All info reported Tame ... [illegible]
by A/C pilots [redacted]

UNCLASSIFIED

U. S. AIR FORCE TECHNICAL INFORMATION SHEET

29 Jan 69

This questionnaire has been prepared so that you can give the U. S. Air Force as much information as possible concerning the unidentified aerial phenomenon that you have observed. Please try to answer as many questions as you possibly can. The information that you give will be used for research purposes, and will be regarded as confidential material. Your name will *not* be used in connection with any statements, conclusions, or publications without your permission. We request this personal information so that, if it is deemed necessary, we may contact you for further details.

1. When did you see the object? Friday

13 (Day) March (Month) 59 (Year) EST.

2. Time of day: About 14 March 1959 — 0900 (Hour) ____ (Minutes)

(Circle One): A.M. or (P.M.)

3. Time zone:

(Circle One): a. Eastern
b. Central
c. Mountain
d. Pacific
e. Other ____

(Circle One): a. Daylight Saving
b. Standard

4. Where were you when you saw the object?

Finland AFS 756 AC&WSQ (Nearest Postal Address) Finland (City or Town) Minn. (State or Country)

Additional remarks: Working in Radar, Operations as I.C.T. for LT Murphy. working with Fighters.

5. Estimate how long you saw the object. ____ Hours ____ Minutes ____ Seconds

5.1 *Circle one* of the following to indicate how certain you are of your answer to Question 5.

a. Certain
b. Fairly certain
c. Not very sure
d. Just a guess

I never did

6. What was the condition of the sky? Remond, Fighter pilots reported [illegible] night.

(Circle One): a. Bright daylight
b. Dull daylight
c. Bright twilight
d. Just a trace of daylight
e. No trace of daylight
f. Don't remember

7. IF you saw the object during DAYLIGHT, TWILIGHT, or DAWN, where was the SUN located as you looked at the object?

(Circle One): a. In front of you
b. In back of you
c. To your right
d. To your left
e. Overhead
f. Don't remember

DOWNGRADED [illegible]

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ATIC FORM NO. 164 (13 OCT 54)

Incl #1
D7-UFOB-2-59

[redacted]

8. IF you saw the object at NIGHT, TWILIGHT, or DAWN, what did you notice concerning the STARS and MOON?

8.1 STARS (Circle One):

a. None
b. A few
(c.) Many — Reported by pilots
d. Don't remember

8.2 MOON (Circle One):

a. Bright moonlight
b. Dull moonlight
c. No moonlight — pitch dark
(d.) Don't remember

9. Was the object brighter than the background of the sky? As Reported by RB's pilots

(Circle One): (a.) Yes b. No c. Don't remember

10. IF it was BRIGHTER THAN the sky background, was the brightness like that of an automobile headlight?:

Bright than Dim
Reported by Pilots

(Circle One) a. A mile or more away (a distant car)?
b. Several blocks away?
c. A block away?
d. Several yards away?
e. Other _____

11. Did the object: Reported ALL by pilots (Circle One for each question)

a. Appear to stand still at any time?	Yes	(No)	Don't Know
b. Suddenly speed up and rush away at any time?	(Yes)	No	Don't Know
c. Break up into parts or explode?	Yes	(No)	Don't Know
d. Give off smoke?	Yes	No	(Don't Know)
e. Change brightness?	(Yes)	No	Don't Know
f. Change shape?	Yes	No	(Don't Know)
g. Flicker, throb, or pulsate?	(Yes)	No	Don't Know

12. Did the object move behind something at anytime, particularly a cloud? Reported by pilots

(Circle One): Yes (No) Don't Know. IF you answered YES, then tell what it moved behind: _____

13. Did the object move in front of something at anytime, particularly a cloud? Reported by pilots

(Circle One): Yes No (Don't Know.) IF you answered YES, then tell what it moved in front of: _____

14. Did the object appear: (Circle One): a. Solid? b. Transparent? (c. Don't Know.)

15. Did you observe the object through any of the following? As Reported by RB pilots

a. Eyeglasses	Yes	No	e. Binoculars	Yes	No
b. Sun glasses	Yes	No	f. Telescope	Yes	No
c. Windshield	Yes	No	g. Theodolite	Yes	No
d. Window glass	Yes	No	h. Other _____		

[redacted]

[redacted]

16. Tell in a few words the following things about the object. UNCLASSIFIED Reported by pilots

a. Sound No Sound

b. Color White with Red flashing Top + Green flashing bottom.

17. Draw a picture that will show the shape of the object or objects. Label and include in your sketch any details of the object that you saw such as wings, protrusions, etc., and especially exhaust trails or vapor trails. Place an arrow beside the drawing to show the direction the object was moving.

Describe by FIVE pilots somewhat like a stoplight.

18. The edges of the object were:

(Circle One): a. Fuzzy or blurred
b. Like a bright star
c. Sharply outlined
(d.) Don't remember
e. Other _____

19. IF there was MORE THAN ONE object, then how many were there? No.
Draw a picture of how they were arranged, and put an arrow to show the direction that they were traveling.

