



580-1-1/20-1-67
DAFI 71067

FOLIO
31

ROYAL AUSTRALIAN AIR FORCE

TELEPHONE: 69 0550

TELEGRAPHIC ADDRESS:
"AIRCOMMAND, MELBOURNE"

HEADQUARTERS SUPPORT COMMAND
RAAF
VICTORIA BARRACKS
MELBOURNE SC1 VIC

5/6/Air(43)

IN REPLY QUOTE

10 APR 1967

Secretary
Department of Air
Russell Offices
CANBERRA ACT

DAFI

SIGHTINGS OF UN-IDENTIFIED FLYING
OBJECTS

Forwarded herewith are reports on UFO sightings investigated by this Headquarters. The sightings were made by:-

Julie Ann SPAIN
Douglas George ELLIOTT
Mrs R.A. REES
Maureen Jean PEERS.

(a/c)
(Sullivan)
(Sullivan)
(a/c?)

(L.B. BROWN)
Wing Commander
For Air Officer Commanding

Encl

REC'D.
12 APR 1967
C.A.S.

REPORT OF AERIAL OBJECT OBSERVED

- Name of Observer... *SPAIN John Bone*... Age... *18 yrs*...
- Address of Observer... *207 Central Rd, Manawatu, N.Z.*...
3. Occupation of Observer... *Housewife*...
4. Date and Time of Observation (Time to be given in local time)
... *4:10 am: Wednesday 22nd February, 1967*...
5. Duration of Observation(s)... *approx. 10 minutes*...
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks)
... *5th Floor (Rm) of Newus Home*...
... *Box Hill & Post Office Nelson Rd & Post Hill*...
7. Weather Conditions at time(s) of observation(s)... *Clear*...
8. Aids to Observation(s). (Describe any equipment used in the observation)
... *None*...
9. Where was object first observed, eg overhead, coming from behind a hill, over the horizon, etc.
... *Above horizon, Northwesterly direction*...
10. What first attracted observer's attention, eg light or noise.
... *light (series of)*...
11. Did object appear as a light or as a definite object.
... *Approx. 11.5. Light travelling as one*... (*1000*)
12. If there was more than one object, how many were there and what was their formation.
.....
13. What was the colour of the light or object... *Orange*...
14. What was its apparent shape.....
15. Was any detail of structure observable... *No*...
16. Was any method of propulsion obvious... *No*...
17. Was there any sound... *No*...
18. Height, or angle of elevation... *?*...
19. Speed, or angular velocity... *?*...
20. Was the object stationary... *No*...
21. What was the direction of flight with reference to landmarks or points of the compass...
... *Along horizon from North to West North West*...

Did the object remain on a straight path, deviate or manoeuvre at all?

Straight path, second to last before disappearing, but may have been due to distance

3. Was any trail of exhaust, vapour or light seen... *No*

24. Where did object disappear, eg mid-air, behind a hill, over the horizon.

Over horizon

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.

No

26. Have you observed any unusual phenomena previously... *No*

27. If so, give details of incident(s).....

28. State any experience which enables observer to be reasonably certain about the answers given to paras 18 and 19.

29. Are you a member of any organisation interested in aerial phenomena?

No

30. Name and address of organisation.....

31. Any additional information... *"Object" appeared to be moving at*

30 degree angle [] lights appeared to be flashing

at moving from front to rear of "object" eyes

Signature of Observer... *[Signature]*

32. Location of any air traffic in the vicinity at the time of sighting.

2 freighters landed at Brandon from Sydney at approx 0415 hrs

33. Location of any meteorological stations in the general area.

Melbourne, Laverton

34. Comments... *This is probably one of the freighters*

para 32 which would fly in the approximate path

given by the observer

Signature of Interrogator... *[Signature]*

QUESTIONS 32, 33 and 34 to be answered by interrogator.

note... Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved and the time taken to do this.

REPORT OF AERIAL OBJECT OBSERVED

- Name of Observer... DOUGLAS... GEORGE... ELLIOTT... Age 27...
Address of Observer... Flat 3... 96... GLASS ST... ESSENDON... VIC
Occupation of Observer... COMPANY... DIRECTOR...
4. Date and Time of Observation (Time to be given in local time)
..... FRIDAY... 17th MARCH... 1967... APPROX 9 PM
5. Duration of Observation(s)..... 15 MINUTES... APPROX.....
6. Observers Location at Time of Sighting (Give details of own
..... 92 GLEN IRIS RD..... position by map reference
..... GLEN IRIS VIC..... if possible, or by known
..... landmarks)
7. Weather Conditions at time(s) of observation(s).....
..... CLEAR OVERHEAD... LIGHT CLOUD TO NORTH
8. Aids to Observation(s). (Describe any equipment used in the
..... NONE..... observation)
9. Where was object first observed, eg, overhead, coming from
..... COMING THROUGH... SOUTHERN CROSS..... behind a hill, over the horizon, etc.
10. What first attracted observer's attention, eg light or noise.
..... MOVEMENT OF LIGHT.....
11. Did object appear as a light or as a definite object.
..... LIGHT.....
12. If there was more than one object, how many were there, and
..... ONE..... what was their formation.
13. What was the colour of the light or object... GREENISH... WHITE
14. What was its apparent shape..... SIMILAR TO STAR.....
15. Was any detail of structure observable..... NO.....
16. Was any method of propulsion obvious..... NO.....
17. Was there any sound..... NO.....
18. Height, or angle of elevation.....
19. Speed, or angular velocity... SIMILAR TO SATELLITES... OBSERVED
20. Was the object stationary?..... NO.....
21. What was the direction of flight with reference to landmarks
..... THROUGH... SOUTHERN CROSS FROM SOUTHERLY DIRECTION... AND THEN
..... VEERED NORTH EAST

22. Did the object remain on a straight path, deviate or manoeuvre at all?
..... Remained on straight course through Southern Cross and then changed course & turned NORTH EAST

23. Was any trail of exhaust, vapour or light seen... NO.....

24. Where did object disappear, eg in mid-air, behind a hill, over the horizon.
..... BEHIND CLOUD IN NORTH EAST OF SKY.....

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.
.....

26. Have you observed any unusual phenomena previously... NO....

27. If so, give details of incident(s).....

28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.

29. Are you a member of any organisation interested in aerial phenomena?
..... NO

30. Name and Address of organisation.....

31. Any additional information... ALSO OBSERVED AT THE SAME TIME BY MR. LEN GANGELL, MRS. A. ELLIOTT, MRS. D.G. ELLIOTT AND MISS SAM ELLIOTT

Signature of Observer... D. S. Elliott.....

32. Location of any air traffic in the vicinity at the time of sighting.
.....

33. Location of any meteorological stations in the general area.
.....

34. Comments... It is considered that this sighting was of a satellite - probably the same as seen by Mrs. ...

Signature of Interrogator.....

QUESTIONS 32, 33 and 34 to be answered by interrogator.

Note: Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved, and the time taken to do this.



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URBANE and SUBURBS





REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer. MRS. R. A. REES.....Age. 50.
2. Address of Observer. 11 BERRIMA AVE. EAST MALVERN
3. Occupation of Observer. HOME DUTIES.....VIC.
4. Date and Time of Observation (Time to be given in local time)
16th, 17th, 20th MARCH 1967..... APPROX. 8:30 P.M.
5. Duration of Observation(s).... 1/2 HOUR... APPROX.....
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks)
EAST MALVERN... SECTION 11, X,
ON MAP ENCLOSED: NEAR DANDENONG R.D. S^{TO} SW.
7. Weather Conditions at time(s) of observation(s). CLEAR, FINE AND MILD, NO CLOUD, MOON LIGHT.....
8. Aids to Observation(s). (Describe any equipment used in the observation)
NONE BUT TWO EYES.....
9. Where was object first observed, eg, overhead, coming from behind a hill, over the horizon, etc.
MOVING FROM WEST TO EAST MIDWAY IN SKY BETWEEN HORIZON AND OVERHEAD
10. What first attracted observer's attention, eg light or noise.
A MOVING STAR LIKE OBJECT PASSING ANOTHER STAR. NO SOUND
11. Did object appear as a light or as a definite object.
A LIGHT, A BRIGHT STAR.....
12. If there was more than one object, how many were there, and what was their formation.
ONE ONLY.....
13. What was the colour of the light or object... WHITE.....
14. What was its apparent shape..... STAR LIKE.....
15. Was any detail of structure observable... No.....
16. Was any method of propulsion obvious..... No.....
17. Was there any sound..... No.....
18. Height, or angle of elevation... MIDWAY BETWEEN HORIZON AND OVERHEAD
19. Speed, or angular velocity... MOVING RAPIDLY.....
20. Was the object stationary?... No.....
21. What was the direction of flight with reference to landmarks or points of the compass...
FLIGHT FROM WEST TO EAST... WHEN LAST SEEN IT WAS HIGH AND IN DIRECTION OF M^E. DANDENONG

22. Did the object remain on a straight path, deviate or manoeuvre at all?
..... A. SMOOTH..... STRAIGHT..... PATH.....

23. Was any trail of exhaust, vapour or light seen... No.....

24. Where did object disappear, eg in mid-air, behind a hill, over the horizon.
..... HIGH, UNTIL OUT OF SIGHT.....

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence. No.
... THREE MEMBERS OF FAMILY WITNESSED IT

26. Have you observed any unusual phenomena previously... YES..

27. If so, give details of incident(s) "THE SPUTNIK" 10 YEARS AGO

28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.

IT IS UNUSUAL TO SEE A RAPIDLY MOVING STAR AND THE MOVEMENT WAS SIMILAR TO SATELLITE SEEN 10 YEARS AGO

29. Are you a member of any organisation interested in aerial phenomena?
..... No.....

30. Name and Address of organisation.....

31. Any additional information. THE WONDERFUL ACHIEVEMENTS IN SPACE EXPLORATION IN THE PAST FEW YEARS MAKE ANY UNUSUAL SIGHT VITAL TO AUSTRALIA FOR SCIENCE AND SECURITY.
Signature of Observer..... J. de Pees

32. Location of any air traffic in the vicinity at the time of sighting. NIL

33. Location of any meteorological stations in the general area.
..... MOORABBIN AIRPORT, MONASH UNIVERSITY.....

34. Comments... from the report of this sighting... interviews with the observer it is apparent that the sighting was of a satellite

Signature of Interrogator.....

QUESTIONS 32, 33 and 34 to be answered by interrogator.

Note: Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved, and the time taken to do this.

REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer.. MADREAN JEAN PEERS Age. 28
2. Address of Observer.. 53 RAKEISA ST FOREST HILL
3. Occupation of Observer.. HOUSEWIFE
4. Date and Time of Observation (Time to be given in local time)
TUESDAY 21ST MARCH AT 2.40 PM.
5. Duration of Observation(s).. 4-5 SECONDS
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks)
BACKWARD OF 53 RAKEISA ST. FOREST HILL
7. Weather Conditions at time(s) of observation(s) CLEAR SKY
BRIGHT SUNSHINE
8. Aids to Observation(s). (Describe any equipment used in the observation)
NAKED EYES.
9. Where was object first observed, eg overhead, coming from behind a hill, over the horizon, etc.
OVERHEAD
10. What first attracted observer's attention, eg light or noise.
BRIGHT LIGHT
11. Did object appear as a light or as a definite object.
OBJECT APPEARED DEFINITE, BUT LOWER SECTION WAS LIKE A BRIGHT LIGHT.
12. If there was more than one object, how many were there and what was their formation.
ONLY 1 OBJECT.
13. What was the colour of the light or object. GREY
14. What was its apparent shape.. ROUND, LIKE A FULL MOON.
15. Was any detail of structure observable... NO.
16. Was any method of propulsion obvious... NO.
17. Was there any sound... NO.
18. Height, or angle of elevation. ABOUT THE HEIGHT OF A PLANE
19. Speed, or angular velocity. MUCH FASTER THAN AIRLINER.
20. Was the object stationary... NO.
21. What was the direction of flight with reference to landmarks or points of the compass...
OBJECT TRAVELLING NORTH BY DUE SOUTH.

22. Did the object remain on a straight path, deviate or manoeuvre at all?
..... REMAINED ON A STRAIGHT PATH.....

23. Was any trail of exhaust, vapour or light seen... LIGHT.....

24. Where did object disappear, eg mid-air, behind a hill, over the horizon.
..... OVER THE HORIZON.....

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.
..... NO.....

26. Have you observed any unusual phenomena previously... NEVER.....

27. If so, give details of incident(s).....
.....

28. State any experience which enables observer to be reasonably certain about the answers given to paras 18 and 19.
..... NO EXPERIENCE.....

29. Are you a member of any organisation interested in aerial phenomena?
..... NO.....

30. Name and address of organisation.....
.....

31. Any additional information... PLEASE FIND ENCLOSED SKETCH.....
.....

Signature of Observer Thomas J. Peers.....

32. Location of any air traffic in the vicinity at the time of sighting.
..... None known.....

33. Location of any meteorological stations in the general area.
..... Nearest at Melbourne.....

34. Comments. There is no record of this from any other flights in the area, but possibly a light aircraft from Melbourne may have been in the area. The ^{observer} is of the opinion that the object was not an aircraft. Machine used on the day in question was 1544.

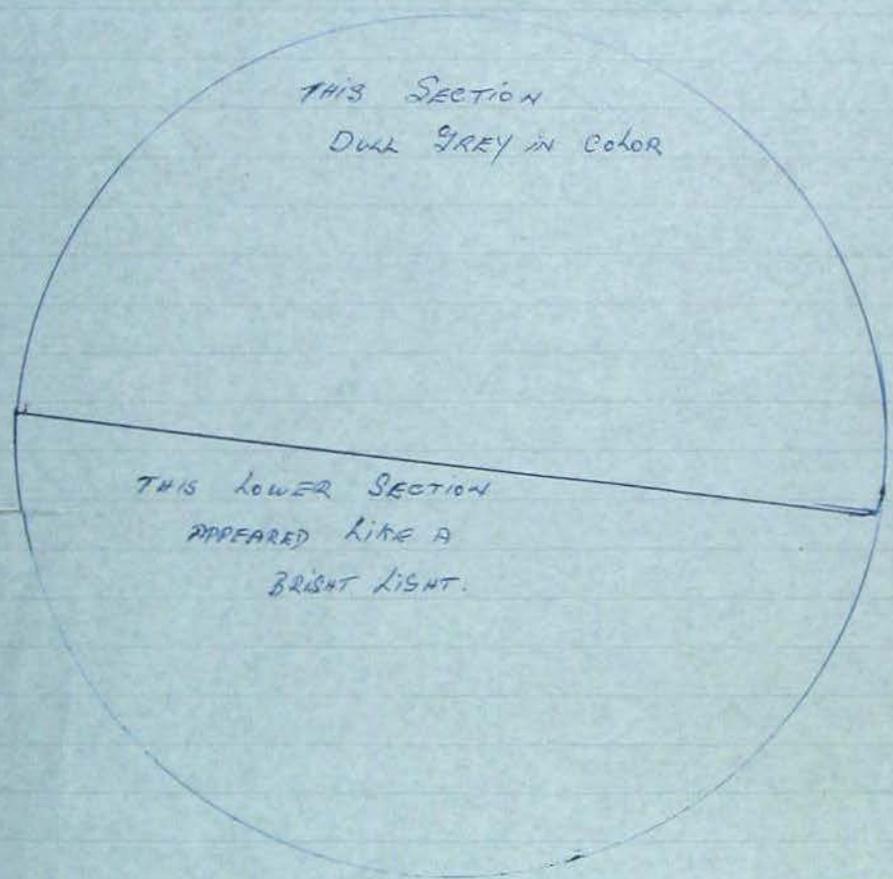
Signature of Interrogator [Signature].....

QUESTIONS 32, 33 and 34 to be answered by interrogator.

note... Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved and the time taken to do this.

53 RALEIGH ST
FOREST HILL

OBJECT TRAVELLING NORTH TO SOUTH. HIGH SPEED.



PLANE PASSED OVER APPROX 10 MINS. BEFORE HAND TRAVELLING WEST TO EAST.



ROYAL AUSTRALIAN AIR FORCE

580-1-120-167
PPS
DAFI
20-167
30
10110

TELEPHONE: 69 0550

HEADQUARTERS SUPPORT COMMAND
RAAF
VICTORIA BARRACKS
MELBOURNE SC1 VIC

TELEGRAPHIC ADDRESS:
"AIRCOMMAND, MELBOURNE"

IN REPLY QUOTE 5/6/Air(42)

10 APR 1967

Secretary
Department of Air
Russell Offices
CANBERRA ACT

DAFI

INVESTIGATION INTO UNIDENTIFIED
FLYING OBJECTS

1. Forwarded herewith are reports of Unidentified Flying Objects submitted by No 2 Stores Depot and by Headquarters East Sale.
2. The report from 2STODEP concerns sightings made by Kenneth Albert MARTIN and Stephen BURNS.
3. No 2 Stores Depot has the following comment to make:-

..."Investigations with Department of Civil Aviation officers at MASCOT aerodrome show that at 0126 hours on the 16th March a civilian DC-4 aircraft landed at MASCOT. This aircraft approached from the Glenfield Beacon and it is estimated that the aircraft would have overpassed very close to Mr MARTIN's residence between a height of 1500 and 2000 feet. Department of Civil Aviation officers have also advised that it is quite possible that the pilot of this aircraft tested the aircraft landing lights at about the point that the UFO was sighted and this could account for the brilliant white light observed by Mr MARTIN." (encl)

4. The report from Headquarters East Sale concerns sightings made by :-

Mrs J.A. FERGUSON
Mrs C.E. LAWLER
Mrs M. HOWARD
Mr R.T. BUTLER.

(views this para deleted)

5. This Headquarters has nothing further to add to these reports.

L.B. Brown

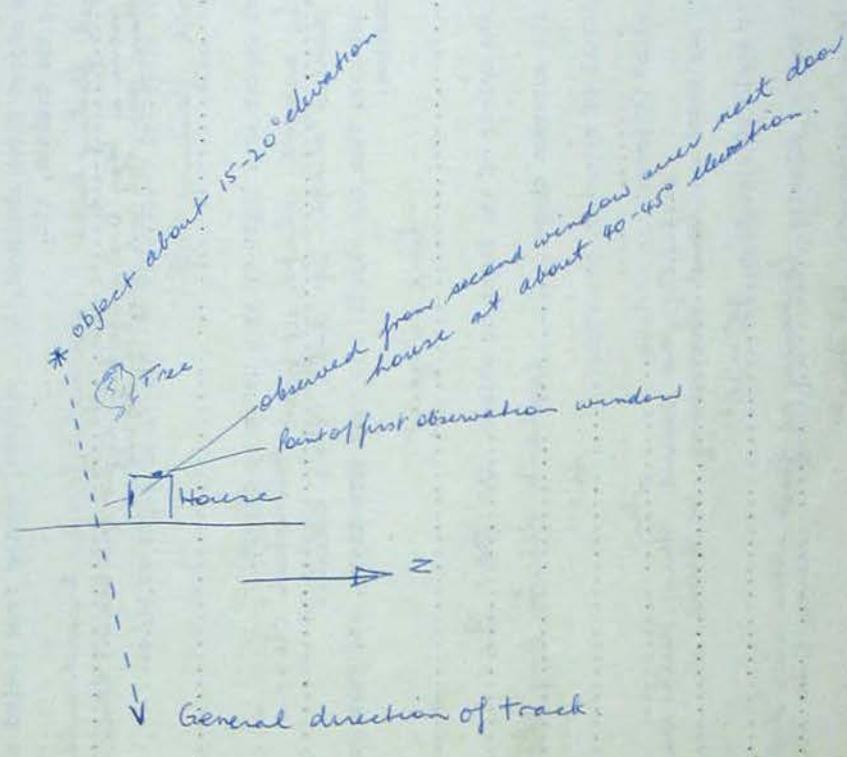
(L.B. BROWN)
Wing Commander
For Air Officer Commanding

Encl



REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer... KENNETH ALBERT MARTIN Age 32.....
2. Address of Observer... 28 Kathleen Pde Picnic Point.....
3. Occupation of Observer... ~~PHOT~~ PROCESS WORKER.....
4. Date and Time of Observation (Time to be given in local time)
..... 0115 16/3/67
5. Duration of Observation(s)..... about 6 ~~10~~ minutes altogether.....
6. Observers Location at Time of Sighting (Give details of own position
by map reference if possible,
or by known landmarks)
looking westerly direction from
above address.....
7. Weather Conditions at time(s) of observation(s).....
Cloudy above object - complete ~~at~~ cloud cover.....
8. Aids to Observation(s). (Describe any equipment used in the obser-
vation)
NIL.....
9. Where was object first observed, eg, overhead, coming from behind a
hill, over the horizon, etc.
First saw brilliant red flashing light - 1 red light fainter on each side
before beginning to move a very brilliant white light (no beam) came on
for 3 or 4 sec - then saw the red light again
10. What first attracted observer's attention, eg light or noise.
brilliant red flashing light.....
11. Did object appear as a light or as a definite object.
no actual shape at first but when closer
appeared a saucer shape of dull grey colour......
12. If there was more than one object, how many were there, and what was
their formation.
One object.....
13. What was the colour of the light or object... as per 9.....
14. What was its apparent shape..... couldn't discern any shape.....
15. Was any detail of structure observable..... no.....
16. Was any method of propulsion obvious..... no.....
17. Was there any sound..... initially no sound then dull but
loud humming or droning.....
18. Height, or angle of elevation... 15-20°.....
19. Speed, or angular velocity... Stationary at first - then rose slightly,
moved S to SE.....
20. Was the object stationary?..... at first.....
21. What was the direction of flight with reference to landmarks or
points of the compass.
~~S to SE~~ Easterly.....



Did the object remain on a straight path, deviate or manoeuvre at all?

Never do move on an arc before moving easterly.

23. Was any trail of exhaust, vapour or light seen..... *no*

24. Where did object disappear, eg in mid-air, behind a hill, over the horizon.

in a due east direction and accelerated after it moved past observation point at a low altitude - much lower than

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.

no

26. Have you observed any unusual phenomena previously..... *about 8 weeks ago*

27. If so, give details of incident(s)..... *exactly same except object was higher, exactly same time.*

28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.

nil

29. Are you a member of any organisation interested in aerial phenomena?

no

30. Name and Address of organisation.....

31. Any additional information. *Was quite scared on first sighting 8 weeks ago - this time was ^{more} curious. He was amazed by exact repetition of first occasion. Very puzzled by the whole business. Stated it was not like any known etc he has ever seen or heard.*

Signature of Observer *H. A. MacIntosh*

32. Location of any air traffic in the vicinity at the time of sighting.

NIL OBSERVED however aircraft could pass relatively close in tracking over APOSTOW beacon

33. Location of any meteorological stations in the general area.

BANKSTOWN AERODROME

34. Comments *This witness seemed reliable and very sure of what he saw and heard. If it was an aircraft tracking easterly it would seem to be very low, however height estimation is relatively hard to view experienced personnel. The witness was not aware that aircraft normally have flashing red light as that they carry landing lights.*

Signature of Interrogator..... *Henry [unclear]*

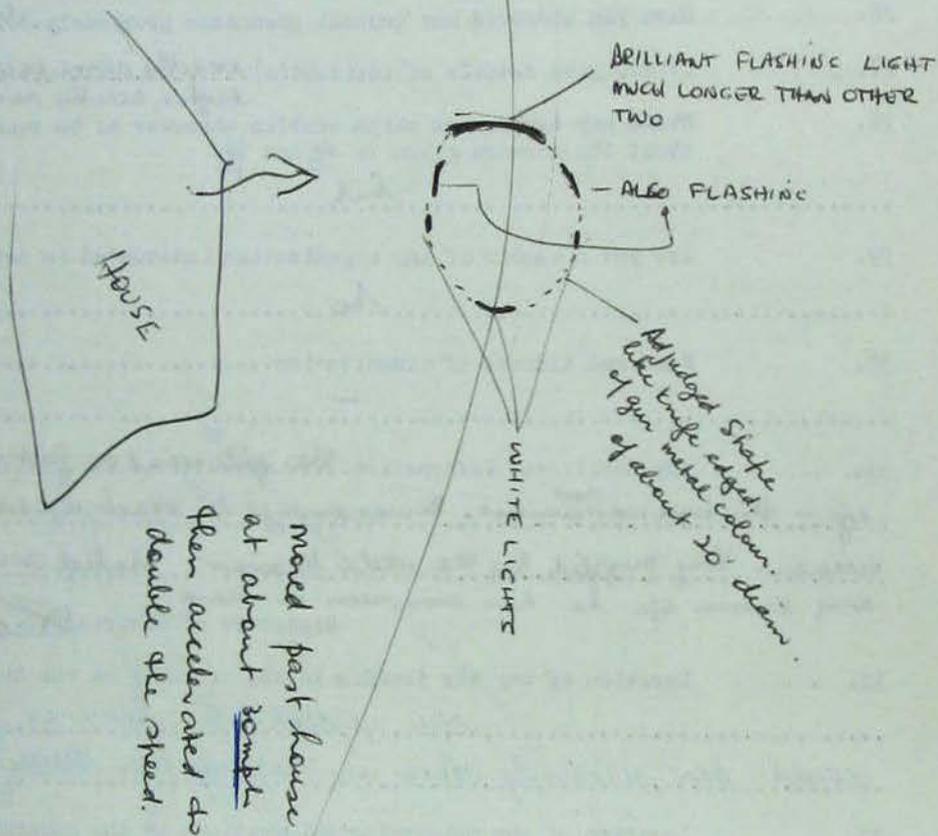
QUESTIONS 32, 33 and 34 to be answered by interrogator.

RAAF ATC confirmed inbound traffic landed at 0659Z. Bankstown complex night flying

Note:

Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved, and the time taken to do this.

Refer diagrams



Reported first sighting to Air Force at Bankstown Aerodrome. Gave number for him to call - when he called he was asked to send in a diagram.

REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer... STEPHEN BURNS Age 11.
2. Address of Observer... 28 KATHLEEN PDE
3. Occupation of Observer... SCHOOLBOY
4. Date and Time of Observation (Time to be given in local time)
..... EARLY AM HRS 16/3/67
5. Duration of Observation(s)..... 3 mins about 1 1/2 mins
6. Observers Location at Time of Sighting (Give details of own position
by map reference if possible,
or by known landmarks)
..... looking in a westerly direction
..... from above address
7. Weather Conditions at time(s) of observation(s)..... CLEAR
8. Aids to Observation(s). (Describe any equipment used in the obser-
vation)
.....
.....
9. Where was object first observed, eg, overhead, coming from behind a
hill, over the horizon, etc.
..... OVER HORIZON - WEST
10. What first attracted observer's attention, eg light or noise.
..... His uncle woke him up to confirm his sighting
11. Did object appear as a light or as a definite object.
..... 3 LIGHTS (RED)
12. If there was more than one object, how many were there, and what was
their formation.
.....
.....
13. What was the colour of the light or object..... RED (centre flashing)
14. What was its apparent shape..... NOT SURE
15. Was any detail of structure observable..... NO
16. Was any method of propulsion obvious..... JET ENGINE NOISE
17. Was there any sound..... SOUNDED LIKE JET
18. Height, or angle of elevation..... APPROX 20°
19. Speed, or angular velocity..... STATIONERY THEN MOVED
20. Was the object stationary?..... INITIALLY
21. What was the direction of flight with reference to landmarks or
points of the compass.
..... SOUTH

Did the object remain on a straight path, deviate or manoeuvre at all?

