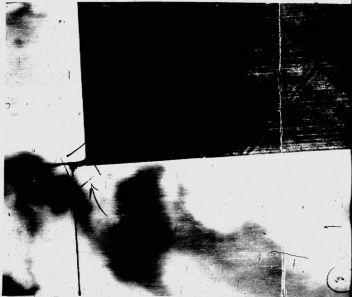
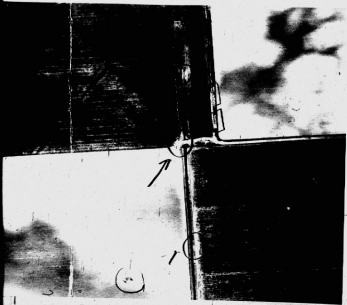


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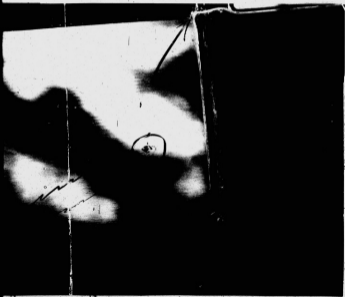


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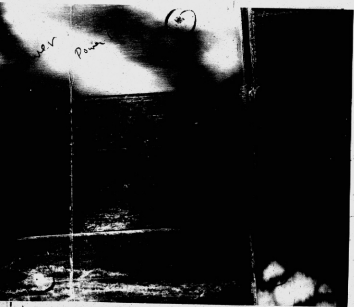
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8 JUN 1954

MEMORANDUM FOR Director of Intelligence
ATTN: Chief of Management

Capt. Martin/61/1047

SUBJECT: (RUC) Unidentified Flying Object Information.

1. An unidentified flying object was sighted and photographed near Richmond, Indiana on 24 May 1954 at 1825 (GMT) by Major Lee S. Brubaker, Reconnaissance Branch, Aerial Reconnaissance Laboratory, Wright-Patterson Air Force Base, while on a night mapping mission. The object was first visually sighted to the west of Richmond (39528 52N) and to the right of the observing aircraft. The length of the observation was 45 seconds in which time the object covered a distance of 6 miles over the ground (500 MPM) disappearing over the residential area of Richmond, Indiana. The photograph was taken about midway through the observation on the instructions of Major Brubaker to the camera crew. The object was not visible to the other crew members due to its position under the aircraft. The photographing aircraft (B-17) was at 18000 ft (flying at 150 MPM). The object was estimated to have been at 2000 to 5000 ft above the ground.
2. The photograph as well as the description by the observer, indicate that the light was of very high intensity. No detail of the object could be made out by the observer or from the photograph. Calculations, based on the observer's retellings show that the diameter of the light would have been 617 ft at ground level or 450 ft if at 2000 ft.
3. Major Brubaker is considered to be a very reliable and accurate observer.
4. The photograph was taken straight down with a mapping camera, lens 8" at F-11. Weather was clear in the area. Sea altitude was 70" W, azimuth 175°. Temperature was -10 at 18,500 ft and 0° at 20,000 ft.
5. Aircraft activity and radar plots in the area have been checked with negative results. The area has also been re-photographed for a study of the ground characteristics.

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AFSC Subject: (R) Unidentified Flying Object Information

6. AFSC believes that this unidentified flying object is a reflection phenomenon of some type and will carry out further investigation and study in an attempt to determine its nature.

①FOR THE COMMANDER

1 Encl
7 Photographs

E. C. SOLEM
CNO, USAF
Asst. AD.

COORDINATION:

AFSC: C. A. Hard DATE: 2 June 1958
 Capt. C. A. Hard
 AFSC: W. D. ... DATE: 2 June
 Col. E. E. ...
 AFSC: W. D. ... DATE: 2 June 58
 Col. E. E. ...

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NOTE ON REFRACTION AND DIFFRACTION FROM ICE CRYSTALS IN THE SKY
 - Charles F. Moore, The Rice Institute, Houston, Texas
 (Received June 9, 1936)

Observations of the reflected light from ice crystals in the sky have been made for centuries and even several phenomena are "well known" are well known. On February 6, 1918, I observed and repeatedly photographed the reflection of sunlight from ice crystals while flying in an airplane at 12,000 ft. over the mountain country of Tennessee. The time of day was approximately noon, and it was cold. The ground below was visible through the haze born caused by the ice crystals. The reflected image of the sun was so intense that the engine speed was 1/100 per cent and the speed was nearly at rest. The light waves of the mountain trees and a stream in a valley can be seen in Fig. 1.

The difference in the spread of the central image is just what one would expect for light coming through these thin crystals. It is interesting to note that the large and diffraction ring have an elliptical shape, and I confess that I do not know why this is so. Certainly the ice crystals were their flat surfaces all normal to the vertical. The assumption that a wind could produce an oblique orientation of the crystals in the horizontal plane would allow me to suppose a different diffraction spacing in the x direction than in the y direction. This would give an elliptical diffraction ring, but I do not understand why the central image would be set of round.

The spot of light would sometimes be closer to the aircraft (it appeared larger) and would sometimes be far away (it appeared smaller). The image kept the shape of reflection of the sun's rays, and this was checked repeatedly when the image coincided with the sun's reflection from a body of water on the ground below. A change of density of the ice crystals would cause the apparent shift in distance. Since the spot of light kept pace with the air-

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with (300 lines/hr) and above it shows the distance rapidly - indeed it
increases with incredible speed when the black flow is into such size as we
conclude that this must not be taken for a flying saucer of kind

1. U.S. Govt. Printer, Office (Small Size Paper), New York, 1953, Chapter 11.

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FL 17000 -

No Index7000 - 9000 Day Area7" D² Band in Red Paint8000 Southern10000 AT - 25 K₂ - 250'

5 - 21 270

15000 22 240

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10/11/44

5

* See Vol. 1
Copy to [unclear]
[unclear]

[unclear]

[unclear]
[unclear] 1950 - 1957
[unclear] 739
[unclear] 11-

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PHOTO OF UFO

KILPATRICK LA. AREA (39.42 N - 85 W)

MR. BURBARK (OBSERVER) AION. 56 - No 32177

ACFT. ALT. 19000 SA - 18000 G (Approx 1000 ft. error)

EST. ALT. OF OBJECT 3000 to 5000

EST. SPEED OF OBJECT 950 K (Calculated from distance covered in 45 sec observation)

TEMP -10 @ 18000 +9 @ 10000

TIME 1225 EST. 24 May 57 (45 Sec)

SUN ALT. 70° 27'

SUN AZ 171°

CAMERA - MAPPING 6" F 11

DENSITY = 3.12

EXPOSURE = 3.3 feet camera seconds

OBJECT SIZE - Ground 617 ft. long - 3000 ft. 450 ft. high.

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Recently Sta. a plan. sketch of
 that rep. by C.F. Squire (F.O.S.A. 142,
 783, 1952), undoubtedly a solar
 cell, possibly a ^{thin} layer ^{of} ^{semiconductor} ^{crystal}.
 The diffraction pattern found here
 in that, as shown in the photograph
 it was equidistant and had a
 center independent of that of the
 plane.

Circumstances of taking ptg.
 - Clappin

Pos. of diffraction pattern
 a progressive ^{of} ^{the} ^{crystal} ^{with} ^{distance} ^{covered} ^{by}
 plane.
 No.

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29 Oct 54

To Whom It May Concern -

The attached notes are calculations
used by Mr. Byers in his evaluation
of the "Reynold ~~is~~ account".

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Sum 200, 170° 27'

" " 111°

24 May 54 after 1000
EST

6" T-11 Mopping down

19500 on land

4/21 K

1000 to 310

Before 3.3 ft cushion

1000 to 310

reading 1000 to 310

Line



$\sin 191^\circ$
 $\frac{1}{2}$

After put to the origin



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$$S = \begin{cases} x = 0 \\ y = 1 \\ z = \frac{1}{\sqrt{2}} \end{cases}$$

Point S of 2:1

$$y = \sin 15^\circ \quad \underline{y = 0.25}$$

$$z = \cos 15^\circ \quad \underline{z = 0.97}$$



$$SS' = \sqrt{(0.25)^2 + (0.97)^2}$$

$$= \sqrt{1.0025} = 1.00125$$

$$= 1.00$$

$$S = \frac{1.00}{\cos 69.2^\circ}$$

$$= \frac{1.00}{0.35} = 2.85$$

$$= \sqrt{(0.25)^2 + (0.97)^2}$$

$$= \sqrt{1.00} = 1.00$$

$$30 = 27 + (28)$$

$$= \sqrt{1.00}$$

$$= 1.00$$

$$= 2.85$$

thought on 11.7.1941, and on 1/1/42
 discussed and was as follows
 in his crystals. The picture
 however indicates its direction
 in a slope (see Fig. 11.1) but
 is not a low angle
 view. The drawing of the
 line for a 70° angle is also
 shown.

Last 11.7.1941 says again, the
 crystals can see the 4 planes but
 the 2 angles is horizontal. It is
 in the direction of the 4 planes
 of the

"at the end of 1941 the cut was
 attached to the observer in a
 way as has been seen for the
 same line" This is long as a
 straight line. The rest of light
 stay is exactly the same position
 as the plane" [See dist. point, kinetic aspect
 and fig. 11.1 and 1.1].

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Range in 1877 about mid of 1877
 discovered that some of the stations
 in the range had been. The first time
 business interests into the location
 into an office (see page 10) but
 inspection of a low mountain
 and the showing out some
 and for a 7000 feet high of the
 on

Lab 155 is very fine, the
 right side can be seen of aspect but
 the a map line is horizontal. I don't
 in the north of the mountain of the
 aspect.

In the the end of 1877 the mountain was
 attached to the mountain in the north
 the way a low mountain was for the
 same time. The "so long as we maintain
 a straight course, that part of light will
 stay in exactly the same position as the top of
 the planet" [Note that point, frontier view
 and by 1877 and 1877.