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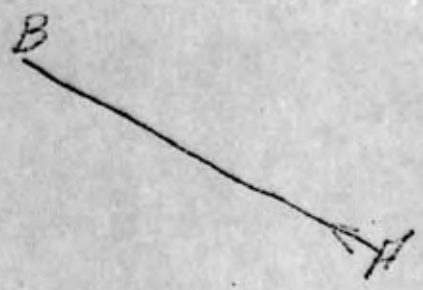
[redacted]

[redacted]

20. Draw a picture that will show the motion that the object or objects made. Place an "A" at the beginning of the path, a "B" at the end of the path, and show any changes in direction during the course.

Reported by pilots



21. IF POSSIBLE, try to guess or estimate what the real size of the object was in its longest dimension.
_____ feet. Don't Know

22. How large did the object or objects appear as compared with one of the following objects *held in the hand* and at about arm's length?

(Circle One):

a. Head of a pin
b. Pea
c. Dime
d. Nickel
e. Quarter
f. Half dollar
g. Silver dollar
h. Baseball
i. Grapefruit
j. Basketball
k. Other _____ Don't Know

22.1 *(Circle One* of the following to indicate how certain you are of your answer to Question 22.

a. Certain
b. Fairly certain
c. Not very sure
d. Uncertain

23. How did the object or objects disappear from view? At last report F102 pilots still saw it.

24. In order that you can give as clear a picture as possible of what you saw, we would like for you to imagine that you could construct the object that you saw. Of what type material would you make it? How large would it be, and what shape would it have? Describe in your own words a common object or objects which when placed up in the sky would give the same appearance as the object which you saw.

I can't answered This question

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[redacted]

[redacted]

25. Where were you located when you saw the object? *(Circle One):*

a. Inside a building
b. In a car
c. Outdoors
d. In an airplane
e. At sea
f. Other _____

26. Were you *(Circle One)*

a. In the business section of a city?
b. In the residential section of a city?
c. In open countryside?
d. Flying near an airfield?
e. Flying over a city?
f. Flying over open country? (pilots were)
g. Other _____

27. What were you doing at the time you saw the object, and how did you happen to notice it?

I was working ICT with Lt Murphy with 2-F102s and they reported all of this information TO ME, plus what 2-B52 reported TO ME.

28. IF you were MOVING IN AN AUTOMOBILE or other vehicle at the time, then complete the following questions:

28.1 What direction were you moving? *(Circle One)*

a. North
b. Northeast
c. East
d. Southeast
e. South
f. Southwest
g. West
h. Northwest

28.2 How fast were you moving? _____ miles per hour.

28.3 Did you stop at any time while you were looking at the object?

(Circle One) Yes No

29. What direction were you looking when you first saw the object? *(Circle One)* As reported by pilots

a. North
b. Northeast
c. East
d. Southeast
(e.) South
f. Southwest
g. West
h. Northwest

30. What direction were you looking when you last saw the object? *(Circle One)* It never did fade AT LAST REPORTS THE F102s STILL SAW IT.

a. North
b. Northeast
c. East
d. Southeast
e. South
f. Southwest
g. West
h. Northwest

31. If you are familiar with bearing terms (angular direction), try to estimate the number of degrees the object was from true North and also the number of degrees it was upward from the horizon (elevation).

31.1 When it first appeared:

a. From true North 210° degrees.
b. From horizon _____ degrees. SAME AS AZIMUTH

31.2 When it disappeared:

a. From true North _____ degrees.
b. From horizon _____ degrees.

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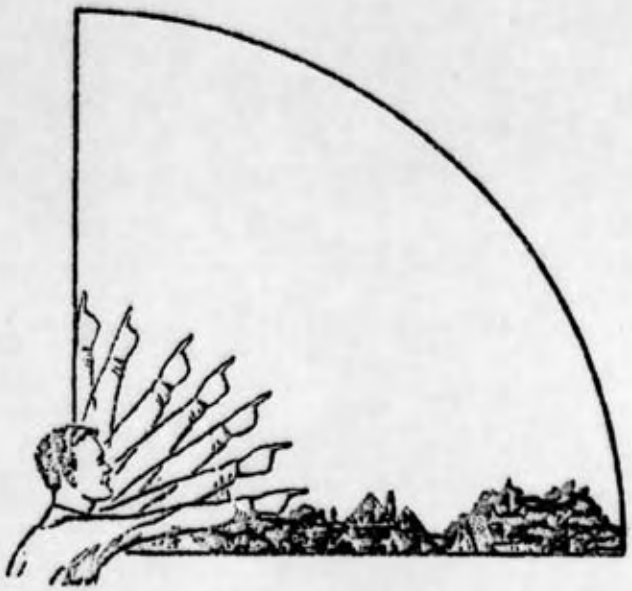
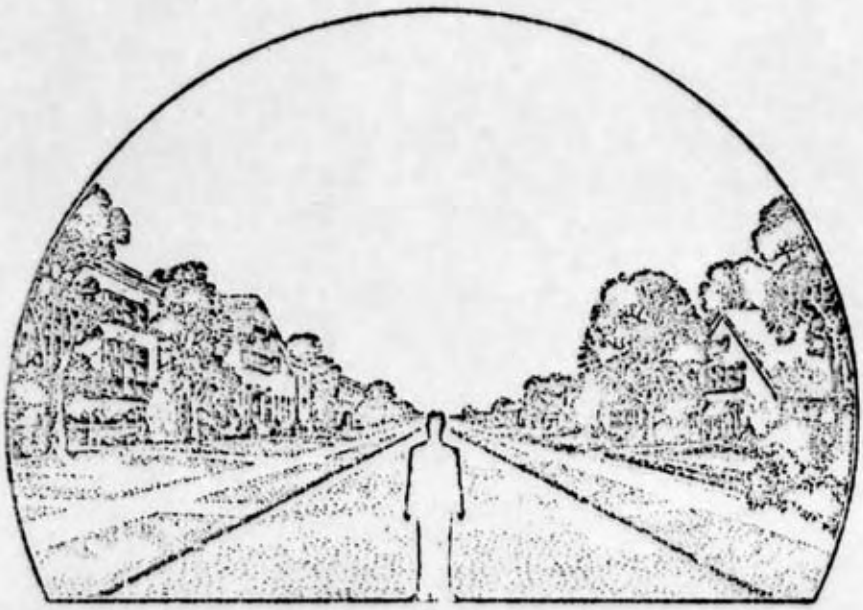
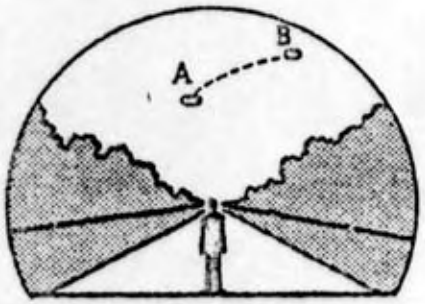
32. In the following sketch, imagine that you are at the point shown. Place an "A" on the curved line to show how high the object was above the horizon (skyline) when you *first* saw it. Place a "B" on the same curved line to show how high the object was above the horizon (skyline) when you *last* saw it.



33. In the following larger sketch place an "A" at the position the object was when you *first* saw it, and a "B" at its position when you *last* saw it. Refer to smaller sketch as an example of how to complete the larger sketch.





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34. What were the weather conditions at the time you saw the object?

34.1 CLOUDS *(Circle One)* Reported by pilots

(a.) Clear sky
b. Hazy
c. Scattered clouds
d. Thick or heavy clouds
e. Don't remember

34.2 WIND *(Circle One)* Reported by pilots at 30,000 ft 330° - 60 Knots

a. No wind
b. Slight breeze
c. Strong wind
d. Don't remember

34.3 WEATHER *(Circle One)*

(a.) Dry
b. Fog, mist, or light rain
c. Moderate or heavy rain
d. Snow
e. Don't remember

34.4 TEMPERATURE *(Circle One)*

(a) Cold
b. Cool
c. Warm
d. Hot
e. Don't remember

35. When did you report to some official that you had seen the object?

13 Day — March Month — 1959 Year

36. Was anyone else with you at the time you saw the object?

(Circle One) (Yes) No [redacted] heard report from pilots

36.1 IF you answered YES, did they see the object too?

(Circle One) (Yes) No

36.2 Please list their names and addresses:

[redacted]
256 Acorn St
Fairbanks, Alaska

37. Was this the first time that you had seen an object or objects like this?

(Circle One) Yes (No)

37.1 IF you answered NO, then when, where, and under what circumstances did you see other ones?

When I was up in Alaska at Eielson site we had a somewhat similar experience, except we only actually spotted it, it was all on Radar.

38. In your opinion what do you think the object was and what might have caused it?

No idea

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39. Do you think you can estimate the speed of the object?

(Circle One) Yes (No)

IF you answered YES, then what speed would you estimate? _____ m.p.h.

40. Do you think you can estimate how far away from you the object was?

(Circle One) Yes (No)

IF you answered YES, then how far away would you say it was? _____ feet.

41. Please give the following information about yourself:

NAME [redacted] (Last Name) [redacted] (First Name) [redacted] (Middle Name)

ADDRESS [redacted] (Street) Finland, MES (City) _____ (Zone) Minn. (State)

TELEPHONE NUMBER [redacted]

What is your present job? Radar oper.

Age 30 Sex Male

Please indicate any special educational training that you have had.

a. Grade school 8
b. High school 4
c. College _____
d. Post graduate _____
e. e. Technical school Radar operator
(Type) school
f. Other special training 2 years as Radar operator

42. Date you completed this questionnaire: 15 (Day) March (Month) 1952 (Year)

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[redacted]

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U. S. AIR FORCE TECHNICAL INFORMATION SHEET

(SUMMARY DATA)

In order that your information may be filed and coded as accurately as possible, please use the following space to write out a short description of the event that you observed. You may repeat information that you have already given in the questionnaire, and add any further comments, statements, or sketches that you believe are important. Try to present the details of the observation in the order in which they occurred. Additional pages of the same size paper may be attached if they are needed.

NAME [redacted]
(Please Print)

SIGNATURE [redacted]

DATE 13 March 1959

(Do Not Write in This Space)

CODE:

I was working as I.C.T. for Lt. Marrow, and we scrambled 2 F102's on a practice scramble. The F102's where climbing out of Duluth on a 360° heading and Cos. Red 1 claimed he had a contact about 12° clock at 10 miles. He said it looked like chaff. The F102's continued the mission and on the second set up Red 1 was tracking 180°, with Red 2 acting as interceptor and was approaching from the rear. Red 1 was looking behind and saw a very bright light. The F102, under the directors orders, which there was Lt. [illegible] Murphy, proceeded towards the bright light

UNCLASSIFIED

which was over Duluth, Minn. They claimed it was a bright white rotation beacon light with flashing red lights on top and green on the bottom. When the [illegible] neared Duluth the light was moving in a 330° heading away from Duluth. The F102's were going gate, .96 mach, as fast as they could trying to intercept it, but they were not gaining very much on it. When the F102 got over Duluth Red 1 got a contact on it, but lost it. The F102's kept closing at but the light started moving away from the F102's, at a high rate of speed. There was a B-52 in the area, about 80 miles dead a head of the F102's when they pass over Duluth, and we called the B-52 thinking maybe one of his lights where causing it, but the B52 pilots claimed he saw the same object in his 9 o'clock position at about 50 miles. After a few more minutes we brought the F102's back towards Duluth, for the object was going faster and they couldn't catch it. We learned a few minutes late the another B-52 spotted the same object about 20 minutes before the other B-52 saw it.

[redacted]

[redacted]

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AIRBORNE OBSERVER'S DATA SHEET

This questionaire has been prepared so that you can give the U.S. Air Force as much information as possible concerning the unidentified aerial phenomenon that you have observed. Please try to answer as many questions as you possibly can. The information that you give will be used for research purposes, and will be regarded as confidential material. Your name will not be used in connection with any statements, conclusions, or publications without your permission. We request this personal information so that, if it is deemed necessary, we may contact you for further details.

1. Date observation was made:

13 (Day) 3 (Month) 1959 (Year)

2. Time observation was made:

2045 (Time) C (Zone) ☐ Daylight Saving ☐ Standard

or 14/0245 Z (GMT)

3. Exact location of aircraft when the observation was first made:

FK PB 3707
Coordinates

4. Crew members who made the observation. (List each name)

NAME	RANK	CREW POSITION
[redacted]	1/LT	PLT

AISOP # 2
(19 Sep 56) DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS

Incl #2
D7-UFOB-2-59

[redacted]

UNCLASSIFIED

5. Aircraft identification

a. Type aircraft F102A

b. Serial No. 56-1510

c. Home Station DULUTH Muni ARPT MINNESOTA

6. Flight Data

a. Heading 180°

☑ Mag ☐ True ☐ Compass

b. Ind. Altitude 38,000'

c. Ind. Airspeed 2401C (.75K)

☐ Knots ☐ MPH

7. Was an attempt to detect the object on airborne radar made? (Circle one)

(Yes) No No Radar Radar inoperative

a. If YES, describe: W GRND MAP POSITION of RADAR A-BLIP WAS DETECTED 12 o'CLOCK AT 45 MI.

8. Was an intercept attempted? (Circle one) (Yes) No

9. Were photographs taken? (Circle one) Yes (No)

10. Were any other aircraft seen in the area? (Circle one) (Yes) No

a. If YES, was any attempt made to contact them? Comments: UNSUCC CONTACT WITH COUSIN K50 II

11. Were any nearby ground stations contacted during or soon after the sighting?

(Circle one) (Yes) No Comments: GOLAND DIRECTOR [redacted] (I BELIEVE) DIRECTED AN INTERCEPT TO BE MADE IF POSSIBLE.

[redacted]

UNCLASSIFIED

12. Were any unusual disturbances noted on the compass or radio?

(Circle one) Yes No Comments: SLAVED GYRO GAVE UNRELIABLE HDGS SHORTLY AFTER TAKE-OFF LATER APPEARED NORMAL THEN UNRELIABLE AGAIN

13. Was any turbulence noted? (Circle one) Yes No

Comments: _____

14. Estimate how long you saw the object. _____ Hours 15-20 Minutes _____ Seconds

Circle one of the following to indicate how certain you are of your answer to Question 14.

a. Certain b. Fairly certain c. Not very sure d. Just a guess

15. Did you observe the object through any of the following?

a. Eyeglasses Yes No
b. Sun glasses Yes No
c. Other _____ NONE

16. What was the condition of the sky? (Circle one)

a. Bright daylight
b. Dull daylight
c. Bright twilight
d. Just a trace of daylight
e. No trace of daylight
f. Don't remember

17. If you saw the object during daylight, twilight, or dawn, where was the sun located as you looked at the object? (Circle one)

a. In front of you
b. In back of you
c. To your right
d. To your left
e. Overhead
f. Don't remember

N/A

UNCLASSIFIED

[redacted]

[redacted]

UNCLASSIFIED

24. Did the object: (Circle one for each question)

a. Appear to stand still at any time?	Yes	(No)	Don't know
b. Suddenly speed up and rush away at any time	(Yes)	No	Don't know
c. Break up into parts or explode?	Yes	(No)	Don't know
d. Give off smoke?	Yes	(No)	Don't know
e. Change brightness?	(Yes)	No	Don't know
f. Change shape?	Yes	(No)	Don't know
g. Flicker, throb, or pulsate?	(Yes)	No	Don't know

25. Did the object move behind something at anytime, particularly a cloud?

(Circle one) (Yes) No Don't know. If you answered YES, then tell what it moved behind. A/C # 56-1478 AND ALSO A LINE OF LIGHTS MADE BY THE POSITIONS OF THE RANGE CITIES NORTHWEST OF DULUTH.

26. Did the object move in front of something at anytime, particularly a cloud?

(Circle one) Yes No Don't know. If you answered YES, then tell what it moved in front of. WHEN FIRST SIGHTED OBJECT WAS TO REAR AND GRADUALLY MOVED AROUND TO A FORWARD POSITION AS IT PROGRESSED DOWN THE NORTH SHORE OF LAKE SUPERIOR

27. The edges of the object were: (Circle one)

(a.) Fuzzy or blurred b. Like a bright star c. Sharply outlined

d. Don't remember e. Other _____

28. Describe in a few words the color of the object. A BRILLIANT LIGHT WHICH ALTERNATELY BRIGHTENED AND DIMMED, WHEN DIMMED APPEARED TO FLASH A RED AND GREEN BEACON

29. IF POSSIBLE, try to guess or estimate what the real size of the object was in its longest dimension. _____ feet. BECAUSE OF THE DISTANCE AT WHICH I SIGHTED THE OBJECT I CANNOT MAKE AN ACCURATE ESTIMATE

[redacted]

UNCLASSIFIED

30. Do you think you can estimate the speed of the object?

(Circle one) Yes (No) PART OF TIME OBJECT'S SPEED APPEARED NEAR MINE (.96 MACH)

If you answered YES, then what speed would you estimate? _____ MPH.

OTHER TIMES SEEMED MUCH FASTER.

31. Do you think you can estimate how far away from you the object was?

(Circle one) (Yes) No

If you answered YES, then how far asay would you say it was? 40-50 N. M. _____ feet.

32. Try to estimate the number of degrees the object was from true North (Azimuth).

32.1 When it first appeared: 340 degrees.

32.2 When it disappeared: 200 degrees.

TGT DID NOT DISAPPEAR UNTIL AFTER WE ABORTED THE CHASE.

33. If there was more than one object, then how many were there? (1) ?

Draw a picture of how they were arranged, and put an arrow to show the direction that they were traveling.

34. How large did the object or objects appear as compared with one of the following objects held in the hand and at arm's length? (Circle one)

a. Head of a pin
(b.) Pea
c. Dime
d. Nickel
e. Quarter
f. Half Dollar
g. Silver Dollar
h. Baseball
i. Grapefruit
j. Basketball
k. Other _____

35. Circle one of the following to indicate how certain you are of your answer to Question 34.

(a. Certain) b. Fairly certain c. Not very sure d. Uncertain

[redacted] UNCLASSIFIED

36. How did the object or objects disappear from view? AFTER GIVING CHASE FOR APPROX. 10 MINUTES AT FULL POWER AND NOT CLOSING ON TGT, WE GAVE UP THE CHASE AND RETURNED TOWER'S HOMPLATE, P-69 THEN ASKED US TO TAKE ANOTHER LOOK, THE OBJECT WAS NOT IN SIGHT

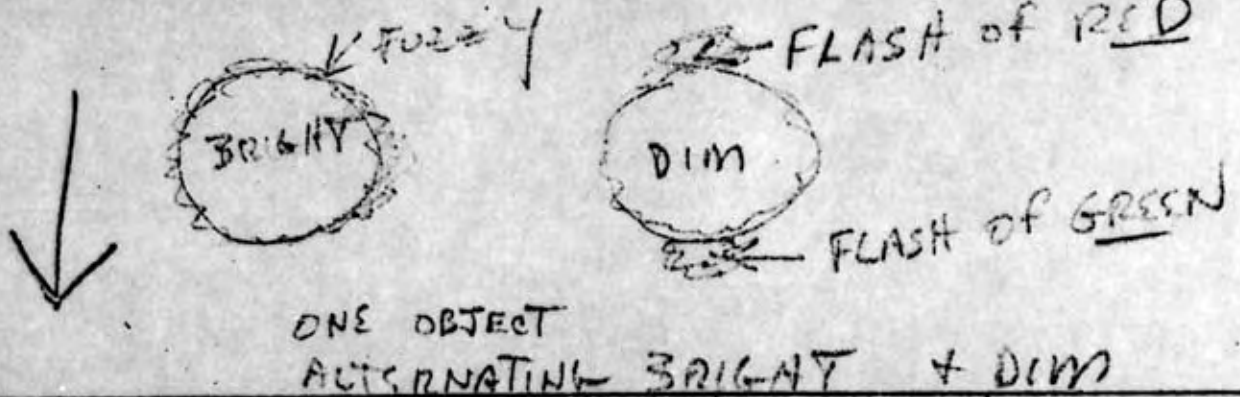
37. What direction were you looking when you first saw the object? (Circle one)

a. North	c. East	e. South	g. West
b. Northeast	d. Southeast	f. Southwest	(h. Northwest)

38. What direction were you looking when you last saw the object? (Circle one)

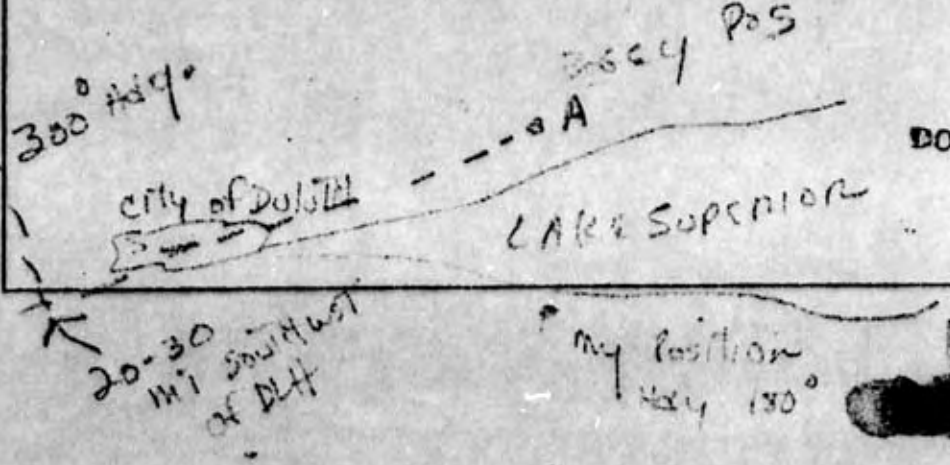
a. North	c. East	e. South	g. West
b. Northeast	d. Southeast	f. Southwest	(h. Northwest)

39. Draw a picture that will show the shape of the object or objects. Label and include in your sketch any details of the object that you saw such as wings, protrusions, etc., and especially exhaust trails or vapor trails. Place an arrow beside the drawing to show the direction the object was moving.



ONE OBJECT
ALTERNATING BRIGHT + DIM

40. Draw a picture that will show the motion that the object or objects made. Place an "A" at the beginning of the path, a "B" at the end of the path, and show any changes in direction during the course.



DOWNGRADED AT 3 YR INTERVALS; DECL

UNCLASSIFIED [redacted]

41. In order that you can give as clear a picture as possible of what you saw, we would like for you to imagine that you could construct the object that you saw. Of what type material would you make it? How large would it be, and what shape would it have? Describe in your own words a common object or objects which when placed up in the sky would give the same appearance as the object which you saw.

NO PARTICULAR IDEA ON HOW TO CONSTRUCT SOMETHING SIMILAR. OBJECT APPEARED CIRCULAR MOST OF TIME. SLIGHTLY DRAWN OUT AT FIRST LIKE AN AB LIGHT.

42. Was this the first time that you had seen an object or objects like this?

(Circle one) (Yes) No If you answered no, then when, where, and under what circumstances did you see other ones? _____

_____

_____

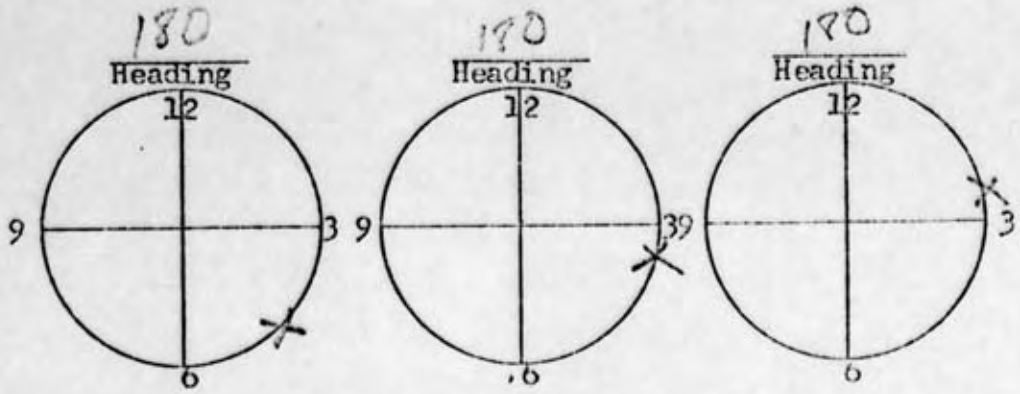
43. In your opinion what do you think the object was and what might have caused it?

NO OPINION

44. If practicable, attach to this page the section of a local area chart which shows the location of the sighting. On this chart plot the flight path of your aircraft and the flight path of the object.

If a local area chart is not available, roughly sketch in the area of the sighting showing latitude and longitude. Then plot the flight path of your aircraft and the flight path of the object. Put in prominent landmarks as necessary.

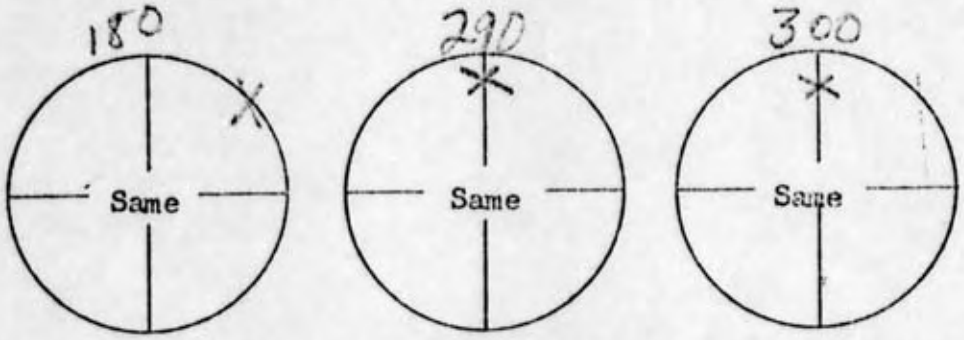
45. Show the location of the object in relation to the aircraft by placing an "X" on the edge of the circle at the o'clock position and state high, low or level. If this relationship changed during the sighting, use another circle and show the new relationship of the object to the aircraft. Also indicate any changes of heading of your aircraft.



(Circle one)
HIGH
LOW
LEVEL

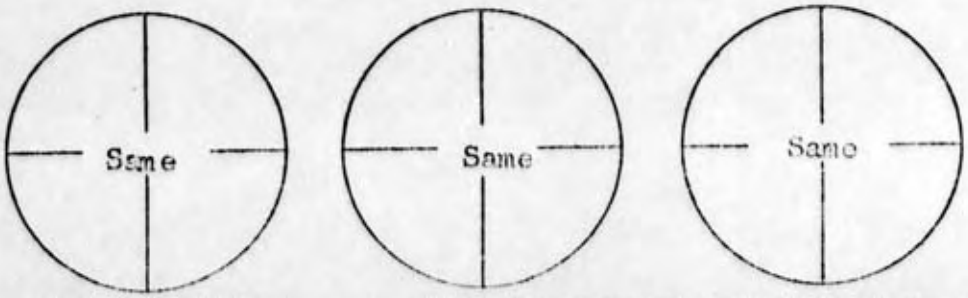
(Circle one)
HIGH
LOW
LEVEL

(Circle one)
HIGH
LOW
LEVEL



LEVEL ALL CASES

38,000



[redacted]

KED I UNCLASSIFIED

46. Please give a brief narrative account of sighting and any other additional data or comments.

Red 1 & 2

On climbout from Duluth Airborne Hdg 360° I had an AI contact 12 o'clock AT 16 mi which looked like Chaff. GCI asked me to turn around and check the area for any targets, since we were on a training mission we decided to check the area on our return also galahad had contacts the same place the night before. We continued the mission and GCI set us up for a practice Intcp. I (Red 1) was target and in observing Red II coming in for the Intercept I noticed a bright light behind him. It resembled the glow of an afterburner and I thought someone was chasing him. I described the object to him and GCI immediately asked for a more detailed description. I kept watching the bogey and it appeared to brighten and dim; when in the dim phase it appeared to have a red and green beacon. (Red on top and Green on bottom.) I called Red II and asked him to pick up my heading after the Intcp, and see if he saw the same thing I did. He replied that he had seen it and

DOWNGRADED ... DECLASSIFIED ... DOD DIR 5200.10

[redacted] UNCLASSIFIED

thought it to be a ground target. The object appeared to be crossing behind Red II at this time traveling westerly down the North shore of Duluth. When first sighted it appeared to be roughly 30 miles North of Duluth. At the completion of Red II's intercept the target appeared to be 20 miles Southwest of Duluth. At this time P-69 ordered me to intercept the bogey. If possible I turned to put the light at 12 o'clock and my heading was 290°. By holding the bogey at 12 o'clock my heading changed to 300 and remained constant. I did not appear to close on the bogey and I had no AI Contact in 30 mile range. However in Ground Map (200K) I had a blip at 45 miles which could have been a ground target but resembled an aircraft blip. P-69 reported at this time that a B-52 had also sighted the object in their 8 o'clock position at 40 to 50 miles closing fast they were heading roughly 040°. They requested P-69 to Vector

[redacted]

us (Red I + II) in on them and pick up the bogey from there, thinking we had no contact with the bogey. Red II was in the area of the B-52 and on picking up their leading confirmed that the bogey was the same one we were chasing. I noticed at this time that the bogey appeared to be crossing a line formed by the lights of the range. This indicating a moving target. We returned towards homeplate at this time since we were not gaining on the bogey. Shortly thereafter P-6 requested us to take another look at the Bogey but neither of us could spot it. I returned to the spot where I first sighted the bogey but could not see anything which faintly resembled the object which I had previously seen.

[redacted]

47. Please give the following information about yourself:

NAME [redacted] [redacted] [redacted]
Last Name First Name Middle Name

ADDRESS [redacted] DULUTH 11 MINN.
Street City Zone State

TELEPHONE NUMBER [redacted]

What is your present job? USAF PILOT

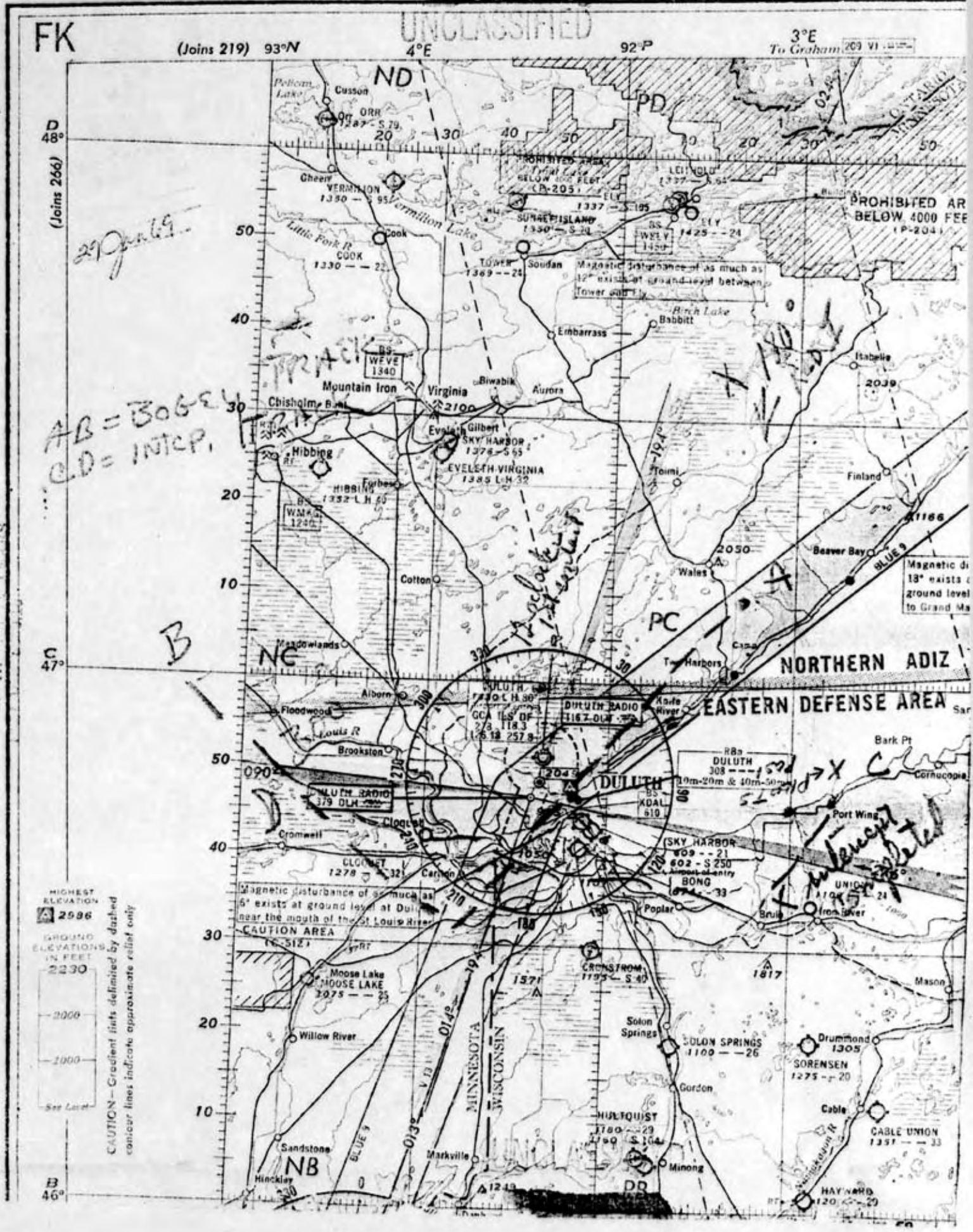
Age 25 Sex M

Please indicate any special educational training that you have had. STAFF OFFICERS ECM INDOC. COURSE

a. Grade School _____
b. High School ✓
c. College _____
d. Post graduate _____
e. Technical School _____
(Type) _____
f. Flying School ✓
g. Other special training _____

48. Date you completed this questionaire?:

17 MAR 59
Day Month Year


FK
UNCLASSIFIED
(Joins 219)
93°W
4°E
92°P
3°E
To Graham
(Joins 266)
48°
47°
46°
ND
PD
PC
NC
NB
DB
Pelican Lake
Cusson
ORR
Cheery
VERMILION
Vermilion Lake
Little Fork R
COOK
Cook
Soudan
TOWER
Magnetic disturbance of as much as 12° exists at ground level between Tower and
Birch Lake
Babbitt
Embarrass
Mountain Iron
Virginia
Biwabik
Aurora
Chisholm
Hibbing
Gilbert
SKY HARBOR
EVELETH-VIRGINIA
Eveleth
Forbes
Cotton
Meadowlands
Floodwood
Louis R
Brookston
Cloquet
Cromwell
Carlton
Moose Lake
MOOSE LAKE
Willow River
Sandstone
Hinckley
Markville
Minong
Solon Springs
SOLON SPRINGS
Gordon
HULTQUIST
CRANSTROM
Poplar
Brule
Superior
Port Wing
Bark Pt
Cornucopia
Mason
Drummond
SORENSEN
Cable
CABLE UNION
HAYWARD
Finland
Toimi
Beaver Bay
Wales
Tofte Harbors
Isabella
2039
2050
1166
DULUTH
DULUTH RADIO
379 DLH
1167 DLH
KDAL
610
SKY HARBOR
609 - - 21
602 - S 250
BONG
CROSSTOM
1295 — S 40
1571
1817
1243
1100 — — 26
1305
1275 — 20
1351 — — 33
1340
1330 — — 22
1350 — — 95
1337 — S 195
1425 — 24
1369 — 24
1376 — S 55
1385 L-H 32
1352 L-H 50
1240
1278 — 32
1075 — — 25
1780 — 29
1760 — S 104
1120 — 20
2100
1230 L-H 30
GCA ILS DF
118.3
CAUTION AREA
PROHIBITED AR
BELOW 4000 FEE
(P-204)
PROHIBITED AREA
Total Eclipse
BELOW 4000 FEET
(P-205)
NORTHERN ADIZ
EASTERN DEFENSE AREA
MINNESOTA
WISCONSIN
HIGHEST ELEVATION
2986
GROUND ELEVATIONS IN FEET
2230
2000
1000
Sea Level
CAUTION—Gradient tints delimited by dashed contour lines indicate approximate relief only
Magnetic disturbance of as much as 6° exists at ground level at Duluth near the mouth of the St Louis River
090
120
150
180
210
270
300
330
360
030
060
090
120
150
180
210
240
270
300
330
360