NO

23. Was any trail of exhaust, vapour or light seen..... NO

24. Where did object disappear, eg in mid-air, behind a hill, over the horizon.

BEHIND EDGE OF WINDOW

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.

26. Have you observed any unusual phenomena previously..... NO

27. If so, give details of incident(s).....

28. State any experience which enables observer to be reasonably certain about the answers given to #7 and 18. & 19

NIL

29. Are you a member of any organisation interested in aerial phenomena?

NO

30. Name and Address of organisation.....

31. Any additional information.....

Witness stated the

jet noise was lower pitch than normally associated with a jet engine, rather eerie & strange

Signature of Observer: S. BURTON

32. Location of any air traffic in the vicinity at the time of sighting.

~~Banksstown Aerodrome~~ NIL OBSERVED

33. Location of any meteorological stations in the general area.

BANKSTOWN

34. Comments.....

This had been worked by his uncle to observe the object and substantiate the story to a large degree

Signature of Interrogator: Philip Allan

QUESTIONS 32, 33 and 34 to be answered by interrogator.

Note:

Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved, and the time taken to do this.

INVESTIGATION OFFICER'S REPORT

AERIAL OBJECT OBSERVED AND UNIDENTIFIED SOUND
IN THE CARRAJUNG AREA 19TH MARCH 1967 - 21ST MARCH 1967

Introduction

1. This report deals with the attached statements by Mrs Ferguson, Mrs Howard, Mrs Lawler and Mr Butler.

Unidentified Sound

2. Investigation reveals that the noise heard by all observers was from a direction coinciding approximately with HAZELWOOD Power Station. The engineer at HAZELWOOD reported that on the three nights that the sound was heard a steam line had been blown at the power station. This steam release was of 30 minutes duration, repeated at 30 minute intervals. Meteorological records at RAAF Base EAST SALE show that on the three nights in question an inversion was present at the 5000 ft level. This would give a sound reflecting surface 3000 ft above the observers at CARRAJUNG.

Aerial Object Observed

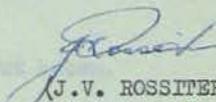
3. The aerial object was sighted by two of the observers, Mrs Ferguson and Mrs Howard. It appeared as a "bright star" on an approximate bearing of 290T from Mrs Ferguson and 300T from Mrs Howard. They both state that there was only one object in that part of the sky. Reference to the Air Almanac and Volume 2 of AP 3270 shows that, at the time of observation, the planet Venus was on a bearing of 293T and at an altitude of about 9°. Although neither observer could give an approximate angle of elevation, both stated that the object was "just above the horizon".

4. Venus would have passed below the horizon at approximately 1940. This agrees completely with the information given by Mrs Ferguson. Mrs Howard, from her position, would have lost sight of it earlier as it descended below a hill between her and the horizon.

Conclusions

5. The following conclusions are drawn :-

- (a) The noise heard by the four observers was made by HAZELWOOD Power Station and was reflected by an inversion 3000 ft above CARRAJUNG.
- (b) The object seen by Mrs Ferguson and Mrs Howard was the planet Venus as it descended from an altitude of about 9° to the horizon.


(J.V. ROSSITER)
Flight Lieutenant
Investigating Officer

28 Mar 67

REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer. Mrs J.A. Fergusson Age 48.
2. Address of Observer. CARRAJUNG via TRARALGON.
3. Occupation of Observer. Housewife.
4. Date, Time and Duration of Observations. At 1930 on Sunday 19th March I heard a loud noise coming from a north-westerly direction. It was similar to a car travelling past the house. The noise recurred on Monday at 0115 and 2200, and Tuesday at 0600, 1730, 1850 and 2010. In each case, it appeared to last for about 20 minutes. On Monday night at 1850 I saw a star in the west which appeared to be moving. I watched it for about five minutes. At 1930 it was still visible and almost out of sight and would have been completely gone by 1945.
6. Observers Location at time of sighting. Map reference 637 687.
7. Weather conditions at time of observation. Clear night. Wind was calm, except on Sunday night, when a southerly wind was blowing.
8. Aids to observation. None
9. Where was the object first observed. Above the horizon, slightly north of west (290° T. Investigating Officer)
10. What first attracted observer's attention. Loud noise.
11. Did object appear as a light or as a definite object. As a light.
12. If there was more than one object, how many were there. Only one.
13. What was the colour of the light. Similar to a large star.
14. What was its apparent shape. Similar to a star.
15. Was any detail of structure observable. No.
16. Was any method of propulsion obvious. No.
17. Was there any sound. Yes.
18. Height, or angle of elevation. Not known.
19. Speed, or angular velocity. Not known.
20. Was the object stationary. It first appeared to be stationary but then moved.
21. What was the direction of flight. Downwards, slightly towards north.
22. Did the object remain on a straight path, deviate or manoeuvre at all. Straight path.
23. Was any trail of exhaust, vapour or light seen. No.

- 24. Where did object disappear. Over the horizon.
 - 25. Existence of any physical evidence such as fragments, photographs or other supporting evidence. No.
 - 26. Have you observed any unusual phenomena previously. No.
 - 27. If so, give details. Not applicable.
 - 28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19. Not applicable.
 - 29. Are you a member of any organization interested in aerial phenomena. No.
 - 30. Name and address of organization. Not applicable.
 - 31. Any additional information. None.
- Signature of Observer..... *A. Ferguson*

Signature of Observer..... *A. Ferguson*

REPORT OF UNIDENTIFIED SOUND

1. Name of Observer. Mrs Lawler. Age 26.
2. Address of Observer. CARRAJUNG TOWER.
3. Occupation of Observer. Post Mistress.
4. Date, time and duration. On Tuesday 21st March 1967, from 1830 - 1930.
5. Observers Location. Map reference 712 664.
6. Weather conditions at time of observation. Fine and calm.
7. Description of the Sound. The noise was similar to a wind blowing up or loud car noise.
8. Have you observed any unusual phenomena previously. No.
9. Are you a member of any organization interested in aerial phenomena. No.
10. Any additional information. None.
11. Was the object seen as a light or as a definite object. As a light.
12. If there was more than one object, how many were there. One.
13. What was the colour of the light. Similar to a star.
14. What was its apparent shape. Similar to a star.
15. Was any detail of structure observable. No.
16. Was any method of propulsion obvious. No.
17. Was there any sound. Yes the sound seemed to disappear about the same time as the light.
18. Height, or angle of elevation. Not known.
19. Speed or angular velocity. Not known.
20. Was the object stationary. No.
21. What was the direction of flight. Downwards.
22. Did the object remain on a straight path, deviate or manoeuvre at all. Straight path.
23. Was any trail of exhaust, vapour or light seen. No.
24. Where did the object disappear. Behind trees on a hill.
25. Evidence of any physical evidence such as fragments, photographs, or other supporting evidence. No.
26. Have you observed any unusual phenomena previously. No.

REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer. Mrs Howard. Age 40.
2. Address of Observer. Post Office CARRAJUNG.
3. Occupation of Observer. Post Mistress.
5. Date and time of observation. Tuesday 21st March 1967, 1900.
6. Observers location at time of sighting. Map reference 671 692.
7. Weather conditions at time of observation. Clear night, no wind.
8. Aids to observation. None.
9. Where was object first observed. Slightly above the horizon.
10. What first attracted observers attention. We were discussing the noise and the noticed what appeared to be a bright star.
11. Did object appear as a light or as a definite object. As a light.
12. If there was more than one object, how many were there. One.
13. What was the colour of the light. Similar to a star.
14. What was its apparent shape. Similar to a star.
15. Was any detail of structure observable. No.
16. Was any method of propulsion obvious. No.
17. Was there any sound. Yes the sound seemed to disappear about the same time as the light.
18. Height, or angle of elevation. Not known.
19. Speed or angular velocity. Not known.
20. Was the object stationary. No.
21. What was the direction of flight. Downwards.
22. Did the object remain on a straight path, deviate or manoeuvre at all. Straight path.
23. Was any trail of exhaust, vapour or light seen. No.
24. Where did object disappear. Behind trees on a hill.
25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence. No.
26. Have you observed any unusual phenomena previously. No.

- 27. If so give details. Not applicable.
- 28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19. Not applicable.
- 29. Are you a member of any organization interest in arial phenomena. No.
- 30. Name and address of organization. Not applicable.
- 31. Any additional information. The object appeared in a north-westerly direction (300 T Investigator)

Signature of Observer..... *M. Howard*

REPORT OF UNIDENTIFIED SOUND

1. Name of Observer. Mr R.T. Butler. Age 48
2. Address of Observer. CARRAJUNG SOUTH
3. Occupation of Observer. Farmer.
4. Date, time and duration of observation. On Monday 20th March 1967 from 2300 until 2359, on Tuesday 21st March from 0600 - 0700, 1800 - 1930 and 1945 - 2030.
5. Observers Location. Map reference 713 683.
6. Weather conditions at time of observation. Dead calm.
7. Description of sound. On each occasion I heard a loud noise from a direction slightly north of west. (275 T Investigating Officer).
8. Have you observed any unusual phenomena previously. No.
9. Are you a member of any organization interested in aerial phenomena. No.
10. Any additional information. None.

Signature of Observer.....

R.T. Butler

RAAF
NO COMMEN

67 APR -7 2 58

29

NNNNVVV

DRB031UDR339MCA51100319 HH

PP RAYWRP

ROUTINE

DAF 1

REC'D.
7 APR 1967
C.A.S.

7 APR 7 02:10

THIS MESSAGE IS UNCLASSIFIED
REPLY OR REFERENCE MUST BE
A MINUTE CLASSIFICATION

AC

~~RAYRTV 001 3770127~~

~~NY RRRRR~~

P 0701107

FM HQTVL

TO RAYWRP/DEPAIR

RAYTOP/HQOPCOM

BT

R E S T R I C T E D A703 UFO INTELL REPORT PD THREE PERSONS AT
KARUMBA NEAR NORMANTON REPORT UNIDENTIFIED AERIAL OBJECT
SIGHTED ON 4 APR AT 2225 HRS LOCAL TIME PD NIGHT CLEAR WITH
NIL CLOUD PD OBJECT APPEARED AS SIX LIGHTS IN ONE UNIT OR
FORMATION WITH RED LIGHT IN FRONT FLANKED EITHER SIDE BY TWO
BLUE LIGHTS WITH FIFTH BLUE LIGHT AT REAR WITHOUT GLOW OR
RADIATION PD DIRECTION WAS SW TO NE ALTITUDE APPROXIMATELY
10000 FEET AND VISIBLE FOR ONE MINUTE APPROX PD OBJECT
45 DEG ABOVE HORIZON WHEN SIGHTED MAINTAINED FORMATION AND
WAS REPORTED FROM NORMANTON 30 MINUTES LATER PD REPORT PHONED

BY MR D PAINTER DCA COMMUNCS OFFICER AT NM PD REPORT SUGGESTS
OVERFLYING AIRCRAFT DAR-NOUMEA OR LR/BIAK TRACK BUT CONFIRM-
ATION NOT AVAILABLE TO DATE

BT

ORIGINAL COPY	copy
INFORMATION COPY	

'67 MAR 21 23 49

28

NNNNV

DRB035 YDB030 1YE200MCA001ST A538 1967 MAR 21 23:25

ROUTINE

RR RAYWPP

DE RAYQST 002 21/2247Z

ZNY RRRRR

R 212300Z

FM HQESL

AC

TO RAYQ/HQSUPCOM

RAYWPP/DEPAIR

BT

RESTRICTED A92 UFO SIGHTING AT CARRAJUNG ON NIGHT OF 20MAR67 HAS BEEN REPORTED PD INITIAL REPORT IS

(A) ROUND RED OBJECT IN SKY (B) RED GLOW (C)

LOUD CONTINUOUS AND UNFAMILIAR NOISE PD INVESTIGATING OFFICER APPOINTED

BT

DAF 1

Handwritten notes in a rectangular box, including "CARRAJUNG" and "CARRAJUNG" written twice.

REC'D. 22 MAR 1967 C.A.S.

NNNN

TELEPHONE:

COMMONWEALTH OF AUSTRALIA

27

IN REPLY PLEASE QUOTE

ROYAL AUSTRALIAN AIR FORCE

No 5/9/Air(69)

Headquarters
RAAF Base
PEARCE WA

21st March 1967

DAFI

~~Secretary, Department of Air, Russell Offices~~ CANBERRA ACT
For Information

Headquarters Support Command, RAAF, Victoria Barracks
MELBOURNE SC1 VIC

REPORTS ON AERIAL OBJECTS OBSERVED

1. Forwarded herewith are certified copies of Reports received at this Headquarters on the sighting of Aerial Objects in Western Australia by the undermentioned persons:-

(a) Mr. George GRANT

(ready by body)

(b) Mr Robert JOBSON

?

(G.A. MARTIN)
Flight Lieutenant
For Officer Commanding



REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer.....GEORGE GRANT.....Age 20....
2. Address of Observer.....RIVERBROOK PASTORAL COMPANY WEST GINGIN.....
3. Occupation of Observer.....FARMHAND.....
4. Date and Time of Observation (Time to be given in local time)
.....13 FEBRUARY 0115 ~~GMT~~ LMT.....(~~Sunday night~~).....
5. Duration of observation(s)....."A few seconds".....
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks)
.....40 Miles North of Perth on Wanneroo...
.....Road "along last row of new pine".....
7. Weather Conditions at time(s) of observation(s).....
.....Fine and Clear night.....
8. Aids to Observation(s). (Describe any equipment used in the observation.)
.....None.....
9. Where was object first observed, eg, overhead, coming from behind a hill, over the horizon, etc.
....."to the west in line with last row of new pines on Wanneroo Rd"
.....40 miles north of Perth
10. What first attracted observer's attention, eg light or noise
.....Big flash in sky like lightning.....
11. Did the object appear as a light or as a definite object.
.....Definite object.....
12. If there was more than one object, how many were there, and what was their formation.
.....-.....
13. What was the colour of the light or object.....Long red stem about 6ft long with bright luminous green bottom
14. What was its apparent shape.....Stem shape with round base like metal on end of a piece of ribbon
15. Was any detail of structure observable...Yes.....
16. Was any method of propulsion obvious.....No.....
17. Was there any sound.....No.....
18. Height, or angle of elevation.....Apparently 45° elevation.....
19. Speed, or angular velocity.....Not able to determine.....
20. Was the object stationary.....No.....
21. What was the direction of flight with reference to landmarks or points of the compass.....Tp. west of observer 45° angle of...
.....elevation in approx line with mouth of Moore River.....

REPORT OF AIRCRAFT INCIDENT OBSERVED

File Reference 5/9/Air (63A)

1. Further to information from Mr George GRANT at 1000 hours on 22 Feb 67, this Headquarters was again contacted by GRANT at 1500 hours stating that he had found an object in a paddock that was not in the paddock over one week.

2. The object is similar to an aircraft H.F. Aerial. Copper cable 1/2" in thickness, approximately 45 feet in length covered by a plastic insulating material. At irregular intervals around the insulating material are white identification and/or circuit labels, 2" long. One end of the cable was attached to a spring loaded metal cylindrical assembly of 18" length, approximately 1" thickness bearing the brand name "DAYTON AIRCRAFT PRODUCTS FLORIDA" and other data thought to be component numbers etc. inscribed in the metal.

3. A further search of the surrounding terrain has not revealed further objects or parts.

4. This information together with the material has been handed over to a Mr MILLS of Department of Supply PERTH who was nominated by NASA as the W.A. Handling Authority for Operation Lost-Ball.

5. Information as to aircraft aerial or part has been passed to DCA PERTH.

10. Did the object appear as a light or as a definite object.

AS PER ANSWER NO 7

11. If there was more than one object, how many were there, and what was their formation.

Johnnie to - For G
(G.A. MARRIN)

12. What was the colour of the light or object.

13. What was its apparent shape.

14. For any detail of structure observable.

15. For any method of propulsion observed.

16. Was there any sound.

17. Height, or angle of elevation.

18. Speed, or angular velocity.

19. Was the object stationary.

20. What was the direction of flight with reference to landmarks or points of the horizon.

IF ANY OF THE ABOVE

REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer..... ROBERT JOBSONAge 39.....
2. Address of Observer... 23 MUIR STREET NORTH INNALOO
3. Occupation of Observer... BUILDING CONTRACTOR
4. Date and Time of Observation (Time to be given in local time)
..... 12 FEB 67 EARLY EVENING
5. Duration of observation(s)..... APPROX 5 MINUTES
6. Observers Location at Time of Sighting (Give details of own
..... APPROX 20 MILES SOUTH WEST DAMPIER .. position by map refer-
ence if possible, or
by known landmarks)
-
-
7. Weather Conditions at time(s) of observation(s).....
..... FINE, CLEAR NIGHT, MOON OVERHEAD AT TIME
8. Aids to Observation(s). (Describe any equipment used in the
..... 3 OTHER WITNESSES OCCUPYING VEHICLE AT TIME OF .. observation.)
..... SIGHTING
9. Where was object first observed, eg, overhead, coming from
behind a hill, over the horizon, etc.
..... ON HORIZON
10. What first attracted observer's attention, eg light or noise
..... BRIGHT ORANGE LIGHT
11. Did the object appear as a light or as a definite object.
..... AS PER ANSWER NO 10
12. If there was more than one object, how many were there, and
what was their formation.
..... ONE ONLY
13. What was the colour of the light or object... BRIGHT ORANGE
14. What was its apparent shape..... ROUND
15. Was any detail of structure observable... NO
16. Was any method of propulsion obvious... NO
17. Was there any sound..... NO
18. Height, or angle of elevation... ON HORIZON TO S.W.
19. Speed, or angular velocity... NO ANGULAR MOVEMENT
20. Was the object stationary, NO - "BOBBED UP & DOWN ONCE OR TWICE
AND DISAPPEARED"
21. What was the direction of flight with reference to landmarks
or points of the compass.....
..... IF ANY SW - S

Did the object remain on a straight path, deviate or manoeuvre at all?

BOBBED UP & DOWN ONCE OR TWICE THEN DISAPPEARED

23. Was there any trail of exhaust, vapour or light seen.....

ANSWERS NOS 10 & 13

24. Where did object disappear, eg in mid-air, behind a hill, over the horizon YES - BELOW HORIZON

25. Existence of any physical evidence such as fragments, photographs, or any other supporting evidence..... NO

26. Have you observed any unusual phenomena previously..... NO

27. If so, give details of incidents(s).....

28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.....

29. Are you a member of any organisation interested in aerial phenomena? NO

30. Name and Address of Organisation.....

31. Any additional information..... MOON OVERHEAD, OTHERWISE QUITE A DARK NIGHT

Details taken by PMG Lines through sister Mrs. J. CLAYTON - Phone 66-5196
Signature of observer.....

32. Location of any air traffic in the vicinity at the time of sighting

33. Location of any meteorological stations in the general area.

(1) ROBOURNE (2) MARDIE

34. Comments. SPECIFIC TIME OF OBSERVATION NOT GIVEN BUT CLAIM IT WAS

QUITE DARK WITH MOON OVERHEAD. SUNSET DAMPIER 1850 LMT

END OF CIVIL TWILIGHT 1913 LMT

Signature of Interrogator..... (G.A. MARTIN)

QUESTIONS 32, 33 and 34 to be answered by interrogator Flight Lieutenant

Note:- Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved, and the time taken to do this.

NNK
DRB017MDA024 UU

RR RAYWPP

DE RAYAGC 823 20/0050Z

ZNR 00000

R 192230Z

FM RAFOPNG

TO RAYWPP/DEPAIR

INFO RAYROP/HQOPCOM



1967 MAR 20
SWITZERLAND

01:16
01:16

'67 MAR 20 3 18

26

DAF 1

BT
UNCLAS AI10 UFO PD REPORT RECEIVED ASSISTANT DISTRICT COMMISSIONER
FINSCHAFEN CLN TWO ROCKET LIKE OBJECTS WITH VAPOUR
TRAILS PLUNGED INTO SEA THREE MILES EAST GINGALA POINT 170450Z PD
ONE APPEARED TO EXPLODE AFTER ENTERING WATER CMM NO REACTION
FROM OTHER PD SEEN BY MORE THAN ONE RELIABLE WITNESS PD
DCA REPORTS NO KNOWN AIRCRAFT IN AREA AT TIME

BT

ACTION COPY	cas.
INFORMATION COPY	



DEPT. OF 25
DAGI
580-1-1 20/12/66

COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF CIVIL AVIATION

Telephone: 62 0131

Telegraphic Address: "AVIAT MELBOURNE."

Postal Address:

BOX 1839 G. P.O.,
ELIZABETH STREET,
MELBOURNE, C.I.

"HENTY HOUSE,"

499 LITTLE COLLINS STREET,
MELBOURNE, C.I.

21/1/387

IN REPLY QUOTE

Secretary,
Department of Air,
CANBERRA, A.C.T.

17 MAR 1967

DAGI

UN-IDENTIFIED FLYING OBJECTS

Forwarded herewith for your information and action, as necessary, is a copy of a Police report provided to our West Australian Regional Office.

We apologise for the delay in this report being made available to you but most of the delay was outside our control.

This report was processed prior to the adoption of the procedures arising from your correspondence 554/1/30 (121) dated 3rd March, 1967, and we quite confidently anticipate that these procedures will obviate delays in future reports.

W.J. Molloy
(W.J. MOLLOY)

Encl.

for Director-General of Civil Aviation.

REC'D.
21 MAR 1967
C.A.S.

Summary Station,
17th February, 1967.

SERGEANT STOREY :

Re search for American Biosatellite, believed to have come down from space and landed in an area of 300 miles north-east of Perth, vide report in "West Australian" newspaper dated 17th February, 1967.

I have to report that Mr. Ernest Joseph Hastie of 38 Winton Street, Carey Park, reported at this station today having read the account of the above biosatellite in the newspaper today, and recalled that on Tuesday evening, the 14th February, he was fishing at Myalup Beach north of Bunbury, and between 7 p.m. and 7.30 p.m. he noticed an orange coloured light a little larger than a bright star, travelling in a westerly direction, and it disappeared over the horizon and apparently fell into the sea.

Mr. Hastie said that he watched the light for a space of three or four minutes and at the time thought it may be a satellite, but was puzzled as it was travelling so low. He said the light appeared to disappear below the horizon for a second or so, then rose again a few feet before disappearing altogether. He said that the appearance of the light rising may have been caused by the action of the waves, although at the time the sea was extremely calm.

Mr. Hastie said the object he saw definitely fell into the sea, and when he read the account of the biosatellite in the paper today he thought the object he saw may have been the biosatellite that is being searched for on land.

Perhaps this information could be passed on to the appropriate parties concerned through the Department of Supply, Department of Army, Swan Barracks, Perth.

Bunbury Station,
17th February, 1967.

Sgd: A.G. GEE. Serge. 2/c 1981.

RESTRICTED

24

MEMORANDUM

For use within the RAAF only
Write or print clearly

RAAF FORM A273 MAR 63

OUR FILE

5/15/1/AIR PTII (9)

FROM

HQ OPERATIONAL COMMAND

DATE

09 MAR 67

TO

DEPT OF AIR
ATTENTION
SQUADRON BAXTER

REFERENCES

580-1-1

SUBJECT

INTELLIGENCE - UFO SIGHTINGS

Two reports of UFO sightings are enclosed.

- (1) Possible Meteor one only
- (2) " " " "



Encls

SIGNATURE

A Green

PRINTED NAME

A GREEN

RANK AND APPOINTMENT

FLYGT CINTELLO

PHONE EXTN

390

RESTRICTED

C.O.D. 9777

RESTRICTED

INTELLIGENCE - REPORT OF AERIAL

OBJECT OBSERVED

(Operational Command ASI 3/A/5)

PART 1 - REPORT BY OBSERVER

1. Name of observer..... **Mr John ALDERSON**AGE..... **Not known**
2. Address of observer. **Mail Service 861. FERNSVALE. QLD.**
.....PHONE.....
3. Occupation of observer..... **Not known**
4. Date and time of observation..... **2240 K 19 FEB 67**
5. Duration of observation..... **Seconds only.**
6. Observers location at time of sighting..... **Proceeding along the Ipswich Road
near the GAILLES Weighbridge - in the direction of IPSWICH.**
7. Weather conditions at time of observation..... **Nil cloud Visibility 25 miles
.. (from BRISBANE Met. EAGLE FARM).**
8. Describe any aids or equipment used in the observation.....
..... **Visual observation**
9. Where was object first observed? (eg, overhead, coming from behind
a hill, over the horizon.)
..... **To the north of Ipswich Road**
10. What first attracted observer's attention? (eg, light or noise).
..... **Fiery light**
11. Did object appear as a light or as a definite object?.....
..... **Fiery light**
12. If there was more than one object:- **No**
(a) how many were there?.....
(b) in what formation were they?.....
13. What was the colour of the light or object?..... **Reddish / Fiery**
14. What was its apparent shape?..... **Fiery**
15. Was any detail of structure observable?..... **No**

RESTRICTED

- 16. Was any method of propulsion obvious?..... No
- 17. Was there any sound..... No
- 18. What was its height? (or angle of elevation) Descending apparently vertically
- 19. What was its speed? (or angular velocity)..... Rapid
- 20. Was the object stationary?..... No
- 21. What was the direction of flight with reference to landmarks or points of the compass?
Descending vertically in area of GOODNA Mental Hospital
- 22. Did the object remain on a straight path, deviate, or manoeuvre at all?
No
- 23. Was any trail of exhaust, vapour, or light seen?..... No
- 24. Where did object disappear? (eg, in mid-air, behind a hill, over the horizon)
Appeared to disintegrate just above the ground.
- 25. Do you know of any physical evidence? (such as fragments, photographs, or other supporting evidence)
No
- 26. Have you observed any unusual phenomena previously?..... No
- 27. If so, give brief details of incident(s)..... N/A
- 28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.
N/A
- 29. Are you a member of any organization interested in aerial phenomena?
Not known
- 30. Name and address of organisation..... N/A
- 31. Any additional information which relates to the sighting.
Nil
At an adjacent service station two other people advised witnessing the fiery object. The details herein were advised to the IPSWICH police, thence to the Orderly Officer RAAF Base AMBERLEY who requested the IPSWICH police to have the GOODNA Police investigate the sighting.
Inquiries by the Goodna police could not produce any evidence to support the sighting.

RESTRICTED

PART 2 - UNIT EVALUATION

32. The following military aircraft were in the vicinity of the reported UFO position at the time:-
 Aircraft type..... Nil Military aircraft in area
 Heading.....T.....T.....T
 Height.....,000 ft000 ft000ft
 Speed.....K.....K;.....K
33. The following civil aircraft were in the vicinity of the reported UFO position at the time:-
 Aircraft type..... Viscount TVI LONGREACH - BRISBANE ATA 191247z
 " " Viscount RMD BRISBANE - DARWIN ATD 191235z on 286M diversion
~~XXXXXXXX~~..... Bakota ABQ BRISBANE - SYDNEY, 000 ft on 188M diversion
~~XXXXXXXX~~.....~~X~~.....~~X~~.....~~X~~
34. Calculations show that the following planets or major stars were in that portion of the sky at this time: CAPELLA 5 degree above horizon bearing 328 (T) and ALDEBARAN 19 degree above horizon bearing 300 (T). No planets evident at this time.
35. A meteorological balloon was released from..... EAGLE FARM Airport at 2100 hours
 at.....1100 W/V generally from the South East
Z and could have been in the reported UFO position at the time.
36. The State Observatory in the nearest capital city affirms that aerial phenomena in that portion of the sky at the time were
 No meteorite showers expected before April.
(comet, meteorite shower, etc).
37. Any other relevant remarks (eg about satellites, rockets, research balloons).....
 Nil
38. There is conclusive evidence that the object reported was.....
 No conclusive evidence
39. The object reported could have been.....
 Not known
40. The cause (or likely cause) of the sighting cannot be determined.
- Base Squadron RAAF Base AMBERLEY (Unit) (Name)
 19 Feb 67 (Date) Flight Lieutenant (Rank)

RESTRICTED

INTELLIGENCE - REPORT OF AERIAL

OBJECT OBSERVED

(Operational Command ASI 3/A/5)

PART 1 - REPORT BY OBSERVER

1. Name of observer..... Laurence Joseph Woodhouse AGE. Adult
2. Address of observer 201 Wauchope Road
Port Macquarie PHONE None
3. Occupation of observer Fisherman
4. Date and time of observation 20th February 1967 ^{Between} ~~and~~ ^{Midnight} ~~1am~~
5. Duration of observation ... Approximately 15 seconds
6. Observers location at time of sighting Fishing on OYSTER BAY.....
(Port Macquarie area)
7. Weather conditions at time of observation Clear Night with.....
small amount of cloud but none in quadrant of sighting.
8. Describe any aids or equipment used in the observation
Visual only.....
9. Where was object first observed? (eg, overhead, coming from be-
hind a hill, over the horizon).
NW from observer 45 degrees above horizon descending almost.....
vertically but in slight arc from NE direction
10. What first attracted observer's attention? (eg, light or noise).
Bright light.....
11. Did object appear as a light or as a definite object?.....
Light.....
12. If there was more than one object:-
(a) how many were there? One only
- (b) in what formation were they? A bright light, slight-
ly reddish.....
13. What was the colour of the light or object? ly reddish.....
14. What was its apparent shape?.... Circular.....
15. Was any detail of structure observable? No.....

RESTRICTED

.../2

- 16. Was any method of propulsion obvious? ~~.....~~ No
- 17. Was there any sound? ~~.....~~ No
- 18. What was its height? (or angle of elevation) ~~.....~~ 45 degrees above Hor.
(See 31)
- 19. What was its speed? (or angular velocity) ~~.....~~ Rapid then decreasing.
- 20. Was the object stationary? ~~.....~~ No - descending almost vertically
- 21. What was the direction of flight with reference to landmarks or ~~.....~~
~~points~~ of the compass?
Descending almost vertically but in slight arc from NE. Seen
in NW direction from observer.
- 22. Did the object remain on a straight path, deviate, or manoeuvre
at all?
~~.....~~ Descending in slight arc.
- 23. Was any trail of exhaust, vapour, or light seen? ~~.....~~ No
~~.....~~ Object appeared to be a bright light without tail or debris.
- 24. Where did object disappear? (eg, in mid-air, behind a hill,
over the horizon)
~~.....~~ Disappeared behind trees - NW from observer
- 25. Do you know of any physical evidence? (such as fragments, photo-
graphs, or other supporting evidence)
~~.....~~ No
- 26. Have you observed any unusual phenomena previously? ~~.....~~ No
- 27. If so, give brief details of incident(s) ~~.....~~ Observer states that
numerous meteorites had been sighted while fishing immediately
~~.....~~
prior to reported sighting. This sighting however, was not
similar to previously observed meteor flights.
- 28. State any experience which enables observer to be reasonably
certain about the answers given to 18 and 19.
~~.....~~ No special experience but an "outdoors" type conscious of
things about him.
- 29. Are you a member of any organization interested in aerial phen-
omena? ~~.....~~ No
- 30. Name and address of organisation ~~.....~~
~~.....~~
- 31. Any additional information which relates to the sighting.
The observer states that the sighting was descending rapidly but
at a point approximately 15 degrees above the horizon it appeared
to be arrested in flight as would occur with the deployment of a
parachute... When asked to estimate the distance from the point of
observation the observer confidently stated "Up to 50 miles".
He further stated that his estimation of altitude put the object
"somewhere about 30,000 feet". He also stated that the intensity
of the light did not diminish as expected with a meteorite.

PART 2 - UNIT EVALUATION

- 32. The following military aircraft were in the vicinity of the reported UFO position at the time :-
None - Operations checked at WILLIAMTOWN and RICHMOND
Aircraft type.....
Heading.....TT.....T
Height.....,000 ft ,000 ft.....,000 ft
Speed.....K.....K.....K
- 33. The following civil aircraft were in the vicinity of the reported UFO position at the time :- None
Aircraft type.....
Heading.....T.....T.....T
Height.....,000 ft.....,000 ft.....,000 ft
Speed.....K.....K.....K
- 34. Calculations show that the following planets or major stars were in that portion of the sky at the time:-.....
Not applicable - object reported as descending.
.....
- 35. A meteorological balloon was released from.....WILLIAMTOWN.....
at.....1100.....
.....Z and could have been in the reported UFO
position at the time. (Note: Wind direction supports possibility but type of sighting does not.)
- 36. The State Observatory in the nearest capital city affirms that arial phenomena in that portion of the sky at the time were SYDNEY Observatory advises that no significant meteorite activity noted.....(comet, meteorite shower, etc).
- 37. Any other relevant remarks (eg about satellites, rockets, research ballonns). 49.....
.....
- 38. There is conclusive evidence that the object reported was.....
.....
.....
- 39. The object reported could have been.....a larger than normal meteorite.....
.....
- 40. The cause (or likely cause) of the sighting cannot be determined.

HQ WILLIAMTOWN.....(Unit) *Reddy* J P/RODDY.....(Name)
21st February 1967.....(Date) Flight Lieutenant.....(Rank)

RESTRICTED

23

MEMORANDUM

For use within the RAAF only
Write or print clearly

RAAF FORM A273 MAR 63

OUR FILE

5/15/1/AIR PT11(2)

FROM

HQ OPERATIONAL COMMAND

DATE

27 FEB 67

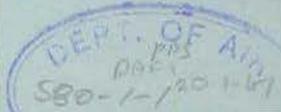
TO

DEPT OF AIR ATTENTION
SQUADRON BAXTER

REFERENCES

SUBJECT

INTELLIGENCE - UFO'S



Two reports of sightings within this command are enclosed.

- (1) Satellite?
- (2) ?



SIGNATURE

A. Green

PRINTED NAME

A. GREEN

RANK AND APPOINTMENT

FLEET CINETELLO

PHONE EXTN

390

RESTRICTED

C.D.O. 9777

DAFI

RESTRICTED

INTELLIGENCE - REPORT OF AERIAL
OBJECT OBSERVED

(Operational Command ASI 3/A/5)

PART 1 - REPORT BY OBSERVER

1. Name of observer 2ND OFFICER OF AGE
2. Address of observer CALTEX MANCHESTER - NEWCASTLE - SYDNEY
..... PHONE
3. Occupation of observer SHIPS OFFICER
4. Date and time of observation FEB 21 1815Z
5. Duration of observation 10 - 11 MINS
6. Observers location at time of sighting 15 MILES NE
OF MACQUARIE LIGHT
7. Weather conditions at time of observation.....
2/3 CLOUD
8. Describe any aids or equipment used in the observation.....
NAKED EYE FIRST - THEN BINOCULARS
SHOWED IT AS A SILVERY COLOUR
9. Where was object first observed? (eg, overhead, coming from
behind a hill, over the horizon).
SYDNEY DIRECTION OF NOT QUITE OHEAD PosNat(G)
10. What first attracted observer's attention? (eg, light or noise).
LIGHT VERY BRIGHT
11. Did object appear as a light or as a definite object?.....
LIGHT
12. If there was more than one object:-
(a) how many were there?..... ONE
- (b) in what formation were they?.....
13. What was the colour of the light or object?..... SILVERY
14. What was its apparent shape?..... NIL
15. Was any detail of structure observable?.....
—

RESTRICTED

.. / 2

16. Was any method of propulsion obvious?..... NIL
17. Was there any sound?..... NIL
18. What was its height? (or angle of elevation) FROM D'HEAD TO HORIZON
19. What was its speed? (or angular velocity) FROM D'HEAD TO HOR 10-11 MINS
20. Was the object stationary?..... NO
21. What was the direction of flight with reference to landmarks or points of the compass?
..... FROM SYDNEY DIRECTION TO ENE HORIZON
22. Did the object remain on a straight path, deviate, or manoeuvre at all?
..... STRAIGHT
23. Was any trail of exhaust, vapour, or light seen?..... NIL
24. Where did object disappear? (eg, in mid-air, behind a hill, over the horizon)
..... BELOW HORIZON
25. Do you know of any physical evidence? (such as fragments, photographs, or other supporting evidence)
..... N.O.
26. Have you observed any unusual phenomena previously?..... N.O.
27. If so, give brief details of incident(s)..... —
28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.
TRAINED SHIPS OFFICER - STATED HE HAD NEVER SEEN ANY STAR OR PLANET AS BRIGHT AS THIS SIGHTING.
29. Are you a member of any organization interested in aerial phenomena?
NO
30. Name and address of organisation..... —
31. Any additional information which relates to the sighting.
OBJECT WAS MUCH BRIGHTER THAN VENUS OR MAN MADE SATELLITES - BEING OFFICER OF THE WATCH SEXTANT SIGHTS HAVE OFTEN BEEN TAKEN OF PLANETS ETC.

PART 2 - UNIT EVALUATION

32. The following military aircraft were in the vicinity of the reported UFO position at the time :-

Aircraft type.....NIL
Heading.....TTT
Height.....,000 ft ,000 ft ,000 ft
Speed.....KKK

33. The following civil aircraft were in the vicinity of the reported UFO position at the time :-

Aircraft type.....NIL
Heading.....TTT
Height.....,000 ft ,000 ft ,000 ft
Speed.....KKK

34. Calculations show that the following planets or major stars were in that portion of the sky at the time :-

N/A

35. A meteorological balloon was released from.....SYDNEY.....
at...17.00.Z and could have been in the reported UFO position at the time.

36. The State Observatory in the nearest capital city affirms that aerial phenomena in that portion of the sky at the time were
.....(comet, meteorite shower, etc).

37. Any other relevant remarks (eg about satellites, rockets, research balloons).....
.....NIL.....

38. There is conclusive evidence that the object reported was.....
.....
.....

39. The object reported could have been.....A BALLOON HIT BY THE
SUN'S RAYS before SUN RISE (OBSERVERS SUGGESTION)
TIME FACTOR (10-11 mins) RATHER DOUBTFUL

40. The cause (or likely cause) of the sighting cannot be determined.

.....HQ OP COM.....(Unit)DeGreen.....(Name)
.....27 Feb 67.....(Date)FLT LT.....(Rank)

File ref
HRTV 5/40/AIR

RESTRICTED

INTELLIGENCE - REPORT OF AERIAL

OBJECT OBSERVED

(Operational Command ASI 3/A/5)

PART 1 - REPORT BY OBSERVER

1. Name of observer..... **GRAEME JOHN HOLT** Age..... **30**
2. Address of observer..... **3 ST JOHN STREET BELGIAN GARDENS TOWNSVILLE**
..... Phone..... **6544 OR3175**
3. Occupation of observer..... **MANAGER**
4. Date and time of observation..... **15 FEB 67 EITHER 1.56P.M. OR 2.04 P.M.**
5. Duration of observation..... **10-15 SECONDS**
6. Observers location at time of sighting..... **30 MILES NORTH OF TOWNSVILLE ON**
..... **INGHAM ROAD**
7. Weather conditions at time of observation..... **FINE SCATTERED CLOUD**
8. Describe any aids or equipment used in the observation..... **NIL**
9. Where was object first observed? (eg overhead, coming from behind a hill,
over the horizon)
..... **SW TO NE APPROXIMATELY OVERHEAD**
10. What first attracted observers attention (eg light or noise)
..... **SMALL DARK OBJECT**
11. Did object appear as a light or as a definite object?.....
..... **DEFINITE OBJECT**
12. If there was more than one object:-
(a) how many were there?..... **N/A**
- **N/A**
- (b) in what formation were they?..... **N/A**
13. What was the colour of the light or object?..... **DARK**
14. What was its apparent shape..... **APPROX DESCRIPTION ROUGHLY TRIANGULAR**
15. Was any detail of structure observable? **NO**

...../2

- 16. Was any method of propulsion obvious?..... **NO**
- 17. Was there any sound? **NO**
- 18. What was its height? (or angle of elevation)... **APPROX. 20000 - 30000 FT.**
- 19. What was its speed? (or angular velocity)..... **APPROX. FASTER THAN AVERAGE JET AIRCRAFT**
- 20. Was the object stationary? **NO**
- 21. What was the direction of flight with reference to landmarks or points of the compass?
..... **SW TO NE**
- 22. Did the object remain on a straight path, deviate, or manoeuvre at all?
..... **STRAIGHT PATH DESCENDING**
- 23. Was any trail of exhaust, vapour or light seen? **NO**
- 24. Where did object disappear? (eg mid-air, behind a hill, over the horizon)
..... **BEHIND A CLOUD APPROX BACK OF OVERHEAD**
- 25. Do you know of any physical evidence? (such as fragments, photographs, or other supporting evidence).
..... **NO**
- 26. Have you observed any unusual phenomena previously?..... **NO**
- 27. If so, give brief details of incident(s)..... **N/A**
-
-
-
- 28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.
..... **CONSIDERABLE EXPERIENCE AS AIRCRAFT PASSENGER**
- 29. Are you a member of any organization interested in aerial phenomena?
..... **NO**
- **NO**
- 30. Name and address of organization.....
-
-
- 31. Any additional information which relates to the sighting.....
..... **NO**
-
-
-

...../3

PART 2 - UNIT EVALUATION

32. The following military aircraft were in the vicinity of the reported UFO at the time:-

Aircraft type..... **RAAF C130E WM NUG**

Heading... **TL-WLM**TTT

Height..... **ASC FL215**000ft000ft000ft

Speed..... **300K**KKK

33. The following civil aircraft were in the vicinity of the reported UFO position at the time :-

Aircraft type..... **PAN AMERICAN CLIPPER JET**

Heading... **NOUMEA-DAR**TTT

Height..... **FL 310**000ft000ft000ft

Speed..... **450K**KKK

34. Calculations show that the following planets or major stars were in that portion of the sky at the time

.....

35. A meteorological balloon was released from..... atZ and could have been in the reported UFO position at the time.

36. The State Observatory in the nearest capital city affirms that aerial phenomena in that portion of the sky at the time were:

.....(comet, metoerite shower, etc)

37. Any other relevant remarks (eg about satellites, rockets research balloons)

.....

38. There is conclusive evidence that the object reported was.....

.....

39. The object reported could have been.....

.....

40. The cause (or likely cause) of the sighting cannot be determined.

HQTVLUnit

16 FEB 67Date

W. J. WalkerName

FLT. LT.Rank

B. I. (5) 0



DEPT. OF AIR
DAFI 20-11-67
58011

22

ROYAL AUSTRALIAN AIR FORCE

TELEPHONE: 690550

TELEGRAPHIC ADDRESS:
"AIRCOMMAND, MELBOURNE"

HEADQUARTERS SUPPORT COMMAND
RAAF
VICTORIA BARRACKS
MELBOURNE SC1 VIC

IN REPLY QUOTE 5/6/Air(31)

20 FEB 1967

DAFI

Secretary
Department of Air
Russell Offices
CANBERRA ACT

UN-IDENTIFIED FLYING OBJECTS

Forwarded are reports, investigated by this Headquarters, of aerial sightings by the undermentioned civilian observers. This Headquarters has nothing further to add to paragraph 34 of the questionnaire.

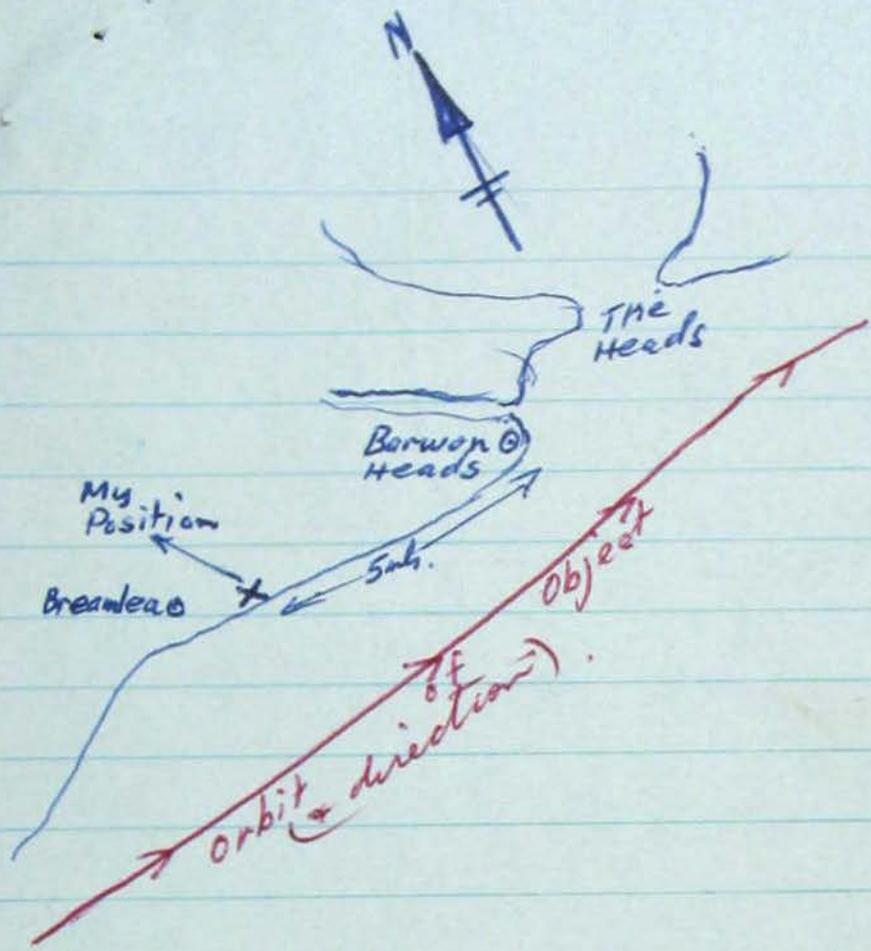
- | | |
|----------------------|---------------------|
| John Howard THOMPSON | Newtown Geelong Vic |
| Ivan P. BARTLETT | Blackburn Vic |
| Kenneth F. BRETT | St Kilda Vic |
| F.W. DINGER & family | Brighton Vic |

*Submitted
Submitted
Submitted
Submitted*

(L.B. BROWN)
Wing Commander
For Air Officer Commanding

Encl

REC'D.
22 FEB 1967
C.A.S.



x - my location

✓

REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer... *John Howard THOMPSON*... Age... *22*...
2. Address of Observer... *5 Potten Ct. Newtown, Geelong*...
3. Occupation of Observer... *Survey Draftsman*.....
4. Date and Time of Observation (Time to be given in local time)
..... *6/2/67*... approx. *9:00*... *October*... *P.M.*.....
5. Duration of Observation(§)..... *approx. 3.4 minutes*.....
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks)
..... *See attached sheet*.....
7. Weather Conditions at time(§) of observation(§).....
..... *Hot (90°) Fine Clear night*.....
8. Aids to Observation(s). (Describe any equipment used in the observation)
..... *None*.....
9. Where was object first observed, eg overhead, coming from behind a hill, over the horizon, etc.
..... *At an elevation of about 45°*.....
10. What first attracted observer's attention, eg light or noise.
..... *light*.....
11. Did object appear as a light or as a definite object.
..... *light*.....
12. If there was more than one object, how many were there and what was their formation.
.....
.....
13. What was the colour of the light or object... *Red or dark orange*.....
14. What was its apparent shape... *Circular*.....
15. Was any detail of structure observable... *No*.....
16. Was any method of propulsion obvious... *No*.....
17. Was there any sound... *Could not hear anything because of the surf.*.....
18. Height, or angle of elevation... *65°*.....
19. Speed, or angular velocity... *Could not estimate*.....
20. Was the object stationary... *No*.....
21. What was the direction of flight with reference to landmarks or points of the compass...
..... *From West to East*.....

22. Did the object remain on a straight path, deviate or manoeuvre at all?

As it disappeared into the distance it appeared to deviate towards a South Easterly direction.

23. Was any trail of exhaust, vapour or light seen... *red glow*

24. Where did object disappear, eg mid-air, behind a hill, over the horizon.

It kept going straight ahead until it disappeared out of sight.

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.

26. Have you observed any unusual phenomena previously... *No*

27. If so, give details of incident(s)... *N/A*

28. State any experience which enables observer to be reasonably certain about the answers given to paras 18 and 19.

I have studied Geodesy and Astronomy as part of a survey drafting certificate.

29. Are you a member of any organisation interested in aerial phenomena?

No

30. Name and address of organisation...

31. Any additional information... *There was one other person with me when the observation was made & her observation was similar.*

Signature of Observer... *John Johnson*

32. Location of any air traffic in the vicinity at the time of sighting.

N/A

33. Location of any meteorological stations in the general area.

N/A

34. Comments... *This would appear to be a meteor observation*

Signature of Interrogator... *[Signature]*

QUESTIONS 32, 33 and 34 to be answered by interrogator.

note... Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved and the time taken to do this.

REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer... *Ivan P Bartlett & Nancy Bartlett* Age... *47 & 49*
2. *Tel. 878 6340.* Address of Observer... *93 Blackburn Rd., Blackburn*
3. Occupation of Observer... *Stores Manager.*
4. Date and Time of Observation (Time to be given in local time)
... *19/1/67 7.00 P.M. (approx.)*
5. Duration of Observation(s)... *2 1/2 mins (approx.)*
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks)
... *Above Address.*
7. Weather Conditions at time(s) of observation(s)... *Clear Sky*
8. Aids to Observation(s). (Describe any equipment used in the observation)
... *Nil*
9. Where was object first observed, eg, overhead, coming from behind a hill, over the horizon, etc.
... *Facing West. 60° approx.*
10. What first attracted observer's attention, eg light or noise.
Light: Intrigued by my first assumption of a star appearing so early.
11. Did object appear as a light or as a definite object.
... *as a star.*
12. If there was more than one object, how many were there, and what was their formation.
... *One*
13. What was the colour of the light or object... *White*
14. What was its apparent shape.....
15. Was any detail of structure observable... *No.*
16. Was any method of propulsion obvious... *No.*
17. Was there any sound... *No.*
18. Height, or angle of elevation... *See Q.9.*
19. Speed, or angular velocity... *180° in approx 90 mins.*
20. Was the object stationary?... *No.*
21. What was the direction of flight with reference to landmarks or points of the compass.
... *West to East. Course of flight directly overhead.*

22. Did the object remain on a straight path, deviate or manoeuvre at all? *Straight*

23. Was any trail of exhaust, vapour or light seen... *No*

24. Where did object disappear, eg in mid-air, behind a hill, over the horizon.
Faded out at about 150°

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.
NIL

26. Have you observed any unusual phenomena previously... *Yes*

27. If so, give details of incident(s) *Early Sputnik*

28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.

Alignment out in comparison with sunset. During observation movement ~~was~~ 90° in 45 mins. (approx)

29. Are you a member of any organisation interested in aerial phenomena?
No

30. Name and Address of organisation.....

31. Any additional information.....

[Signature]
Signature of Observer N.G. Barfield

32. Location of any air traffic in the vicinity at the time of sighting.
NIL

33. Location of any meteorological stations in the general area.
NIL

34. Comments... *By speed of movement, assumed to be object in orbit*

[Signature]
Signature of Interrogator [Signature]

QUESTIONS 32, 33 and 34 to be answered by interrogator.

Note: Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved, and the time taken to do this.

REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer... *Kenneth Friderick Brett*... Age *15*...
2. Address of Observer... *48.. Arland.. St., St. Kilda, W.A.*
3. Occupation of Observer... *Apprentice.. Chef*.....
4. Date and Time of Observation (Time to be given in local time)
... *4.1.67... at.. exactly.. 9.20 pm.. then.. 6.1.67.. at.. 9.30 pm.*
5. Duration of Observation(s)... *4.. minutes*.....
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks)
... *Was.. looking.. North.. West.. from.. our.. house.. and.. seen.. object.. appear.. opposite.. some.. stars*
7. Weather Conditions at time(s) of observation(s)... *Very..... clear.. no.. cloud.. unobstructed.. view.. of.. sky*.....
8. Aids to Observation(s). (Describe any equipment used in the observation)
... *A.. pair.. of.. Binoculars.. 3 x 20*.....
9. Where was object first observed, eg, overhead, coming from behind a hill, over the horizon, etc.
... *In.. the.. North.. West, appeared.. from.. or.. near.. a.. group.. of.. stars*
10. What first attracted observer's attention, eg light or noise.
... *A.. very.. bright.. light*.....
11. Did object appear as a light or as a definite object.
... *Appeared.. as.. a.. bright.. light*.....
12. If there was more than one object, how many were there, and what was their formation.
... *Only.. one.. was.. seen*.....
13. What was the colour of the light or object... *White*.....
14. What was its apparent shape... *Undetermined.. just.. a.. light*
15. Was any detail of structure observable... *No*.....
16. Was any method of propulsion obvious... *No*.....
17. Was there any sound... *No*.....
18. Height, or angle of elevation... *45°.. to.. horizon*.....
19. Speed, or angular velocity... *Can't.. estimate*.....
20. Was the object stationary?... *No*.....
21. What was the direction of flight with reference to landmarks or points of the compass...
... *It.. came.. from.. North.. West.. then.. heading.. East.. then.. changed.. course.. again.. to.. South*

22. Did the object remain on a straight path, deviate or manoeuvre at all?

.. It changed course twice

23. Was any trail of exhaust, vapour or light seen.. No

24. Where did object disappear, eg in mid-air, behind a hill, over the horizon.

.. Over the horizon

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.

.. Mother and Father seen it too

26. Have you observed any unusual phenomena previously... Yes

27. If so, give details of incident(s) A. Red light high in the sky.

28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.

.. In science we learn to see what angle of an object is to the horizon

29. Are you a member of any organisation interested in aerial phenomena?

.. No

30. Name and Address of organisation.....

31. Any additional information. I have seen many satellite
elites but this light was too bright to be a satellite
etc, and it changed course. I have seen it twice...

Signature of Observer.. Kenneth Brett

32. Location of any air traffic in the vicinity at the time of sighting.

.. NIL

33. Location of any meteorological stations in the general area.

.. ~~Essex~~ Essex

34. Comments. JCA advise no aircraft active at above times/dates
and Essex area. Answered to be satellite sighting.

Signature of Interrogator.. [Signature]

QUESTIONS 32, 33 and 34 to be answered by interrogator.

Note: Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved, and the time taken to do this.

REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer ^{A.W. DUNBAR} _{P.O. Dunbar} Age ¹² ₄₅.....
2. Address of Observer ^{2 Skymolen} _{146 E. Planette Brighton}.....
3. Occupation of Observer ^{Booker} _{ARTIST (Rusby)}.....
4. Date and Time of Observation (Time to be given in local time)
Feb. 26, 1967. approx. 4 A.M......
5. Duration of Observation(s) *8 minutes (actual)*.....
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks)
W. End of Taylor Bay, Gildon wair.....
Ref. Broadbent's official map No 357E.....
7. Weather Conditions at time(s) of observation(s) *Perfect*.....
Hot dry & clear. but Half moon......
8. Aids to Observation(s). (Describe any equipment used in the observation)
Naked eye only......
9. Where was object first observed, eg overhead, coming from behind a hill, over the horizon, etc.
at approx. 3.00 in Southern sky over trees & hills......
10. What first attracted observer's attention, eg light or noise.
light like a moving star......
11. Did object appear as a light or as a definite object.
as G.10......
12. If there was more than one object, how many were there and what was their formation.
one only......
13. What was the colour of the light or object. *Bright yellow.*.....
14. What was its apparent shape. *like star*.....
15. Was any detail of structure observable. *No*.....
16. Was any method of propulsion obvious. *No*.....
17. Was there any sound. *No*.....
18. Height, or angle of elevation. *"as high as the stars" appeared to be in orbit*.....
19. Speed, or angular velocity. *in view from 3.00 to 10.00 approx. 8 mins.*.....
20. Was the object stationary. *No*.....
21. What was the direction of flight with reference to landmarks or points of the compass...
Est. S.S.W. to N.N.E. (approx. same as commercial airline route Sydney).....

22. Did the object remain on a straight path, deviate or manoeuvre at all?

*Definitely. Had erratic or zig zag course Port & Starboard
movements. Particularity when lined up with branches
of trees etc.*

23. Was any trail of exhaust, vapour or light seen..... *NO*

24. Where did object disappear, eg mid-air, behind a hill, over the horizon.

behind a hill.

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.

NO

26. Have you observed any unusual phenomena previously *Subsided satellite only.*

27. If so, give details of incident(s).....

28. State any experience which enables observer to be reasonably certain about the answers given to paras 18 and 19.

*x A-15 for Yachtman, game fisherman, & shooting also steady weather
friends & minor game hunter (Africa) & soldier.*

29. Are you a member of any organisation interested in aerial phenomena?

NO

30. Name and address of organisation..... *NO*

31. Any additional information.....

object was largest & brightest "star" in sky visible at the time. Venus not visible from out. possibly because of light hills to west. Southern cross clearly visible from "above" moon.

Signature of Observer..... *[Signature]*

32. Location of any air traffic in the vicinity at the time of sighting.

NIL

33. Location of any meteorological stations in the general area.

NIL

34. Comments. *SEA advise no aircraft in this area at the time stated. Assumed as satellite sighting*

Signature of Interrogator..... *[Signature]*

QUESTIONS 32, 33 and 34 to be answered by interrogator.

note... Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved and the time taken to do this.

RESTRICTED

R1

MEMORANDUM

RAAF FORM A273 MAR 63

For use within the RAAF only
Write or print clearly

OUR FILE

5/15/1/AIRI (103)

FROM

HQ OPERATIONAL COMMAND

DATE

16 FEB 67

TO

DEPT OF AIR

ATTENTION

SPN LDRI BAXTER

REFERENCES

DEPT. OF AIR

580-1-1

REC 201-67

DAFI

SUBJECT

INTELLIGENCE - UFO SIGHTINGS.

1. Two reports of UFO sightings received from our Public Relations Office are enclosed.

2. The first report of Mr P.W. Hynes is passed without comment except that the results from the mentioned colour film were unsuccessful.

3. Concerning Mr Lord's Photographs;

(a) He has approached the press with a view to selling them but was turned down.

(b) He has not come forward with any information himself. Information submitted by two of his friends.

(c) Originally only one photo was forwarded & then three weeks later the rest were suddenly found by him!

(d) The negatives have still not been forwarded although he did promise to do so.

(e) It is the opinion of the PR Photographer that these photos are bogus.

Encls. 5.

SIGNATURE

A Green

PRINTED NAME

A GREEN

RANK AND APPOINTMENT

FLTL CINTELLO

PHONE EXTN

390

RESTRICTED

C.D.O. 9777

No further action

TELEPHONE: 20 537 Ext 50A

ROYAL AUSTRALIAN AIR FORCE
Public Relations Office
Headquarters Operational
Command, RAAF
5 Hickson Road
MILLERS POINT NSW

IN REPLY QUOTE 13/7/Air (30)

13th February 1967

Headquarters Operational Command
RAAF
PENRITH 1W NSW

(Attention: Wg Cdr Dick)

UNIDENTIFIED FLYING OBJECTS

- Enclosed is a self-explanatory report by Mr P.W. Hynes of Wentworth Falls relative to a UFO sighting. When submitting the report to this office, Mr Hynes gave into custody a roll of unexposed colour film. The report was retained pending receipt of the processed films which were thought to have been lost. However, Mr Hynes has advised that the films were returned to him and are now in his possession.
- The enclosed photographs were forwarded to this office as substantiating evidence of a UFO encounter by Mr Jack Lord, proprietor of Jack's Camera Store, 304 Liverpool Road, Ashfield, (Tel No 716394). Mr Lord said that he experienced the phenomenon at approx 2100 hours on 19 NOV 66 near Rockwood Cemetery. Mr Lord approached this office immediately prior to Christmas. He undertook to furnish this office with the negatives from which these prints were made, but these have not been forthcoming.
- Forwarded for your action.

Note

Mr Lord declined to
fill in ufo report -
these photo's were
sent in by friends of
his. Trick Photography.
Encls
No further action.

~~SECRET~~

APPT.	INIT.	DATE
CLASSIFIED	W	14/7
LOG. OLC.	W	14/7
REPTD. FILE OLC.	W	15/2
CLASS. FILE OLC.		
CLASS. TO	SO INTERA	

5/15/71/AIR/

J.F.K. Wilesmith
(J.F.K. WILESMITH)
Squadron Leader
Public Relations Officer

Business 920615.

P.W.Hynes.
97 Sinclair Crescent.
Wentworth Falls, N.S.W.

21.11.'66

REPORT ON ILLUMINATED FLYING OBJECT SEEN AT ABOVE ADDRESS
AT 3.5 am to 3.15 am ON ABOVE DATE.

Awoke just after 3am, while sleeping on enclosed verandah which faces North. Suddenly a star disappeared. I moved my head and it came into view again only to move behind window sill. Put on glasses for better view outside window. There was no noise and object travelled from North to South. Went to front of house and focussed 225mm lens on camera loaded with 50 A.S.A. Perutz colour film. I secured three open shutter shots, keeping a proper star on the view finder for comparison and letting the object travel across it.

The object was blue coloured, but through the lens changed to silver and then intense white. There was a pulsating movement of the colour. The object seemed to be a long way off and travelled in a straight but faltering and zig-zagging manner. That is, like a sismograph needle. It seemed to be vibrating intensely and yawing like an aircraft going into strong wind. At one stage it stopped for about a second when it seemed to go behind a patch of cloud or emitted something around it so that it became indistinct but with a haze around it. My wife came out at this time and as I was explaining where it was it started to move off South again and she was able to spot it with unaided vision. A visitor also came out and was able to see it clearly without glasses. I watched it for 5 to 10 minutes before it angled down sharply towards the Southern horizon. It had the appearance of being circular although I could not get an absolute outline with the lens I had.

I have spent many nights on watch during the war, at sea, camped out, seen aircraft at night, but it did not resemble anything I have ever seen before. It was quite a distinctive and unusual occurrence.

Results from colour film successful.

letter received Pate February - insufficient information

P. Hynes

4 Oct 67
Cressey Two Sighting

Directorate of Air Force Intelligence

580/1/1(20)

24 FEB '67

Headquarters Support Command
RAAF
Victoria Barracks
MELBOURNE SC1 VIC

UNIDENTIFIED FLYING OBJECTS

The attached letter was received from the Department of Civil Aviation. It is forwarded to you for investigation in accordance with current policy.


(N.G.S. MARSHALL)
Wing Commander
for Director of Air Force Intelligence

Dr Duggan OK to leave


NO COMM CENT

67 FEB 16 2 14

1966 FEB 16 01:14

NNNNK

PRIORITY

~~DRA 03040400YAZTSNCA049TUR877~~ HH

~~PP RAYPP~~

~~DE RAYRTV 08W 167888Z~~

~~ZNY REEBB~~

P 152359Z

FM HQTVL

TO RAYRTP/HQOPCOM

~~RXIN 1707PAIR~~

BT

RECEIVED
 16 FEB 1967
 C.A.S.

NO COMMUNICATIONS
 RECEIVED FROM
 THE AIR FORCE
 ON 16 FEB 1967

RESTRICTED A787 UFO INTEL REPORT PD OBJECT SIGHTED BY
 MR G J HOLT CMM 3 ST JOHN STREET BELGIAN GARDENS TOWNSVILLE AT 150356Z
 OR 150404Z FEB WHILE PASSENGER IN CAR APPROX 30 NM NORTH OF TVL
 PD APPEARED AS SMALL DARK OBJECT ROUGHLY TRIANGULAR SHAPE MOVING FROM
 SW TO NE DIRECTION CMM HEIGHT CALCULATED 20000-50000 FT PD ON STRAIGHT
 PATH DESCENDING PD ONLY ACFT REPORTED WAS PAN AM CLIPPER JET EN ROUTE
 NOUMEA - DAR OVER COOKTOWN FLIGHT LEVEL 318 AT APPROX TIME OF SIGHTING

ACTION COPY	<i>EAS</i>
INFORMATION COPY	

Awaiting full report from TVL

[Signature]



COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF CIVIL AVIATION



Telephone: 62 0131

Telegraphic Address: "AVIAT MELBOURNE."

Postal Address:

BOX 1839 Q. P.O.,
ELIZABETH STREET,
MELBOURNE, C.I.

"HENTY HOUSE,"

499 LITTLE COLLINS STREET,
MELBOURNE, C.I.

IN REPLY QUOTE 21/1/67

15 FEB 1967

MEMORANDUM FOR :

The Secretary,
Department of Air,
CANBERRA.

DAFI

UNIDENTIFIED FLYING OBJECTS

Attached is a copy of a letter dated 12th January, 1967 from Mrs. P. S. Casey, Oak Vale, Coolac, New South Wales. This letter is referred for any action you consider necessary.

- 2. We have no knowledge of any civil aircraft movements in the area at the relevant time.
- 3. I have advised Mrs. Casey that I have referred her letter to you.

W. J. Molloy
(W. J. MOLLOY)

for Director-General of Civil Aviation.



Oak Vale,
COOLAC. N.S.W.
 12th January, 1967.

Dear Sir,

I address this to you as I do not know the correct procedure - if any. I have been unable to identify a flying object! May I digress; some months ago a Helicopter was stationed in this area,? Cootamundra, doing some sort of survey; once or twice it returned whence it came late at night and I had no trouble in knowing by sight and hearing that it was indeed a helicopter.

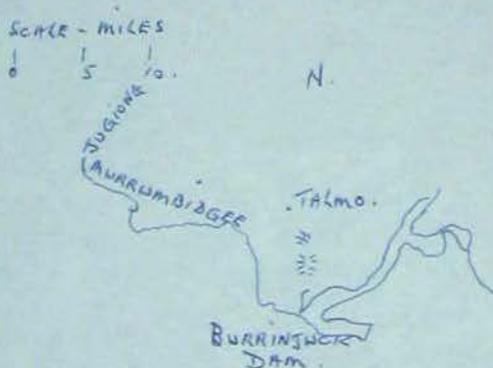
We are situated as the crow flies about six miles below the Burrinjuck Dam and due east of us is a range of mountains called, I believe, Barren Jack; they rise from the river which is approximately one and a half miles from our house.

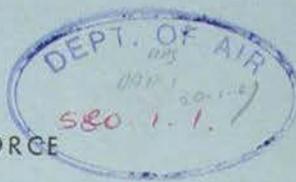
Last night, 11th inst. at about 10.30 p.m. I watched what I thought at first to be a helicopter coming between the hills directly towards me. It appeared to be a bright gold ball even with the binoculars, it was a steady golden glow without sound which passed between us and the hill (or mountain, it would be regarded as either) and then passed out of sight behind the mountain - or hill- to reappear and be lost to sight behind some high ground of ours.

If it was a helicopter why the steady light and why soundless? The night was still and the sky clear in that direction. It was not an aeroplane, I thought it moved more quickly than a helicopter. Why do the rounds of the mountains at that hour in a blaze of lights? I would love to know!

Yours in bewilderment,

(Mrs.) Pamela S. Casey





ROYAL AUSTRALIAN AIR FORCE

TELEPHONE: 69 0550

HEADQUARTERS SUPPORT COMMAND
RAAF
VICTORIA BARRACKS
MELBOURNE 5C1 VIC

TELEGRAPHIC ADDRESS:
"AIRCOMMAND, MELBOURNE"

IN REPLY QUOTE 5/6/Air(30)

13 FEB 1967

Secretary
Department of Air
Russell Offices
DAFI CANBERRA ACT

UN-IDENTIFIED FLYING OBJECTS

Forwarded herewith are reports on aerial sightings by the undermentioned, investigated by this Headquarters.

L. BOARDMAN
R. BELFORD
R. STREET

*Sidell's
Aircraft?
Sidell's.*

L.B. Brown
(L.B. BROWN)
Wing Commander
For Air Officer Commanding

Encl



REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer... *(Mr.) L. Boardman*..... Age. *59*.
2. Address of Observer..... *26 Russell St., Camberwell, E.C. Vic.*
3. Occupation of Observer..... *Engineering Draftsman*.....
4. Date and Time of Observation (Time to be given in local time)
Saturday, 10-12-66..... 11:40 P.M. (approx.).....
5. Duration of Observation(s)..... *approx 3 mins.*.....
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks)
310335 on Aust Army Survey Map of "Melbourne" - 4 miles to 1 inch.....
7. Weather Conditions at time(s) of observation(s).....
No cloud, no wind.....
8. Aids to Observation(s). (Describe any equipment used in the observation)
Nil.....
9. Where was object first observed, eg, overhead, coming from behind a hill, over the horizon, etc.
Bearing 75° to 80° Altitude approx 50°.....
10. What first attracted observer's attention, eg light or noise.
Motion of what appeared to be a bright star.....
11. Did object appear as a light or as a definite object.
Point of light like star of magnitude 1½.....
12. If there was more than one object, how many were there, and what was their formation.
One.....
13. What was the colour of the light or object... *white*.....
14. What was its apparent shape..... *point of light*.....
15. Was any detail of structure observable..... *No*.....
16. Was any method of propulsion obvious..... *No*.....
17. Was there any sound..... *None*.....
18. Height, or angle of elevation..... *approx 50°*.....
19. Speed, or angular velocity..... *about, or slightly more than, that of a 90 minute orbit satellite*.....
20. Was the object stationary?..... *No*.....
21. What was the direction of flight with reference to landmarks or points of the compass...
Due South.....

- 22. Did the object remain on a straight path, deviate or manoeuvre at all? *Straight path*
- 23. Was any trail of exhaust, vapour or light seen... ~~light only~~ *No*
- 24. Where did object disappear, eg in mid-air, behind a hill, over the horizon. *behind houses*
- 25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence. *Nil*
- 26. Have you observed any unusual phenomena previously... *No*
- 27. If so, give details of incident(s).....
- 28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19. *General Engineering Experience*
- 29. Are you a member of any organisation interested in aerial phenomena? *No*

30. Name and Address of organisation.....

31. Any additional information... *The object had all the appearance of a satellite on a polar orbit, but of course satellites are not visible at midday, nor usually so bright*
 Signature of Observer *[Signature]*

32. Location of any air traffic in the vicinity at the time of sighting.

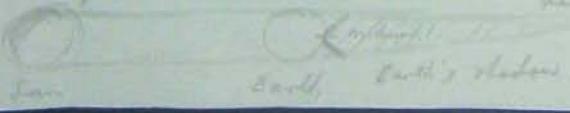
33. Location of any meteorological stations in the general area.

34. Comment *In spite of the observer's comment at para 31, it is considered that this was a satellite. Satellites have been observed at all hours of the night*
 Signature of Interrogator *[Signature]*

QUESTIONS 32, 33 and 34 to be answered by interrogator.

Note: Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved, and the time taken to do this.

Reference 31 and 34. The observer is correct; the interrogator errs: initially when elevation of 50° is considered. Satellites are not high enough to escape the earth's shadow.



REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer... Robin William BELFORD Age... 28
2. Address of Observer... 8 Colac Street Broadmeadows Vic
3. Occupation of Observer... WAAF Officer
4. Date and Time of Observation (Time to be given in local time)
2200 hrs Friday 13 Jan 67
5. Duration of Observation(s)... Approx. seven seconds
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks)
Sydney Road Faubner, looking South
7. Weather Conditions at time(s) of observation(s)... Fine -
~~no cloud noted - temperature comfortable~~
8. Aids to Observation(s). (Describe any equipment used in the observation)
Nil
9. Where was object first observed, eg overhead, coming from behind a hill, over the horizon, etc.
Straight, level flight path over Melbourne, at right angles to observer
10. What first attracted observer's attention, eg light or noise.
Light - the object was first seen by my wife, who pointed it out to me
11. Did object appear as a light or as a definite object.
Bright object, about fifty feet in length
12. If there was more than one object, how many were there and what was their formation.
Smaller objects (3 or 4) were visible for no longer than one second, and appeared to come from large object
13. What was the colour of the light or object... orange
14. What was its apparent shape... Blunt, rounded front, tapered tail
15. Was any detail of structure observable... No
16. Was any method of propulsion obvious... No
17. Was there any sound... No
18. Height, or angle of elevation... Approx 1000 ft
19. Speed, or angular velocity... Approx 500 kts
20. Was the object stationary... No
21. What was the direction of flight with reference to landmarks or points of the compass...
Flight from West to East, at right angles to Sydney Road Faubner

22. Did the object remain on a straight path, deviate or manoeuvre at all?
Straight and level path.

23. Was any trail of exhaust, vapour or light seen... *No*

24. Where did object disappear, eg mid-air, behind a hill, over the horizon.
Mid air

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.
No

26. Have you observed any unusual phenomena previously... *No*

27. If so, give details of incident(s)... *N/A*

28. State any experience which enables observer to be reasonably certain about the answers given to paras 18 and 19.
Substantial experience gained as a result of my occupation.

29. Are you a member of any organisation interested in aerial phenomena?
No

30. Name and address of organisation... *N/A*

31. Any additional information. *Estimated distance of object was one mile, and appeared to be on the runway heading of Essendon airport, travelling away from airport. No navigation lights were visible after disappearance of object.* Signature of Observer *Kw Belford*

32. Location of any air traffic in the vicinity at the time of sighting.
None known

33. Location of any meteorological stations in the general area.
Loveton / Essendon

34. Comments. *Plt Lt Barker was certain, that, from his experience, ~~that~~ the sighting, was not of an aircraft in spite of the fact that all indicators suggest it was.* Signature of Interrogator *[Signature]*

QUESTIONS 32, 33 and 34 to be answered by interrogator.

note... Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved and the time taken to do this.

REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer... R. R. STREET Age 45
2. Address of Observer... KING ST YARRA GLEN
3. Occupation of Observer... TRACTOR SALESMAN
4. Date and Time of Observation (Time to be given in local time)
DEC 28th 8 P.M.
5. Duration of Observation(s)... APPROX 5 MINUTES
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks)
KING ST YARRA GLEN SOUTH WEST
OF MT ST. LEONARD (Approx 12 miles)
7. Weather Conditions at time(s) of observation(s)... FINE MID
8. Aids to Observation(s). (Describe any equipment used in the observation)
MIL
9. Where was object first observed, eg, overhead, coming from behind a hill, over the horizon, etc.
ABOUT 3° ABOVE HORIZON & 3° LEFT OF JUST RISEN FULL MOON (SEE SKETCH)
10. What first attracted observer's attention, eg light or noise.
LIGHT & MOVEMENT
11. Did object appear as a light or as a definite object.
LIGHT (SUCH AS SATELLITE REFLECTION)
12. If there was more than one object, how many were there, and what was their formation.
ONE ONLY
13. What was the colour of the light or object... COLOUR OF LIGHT
14. What was its apparent shape... ROUND
15. Was any detail of structure observable... NO
16. Was any method of propulsion obvious... NO
17. Was there any sound... NO
18. Height, or angle of elevation... 3° ABOVE HORIZON
19. Speed, or angular velocity... 16° IN 3 MINUTES
20. Was the object stationary?... NO
21. What was the direction of flight with reference to landmarks or points of the compass...
FROM WEST TO EAST

22. Did the object remain on a straight path, deviate or manoeuvre at all?
SEEMED TO ALMOST CIRCLE THE MOON THEN TAKE OFF TO THE EAST

23. Was any trail of exhaust, vapour or light seen.....*yes*.....

24. Where did object disappear, eg in mid-air, behind a hill, over the horizon.

IT BECAME FAINTER & FAINTER AS IT MOVED TO EAST

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.
NIL

26. Have you observed any unusual phenomena previously...*NO*.....

27. If so, give details of incident(s).....*NIL*.....

28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.

TRAINED IN OBSERVING FOR ARTILLERY FIRE

29. Are you a member of any organisation interested in aerial phenomena?
NO

30. Name and Address of organisation.....*NIL*.....

31. Any additional information.....

Signature of Observer *R. Street*

32. Location of any air traffic in the vicinity at the time of sighting.
NIL

33. Location of any meteorological stations in the general area.
LAVERTON

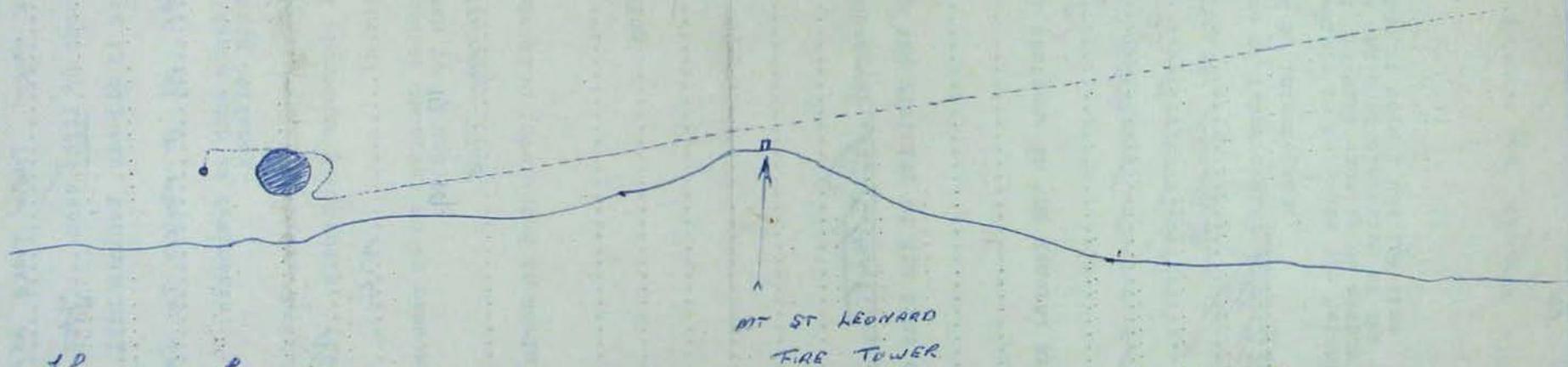
34. Comments. *In spite of the apparent movement of this object around the moon it is probable that this was a satellite.*

Signature of Interrogator *[Signature]*

QUESTIONS 32, 33 and 34 to be answered by interrogator.

Note: Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved, and the time taken to do this.

(SEE SKETCH ON REVERSE SIDE)
RP



The sun had just set and the moon rose immediately. My head had not reached its full brightness. This object appeared to cross behind the moon but it would be impossible to say the for certain. Before it made the final turn to the East I was certain it was a large satellite swinging around the moon.



16

ROYAL AUSTRALIAN AIR FORCE

TELEPHONE: 69 0550

HEADQUARTERS SUPPORT COMMAND
RAAF
VICTORIA BARRACKS
MELBOURNE SC1 VIC

TELEGRAPHIC ADDRESS:
"AIRCOMMAND, MELBOURNE"

IN REPLY QUOTE 5/6/Air(29)

13 FEB 1967

Secretary
Department of Air
Russell Offices
CANBERRA ACT

DAFI

UN-IDENTIFIED FLYING OBJECTS

1. Forwarded herewith are UFO sighting reports received from Department of Civil Aviation, Melbourne.
2. This Headquarters has nothing further to add to report No 1. Report No 2 is considered possibly to be sightings of satellites and it has not been possible to contact Mr O'LOUGHLIN to verify this.

(L.B. BROWN)
Wing Commander
For Air Officer Commanding

Encl

1st Aircraft 3
24 Satellite



REPORT ON AERIAL OBJECT OBSERVED.

1. Name of Observer E. G. O'LOUGHLIN

2. Address of Observer 3 MADDEN ST., ALBERT PARK, MELBOURNE

3. Occupation of Observer

4. Date and Time of Observation (Time given in 24 hour clock zonal time)
..... (1) 30/12/66 2200HRS. (2) 31/12/66 2245 HRS.

5. Period of Observation (s)

6. Manner of Observation: (Give details of own position by map reference if possible, or by known landmarks, and describe any equipment used in the observation).
..... RINGAI, TASMANIA EQUIPMENT NIL

7. Where was object first observed, e.g. overhead, coming from behind a hill, over the horizon, etc.
..... (1) TO THE NORTHWEST (2) OVERHEAD

8. What first attracted Observer's attention e.g. light or noise.
..... LIGHT

9. Did object appear as a light or as a definite object.
..... LIGHT

10. If there was more than one object, how many were there, and what was their formation.

11. What was the colour of the light or object RED ORANGE BOTH OCCASIONS

12. What was its apparent shape

13. Was any detail of structure observable

14. Was any method of propulsion obvious

15. Was there any sound

16. Height, or angle of elevation GREAT HEIGHT

17. Speed, or angular velocity

18. State any experience which enables observer to be reasonably certain about the answers given to 16 and 17.
..... NONE GIVEN

Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved, and the time taken to do so.

Report on Aerial Object Observed (Contd).

- 19. Direction of flight with reference to landmarks or points of the compass.
 (1) NORTHWEST TO SOUTHEAST (2) OVERHEAD TO SOUTHEAST
- 20. Did the object remain on a straight path, deviate or manoeuvre at all.
 (1) APPEARED TO ZIG-ZAG (2) STRAIGHT PATH
- 21. Was any trail of exhaust, vapour or light seen
- 22. Where did object disappear, e.g. in mid-air, behind a hill, over the horizon.

- 23. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.

- 24. Weather conditions experienced at time (s) or observation (s).

- 25. Location of any air traffic in the vicinity at the time of sighting.
 NIL CIVIL TRAFFIC RECORDED
- 26. Location of any meteorological stations in the general area.
 LANCASTON NEAREST
- 27. Any additional information
- OBSERVER STATES "MOVING THROUGH THE STARS"
- REPORT RECEIVED IN MAIL
-

Questions 25, 26 and 27 to be answered by interrogator.

RESTRICTED

15

MEMORANDUM

For use within the RAAF only
Write or print clearly

RAAF FORM A273 MAR 63

OUR FILE

5/12/1/AIR(97)

FROM

HQ OPERATIONAL COMMAND

DATE

08 FEB 67

TO

DEPARTMENT OF AIR ATTENTION
SQUADRON BIKET

REFERENCES

DEPT. OF AIR
580 1-1

DAFI

SUBJECT

INTELLIGENCE - UNIDENTIFIED AERIAL SIGHTINGS

Four unrelated UFO reports are
forwarded for your attention



- 1st Modern Satellite nearby?
- 2nd Satellite
- 3rd ?
- 4th Aircraft

SIGNATURE

A Green

PRINTED NAME

A GREEN

RANK AND APPOINTMENT

FLYGT CDR

PHONE EXTN

380

RESTRICTED

C.D.O. 9777

REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer... LYNETTE VEALE Age... 18 y 9 m
2. Address of Observer... 40 Carson St Springvale North
3. Occupation of Observer... Insurance clerk (New Zealand Insurance Co)
4. Date and Time of Observation (Time to be given in local time)
..... 15-1-67 11:30 pm
5. Duration of Observation(s)... 10 minutes
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks)
..... at home
7. Weather Conditions at time(s) of observation(s)... Sky clear
8. Aids to Observation(s). (Describe any equipment used in the observation)
..... Nil
9. Where was object first observed, eg overhead, coming from behind a hill, over the horizon, etc.
..... coming from behind a house
10. What first attracted observer's attention, eg light or noise.
..... flashing red light
11. Did object appear as a light or as a definite object.
..... light
12. If there was more than one object, how many were there and what was their formation.
..... one only
13. What was the colour of the light or object... red
14. What was its apparent shape... round
15. Was any detail of structure observable... no
16. Was any method of propulsion obvious... no
17. Was there any sound... no
18. Height, or angle of elevation... twice height of houses
19. Speed, or angular velocity... still then moved slowly
20. Was the object stationary... initially
21. What was the direction of flight with reference to landmarks or points of the compass...
..... proceeding west

22. Did the object remain on a straight path, deviate or manoeuvre at all? *straight*

23. Was any trail of exhaust, vapour or light seen... *no*

24. Where did object disappear, eg mid-air, behind a hill, over the horizon. *behind houses*

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence. *none*

26. Have you observed any unusual phenomena previously... *no*

27. If so, give details of incident(s)... *N/A*

28. State any experience which enables observer to be reasonably certain about the answers given to paras 18 and 19. *N/A*

29. Are you a member of any organisation interested in aerial phenomena? *No*

30. Name and address of organisation... *N/A*

31. Any additional information. *Did not behave like an air craft would be expected to.*

Signature of Observer... *Telephoned*

32. Location of any air traffic in the vicinity at the time of sighting.

33. Location of any meteorological stations in the general area.

34. Comments

Signature of Interrogator... *D. Donald*

QUESTIONS 32, 33 and 34 to be answered by interrogator.

note... Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved and the time taken to do this.

1512

231 Kincaid Street,
WAGGA WAGGA.

18th January, 1967.

The Officer, in Charge,
U.F.O. Sightings,
RICHMOND AIR BASE.
RICHMOND.

Dear Sir,

My husband and I travelled to Sydney last Friday, the 13th instant via the Hume Highway, and somewhere between 10.30 p.m. and 11 p.m. about 20 miles this side of Camden, I drew my husband's attention to what appeared to be two red lights in the sky ahead of us.

We at first thought it a plane, though my husband commented that a plane did not have two red lights as we could see ahead of us. It appeared stationary, or possibly moving very slowly - we appeared to approach it, rather than it us. We were on a flat stretch of road, wooded in parts and cleared in others. The traffic was fairly light though I do recall cars behind us.

We watched for possibly two minutes from the time I first saw the lights and my husband said "that appears to be only about 500 feet up", though I don't know myself how he placed such a height.

We slowed the car, watching the whole while, and stopped when the lights were just about directly over us. My husband got out of the car (at the same time a car drove past us) and after a moment or two said he could not see anything. When I went to speak he quietened me for a moment and then said he thought he could hear a very faint sound possibly like a jet in the distance, though he wasn't certain and with the car passing us, could have imagined it.

We continued to look about for a minute or two and then drove on. I kept my eyes to the sky for a while but we didn't see anything further.

We did wonder about it, and in fact laughingly said we had sighted a "U.F.O." and considered reporting it at the Police Station when we arrived at Camden. We didn't bother however as we felt we would be laughed out, and didn't think anymore about it until next morning when we told my sister

we had seen a "something". Not until we saw the report later that morning in the Telegraph did we wonder if indeed we should have reported to someone. We felt we had seen the same object as reported by the two policemen at or near Newcastle, though certainly we had not seen any light shining towards the ground.

However, the similarity between the description of lights and the object either stationary or only just moving, and the fact that my husband had said it appeared about 500 ft. up, did make us feel we should report it.

We came back to Wagga and on Monday afternoon (after telling my employer - a Solicitor - about "it" and on his recommendation) I called at the Wagga Police Station and spoke to a local Sergeant.

Without actually saying anything to me, he gave me the impression that I was a "Nut" and in fact didn't even ask me any questions - just listened while I tried (without encouragement) to explain what we had seen, without appearing to be imagining things. He did take my name and address and said if anything further came up, he would make a report to the Camden Police Station. This I felt was most odd, and possibly said just to "get rid of" me so I left feeling rather stupid. I decided at that time not to do anything further as I'd again probably be treated as silly, but on mentioning it to another chap in our firm who had read a further article on the Newcastle sighting in one of the Sunday papers, he told me that that sighting was in your hands, and suggested I write.

Whether you too will think me odd I don't know, but at least I feel we did see something unusual and that I should report to someone.

Yours faithfully,

J. Rootes
(Judith Rootes).

RESTRICTED

INTELLIGENCE - REPORT OF AERIAL

OBJECT OBSERVED

(Operational Command ASI 3/A/5)

PART 1 - REPORT BY OBSERVER

1. Name of observer **JUDITH ROOTES & HUSBAND** AGE
2. Address of observer **231 Kincaid Street WAGGA WAGGA**
..... PHONE
3. Occupation of observer **Employed by solicitor.**
4. Date and time of observation **13JAN67 Between 10.30 & 11PM**
5. Duration of observation **Approximately two minutes.**
6. Observers location at time of sighting **On Hume Highway about
20 miles south of CAMDEN.**
7. Weather conditions at time of observation **Not stated.**
8. Describe any aids or equipment used in the observation
**No aids or equipment mentioned in observer's
letter.**
9. Where was object first observed? (eg, overhead, coming from
behind a hill, over the horizon).
Ahead of observer's car.
10. What first attracted observer's attention? (eg, light or
noise).
Two red lights.
11. Did object appear as a light or as a definite object?
Only described as two red lights.
12. If there was more than one object:-
(a) how many were there? **n/a**
(b) in what formation were they? **n/a**
13. What was the colour of the light or object? **Red.**
14. What was its apparent shape? **Apparently no shape discerned.**
15. Was any detail of structure observable? **Apparently not.**
16. Was any method of propulsion obvious? **Mr ROOTES thinks he may
have heard faint sound possibly like jet.**

RESTRICTED

.../2

- 2 -
See para 16.

- 17. Was there any sound?
- 18. What was its height? (or angle of elevation) ... **Approx. 500' AGL**
- 19. What was its speed? (or angular velocity) ... **Stationary or moving very slowly.**
- 20. Was the object stationary? ... **See 19.**
- 21. What was the direction of flight with reference to landmarks or points of the compass?
.....
.....
.....
See 19.
- 22. Did the object remain on a straight path, deviate, or manoeuvre at all?
.....
No manoeuvres described by observers.
- 23. Was any trail of exhaust, vapour, or light seen?
-
Apparently not.
- 24. Where did object disappear? (eg, in mid-air, behind a hill, over the horizon)
.....
Not stated.
- 25. Do you know of any physical evidence? (such as fragments, photographs, or other supporting evidence)
.....
No.
- 26. Have you observed any unusual phenomena previously? **N/K**.....
- 27. If so, give brief details of incident (s)
-
N/A
-
- 28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.
.....
N/K.....
- 29. Are you a member of any organization interested in aerial phenomena?
-
N/K
- 30. Name and address of organisation
-
N/A
-
- 31. Any additional information which relates to the sighting.
Observer states that Telegraph reported similar sighting by two policemen in the NEWCASTLE area.
.....
.....
.....

PART 2 - UNIT EVALUATION

32. The following military aircraft were in the vicinity of the reported UFO position at the time:-

Aircraft type Super Constellation (NASA 421)
Heading Sy - CAN - Sy T ex Sy 1919K Returned Sy 2358K T
Height 15,000 ft 20,000 ft ,000 ft
Speed approx 220 K K K

33. The following civil aircraft were in the vicinity of the reported UFO position at the time:-

Aircraft Type BOEING 727
Heading Sy - ML T 2231K T T
Height Climbing to 31,000 ft ,000 ft ,000 ft
Speed approx 500 K K K

34. Calculations show that the following planets or major stars were in that portion of the sky at the time:-

35. A meteorological balloon was released from
atZ and could have been in the reported UFO position at the time.

36. The State Observatory in the nearest capital city affirms that aerial phenomena in that portion of the sky at the time were (comet, meteorite shower, etc).

37. Any other relevant remarks (eg about satellites, rockets, research balloons)

38. There is conclusive evidence that the object reported was

39. The object reported could have been

40. The cause (or likely cause) of the sighting cannot be determined.

BASONRIC (Unit) Robert Bauer (Name)
2 FEB 67 (Date) PTE OFF (Rank)

180700

15c

Report received from Mr Max Hillier
DCA Brisbane Airport

RESTRICTED

INTELLIGENCE - REPORT OF AERIAL

OBJECT OBSERVED

(Operational Command ASI 3/A/5)

PART 1 - REPORT BY OBSERVER

1. Name of observer... Mr HOPKINS AGE... -
2. Address of observer... AUTHARINGA STATION
CHARLEVILLE (Station 30 miles SE of CHARLEVILLE) PHONE... CHARLEVILLE 6.089 U
3. Occupation of observer... Not known
4. Date and time of observation... 17.0542Z JAN 67
5. Duration of observation... 1 minute
6. Observers location at time of sighting... AUTHARINGA STATION
7. Weather conditions at time of observation... Not known
8. Describe any aids or equipment used in the observation... Handy Compass
9. Where was object first observed? (eg, overhead, coming from behind a hill, over the horizon)... Descending vertically - (bearing 088° true)
10. What first attracted observer's attention? (eg, light or noise)... Flashes in sky. Object descending vertically at very high speed. Then puff of smoke.
11. Did object appear as a light or as a definite object?... Puff of smoke - remained for one minute.
12. If there was more than one object:-
 - (a) how many were there?
 - (b) in what formation were they?
13. What was the colour of the light or object? ... Not given
14. What was its apparent shape?
15. Was any detail of structure observable?

RESTRICTED

.../2

- 16. Was any method of propulsion obvious? *Not stated*
- 17. Was there any sound? *After puff of smoke - 1 1/2 - 2 seconds later - loud explosion.*
- 18. What was its height? (or angle of elevation)..... *5500/6000'*
- 19. What was its speed? (or angular velocity)..... *Very rapid.*
- 20. Was the object stationary? *No*
- 21. What was the direction of flight with reference to landmarks or points, of the compass?
..... *Born 088° (M) from AUTHARINGA Station*
- 22. Did the object remain on a straight path, deviate, or manoeuvre at all?
..... *Rapid vertical fall.*
- 23. Was any trail of exhaust, vapour, or light seen?
..... *Had sighted*
- 24. Where did object disappear? (eg, in mid-air, behind a hill, over the horizon)
..... *Apparently mid air*
- 25. Do you know of any physical evidence? (such as fragments, photographs, or other supporting evidence)
..... *Not known*
- 26. Have you observed any unusual phenomena previously? *N/A*
- 27. If so, give brief details of incident(s) *N/A*
- 28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.
..... *Not known*
- 29. Are you a member of any organization interested in aerial phenomena?
..... *Not known*
- 30. Name and address of organisation
..... *N/A*

31. Any additional information which relates to the sighting.
Mr Hopkins, phone neighbour at PICTON - 10 mls East of AUTHARINGA, who also heard explosion, believing it to be an earth tremor.

Civil aircraft CLIFTON HILLS to CHARLEVILLE at 4500'
45 mls from CV - 2 fax sighted puff of smoke - take Pilot FANTON, who described puff to be about 5500/6000' up and to the south of the aircraft

PART 2 - UNIT EVALUATION

32. The following military aircraft were in the vicinity of the reported UFO position at the time :-

Aircraft type..... *NIL Military craft*
Heading..... *T* *T* *T*
Height..... */*.....,000 ft */*.....,000 ft.....,000 ft
Speed..... *K*..... *K*..... *K*

33. The following civil aircraft were in the vicinity of the reported UFO position at the time :-

Aircraft type..... *Pilot - Rinton Company Western Air CHARLEVILLE*
Heading..... *085°D* *T* *T* *T*
Height..... *4500'*.....,000 ft.....,000 ft.....,000 ft
Speed..... *-*..... *K*..... *K*..... *K*

34. Calculations show that the following planets or major stars were in that portion of the sky at the time:-

35. A meteorological balloon was released from..... *CHARLEVILLE*
at..... *0500*.....Z and could have been in the reported UFO position at the time. *NORMAL OPERATION TO 3000'*

36. The State Observatory in the nearest capital city affirms that aerial phenomena in that portion of the sky at the time were *only bright star - CANOPUS bearing 145°(T)*
but very doubtful if visible by daylight

37. Any other relevant remarks (eg about satellites, rockets, research balloons)

38. There is conclusive evidence that the object reported was

39. The object reported could have been..... *a meteor - or*
meteorite if object hit ground - or
a re-entrating particle

40. The cause (or likely cause) of the sighting cannot be determined.

BASIS SQUADRON.....(Unit) *L. A. HALL DAX* (Name)
KARL HUBERLE.....(Date) *FLT LT*.....(Rank)
17 Jan 67

3863
3.9011

RESTRICTED

INTELLIGENCE - REPORT OF AERIAL

OBJECT OBSERVED

(Operational Command ASI 3/A/5)

PART 1 - REPORT BY OBSERVER

1. Name of observer... Basil ALDHAM AGE... Adult..
2. Address of observer .. 11 Kulaba Street NARRIBRI .. NSW ..
..... PHONE ... 7
3. Occupation of observer .. Not known
4. Date and time of observation ... 2110 .. 6 JAN 67
5. Duration of observation 90 seconds
6. Observers location at time of sighting .. Residence above
7. Weather conditions at time of observation ... Cloudless but ..
... hazy
8. Describe any aids or equipment used in the observation
- ... Presumably a magnetic compass
9. Where was object first observed? (eg, overhead, coming from be-
hind a hill, over the horizon).
... 30° above horizon bearing 230^{OM} from NARRIBRI passing between ...
two stars.
10. What first attracted observer's attention? (eg, light or noise).
..... Flash from corner of eye
11. Did object appear as a light or as a definite object?.....
... As a light varying in intensity appearing to flash every.....
... 8 - 10 seconds
12. If there was more than one object:-
 (a) how many were there? N/A
- (b) in what formation were they? N/A
13. What was the colour of the light or object? White
14. What was its apparent shape? ... Similar to a star
15. Was any detail of structure observable? No

RESTRICTED

-2-

16. Was any method of propulsion obvious? No
17. Was there any sound? No
18. What was its height? (or angle of elevation). ~~30° above horizon~~.....
19. What was its speed? (or angular velocity) ~~Apparent horizontal~~.....
velocity 5°-6°/min
20. Was the object stationary? No
21. What was the direction of flight with reference to landmarks or
points of the compass?
..... No reference but appeared to move SE-NW i.e. 90° to line of ...
22. Did the object remain on a straight path, deviate, or ^{sight} manoeuvre
at all?
..... Remained on straight path
23. Was any trail of exhaust, vapour, or light seen? ... No
24. Where did object disappear? (eg, in mid-air, behind a hill,
over the horizon)
..... Disappeared in haze
25. Do you know of any physical evidence? (such as fragments, photo-
graphs, or other supporting evidence)
..... No
26. Have you observed any unusual phenomena previously? .See below..
p 27
27. If so, give brief details of incident(s) .Although not.....
unusual, observer saw two shooting stars the previous evening...
plus a similar flash described above which was taken to be.....
vertically descending "shooting star".
28. State any experience which enables observer to be reasonably
certain about the answers given to 18 and 19.
Not stated, but observer appears to have given sighting
considerable thought:
29. Are you a member of any organization interested in aerial phen-
omena? Not stated
30. Name and address of organisation N/A
31. Any additional information which relates to the sighting.
... Opinion of observer that the flashing could have been
- ... Met balloon

RESTRICTED

.../3

PART 2 - UNIT EVALUATION

- 32. The following military aircraft were in the vicinity of the reported UFO position at the time :-
 Aircraft type. ~~None reported but unlikely on a Saturday evening.~~
 Heading.....TT.....T
 Height.....,000 ft ,000 ft.....,000 ft
 Speed.....K.....K.....K
- 33. The following civil aircraft were in the vicinity of the reported UFO position at the time :-
 Aircraft type..... ~~No scheduled movements known by DCA~~
 Heading.....T.....T.....T
 Height.....,000 ft.....,000 ft.....,000 ft
 Speed.....K.....K.....K
- 34. Calculations show that the following planets or major stars were in that portion of the sky at the time:- ~~The two stars mentioned were probably SOMALHAUT and ANKAA. May be significant that VENUS set on this 27th with one hour earlier.~~
- 35. A meteorological balloon was released from...~~WILLIAMTOWN~~...
 at...1100...~~2 44~~ but not ~~could~~ have been in the reported UFO position at the time.
- 36. The State Observatory in the nearest capital city affirms that aerial phenomena in that portion of the sky at the time were ~~NIL... Confirmed/~~ by Sydney Observatory (comet, meteorite shower, etc).
- 37. Any other relevant remarks (eg about satellites, rockets, research balloons)..... ~~Could have been a tumbling satellite one of approximately 1,000 orbiting earth.~~
- 38. There is conclusive evidence that the object reported was...~~not~~... an aircraft, or meteorological balloon.....
- 39. The object reported could have been...~~a tumbling satellite, the flashes occurring each time a face passed through sun's rays.~~ (A suggestion by Prof. BIRD, Dept of Aeronautics, Sydney University).
- 40. The cause (or likely cause) of the sighting cannot be determined. /

Headquarters RAAF Base..(Unit) (R. V. OROEN).....(Name)
 WILLIAMTOWN
 26 Jan 67.....(Date) Squadron Leader... (Rank)



11. Thulabur St
 Vancouver B.C.
 6th Jan 1967.

To Whom it May Concern,

V.F.O. Lightning

From my residence at the above address I was watching a flood light a quarter mile NW. As a result my eyes were not as accustomed to darkness as much as what I would have liked for the following observations. Witnesses called subsequently from lighted rooms were affected similarly.

A flash was observed from the side of the eye, the best view obtained. Subsequent flashes were viewed by direct sight.

Time 0910 on 6 Jan 67.

Direction 230 magnetic from residence

Height about 30° above horizon

Location In the direction indicated there were two bright stars, the distance apart of the long arm of the Southern Cross and of less magnitude, one closer to the horizon than the other. The flashes observed by me were slightly northward of a line joining the two.

Visibility: A moderate display of stars lacking sparkle. Hazy. At midnight a foggy cloud formation appeared.

Concepts of Height: 30 miles, say vertically one in a spit 8 to 10 miles distant at 100,000 feet.

Duration of Flash: Eye blink time say less than 1/2 the second.

Character of Flash: Brief, intense, pinpoint. The rays from brighter flashes were perhaps 20 to 40 diameters of either of the stars mentioned.



comparing with the star rays of about 2 diameters
size of flash Pin point, say $\frac{1}{15}$ to $\frac{1}{20}$ of the star
apparent diameter.

Time between flashes: Not counted. Recollected at
about 8 to 10 seconds.

No. of repetitions: Not counted. Recollected at 8
by me 4 by my daughter of 13 years. Say 12 in
all.

Time lapse between first and last flash sighted.

A bucket was filling with water, the water
level turned at 90 seconds.

Observing. The first flash was the brightest. The
last flashes were not seen by me. The
atmosphere appeared hazy. At first as a
background on which light could be seen very
faintly subsequently as an obscuring medium
movement. I could detect no movement in
position in relation to the two stars. The
final observation of my daughter of 13 was
5° above south.

Report. 1st notes 7/28 pm 4/1/68 } attached
2nd notes 12:30 am 7/1/68 }
Current redraft 13/1/68.

Next morning I asked the 13 year old daughter,
whom I considered a less reliable witness what
she saw. She said a light & said what was
it like that the answer took my breath for
clarity.

The placid her forefinger tip to her thumb tip
momentarily, then straightened the forefinger.
The point of contact represented the flash point.
She lifted finger the long ray emanating from the
flash. Prior to obscuring, the long ray was
vertical the lower rays downward. Late flash
lacked pin point intensity and were seen more
by reflection.



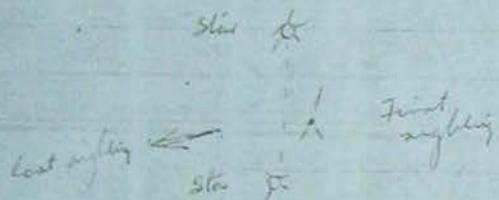
Identification

Super-nova. Huge phenomena reflection and
 repetition, and later movement ruled the east
 High altitude plane. Lack of movement between
 early flashes ruled this out.

Observation balloon filled with bluish light;
 Highly possible.

As some Public Body may be interested in
 the movements of such a piece of equipment
 this report is forwarded to be used or
 re-ruled as desired. Acknowledgement
 is not desired.

Jamil Halim



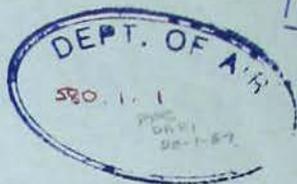
SE

Horizon

NW



ROYAL AUSTRALIAN AIR FORCE



14

TELEPHONE: 69 0550

HEADQUARTERS SUPPORT COMMAND
RAAF
VICTORIA BARRACKS
MELBOURNE SCT VIC

TELEGRAPHIC ADDRESS:
"AIRCOMMAND, MELBOURNE"

IN REPLY QUOTE 5/6/Air(28)

Secretary
Department of Air
Russell Offices
CANBERRA ACT

DAFI.

31 JAN 1967



UN-IDENTIFIED FLYING OBJECTS
Your 580/1/1 Pt6(36) 6 Dec 1966

1. The reports mentioned in your letter quoted above were referred to Queensland Squadron ATC for comments.
2. The reply by the Investigating Officer in question indicates that in each of the cases, he was unable to make an assessment of the sightings other than to describe them as astronomical phenomenon. The Investigating Officer contacted both Department of Civil Aviation and the Commonwealth Meteorological Bureau to ascertain the likelihood that the sightings could be related to either aircraft or meteorological balloons. In each case the Departments could not suggest any possible explanation.
3. It is regretted that the findings of the two investigations should be so inconclusive but the Investigating Officer is completely at a loss to determine the nature of the flying objects sights. This Headquarters has nothing to add to this report.

L.B. Brown
(L.B. BROWN)
Wing Commander
For Air Officer Commanding

RESTRICTED

INTELLIGENCE - REPORT OF AERIAL

OBJECT OBSERVED

(Operational Command ASI 3/A/5)

PART 1 - REPORT BY OBSERVER

1. Name of observer Mrs. A. Robinson (Mother) AGE
Mrs. C. McCarthy (Daughter) 24
2. Address of observer 29 Mulhring Street, Kurri Kurri
New South Wales PHONE -
3. Occupation of observer Housewives
4. Date and time of observation 21 JAN 67 .. Between 1015 - 1030 hours ..
5. Duration of observation approximately one minute
6. Observers location at time of sighting Driving along the road
- between Kurri Kurri and Maitland (McCarthy driving). sighting was
made in the vicinity of Maitland NDB
7. Weather conditions at time of observation Very hot and cloudless
(confirmed by Investigating officer)
8. Describe any aids or equipment used in the observation
- Object seen with naked eye and strange noise heard
9. Where was object first observed? (eg, overhead, coming from be-
hind a hill, over the horizon).
Right hand side of car (through front windscreen). object passed in
front of car and climbed rapidly away to observers left (Rutherford)
10. What first attracted observer's attention? (eg, light or noise).
A very loud hum intermingled with undecipherable voices seemed
to fill the car (no radio fitted)
11. Did object appear as a light or as a definite object? Observers
say it was a definite object, however when pressed for detail
both were a little confused as to closeness, size, etc
12. If there was more than one object:-
(a) how many were there? N / A
- (b) in what formation were they? N / A
13. What was the colour of the light or object? Bright silver
14. What was its apparent shape? Disk shaped
15. Was any detail of structure observable? No. Object moved too
rapidly.

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.../2

- 16. Was any method of propulsion obvious? No.....
- 17. Was there any sound? As for question 10.....
- 18. What was its height? (or angle of elevation) Confused answer, but apparently approximately 50' initially then climbed very rapidly
- 19. What was its speed? (or angular velocity)..... "very high". Confused, but both observers agree it was very fast indeed.
- 20. Was the object stationary? No.....
- 21. What was the direction of flight with reference to landmarks or points of the compass?
Approximately from Kurri NDB site to Rutherford.....
- 22. Did the object remain on a straight path, deviate, or manoeuvre at all?
Dipped slightly as it crossed from right to left then curved... upward into a steep climb.
- 23. Was any trail of exhaust, vapour, or light seen? ... No.....
.....
- 24. Where did object disappear? (eg, in mid-air, behind a hill, over the horizon)
In mid-air, appeared to climb and both observers watched until out of sight.
- 25. Do you know of any physical evidence? (such as fragments, photographs, or other supporting evidence)
..... No.....
- 26. Have you observed any unusual phenomena previously? No.....
- 27. If so, give brief details of incident(s) N / A.....
.....
.....
- 28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.
In relation to Mirage aircraft observed in area.
- 29. Are you a member of any organization interested in aerial phenomena? No.....
- 30. Name and address of organisation N / A.....
.....
- 31. Any additional information which relates to the sighting.
The sound commenced about 1/4 mile before Kurri NDB and built up to a maximum after 1 1/2 miles. This is about the spot where the sighting was made, ... The sound then continued to decrease over the next four tenth mile driven by the observers.

PART 2 - UNIT EVALUATION

32. The following military aircraft were in the vicinity of the reported UFO position at the time :-

Aircraft type..... NIL
Heading.....TT.....T
Height.....,000 ft ,000 ft.....,000 ft
Speed......K......K......K

33. The following civil aircraft were in the vicinity of the reported UFO position at the time :-

Aircraft type..... See Investigating officers report
Heading.....T.....T.....T
Height.....,000 ft.....,000 ft.....,000 ft
Speed......K......K......K

34. Calculations show that the following planets or major stars were in that portion of the sky at the time:-.....

..... NIL

35. A meteorological balloon was released from..... NIL
at.....Z and could have been in the reported UFO
position at the time.

36. The State Observatory in the nearest capital city affirms that aerial phenomena in that portion of the sky at the time were
..... NIL(comet, meteorite shower, etc).

37. Any other relevant remarks (eg about satellites, rockets,
research balloons).....
..... See Investigating officers report

38. There is conclusive evidence that the object reported was.....
..... N / A

39. The object reported could have been..... N / A

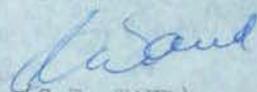
40. The cause (or likely cause) of the sighting cannot be determined.

No 76 Squadron.....(Unit) *for* J. L. ELLIS.....(Name)
26th January 1967.....(Date) Flight Lieutenant.....(Rank)

1. Report of telephone conversation with Mr. Gavan BROMILOW of the Maitland Mercury advised this day that the possible solution to this UFO report was given by two women at Maitland.

2. They stated to BROMILOW that on the Saturday morning in question they observed from the building in which they were working a "willy-willy" lifting a considerable amount of papers and dust at a rubbish tip area. This "willy-willy" was of high intensity. They stated that they saw it lift, what appeared to be a reasonably large sheet of plastic and hold it suspended some feet off the ground until the plastic was suddenly sucked up into the air at a great height at a very fast rate. The direction of the plastic was towards the Kurri Kurri area from Maitland. It is BROMILOW's theory that this sheet of plastic was the same silvery object that the ladies saw which is the subject of this report.

27JAN67


(C.R. WAUD)
Squadron Leader
Admin SO



13

ROYAL AUSTRALIAN AIR FORCE

TELEPHONE: 69 0550

TELEGRAPHIC ADDRESS:
"AIRCOMMAND, MELBOURNE"

HEADQUARTERS SUPPORT COMMAND
RAAF
VICTORIA BARRACKS
MELBOURNE SC1 VIC

5/6/Air(27)

IN REPLY QUOTE

31 JAN 1967

Secretary
Department of Air
Russell Offices
CANBERRA ACT

DAFI

SIGHTING UN-IDENTIFIED FLYING
OBJECT

Your 580/1/1(35) 6 December 66

Forwarded is a report by Flt Lt J. McQUEEN who carried out an investigation into the sighting of a UFO at Won Wron by Mrs Beryl JEFFS. This Headquarters has nothing to add to the report.

(L.B. BROWN)
Wing Commander
For Air Officer Commanding

Encl



Natural Phenomenon

INVESTIGATING OFFICER'S REPORT

AERIAL OBJECT OBSERVED IN THE YARRAN AREA SEPT-OCT 66

1. This report deals with attached statements by Mrs, Beryl Jeffs.
2. During the interview the witness gave the impression of being unsure of her facts; a little eccentric and had a mania that she was not a liar.
3. The witness knew personally Mr. and Mrs. N. Stratford whose "sighting" is the subject of a previous investigation and may have been influenced by listening to them. She had also read of newspaper reports of flying saucers.
4. The witness was convinced that she had seen a "flying saucer" or "Russian spaceship" and had awakened her husband. He told her it was only the moon and they had both gone to bed. Her husband has recently had a breakdown.
5. Due to the uncertainty of the date and time, no definite information can be obtained on planet movements, however, I feel certain some natural phenomena such as the moon distorted perhaps by cloud was observed.
6. No definite explanation can be given for her previous sighting two years ago.

McQueen

.....
(Flt Lt J. McQueen)

REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer. Mrs. Beryl JEFFS AGE. 49
2. Address of Observer. Won Wron Via TRARALGON.
3. Occupation of Observer. Housewife.
4. Date and time of Observation. ~~5.~~ Approximately two months ago early hours of morning. ^{Duration of observation} 5. Approximately five minutes. ^{Observer's location} Observer's house.
7. Weather Conditions at time of Observation. Clear.
8. Aids to Observation. Nil.
9. Where was the object first observed. Over trees east of the house.
10. What first attracted observer's attention. Bright light.
11. Did object appear as a light or as a definite object. Definite object.
12. If there was more than one object, how many were there, and what was their formation. Not applicable.
13. What was the colour of the light. Yellow light.
14. What was its apparent shape. Elliptical.
15. Was any detail of structure observable. No.
16. Was any method of propulsion obvious. No.
17. Was there any sound. No.
18. Height, or angle of elevation. ~~No.~~ Tree Top Level
19. Speed, or angular velocity. Nil.
20. Was the object stationary. Stationary.
21. What was the direction of flight with reference to landmarks or points of the compass. Not applicable.
22. Did the object remain on a straight path, deviate or manoeuvre at all. No.
23. Was any trail of exhaust, vapour or light seen. No.
24. Where did object disappear. Unknown.
25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence. Nil.
26. Have you observed any unusual phenomena previously. Yes.
27. If so, give detailed of incidents. Approximately two years ago an object was seen by a yellow light and heard by a "beep beep" noise which appeared from the west and descended in approximately the same spot as the first object. This also occurred in the early hours of the morning and was observed for about three minutes.
28. State any experience which enable observer to be reasonably certain about the answers given to 18 and 19. None.
29. Are you a member of any organization interested in aerial phenomena. No.

30. Name and Address of Organization. Not applicable.

31. Any additional information. None.

B. Zeffs 18th Jan 67

.....
(Signature of Observer)

RESTRICTED

DEPT OF AIR 12
5/15/1 AIR (91)
OUR FILE

MEMORANDUM

For use within the RAAF only
Write or print clearly

RAAF FORM A273 MAR 63

FROM

HQ OPERATIONAL COMMAND

DATE

25 JAN 67

TO

ATTENTION

REFERENCES

DEPARTMENT OF AIR SON/LOR BAXTER

OUR
5/15/1 AIR (92)
DATED 10 JAN 67

SUBJECT

INTELLIGENCE - UNIDENTIFIED AERIAL SIGHTING

DAFI

1. FURTHER TO OUR ABOVE REFERENCED CORRESPONDENCE CONCERNING AN UNIDENTIFIED AERIAL SIGHTING FROM THE MERCHANT VESSEL "LAKE BOGA", ENCLOSED ARE ADDITIONAL REPORTS FROM THE MASTER, TWO OFFICERS AND A SEAMAN WHO WERE ABOARD AT THE TIME OF THE SIGHTING.

2. THE INTELLIGENCE OFFICER NO 10 SON WAS UNABLE TO OBTAIN ADDITIONAL INFORMATION AS THE "LAKE BOGA" FAILED TO BERTH AT TOWNSVILLE.

3. THIS HEADQUARTERS HAS NOT REPLIED TO MASTER C.L. O'TOOLE'S LETTER.

Encl (4)

SIGNATURE

PRINTED NAME

T. J. LEACH

RANK AND APPOINTMENT

SON/LOR C SEC 0

PHONE EXTN

336

RESTRICTED

C.D.O. 9777

THE AUSTRALIAN NATIONAL LINE

M.V.S.S. "LAKE BOGA".....

PORT Gladstone.....

15th. January 1967

The Commanding Officer,
Operational Command,
The Royal Australian Air Force,
PENRITH, NEW SOUTH WALES.

Dear Sir,

Re:-SIGHTING - UNIDENTIFIED FLYING OBJECTS - 30.12.66.

Please find enclosed reports for your consideration and necessary action, of a sighting of unidentified flying objects, sighted at 0455 Eastern Australian Time on the 30th. December 1966, while the vessel was west of Pipon Island in position Lat. 14°08'S Long. 144°029'E and steering a true Course of 117°.

I was not on the bridge at the time and did not see the phenomenon, however the Torres Straits Pilot Captain Carter, the Chief Officer Mr. Bayly and the look-out man G. Thomson A.B. are not the imaginative types and I strongly recommend that their reports be fully investigated.

There is one point that I would like to bring to your attention, which is not included in the reports of Captain Carter and Mr. Bayly; is that Captain Carter observed on the vessel's Radar Set evidence of another radar set being used within the range of the ship's set. This is not unusual on the Australian coast, and the vessel is usually sighted within the next two hours. On this occasion no other vessel was sighted.

The Ship's Radar Set is a Kelvin Hughes Marine Radar Set, type 14, and operates on a wave length of 12 cm.

I would be obliged if you would let me know if this sighting is classified or not, as I would like to pass this information on to the Lines News Sheet "ALL HANDS" as an item of interest.

Yours faithfully,


(C.L.O. TOOLE.)
MASTER.

THE AUSTRALIAN NATIONAL LINE

M.V.S.S. " LAKE BOGA"

PORT

REPORT OF SIGHTING OF UNIDENTIFIED FLYING OBJECTS AT 0455 k 30.12.66.By Mr. A.G. BAYLY Chief Officer.

At 0455 on Friday 30th. December 1966, in position $14^{\circ} 08' S$ $144^{\circ} 29' E$ on a course 117° (True), Speed 11 Knots. The lookout reported lights in the sky, about 2 points abaft the starboard beam.

I went to the starboard wing of the bridge, with Captain R.T. Carter, Torres Straits Pilot, and observed three horizontal rows of lights, 2 points abaft the beam, which were moving in the same direction as the ship, and parallel to the horizon, and at an angle to it of 15 degrees.

There were about four groups of lights, each in a vee formation, each group consisted of three blobs of light with a thin pencil line of light trailing astern from each light.

The other groups were in the same formation as the leading group and in line astern. Each group just keeping clear of the pencil line of lights of the group ahead.

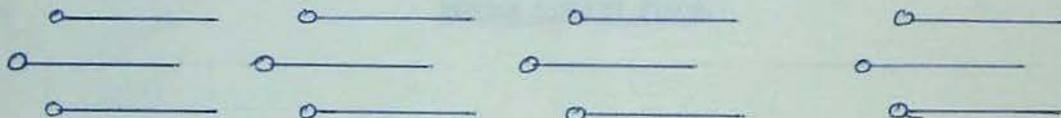
The weather was fine and clear with broken low level, fine weather Cumulus cloud, which obscured part of the formation at times but never completely.

The formation was finally obscured by cloud when four points on the starboard bow.

I had these lights in sight for something like 20 seconds from two points abaft the starboard beam ($227^{\circ}(T)$) to four points on the starboard bow (162° true).

The colour of this formation of lights, when I first observed them (approx. true bearing 227°) was white, but viewed through glasses, between true bearings of 174° and 162° appeared to be a dull blue gray with a suspension of indigo. I have estimated that it took the formation twenty (20) seconds to alter the bearing 67°

My impressions of the formation is set out below.



Andrew G. Bayly Lt. Crd. R.A.N.V.R.
(ANDREW G. BAYLY.)
CHIEF OFFICER.

THE AUSTRALIAN NATIONAL LINE

On Board M.V./XX "LAKE BOGA".....

PORT.....

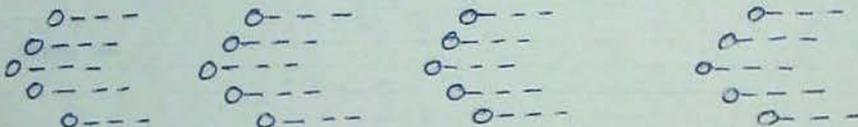
REPORT OF SIGHTING OF UNIDENTIFIED FLYING OBJECTS AT 0455 K, 30.12.66
By. CAPTAIN R.T.CARTER, QUEENSLAND COASTAL AND TORRES STRAITS PILOT

At 0455 E.A.S.T. in position Lat. $14^{\circ}08'$ S Long. $144^{\circ}29'$ E, off Pipon Island and on a true course of 117° , the bridge look-out reported to the O.O.W. of an unusual phenomena appearing from the SW quadrant, I then went out to the starboard wing of the bridge and saw what appeared to be brilliant white circular lights massed in a uniform formation moving from west to east at a tremendous speed.

Angle from my sighting would be approximately 40° and this entire mass appeared to travel parallel to the observers horizon until obscured by cloud and completely disappeared.

The time factor for my sighting would be approximately 15 seconds, however I was the last of 3 to see these objects.

The formation was "V" shaped and there could have been 3 to 5 shapes in each. Making four in line ahead like thus :-



Each object trailed an exhaust like flame and every U.F.O. behind the leading formation seemed to take station clear of this "exhaust".

R.T. Carter

(R.T.CARTER.)
QUEENSLAND COASTAL AND
TORRES STRAITS PILOT.

THE AUSTRALIAN NATIONAL LINE

M.V./KK "LAKE BOGA"

PORT

REPORT OF SIGHTING OF UNIDENTIFIED FLYING OBJECTS AT 0455k 30.12.66Sighted by G. THOMSON Able Seaman Bridge Lookout 0400-0500.

At about 0450 I saw what I thought was a rocket rising above the horizon about 6 points abaft the starboard beam. I watched for about a minute and saw that the lights were forming into lines.

I reported the sighting to the Chief Officer, who came out to the wing of the bridge, with the Pilot, by this time, the front lights were made up of groups of smaller lights, with several single lights trailing astern. There were several groups of lights abreast of the front light.

Set out below is how the lights looked to me:-

First sightine:-



4 Points abaft the beam:-



Abeam :-



2 Points on the Bow :-



(G. THOMSON)
ABLE SEAMAN

G. Thomson

ROUTINE

RECEIVED
23 JAN 1967
AIR MESSAGE
CENTRE

REC'D.
23 JAN 1967
C.A.S.

NNNNOV

DRB050 UDAGGCHCA101NUA970

HH

RR RAYWPP

DE RAYWPP 018 23/0333Z

ZNY RRRRR

R 230330Z

FM HQRIC

TO RAYWPP/DEPAIR

RAYROP/HQOPCOM

THIS MESSAGE IS CLASSIFIED. *19516*
REPLY OR REFERENCE MUST BE
A MINIMUM CLASSIFICATION OF *SECRET*

DAF 1

~~BT~~

R E S T R I C T E D A92 INTELLIGENCE REPORT OF AERIAL OBJECT
OBSERVED PD SIGHTED BY MR AND MRS ROOTES 231 KINCAID STREET WAGGA
WAGGA CMM TWO RED STATIONARY LIGHTS APPROXIMATELY 500 FEET AGL
CMM AREA HUME HIGHWAY 20 SOUTH FROM CAMDEN CMM BETWEEN
PM AND 11MP 13JAN67 PD NO KNOWN CAUSE PD FOR HQOPCOM CMM REPORT
IN ACCORDANCE OPERAIONAAL COMMAND ASI 3/A/5 FOLLOWS

~~BT~~

ACTION COPY	
INFORMATION COPY	

MEMORANDUM

For use within the RAAF only
Write or print clearly

RAAF FORM A273 MAR 63

OUR FILE
5/15/1/AIRJ (90)

FROM
HQS OPERATIONAL COMMAND

DATE
20 Jan 67

TO
ATTENTION
Sgtn LDR BAXTER

REFERENCES

DAFI A1-2

DEPARTMENT OF AIR

SUBJECT
INTELLIGENCE - UNIDENTIFIED AERIAL SIGHTING

580-1-1
DAF 30.12-66

a report concerning a UFO reported from the Armadale area is enclosed.



Med Balloon?

Encls.

SIGNATURE
A Green

PRINTED NAME
A GREEN

RANK AND APPOINTMENT
FLY LT CINTELLO

PHONE EXTN
390

RESTRICTED

INTELLIGENCE - REPORT OF AERIAL

ORBIT OBSERVED

(Operational Command ASI 3/A/5)

PART 1 - REPORT BY OBSERVER

- (ABOUT 40)
1. Name of observer SGT. K. R. RHODES AGT
 2. Address of observer C/O. A. RMIDALE, POLICE
STATION PHONE ARMIDALE 2444
 3. Occupation of observer POLICE SERGEANT
 4. Date and time of observation 14 JAN 67 1210
 5. Duration of observation ABOUT 3 MINS
 6. Observers location at time of sighting AT ARMIDALE
POLICE STATION
 7. Weather conditions at time of observation NIL CLOUD
GOOD VISIBILITY
 8. Describe any aids or equipment used in the observation NIL
.
.
 9. Where was object first observed? (eg, overhead, coming down
behind a hill, over the horizon).
NORTH EAST OF POLICE STATION ABOUT 3 MILES
 10. What first attracted observer's attention? (eg, light or
noise).
MRS SPENCER, DUMARESC ST ARMIDALE (PHONE NO 3020)
CALLED POLICE TO REPORT WHAT SHE THOUGHT WAS AIRCRAFT
IN TROUBLE. HEARD ENGINE NOISE - SGT RHODES WENT OUTSIDE
TO CHECK AND SIGHTED OBJECT BUT COULD HEAR NO NOISE
 11. Did object appear as a light or as a definite object? DEFINITE
OBJECT - APPEARED TO HAVE TWO WINGS LIKE BI PLANE BUT
NO FUSLAGE - A SQUARE LARGE BOX KITE SHAPE
ABOUT SIZE OF CESSNA AIRCRAFT AND IT
APPEARED TO BE TOWING A ROUND OR CIRCULAR OBJECT
 12. If there was more than one object:-
(a) how many were there? N/A
(b) in what formation were they? N/A
 13. What was the colour of the light or object? WHITE
 14. What was its apparent shape? SQUARE LIKE LARGE BOX KITE
 15. Was any detail of structure observable? NO
 16. Was any method of propulsion obvious? NO

RESTRICTED

RESTRICTED

- 17. Was there any sound? ... NOT TO SGT. RHODES
MRS SPENCER REPORTED ENGINE NOISE (SEE PARA 10)
- 18. What was its height? (or angle of elevation) ELEVATION. 6000 FEET
- 19. What was its speed? (or angular velocity) SLOWER THAN A CESSNA LIGHT AIRCRAFT
- 20. Was the object stationary? N.O.
- 21. What was the direction of flight with reference to landmarks or points of the compass?
..... FROM EAST TO WEST
- 22. Did the object remain on a straight path, deviate, or manoeuvre at all?
OBJECT REVOLVED RAPIDLY - BUT MOVED ON A STRAIGHT AND LEVEL PATH
- 23. Was any trail of exhaust, vapour, or light seen? ... N.O.
- 24. Where did object disappear? (eg, in mid-air, behind a hill, over the horizon) SGT RHODES RETURNED TO PHONE (MRS SPENCER STILL ON LINE) AFTER OBSERVING OBJECT FOR ABOUT 3 MINS. HE RETURNED TO LOOK AT OBJECT ABOUT 2 MINUTES LATER BUT IT HAD DISAPPEARED
- 25. Do you know of any physical evidence? (such as fragments, photographs, or other supporting evidence)
..... N.O.
- 26. Have you observed any unusual phenomena previously? ... N.O.
- 27. If so, give brief details of incident (s) N/A
- 28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19. SGT SPENCER SAID THAT HE FREQUENTLY OBSERVES CESSNA LIGHT AIRCRAFT PASSING OVER ARMIDALE AND WHICH OPERATE FROM ARMIDALE AIRPORT
- 29. Are you a member of any organization interested in aerial phenomena? N.O.
- 30. Name and address of organisation .. N/A
- 31. Any additional information which relates to the sighting.
SGT RHODES THOUGHT OBJECT WOULD HAVE BEEN AT A LOWER ALTITUDE THAN THE VISCOUNT AIRLINE EN ROUTE BRISBANE - SYDNEY WHICH PASSED OVER ARMIDALE AT 1216 AT 2200 FT. TWO OTHER PERSONS REPORTED HEARING SIGHTED THE OBJECT - MRS CLARK WHO LIVES 12 MILES OUTSIDE ARMIDALE AT PUDDLEDOCK PHONE NO 55413 TIME OF SIGHTING 1115 ON 14 JAN 67 - MRS SPENCER WHO REPORTED HER SIGHTING TO SGT RHODES. MRS. CLARK'S SIGHTING WAS OF A SILVER OBJECT WHICH APPEARED TO EXPLODE/REFORM. WAS REPORTED TO D.C.A. AUTHORITIES BY A MR HYATT PHONE ARMIDALE 3099. MRS CLARK STATED OBJECT WAS TRAVELLING IN EASTERLY DIRECTION. MRS CLARK HAS NOT BEEN PERSONALLY INTERVIEWED.

PART 2 - UNIT EVALUATION

CIVIL

32. The following ~~military~~ aircraft were in the vicinity of the reported UFO position at the time:-

Aircraft type .. 1. VISCOUNT SYD-BRIS .. 2. VISCOUNT BRISBANE-SYD.
Heading N T S T T T
Height ~~22,000~~ 22,000,000 ft ~~20,000~~ 20,000,000 ft ,000 ft ,000 ft ,000 ft
ARMIDALE ARMIDALE
Speed .. 0214Z K .. 0120Z K .. 0214Z K

33. The following MILITARY aircraft were in the vicinity of the reported UFO position at the time:-

Aircraft Type NIL .. REPORTED ..
Heading T T T T
Height ,000 ft ,000 ft ,000 ft ,000 ft
Speed K K K

34. Calculations show that the following planets or major stars were in that portion of the sky at the time:-

35. A meteorological balloon was released from SEE PARA 39

at Z and could have been in the reported UFO position at the time.

36. The State Observatory in the nearest capital city affirms that arial phenomena in that protion of the sky at the time were

..... (comet, meteorite shower, etc).

37. Any other relevant remarks (eg about satellites, rockets, research balloons)

NIL

38. There is conclusive evidence that the object reported was

39. The object reported could have been THE DESCRIPTION BEST FITS A RADIOSONDE
BUT COFFS REPORT THEIR 2300Z RAWIN FLIGHT WENT OUT TO SEA -
BALLOON OR A RAWIN BALLOON AND THE NET PEOPLE SAY MOREE IS TOO FAR AWAY.

40. The cause (or likely cause) of the sighting cannot be determined. ✓

HQS OP COM

(Unit) *[Signature]* (Name)

20 JAN 66

(Date) FLT LT (Rank)

RESTRICTED

9

MEMORANDUM

RAAF FORM A273 MAR 63

For use within the RAAF only
Write or print clearly

OUR FILE

5/15/1/AIR (82)

FROM

HQ OPERATIONAL COMMAND

DATE

10 JAN 67

TO

DEPARTMENT OF AIR

ATTENTION

S&W LORI BAXTER

REFERENCES

SUBJECT

INTELLIGENCE - UNIDENTIFIED AERIAL SIGHTING

1. A Report concerning an unidentified aerial sighting from the Merchant Vessel LAKE BOGA is enclosed.

2. The Intelligence Officer No 10 S&W Townsville will be visiting the vessel when it berths at Townsville sometime this week. Any further reports will be forwarded to you.

Aircraft overflying to New Caledonia?

Encls. 1.



SIGNATURE

A Green

PRINTED NAME

A GREEN

RANK AND APPOINTMENT

FLYLT CINTELLO

PHONE EXTN

390

RESTRICTED

RPPU 5886 (1,000,000)

589/1/1

8

1967 JAN 6 01:00



V

~~PA029 YDB030 KYAC18BL UN~~

~~RR RAYPPP~~

~~DE RAYPPP 001 26/002 0Z~~

~~ZNR 00000~~

~~R 060018Z~~

~~FM HOLAV~~

~~TO RAY/BSUPCOM~~

~~RAYPPP/LEPAIF~~

~~BT~~

UNCLAS 1277 UFO REPORT PD AT 051040Z CIVILIAN LOCATED EAST MELBOURNE REPORTED A WHITE LIGHT HIGH UP MOVING AT A MODERATE SPEED FROM NORTH TO SOUTHEAST WITHOUT CHANGING COURSE FOR ABOUT FIVE MINUTES PD SIGHTING CORROBORATED BY OTHERS NEARBY PD

ON CHECKING ESSENDON TOWER CONTROLLERS REPORT A SATELITE SIGHTING IN SAME POSITION AND TIME PREVIOUS EVENING PD REPORT FOLLOWS

satellite

DAFI



NNNN

RESTRICTED

7

MEMORANDUM

For use within the RAAF only
Write or print clearly

RAAF FORM A273 MAR 63

OUR FILE

5/15/1/AIR (80)

FROM

HQ OPERATIONAL COMMAND

DATE

06 JAN 66

TO

DEPARTMENT OF AIR

ATTENTION

SQUADRON BAXTER

REFERENCES

DEPT. OF AIR
DAF
580-1-1 20

SUBJECT

INTELLIGENCE - UNIDENTIFIED FLYING OBJECTS

Two completed performas concerning unidentified aerial sightings in the Sydney and Dalywaters areas are enclosed.



1st one most unconvincing

2nd satellite

Encls 2.

SIGNATURE

A Green

PRINTED NAME

A GREEN

RANK AND APPOINTMENT

FTLT CINTELLO

PHONE EXTN

390

RESTRICTED

RP/U 8886 (1,000,000)

DAFI

H. MUNSTERMANN
c/ MET. OFFICE
DALY WATERS N.T.

26th November 1966

THE OFFICER IN CHARGE
RAAF
DARWIN N.T.

Tuesday, the 22nd. of November, 1966, at 0943 whilst doing my Balloon Flight I suddenly picked up an U.F.O. My balloon at 26,000 feet was close to the sun and impossible to follow any further.

This object (see sketch) appeared where I left the balloon azimuth 280° , elevation 59.2° . I followed the object for approx. 2 (two) minutes then lost it. I immediately took another reading azimuth 320° , elevation 27.9° . It seemed to be travelling at a tremendous speed. I guessed the height between 40-50000 feet, due to the object being slightly blurred by haze.

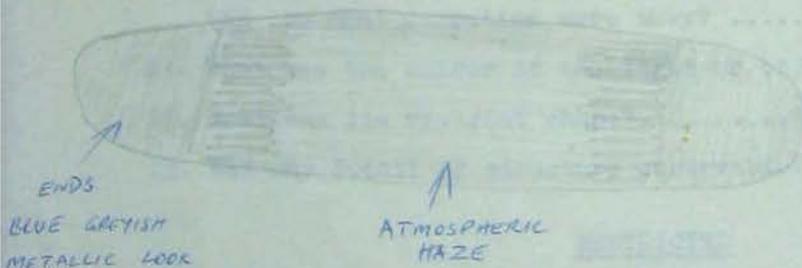
The dentist from the Mobile Clinic who was standing next to me looked in the indicated direction but could not see anything.

My first thoughts were this must be an aircraft, but the speed was too fast for an aircraft at this altitude. If an aircraft had been lower we would have heard the engines or jets, which neither of us did. On checking with Darwin Operation (D.C.A.) I was informed there was no aircraft in the area therefore I am reporting this as an U.F.O.

Signed H. MUNSTERMANN
MET. O.I.C., DALY WATERS

COPY FOR INFORMATION

REGIONAL DIRECTOR
BUREAU OF METEOROLOGY
DARWIN NT



RESTRICTED

INTELLIGENCE - REPORT OF AERIAL

OBJECT OBSERVED

(Operational Command ASI 3/4/5)

PART 1 - REPORT BY OBSERVER

1. Name of observer..... HARRY MUNSTERMANN AGE 32.....
2. Address of observer .. C/O MET OFFICE.....
..... DALY- WATERS N.T. PHONE 3.....
3. Occupation of observer .. WEATHER OBSERVER.....
4. Date and time of observation .. 22- 11- 66 .. 0013Z.....
5. Duration of observation .. TWO MINUTES.....
6. Observers location at time of sighting .. THEODOLITE.....
..... FOLLOWING A MET BALLOON.....
7. Weather conditions at time of observation .. FINE 2/8 Cumulus 35'000FT
..... VIS 20 MILES SURFACE WIND NNW 6 KNTS.....
8. Describe any aids or equipment used in the observation ..
..... THEODOLITE.....
.....
9. Where was object first observed? (eg, overhead, coming from behind a hill, over the horizon).
..... COMING FROM NEAR THE SUN.....
10. What first attracted observer's attention? (eg, light or noise).
..... PICKED UP BY THEODOLITE.....
.....
11. Did object appear as a light or as a definite object?.....
..... DEFINITE OBJECT.....
.....
12. If there was more than one object:-
 - (a) how many were there? N/A.....
 - (b) in what formation were they? N/A.....
13. What was the colour of the light or object? METALLIC GREY
14. What was its apparent shape?..... OB LONG.....
15. Was any detail of structure observable? NO.....

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.../2

RESTRICTED

-2-

16. Was any method of propulsion obvious? *NO*
17. Was there any sound? *NO*
18. What was its height? (or angle of elevation)..... *59.2° TO 27.9° IN TWO MIN.*
19. What was its speed? (or angular velocity)..... *DONT KNOW*
20. Was the object stationary? *NO*
21. What was the direction of flight with reference to landmarks or points of the compass?
..... *FROM NORTH TO SOUTH*
22. Did the object remain on a straight path, deviate, or manoeuvre at all?
..... *STRAIGHT PATH*
23. Was any trail of exhaust, vapour, or light seen? *NO*
24. Where did object disappear? (eg, in mid-air, behind a hill, over the horizon)
..... *LOST IN MID AIR DUE TO SPEED*
25. Do you know of any physical evidence? (such as fragments, photographs, or other supporting evidence)
..... *NO*
26. Have you observed any unusual phenomena previously? *NO*
27. If so, give brief details of incident(s) *N/A*
28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.
..... *SEE MY LETTER DATED 26-11-66*
29. Are you a member of any organization interested in aerial phenomena? *NO*
30. Name and address of organisation *N/A*
31. Any additional information which relates to the sighting.
..... *SEE MY LETTER DATED 26-11-66*

PART 2 - UNIT EVALUATION

- 32. The following military aircraft were in the vicinity of the reported UFO position at the time :-
 Aircraft type..... *NIL*
 Heading.....TT.....T
 Height.....,000 ft ,000 ft.....,000 ft
 Speed.....K.....K.....K

- 33. The following civil aircraft were in the vicinity of the reported UFO position at the time :-
 Aircraft type..... *NIL*
 Heading.....T.....T.....T
 Height.....,000 ft.....,000 ft.....,000 ft
 Speed.....K.....K.....K

- 34. Calculations show that the following planets or major stars were in that portion of the sky at the time:-.....
NOT AVAILABLE

- 35. A meteorological balloon was released from *DALY WATER* *NT*
 at.....Z and could have been in the reported UFO position at the time.

- 36. The State Observatory in the nearest capital city affirms that aerial phenomena in that portion of the sky at the time were
 *NIL*(comet, meteorite shower, etc).

- 37. Any other relevant remarks (eg about satellites, rockets, research balloons)..... *NIL*

- 38. There is conclusive evidence that the object reported was.....
unidentified aerial sighting.....

- 39. The object reported could have been..... *Not balloon ???*

- 40. The cause (or likely cause) of the sighting cannot be determined.

RAAF DARWIN.....(Unit) *[Signature]*.....(Name)
23 Dec 66.....(Date) *[Signature]*.....(Rank)

RESTRICTED

INTELLIGENCE - REPORT OF AERIAL

OBJECT OBSERVED

(Operational Command ASI 3/A/5)

PART 1 - REPORT BY OBSERVER

1. Name of observer... MR R TAMBLING.....AGE. 40.....
2. Address of observer 8 BANDALONG AVENUE
.....WEST PYMBLE NSW.....PHONE 495316.....
3. Occupation of observer... Sales ~~Asst~~ Manager.....
4. Date and time of observation 15,16,17+18 DEC 66; 1950, 1950, 2000, 2020 hrs
5. Duration of observations... 15-20 mins.....
6. Observers location at time of sighting At above address
.....
7. Weather conditions at time of observation Fine & clear - some
haze over SYDNEY.....
8. Describe any aids or equipment used in the observation Naked
eye & binoculars.....
9. Where was object first observed? (eg, overhead, coming from be-
hind a hill, over the horizon).
40° above Western horizon.....
10. What first attracted observer's attention? (eg, light or noise).
light.....
11. Did object appear as a light or as a definite object? light
only.....
12. If there was more than one object:-
(a) how many were there? One only.....
(b) in what formation were they?
13. What was the colour of the light or object? Colour of stars.....
14. What was its apparent shape? No shape.....
15. Was any detail of structure observable? No.....

RESTRICTED

.../2

16. Was any method of propulsion obvious? *No*.....
17. Was there any sound? *No*.....
18. What was its height? (or angle of elevation) *As for a satellite*.....
19. What was its speed? (or angular velocity) *As for a satellite*.....
20. Was the object stationary? *No*.....
21. What was the direction of flight with reference to landmarks or points of the compass?
Travelled from West to South East.....
22. Did the object remain on a straight path, deviate, or manoeuvre at all?
Straight path.....
23. Was any trail of exhaust, vapour, or light seen? *No*.....
24. Where did object disappear? (eg, in mid-air, behind a hill, over the horizon)
In haze over SYDNEY.....
25. Do you know of any physical evidence? (such as fragments, photographs, or other supporting evidence)
No.....
26. Have you observed any unusual phenomena previously? *Yes*.....
27. If so, give brief details of incident(s) *Several satellite - meteor sightings reported in past*.....
28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.
Interested in satellites etc for some time.....
29. Are you a member of any organization interested in aerial phenomena? *No*.....
30. Name and address of organisation
31. Any additional information which relates to the sighting.
The direction of travel (IE West to SE) seemed to Mr Tambling odd for a satellite.....

PART 2 - UNIT EVALUATION

32. The following military aircraft were in the vicinity of the reported UFO position at the time :-

Aircraft type. Nil
Heading.....TT.....T
Height.....,000 ft ,000 ft.....,000 ft
Speed.....K.....K.....K

33. The following civil aircraft were in the vicinity of the reported UFO position at the time :- As WEST PYMBLE lies beneath the letdown into Mascot there were many, all of which Aircraft type would have been between 377,000.

Heading...SE.....T.....T.....T
Height.....,000 ft.....,000 ft.....,000 ft
Speed...Various.....K.....K.....K

34. Calculations show that the following planets or major stars were in that portion of the sky at the time:-

..... Not known

35. A meteorological balloon was released from..... Not known

at.....Z and could have been in the reported UFO position at the time.

36. The State Observatory in the nearest capital city affirms that arial phenomena in that portion of the sky at the time were

.....(comet, meteorite shower, etc).

37. Any other relevant remarks (eg about satellites, rockets, research balloons) The Astronomical Society reports that two satellites Echo I & Echo II passed over at about these times

38. There is conclusive evidence that the object reported was..... It seems most likely that the object(s) was one of these satellites

39. The object reported could have been.....

40. The cause (or likely cause) of the sighting cannot be determined.

NO 1 CARU(Unit) D.H. Seaton(Name)
22 DEC 66(Date) P+011(Rank)

RESTRICTED

INTELLIGENCE - REPORT OF AERIAL

OBJECT OBSERVED

(Operational Command ASI 3/A/5)

PART 1 - REPORT BY OBSERVER

1. Name of observer ANDREW GOODENOUGH BAYLY AGE 49.....
2. Address of observer 37 MOORE ST. ROSEVILLE.....
SYDNEY..... PHONE 404338.....
3. Occupation of observer MARINER [CHIEF OFFICER - LT. CDR. RANVR]
4. Date and time of observation 29/1855Z (30 DEC 66 0455)
5. Duration of observation FROM 40 TO 60 SECONDS.....
6. Observers location at time of sighting AT SEA ON THE.....
LAKE BOGA IN POSN. 1408 S. 14429 E......
7. Weather conditions at time of observation FINE & CLEAR BUT.....
CLOUD OCCASIONALLY OBSCURED OBJECTS BUT NEVER.....
COMPLETELY.....
8. Describe any aids or equipment used in the observation.....
BINOCULARS - BUT ONLY FOR THE LATTER 5-10 SECS.....
.....
9. Where was object first observed? (eg, overhead, coming from be-
hind a hill, over the horizon).
RISING ABOVE HORIZON.....
10. What first attracted observer's attention? (eg, light or noise).
LIGHT (SEE 11).....
.....
11. Did object appear as a light or as a definite object?.....
FIRST INDICATION WAS THAT OF A ROCKET.....
GOING UP......
12. If there was more than one object:-
(a) how many were there? SEVERAL GROUPS (4 OR 5).....
(b) in what formation were they? V & IN LINE ASTERN.....
13. What was the colour of the light or object? WHITE.....
14. What was its apparent shape? EACH OBJECT CIRCULAR.....
15. Was any detail of structure observable? NO -.....

RESTRICTED

.../2

RESTRICTED

-2-

16. Was any method of propulsion obvious? *THIN PENCIL LINE OF LIGHT. POSSIBLY EXHAUST.*
17. Was there any sound? *NO.*
18. What was its height? (or angle of elevation) *15° TO 17½°*
19. What was its speed? (or angular velocity) *SUPERSONIC*
20. Was the object stationary? *NO.*
21. What was the direction of flight with reference to landmarks or points of the compass?
SHIP HEADING 117° T & OBJECTS // TO CSE - ESE.
22. Did the object remain on a straight path, deviate, or manoeuvre at all?
REMAINED ON STRAIGHT PATH.
23. Was any trail of exhaust, vapour, or light seen? *THIN TRAIL-LIKE PENCIL LINE OF LIGHT, EA. OBJECT KEPT CLEAR OF GROUP IN FRONT.*
24. Where did object disappear? (eg, in mid-air, behind a hill, over the horizon)
4 POINTS ON STBD. BOW, BEHIND CLOUD.
25. Do you know of any physical evidence? (such as fragments, photographs, or other supporting evidence)
NO.
26. Have you observed any unusual phenomena previously? *NO.*
27. If so, give brief details of incident(s) *N/A.*
28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19. *LT. CDR. RANUR*
PROFESSIONAL MARINE NAVIGATOR [CHIEF OFFICER]
29. Are you a member of any organization interested in aerial phenomena? *NO.*
30. Name and address of organisation *NIL*
31. Any additional information which relates to the sighting.
½ HOUR PRIOR TO SIGHTING, THE SHIPS RADAR GAVE INDICATION OF INTERFERENCE & NORMALLY ASSOCIATED WITH RADAR TRANSMISSIONS FROM OTHER SHIPS. NO OTHER SHIP KNOWN IN AREA.

RESTRICTED

.../3

PART 2 - UNIT EVALUATION

32. The following military aircraft were in the vicinity of the reported UFO position at the time :-

Aircraft type.....NIL.....
Heading.....T.....T.....T.....
Height.....,000 ft.....,000 ft.....,000 ft.....
Speed.....K.....K.....K.....

33. The following civil aircraft were in the vicinity of the reported UFO position at the time :-

Aircraft type.....ELECTRA TLB.....OSPREY REEF AT TIME OF SIGHTING, 120 MILES AWAY FROM SHIP
Heading.....BRISBANE TO PT. MORESBY.....T.....T.....
Height.....,000 ft.....,000 ft.....,000 ft.....
Speed.....K.....K.....K.....

34. Calculations show that the following planets or major stars were in that portion of the sky at the time:-

.....NIL.....

35. A meteorological balloon was released from.....NIL.....
at.....Z and could have been in the reported UFO position at the time.

36. The State Observatory in the nearest capital city affirms that aerial phenomena in that portion of the sky at the time were

Not Contacted.....(comet, meteorite shower, etc).

37. Any other relevant remarks (eg about satellites, rockets, research balloons).....

.....No Comment.....

38. There is conclusive evidence that the object reported was.....

.....No Evidence.....

39. The object reported could have been.....

.....CANNOT DETERMINE.....

40. The cause (or likely cause) of the sighting cannot be determined.

.....Hqtrs RAAF Base TOWNSVILLE (Unit).....J.E. INGHAM.....(Name)

.....3rd January 1967.....(Date).....Flying Officer.....(Rank)

2/30 580/1/1

6

CMB/CMB
C1/30
TOR 300145Z

FROM MASTER, LAKE BOGA, CAIRNS
TO NAVY CANBERRA

DATE: 30 DEC 66

TELEGRAM

SIGHTED UNIDENTIFIED FLYING OBJECTS 291855Z IN 1406 SOUTH
14409 EAST HEADING EASTSOUTHEAST SUPERSONIC SPEED ANGLE OF
SIGHT 15 DEGREES AND PARALLEL TO HORIZON FOUR GROUPS IN VEE
FORMATION LINE ASTERN EACH OBJECT CIRCULAR AND SHOWING LIGHT
STREAM ASTERN. THREE OBSERVERS REPORTS FOLLOWING

- 1NM
- SEC
- FASEG
- ASNS
- DCNS
- ~~DNI~~
- DOFO
- DOFP
- DNAP
- DPR
- RECS

What is next part of call?
When?

GLADSTONE

(Handwritten circled mark with an arrow pointing right)

Signal
Sent To

HQ OPCOM

HQ TVL. 30 0500Z

(Handwritten signature)
Sens LIX
ATZ

ROYAL AUSTRALIAN AIR FORCE MESSAGE FORM

No. _____

FOR COMM CEN/SIGNALS USE

DATE 580-1-1



PRECEDENCE—ACTION PRIORITY	PRECEDENCE—INFO DEFERRED	DATE—TIME GROUP 30 0500	MESSAGE INSTRUCTIONS
FROM DEPAIR			PREFIX GR
TO HQOPCOM HQ TVL			SECURITY CLASSIFICATION UNCLAS
INFO			ORIGINATOR'S NUMBER AI-894

ATTENTION SGN LDR BROUGH HQOPCOM CMM
 NG CDR CHADS BASH TVL PD REF TELECON
 300030Z UFGS PD REQUEST TVL INVESTIGATE
 UFO REPORT FROM THE MASTER OF SHIP LAKE
 SOGA PD LAKE SOGA DUE TO ENTER TVL
 3AD OR UK JAN 67 PD DETAILS OF REPORT
 AS FOLLOWS @QUOTE SIGHTED UFOS AT 29185Z
 POSH 1006 SOUTH 10009 EAST TRAVELLING ESE
 SUPERSONIC SPEED PD ANGLE OF SIGHT 15° AND
 PARALLEL TO HORIZON CMM FOUR (4) GROUPS
 IN VEE FORMATION LINE AFTERN PD EACH OBJECT
 CIRCULAR AND SHOWING LIGHT STREAM AFTERN
 PD UNQUOTE PD REQUEST TVL DISPATCH RESULTS

Page **1** of **2** pages

REFERS/REPLIES TO	DRAFTERS NAME	OFFICE	TEL No.
CLASSIFIED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
FOR OPRS USE	DATE	TIME	SYSTEM
R			
Operator	DATE	TIME	SYSTEM
Operator	D		
RELEASING OFFICERS SIGNATURE			
RANK			

ROYAL AUSTRALIAN AIR FORCE MESSAGE FORM

No. _____

FOR COMM CEN/SIGNALS USE

PRECEDENCE—ACTION	PRECEDENCE — INFO DEFERRED	DATE — TIME GROUP	MESSAGE INSTRUCTIONS
FROM		PREFIX GR	
TO		SECURITY CLASSIFICATION	
INFO		ORIGINATOR'S NUMBER	

*of investigation to HQ of COM ATTACHED
SO INTEL*

Page **2** of **2** pages

REFERS/REPLIES TO CLASSIFIED		DRAFTERS NAME		OFFICE		TEL No.			
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		BAXTER		DAFI		2106			
FOR OPRS USE	DATE	TIME	SYSTEM	Operator	DATE	TIME	SYSTEM	Operator	RELEASING OFFICERS SIGNATURE
R					D				<i>[Signature]</i>
									RANK

RESTRICTED

5

MEMORANDUM

For use within the RAAF only
Write or print clearly

RAAF FORM A273 MAR 63

OUR FILE
5/15/1/AIR (76)

FROM
HQ OPERATIONAL COMMAND

DATE
22 DEC 66

TO
~~DEPARTMENT OF AIR~~ ATTENTION
D DAFI OPS

REFERENCES
DEPT. OF AIR
2161
580-1-1 28 12/66

D/DAFI.

SUBJECT
INTELLIGENCE - UFO'S

A letter from Mr. R Jambling which was inadvertently omitted from our 5/15/1/AIR(74) is enclosed.



Encls 1.

SIGNATURE
A Green

PRINTED NAME
A. GREEN

RANK AND APPOINTMENT
FLTL CINTELL O

PHONE EXTN
390

RESTRICTED

72

68

8 Bandalong Avenue,
West Fybble. N.S.W.
28th November, 1966.

The Officer Commanding,
Headquarters Operational Command,
R.A.A.F.
PENRITH. 1W. N.S.W.

Your reference: 5/15/1/Air (68) ✓

Subject: Unidentified Flying Objects.

Dear Sir,

Many thanks for your letter dated 2/11/66 to which the above reference applies.

Since last writing to you I have been fortunate enough to see many more ufos. In fact I have set up a small band of 'sky-watchers' whose reports come to me for confirmation and checking from a number of places in the Metropolitan area. Some of these people are now technical types, fortunately.

These ufos interest me greatly and I have recently been commissioned by Horwitz Publications Inc. Pty. Ltd. to write a book on the subject.

My question now is, may I quote from the information supplied to me on 2/11/66, in my book? Also, is there an official view held by the Department of Air or the R.A.A.F. on the subject of ufos? I understand that Mr. B.G. ROBERTS published statement on the matter is not actually classed as the official attitude. Is this so?

Following your request for news of any further sightings, I am at the moment compiling a list of sightings seen since my last submissions. These will be forwarded to D.A.F.I. via No.1 Control & Reporting Unit, Brookvale. I hope they may be of some use.

I wish to express my thanks to you for your interest to date.

Yours faithfully,

Richard Tambling
Richard Tambling.

SUMMARY OF AN ADDRESS
GIVEN BY MR B.G ROBERTS
ORO DEP AIR, To The
BALLARAT ASTRONOMICAL
SOCIETY IN FEBRUARY 1965.

5/15/1/Air		
APPT.	INIT.	DATE
CLASSIFIED	4	2/12
LIN. CL.	Ⓚ	2/12
RETD.		
FILE CLK.		
CLASS		
FILE CLK.		
MARK	50 WREN	
TR.		



DAFI
580-1-1
4844

ROYAL AUSTRALIAN AIR FORCE

TELEPHONE: 69 0550

TELEGRAPHIC ADDRESS:
"AIRCOMMAND, MELBOURNE"

HEADQUARTERS SUPPORT COMMAND
RAAF
VICTORIA BARRACKS
MELBOURNE SC1 VIC

5/6/Air(20)

IN REPLY QUOTE

13 DEC 1966

Secretary
Department of Air
Russell Offices
CANBERRA ACT

DAFI

REPORT ON UFO SIGHTINGS

1. Attached herewith is a report on an un-identified flying sighting. The report consists of -

- (a) Pro-forma
- (b) Sketch
- (c) Map.

2. It is considered that this sighting was of a commercial DC-4 aircraft en route Adelaide-Melbourne which landed at Essendon at 2102 hours local. This sighting does not pose a threat to the security of Australia.

Wannon
(V.B. CANNON)
Wing Commander
For Air Officer Commanding

Encl (3)

Civil Aircraft.



REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer. *E. C. LEYONHJELM - r. (family)*.... Age. *43*..
2. Address of Observer. *"REDBANK" WILLAURA VIC.*
3. Occupation of Observer. *Brazier*.....
4. Date and Time of Observation (Time to be given in local time)
app. 8.25 PM. on the 22nd November '66.....
5. Duration of Observation(s)..... *6 minutes*.....
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks)
SEE MAP ENCLOSED.....
We are situated 10 miles west of WILLAURA and 7 miles NORTH EAST of Glen Thompson
7. Weather Conditions at time(s) of observation(s).....
calm, fine, humid, bright with small isolated cloud formations.....
8. Aids to Observation(s). (Describe any equipment used in the observation)
No Aids - self, wife 20yr old son, and two ten year old boys observed with naked eye (all possessing good eye sight).....
9. Where was object first observed, eg, overhead, coming from behind a hill, over the horizon, etc.
Low in the north......
10. What first attracted observer's attention, eg light or noise.
Bright reddish flashing light......
11. Did object appear as a light or as a definite object.
light.....
12. If there was more than one object, how many were there, and what was their formation.
No......
13. What was the colour of the light or object. *reddish*.....
14. What was its apparent shape..... *NOT KNOWN*.....
15. Was any detail of structure observable..... *No*.....
16. Was any method of propulsion obvious..... *No*.....
17. Was there any sound..... *No*.....
18. Height, or angle of elevation..... *with out stretched arm sighting a pencil, object was 2" of pencil from horizon*.....
19. Speed, or angular velocity..... *Moving Rapidly*.....
20. Was the object stationary?..... *No*.....
21. What was the direction of flight with reference to landmarks or points of the compass...
SEE MAP ENCLOSED

the size of the flashing light which was 8xpluridell ~~in~~ was the size of the brightest star. ~~was the size of a marble~~ when first seen

22. Did the object remain on a straight path, deviate or manoeuvre at all?

Kept some distance from horizon STRAIGHT Path

23. Was any trail of exhaust, vapour or light seen... *No*

24. Where did object disappear, eg in mid-air, behind a hill, over the horizon.

MID-air

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.

None

26. Have you observed any unusual phenomena previously... *No*

27. If so, give details of incident(s)...

28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.

None

29. Are you a member of any organisation interested in aerial phenomena?

No

30. Name and Address of organisation...

31. Any additional information... *It appeared to be a*

long distance away + travelling very fast.

Could you let us know if this object can be identified.

Signature of Observer... *E. J. ...*

32. Location of any air traffic in the vicinity at the time of sighting.

None *VH-1NH - a DC4 freighter landed*

155 km from 2/102 hrs local. Its route & timing suggest that this was the object sighted. (See attached map for air route)

33. Location of any meteorological stations in the general area.

None

34. Comments *This resembles that this was a sighting of a civil aircraft & so further action is required*

Signature of Interrogator... *[Signature]*

QUESTIONS 32, 33 and 34 to be answered by interrogator.

Note: Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved, and the time taken to do this.

WORLD AERONAUTICAL CHART

RAAF 1:1,000,000

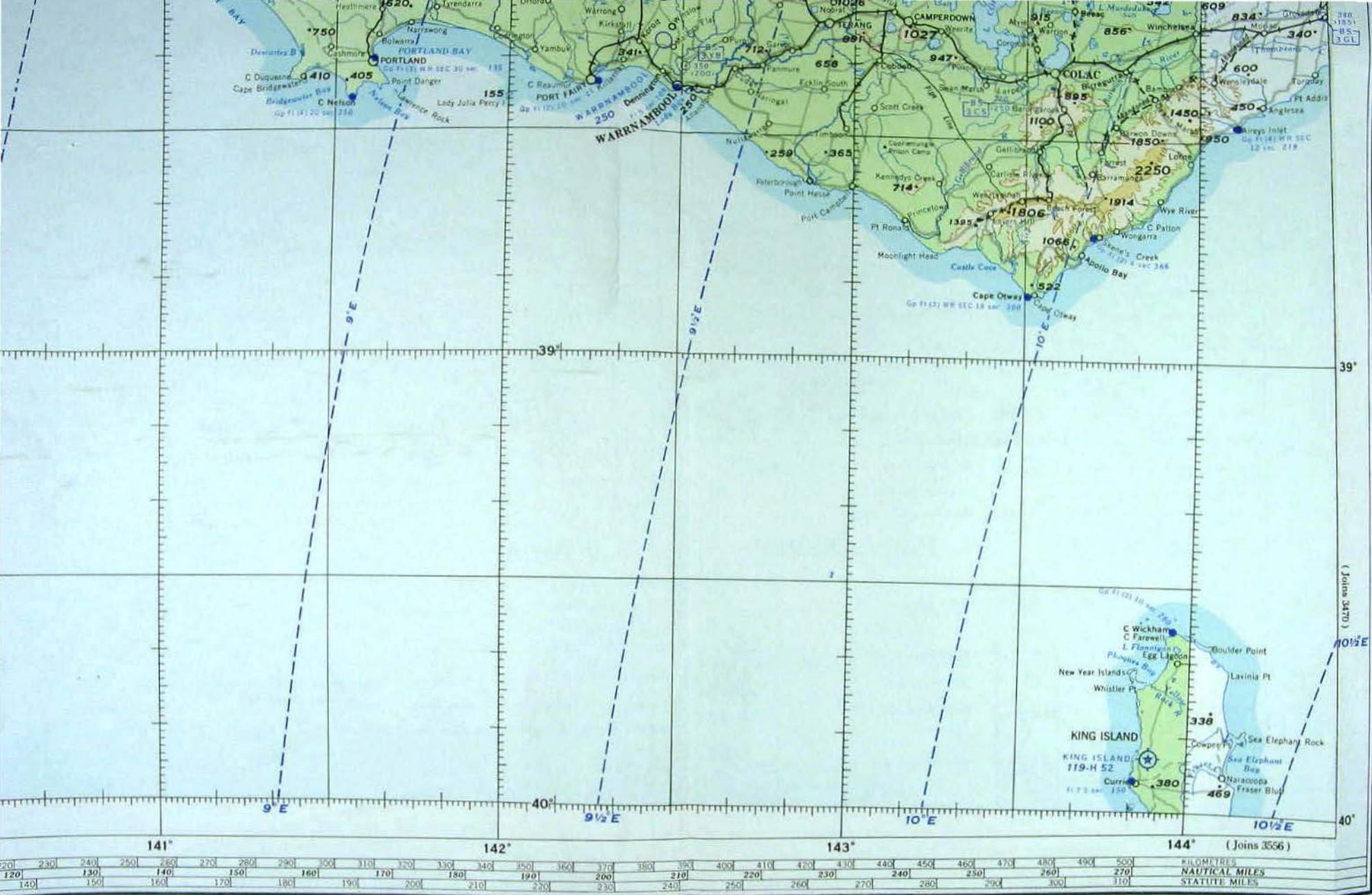
ELEVATIONS IN FEET

Users of this chart are requested to note any errors hereon and forward it to Aeronautical Information Section, Headquarters Support Command, RAAF, Victoria Barracks, St Kilda Road, Melbourne, Australia.

Lambert Conformal Conic Projection
Standard Parallels 36° 40' and 39° 20'

 THIS IS A LARGE FORMAT DOCUMENT WHICH WILL NOT BE LEGIBLE IF SCANNED.
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INFORMATION REGARDING SYMBOLS AND OTHER AERONAUTICAL DATA IS PRINTED ON THE BACK OF THIS SHEET

ELEVATIONS IN FEET

Compiled and drawn by Division of National Mapping,
 Department of National Development, Canberra, A.C.T.
 December 1954. Revised September 1963 Base No 122

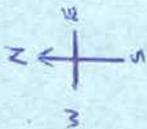
Consult NOTAMS, Flight Information Publication and
 AIP for latest information affecting this chart.

ELEVATIONS IN FEET

MAGNETIC VARIATION 1960

HAMILTON (3469)
 4th Edition - April 1964

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FIRST SIGHTING HOMESTEAD
NORTH FROM
X

GENUINE RANGES
MT. WINDERMERE
SILVER RANGES



10 miles

7 miles
X BLANTHOMPSON

Disappeared East from homestead
on same elevation as when first
Sighted.

DALGETY AND NEW ZEALAND LOAN LIMITED
1 MALOP STREET, GEELONG

Consult us for all requirements in connection with

WOOL : STOCK : PROPERTY : INSURANCE : TRAVEL
MERCHANDISE : SEEDS

WATCH CHANNEL BT6 ON FRIDAY NIGHT AT 8.55 P.M.
FOR OUR STOCK REPORT



ROYAL AUSTRALIAN AIR FORCE

D/DAET OF

CL- DSCA
580-1-1
48.66

3

TELEPHONE: 69 0550

TELEGRAPHIC ADDRESS:
"AIRCOMMAND, MELBOURNE"

HEADQUARTERS SUPPORT COMMAND
RAAF
VICTORIA BARRACKS
MELBOURNE SC1 VIC

5/6/Air(14)

IN REPLY QUOTE

8 DEC 1966

~~Secretary
Department of Air
Russell Offices
CANBERRA ACT~~

DAFI

REPORT ON AERIAL OBJECT

1. Attached is a report of a sighting of an aerial object. It is considered that the object sighted was in the nature of ball lightning or a plasma and is directly attributable to the severe electrical storm which was raging at the time.
2. This sighting poses no threat to the security of Australia.

(V.B. CANNON)
Wing Commander
For Air Officer Commanding

Encl /

Assessment

Phenomenon caused by electrical discharge during
severe electrical storm

REPORT OF AERIAL OBJECT OBSERVED

1. Name of Observer. PENNER JOHN SPRING.....Age. 50.
2. Address of Observer. 83 SACKVILLE ST. KEW. F.A.
3. Occupation of Observer. REAL ESTATE AGENT.....
*office 50 M'GILL ST. CANTONMENT GULLY to P/L
260 QUEEN ST MELB*
4. Date and Time of Observation (Time to be given in local time)
Sunday 27th ~~Dec~~ ^{Nov} 1966... 2:45 P.M.
5. Duration of Observation(s).... 3-4 minutes
6. Observers Location at Time of Sighting (Give details of own position by map reference if possible, or by known landmarks) EILDON WEIR VICTORIA
EILDON BOAT CLUB HARBOUR (PATERSON INLET) *SEE MAP*
7. Weather Conditions at time(s) of observation(s). VERY HEAVY ELECTRICAL STORM & RAIN
8. Aids to Observation(s). (Describe any equipment used in the observation)
PURELY VISUAL
9. Where was object first observed, eg, overhead, coming from behind a hill, over the horizon, etc.
COMING FROM BEHIND MOUNTAIN
10. What first attracted observer's attention, eg light or noise.
WAS ON BOARD MY CABIN CRUISER CHECKING IF RAIN WAS COMING INTO BOAT WHEN I SAW OBJECT IN SKY
11. Did object appear as a light or as a definite object.
OBJECT APPEARED AS A LIGHT WITH BLACK BOLBUS MASS ON TOP
12. If there was more than one object, how many were there, and what was their formation.
ORANGE-YELLOW... ONLY ONE OBJECT
13. What was the colour of the light or object. ORANGE-YELLOW
this light was on all the time & not off/on like the aircraft.
14. What was its apparent shape. ROUND
15. Was any detail of structure observable. NO
16. Was any method of propulsion obvious. NO
17. Was there any sound. COULD NOT HEAR SOUND OWING TO THUNDER STORM
18. Height, or angle of elevation. } AS PER MAP ATTACHED
19. Speed, or angular velocity..... }
20. Was the object stationary? NO MOVING SLOWLY
21. What was the direction of flight with reference to landmarks or points of the compass...
OBJECT WAS TRAVELLING IN NORTH WEST DIRECTION FROM BIG RIVER AREA TOWARDS BONNIE DOON. SEE ATTACHED MAP.

22. Did the object remain on a straight path, deviate or manoeuvre at all?
..... OBJECT REMAINED ON STRAIGHT PATH & SAME ALTITUDE

23. Was any trail of exhaust, vapour or light seen?
..... LIKE NO. BUT, D.K. RANGE LIGHT APPEARED TO BE UNDER A BLACK MASS + LOOKED LIKE I WOULD CONSIDER A VERTICAL JET

24. Where did object disappear, eg in mid-air, behind a hill, over the horizon.
..... BEHIND MOUNTAIN RANGE

25. Existence of any physical evidence such as fragments, photographs, or other supporting evidence.
..... N/I

26. Have you observed any unusual phenomena previously.. NO.....

27. If so, give details of incident(s).....

28. State any experience which enables observer to be reasonably certain about the answers given to 18 and 19.

..... 6 YEARS REGULAR CRUISEING ON EILDON (AT LEAST 50 DAYS PER ANNUM) & I HAVE SOME KNOWLEDGE OF THE GENERAL TOPOGRAPHY OF THE AREA

29. Are you a member of any organisation interested in aerial phenomena?
..... NO

30. Name and Address of organisation.....

31. Any additional information. THE OBJECT WAS TRAVELLING AT RIGHT ANGLES TO NORMAL AIR ROUTE AND AT A MUCH LOWER ALTITUDE THAN BELOW THE CLOUD FORMATION AND ON THE LIGHTING LIGHTING UP THE SKY ONE COULD SEE A BLACK MASS ABOVE THE YELLOW ORANGE LIGHT
..... Sydney - MELBOURNE
Signature of Observer... Denver John Spring
IT NO TIME IS AIRCRAFT BECOM VISIBLE FROM PORT HARBOUR

32. Location of any air traffic in the vicinity at the time of sighting.
..... NIL

33. Location of any meteorological stations in the general area.
..... N.I.

34. Comments... This is considered that this object was caused by the pure electrical storm at the time. NO THREAT TO THE SECURITY OF AUSTRALIA
Signature of Interrogator... [Signature] 1952

QUESTIONS 32, 33 and 34 to be answered by interrogator.

Note: Since it is normally impossible to estimate the height and speed of a strange object, it will usually be better to endeavour to determine the angle of elevation of the object, the angle through which it moved, and the time taken to do this.



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EILDON DISTRICT MAP



EILDON TOWNSHIP

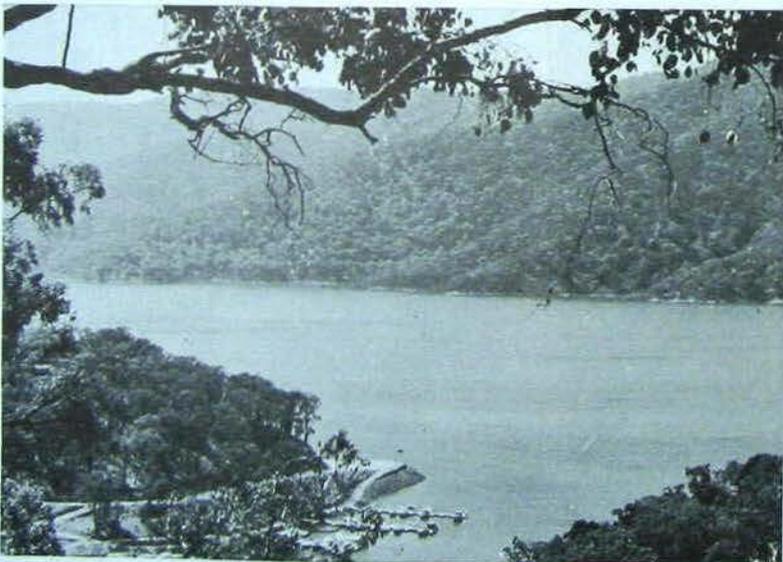
The township of Eildon was built initially to house workers employed on the dam project. Planning was on similar lines to those used in the layout of housing for the Tennessee Valley Authority, U.S.A.

The township, with its present population of over 2,000, is on the right bank of the Goulburn River, on a slope surrounded by timbered hills. Its electrical power is taken from the local power station while its reticulated household water comes initially from the main storage system but first passes through treatment and settling tanks and is chlorinated.

Main attractions of the town are the lake wall and spillway, boat harbours, views from Mt. Pinning and Easts Lookout.

Eildon is 87 miles from Melbourne via the Maroondah Highway to Taggerty, then Thornton and the Goulburn Valley Highway. Mileages from Eildon to some places of interest are

Alexandra 16
Buxton 23
Jamieson 38
Mansfield via Alexandra 59
Mansfield via Jamieson 59
Merton 36
Mt. Buller 89
Rubicon 15
Snobs Creek Hatchery 7
Taggerty 16
Thornton 8



ALEXANDRA

Situated on the Goulburn River, Alexandra is a prosperous farming township with a population of 2,300. It was known in the hectic gold rush days as Red Gate Diggings.

MANSFIELD

The centre of a large grazing district Mansfield is also the gateway to a wealth of scenic attractions, including Mt. Buller. The present site of the town was from 1841 a vast sheep station, however, in 1851 the area was surveyed and three years later the first land sold. A monument in the main street honours policemen who were killed during a hunt for members of the notorious Kelly gang.

JAMIESON

Jamieson, an attractive old mining township at the confluence of the Goulburn and Jamieson Rivers, has a population of 139. In the gold rush days it had fourteen hotels and two breweries. Cobb & Co. Coaches in those distant times left Jamieson for Melbourne each morning. The fare there and back in five days being the equivalent of \$5. Among the many beautiful trees growing in the streets is a huge spanish chestnut planted in 1876.

FRASER NATIONAL PARK

Abutting the western side of Lake Eildon is Fraser National Park, which covers an area of 6,000 acres. Views from the high ridges within the Park are magnificent, looking across to the high peaks of the Victorian Alps or down wooded hillsides to the long still-water reaches of the Lake. This Park was formerly two grazing properties. Bolte Bay, Collier Bay and Stone Bay where once contented cattle grazed are fast becoming tourist attractions.

Within the more inaccessible parts of the Park, kangaroos and other native fauna can be seen.

Shooting and domestic animals are totally prohibited in the park.

SNOBS CREEK FISH HATCHERY

A short distance off the Thornton to Eildon road, 7 miles from Thornton, is the fascinating fish hatchery which is open for inspection daily between 10 a.m. and 4 p.m. excepting Good Friday. Feeding time is 3.30 p.m. The stock fish eat nearly one ton of food each week during the summer months. When the fish are feeding it is often possible to see large numbers of trout leaping from the water. Australian Rainbow Trout originally came from California, U.S.A., to New Zealand whence trout eggs were introduced into Victoria in the 1880's. Eggs are now shipped back to America because ours are free of certain fish diseases found there. A short distance above the Hatchery one can find the Snobs Creek Falls.

Note:—

The track between Licola and Jamieson is only trafficable for four-wheel-drive vehicles.

EILDON AND DISTRICT

LAKE EILDON

The Goulburn, Victoria's largest river, rises on the northern slopes of Mt. Matlock near Woods Point in the Great Dividing Range. Fed by a mountainous catchment area of 1,500 square miles, and supplemented by the waters of the Delatite, Howqua, Jamieson and Big Rivers, the Goulburn winds its way northwards and flows into the Murray River which reaches the sea in South Australia.

The first person to consider using the water of the Goulburn River for irrigation was apparently a Mr. R. H. Thorne, a Parliamentary candidate some 110 years ago. He advocated using Waranga Swamp as a storage in 1856. In 1860 and again in 1880, consideration was given to developing a Waranga reservoir but it was not until 1902 that Waranga began to take shape.

At this stage a need was seen to dam the Goulburn nearer to its headwaters whereupon the Sugarloaf site, later to be known as Eildon, was chosen.

The original Eildon Reservoir was designed to hold 306,000 acre feet but by 1938 this proved to be inadequate to provide the needs of expanding irrigation projects in northern Victoria. Greater control and conservation near the headwaters of the primary waterway was demanded.

On June 15, 1951, work was commenced on the construction of the new Eildon Dam. A few statistics will indicate the result of the four years' effort that followed and which resulted in Lake Eildon as we know it today.

Embankment: 260 ft. high, 3,225 ft. long, earth and rockfill, 13,300,000 cu. yds.

Lake: Shoreline 320 miles, capacity 2½ million acre feet, maximum depth 250 feet.

Power output available: 136,000 kilowatts.

Men employed: Over 1,600.

Plant and construction equipment value: \$7 million.

Total cost: \$52 million.

Lake Eildon can now be said to serve four main purposes — irrigation, power production, flood mitigation, and recreation. While the lake's three first-mentioned functions go along quietly, efficiently and in Victoria's interest, the fourth function, that of catering for the individual tastes in recreation are expanding. Fishing, swimming, water skiing, and boating are becoming increasingly popular.

Boating Control

Boating on the lake is controlled by the S.R. & W.S.C. which has erected speed limit signs at the entrances of various bays and estuaries.

The following rules must be observed:

1. The spillway entrance is prohibited for public use at all times.
2. The pondage lake is closed to boating and swimming and can be used only for bank fishing.

3. All boats must keep 100 yards from the temperature sounding buoy anchored midway between the point of Mt. Sugarloaf and Rennie Inlet.
4. All boats must keep 100 yards from the intake tower at the western end of the dam.
5. Lake Eildon foreshore generally — Except in proclaimed access lanes and areas excluded from public use, the waters of Lake Eildon for an off-shore distance of 200 ft. from the edge of the water at any particular time — Three miles an hour speed limit. Movement of boats parallel to the shore in the foreshore zone — Three miles an hour speed limit. Control is by the Motor Boat Police.

Constructed launching ramps for boats are available at Eildon Boat Harbour, Jerusalem Creek, Goughs Bay, Bonnie Doon, and at Collier Bay in the Fraser National Park. Launching of boats may also be carried out via sections of the many old roads which were flooded by the lake in the Mansfield and Jamieson areas.

SURROUNDING TOWNS AND POINTS OF INTEREST

MT. BULLER

Thirty miles east of Mansfield is the snow resort of Mt. Buller which rises 5,934 ft. above sea level. Beyond Mirimbah, 20 miles from Mansfield, a winding gravel road leads to the Alpine Village.

In winter the road is snow-ploughed as far as the parking area. The state of the surface varies with the weather and occasionally chains are required. A fee is charged for roadside parking on a daily and weekly basis. Four-wheel drive transport conveys skiers to the village.

Mt. Buller is usually covered by a good depth of snow from June to October. The terrain is varied and offers excellent slopes for all grades of skiers, with cleared runs of up to 1,300 vertical feet.

Five establishments provide public accommodation and a general store and Post Office stocks fresh food, grocery lines, ski equipment, liquid gas, and provides telephone and postal services.

BUXTON

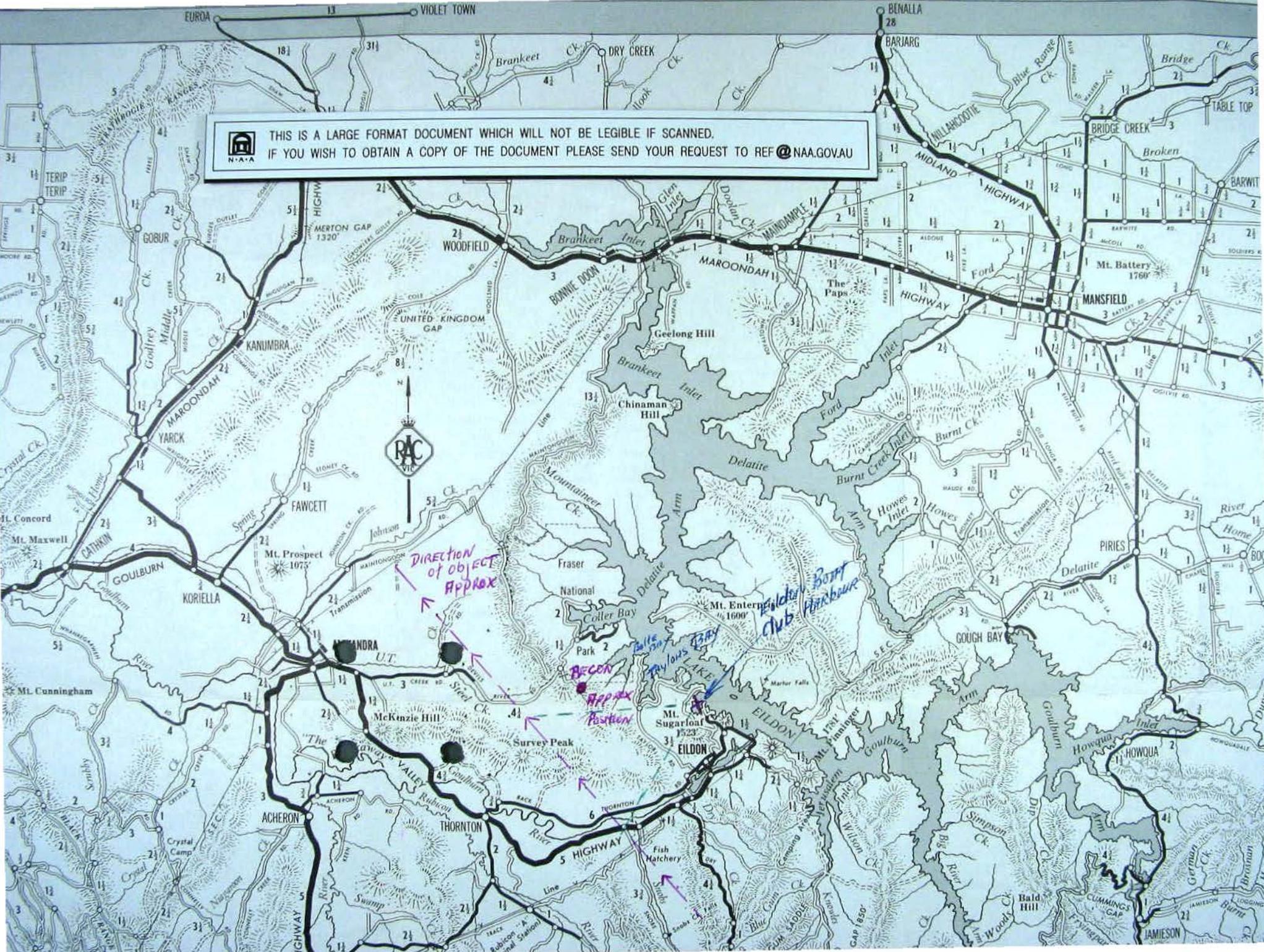
This small township is very prettily situated on the Acheron River near its junction with the Steavenson River. A road from Buxton which becomes Keppels Lane, leads to the southern end of the Cathedral Range.

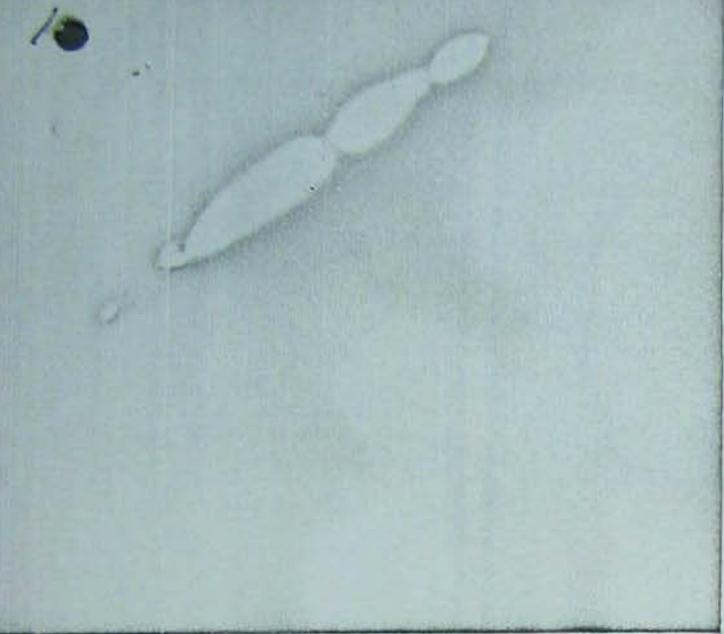
RUBICON

In the area about 4 miles south of Thornton is one of the oldest hydro-electric projects in Victoria. It consists of several small dams and the Rubicon power station. Nearby there are opportunities for fishing.

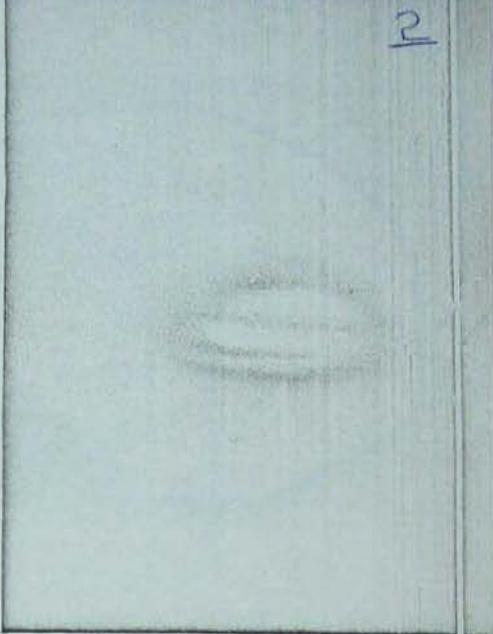


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Plasmas generated by electric discharge during a thunderstorm near Los Alamos, N.M., (above, left) show characteristic shapes attributed to "unidentified flying objects." The 5-min. exposure was made by S. J. Buchsbaum of Bell Telephone



Laboratories and B. T. Matthias of the University of California. Photograph (above, center) contrasts unidentified flying object (left) and moon (right). The object shows the characteristics of plasma triggered by corona discharge on an electric power

AVIONICS

Many UFOs Are Identified as Plasmas

By Philip J. Klass

Washington—Hundreds of "unidentified flying objects" exhibit characteristics that clearly identify them as plasmas. In most cases they are plasmas of ionized air, sometimes containing charged dust particles. A few may be vortices of tiny charged ice particles.

Their erratic behavior is that of a mass of charged particles, attracted to other objects with unlike charge, repelled by those with the same polarity. These characteristics do not substantiate claims of "intelligent control."

But data sifted from the numerous UFO sightings could provide valuable insights into both atmospheric and plasma physics by showing that nature occasionally achieves what present-day theory finds impossible to explain fully. The data could, for example, increase knowledge of the basic mechanisms involved in thunderstorms and tornado generation and propagation. It might even advance the understanding of plasma containment for fusion power use.

The lack of a full scientific theory to explain all aspects of the several forms of plasma observed in UFOs stems in part from the complex inter-

actions that occur in plasma physics and atmospheric electrics, both involved in the phenomena. Few if any scientists working in either field have interested themselves in UFOs enough to analyze the hundreds of sightings in detail, so far as can be determined.

On Aug. 22, AVIATION WEEK & SPACE TECHNOLOGY (p. 48) advanced a theory that many low-altitude UFOs were a form of ball lightning (plasma), also called kugelblitz, that is generated by lightning or by corona discharge along high-voltage power lines under appropriate conditions. The idea was prompted by numerous UFO sightings observed on or near high-tension lines, especially at Exeter, N. H., last year, and the remarkable similarity of their characteristics to those reported for some kugelblitz sightings.

Since then, it has been learned that a mathematical model advanced by two Yeshiva University scientists to explain one form of ball lightning confirms the possibility that such objects could be generated by power line corona.

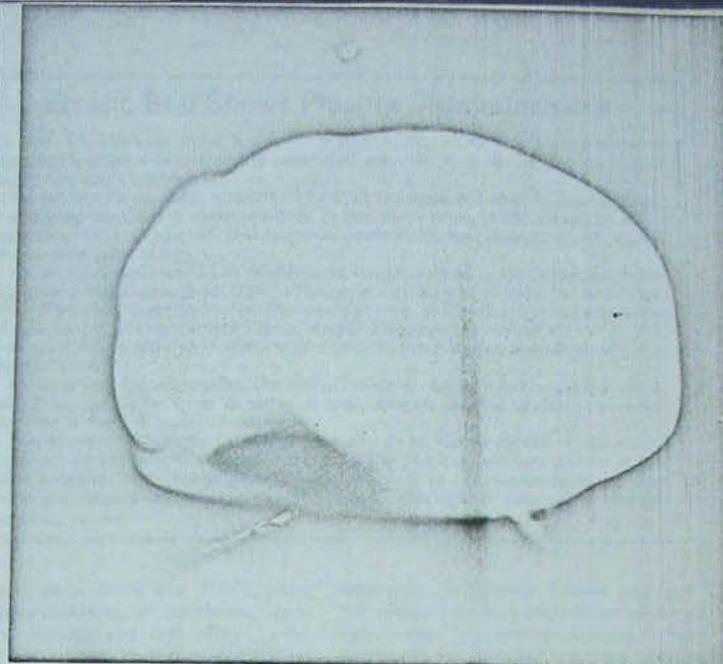
Subsequent analysis of many additional UFO reports provides added evidence in support of the initial theory and reveals that high-altitude UFOs also exhibit the plasma fingerprint.

These could be created by electric discharge between clouds or between invisible layers of charged dust/ice particles.

Occasional daylight sightings of what have been reported as well-structured or silhouetted objects are explainable as plasmas that give the illusion of metal structure, possibly due to whirling charged dust or ice particles.

These conclusions stem from analysis of reports collected by the National Investigations Committee on Aerial Phenomena (Nicap), a private organization whose official view is that UFOs are "manifestations of extraterrestrial life." The 746 sightings selected by Nicap for the report, "The UFO Evidence," are called its "most reliable and significant."

If, as Nicap contends, the sightings in this report show strong evidence that UFOs are extraterrestrial in origin, they should provide the toughest possible hurdle for the alternative explanation that UFOs are merely one of several forms of plasma. For this reason the following analysis uses Nicap UFO sighting data exclusively. All observations and quotations cited below are from the Nicap report, unless otherwise indicated.



line. It was photographed near Beaver, Pa. A man-made kugelblitz, or ball lightning, generated by the Atomic Energy Commission's Brookhaven National Laboratory, is shown above, right. The laboratory used a radio frequency of about

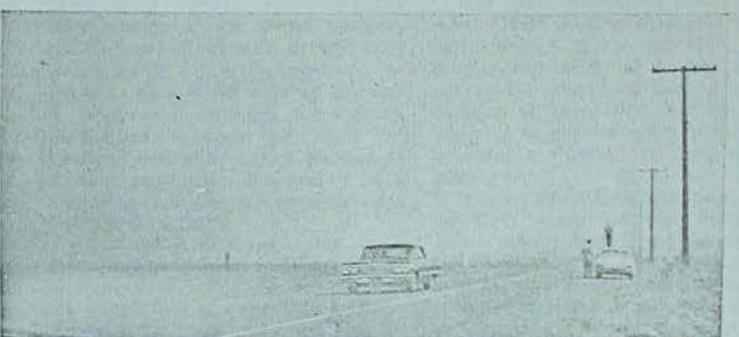
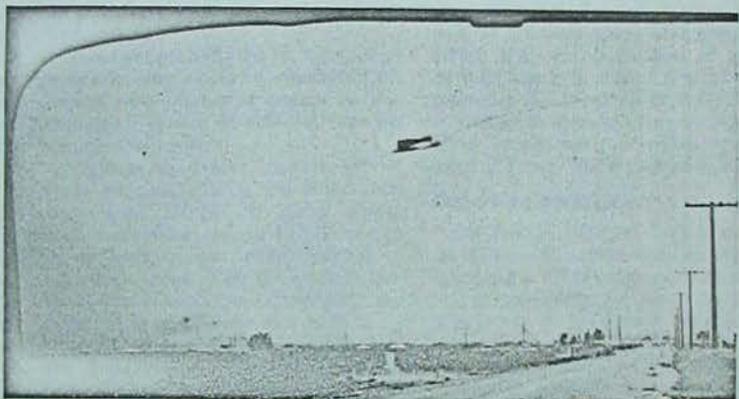
75 mc. produced by an induction oven built by Radio Frequency Corp. Diameter of the luminous plasma is about 8 in. The experiments indicate that metastable forms of nitrogen and oxygen molecules are involved in the phenomena.

While Nicap sightings do not provide any significant evidence of extraterrestrial visitors, they do provide a wealth of observations on phenomena that scientists are struggling to understand in the fields of plasma and atmospheric physics.

Of more than a dozen specialists in these fields contacted by AVIATION WEEK & SPACE TECHNOLOGY, not one indicated prior interest in UFOs sufficient to justify a detailed study of reported sightings. Generally they dismissed the phenomena as "the work of crackpots," as one phrased it. This could explain why the plasma fingerprint of UFOs was not spotted earlier by most scientists.

But the marked similarity had been noted by others. More than a year ago, the president of a small company in Medfield, Mass. that produces radio frequency induction furnaces observed that occasionally a spark discharge would form into a ball of ionized air. These exhibited extended lifetimes. The company, Radio Frequency Corp., uses a radio frequency exciter operating at 75 mc. that feeds an aluminum box measuring approximately 8 ft. cubed whose dimensions make it a tuned cavity at this frequency.

Fred Manwaring, RFC's president, says that using this tuned cavity "we can produce balls of ionized air that will last all day, if you want, "so long as the RF power remains on." Quite unknowingly the company had demonstrated elements of a theory advanced in 1955



Two photos above show same scene near Santa Ana, Calif. Upper photo was taken by Rex Heflin, a former policeman, who said the object silhouetted against the sky was about 30 ft. across and nearly 700 ft from camera. USAF analysts said the object was 1-3 ft. across and only a few feet away. Original Polaroid print has been lost. For comparison, the lower photo shows an automobile about 200 ft. away.

by Soviet Academician Peter L. