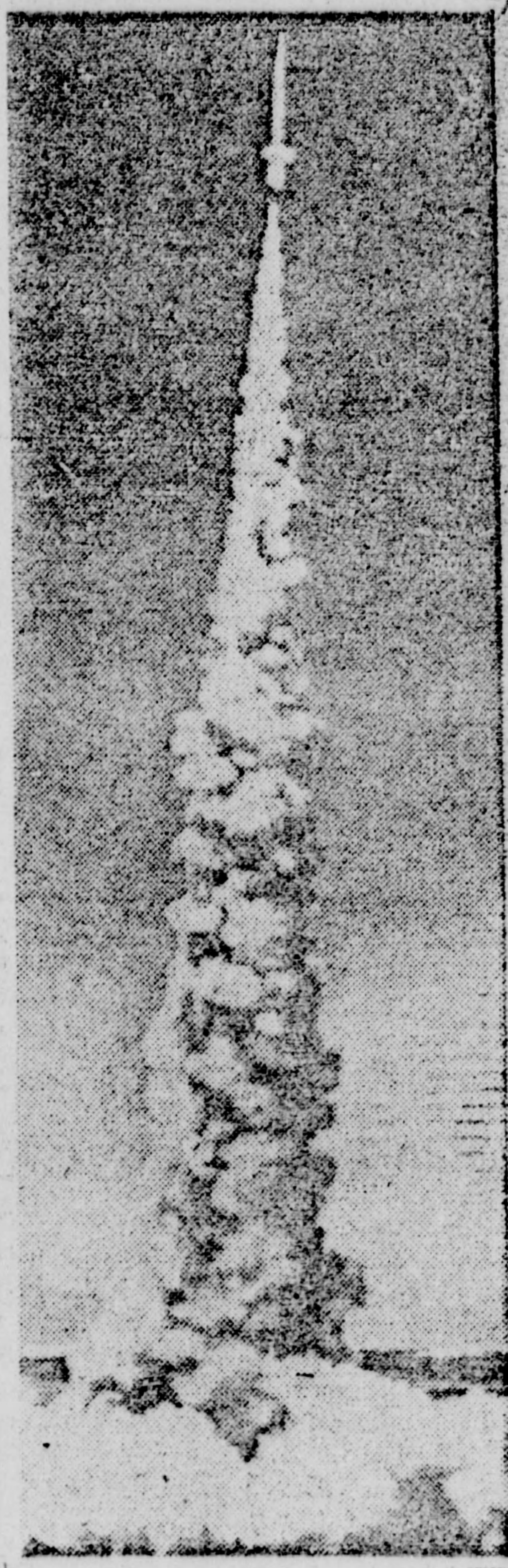
* * *

THE SPACE experiment, which began Oct. 16, at the Holloman Air Force base at Alamogordo, N. M., was believed to be man's first penetration into interplanetary space. The initial announcement of the project was made here yesterday.

Dubin said that only two of the original pellets were tracked and scientists "had no control of what direction the pellets would take after the explosion. It was indicated that as many as 1000 pellets were used.

The launching was explained this way: A 1100-pound Aerobee rocket, in effect a three-stage rocket, carried a nose tip containing three "shaped charges" of aluminum pellets and explosives. The Aerobee automatically separated at the 35-mile point and the nose tip continued 19 more miles upwards where it exploded, blasting the aluminum pellets into space.

The blast of the "shaped



AEROBEE ROCKET
54 Miles Above Earth

teors were caught by the tracking cameras because they glowed due to the resistance of the atmosphere and the heat of the explosive charge.

He estimated the atmosphere at that altitude as approximately one one-hundred-thousandth of the air density at the surface of the earth.

Mt. Palomar Observes Blast

The brightness of the explosion was placed at minus 10 magnitude or more than 5,000 times brighter than the Soviet satellites which at their brightest rival the brightest stars.

The explosion was observed at Mt. Palomar about 600 miles away and even at that distance astronomers said it was brighter than any planet or star.

Dubin refused to comment when asked if the explosion in the night sky might have triggered numerous reports of bright objects seen in the Southwestern United State about that time.

Astronomers, however, discounted any connection. They pointed out that maximum radius for observing a meteorite after it hits the earth's atmosphere is only about 100 miles.

The experiment, Dubin said, was suggested by Prof. Fritz Zwicky of the California institute of technology and was first attempted in 1947 using German V-2 rockets.

man's first penetration into interplanetary space. The initial announcement of the project was made here yesterday.

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The b l a s t of the "shaped charge" was very bright—5000 times brighter than the Soviet Sputniks and more brilliant than any star in the heavens, according to reports from observers at the Mt. Palomar observatory some 600 miles away.

* * *

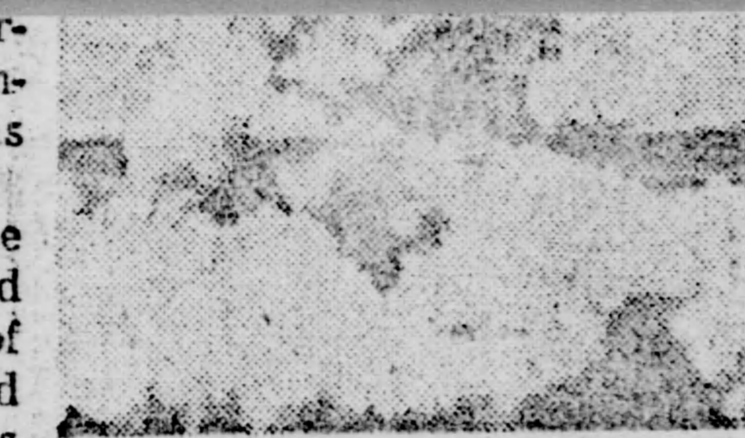
SCIENTISTS SAID that most of the "grape-shot" pellets probably burned up within the first half-mile of flight. But at least two of the meteorites definitely escaped the earth's gravity.

The bright glow of these objects as they battled the forces of space enabled scientists to record the experiment on film with a ballistic camera.

The Aerobee rocket, following the "shaped charge" by two or three miles, was undamaged by the explosion at the 54-mile point. It was recovered by scientists about 20 miles from the blasting test area.

Dubin said the rocket contained intact instruments which gave information on cosmic rays and also meteoric dust exsting naturally in the upper atmosphere.

The experiment, which was suggested by Prof. F. Zwicky of the California Institute of Technology, was first attempted in 1947 using former German V-2 rockets. The Oct. 16 project, however, was the first successful attempt and followed a series of failures, scientists said.



AEROBEE ROCKET
54 Miles Above Earth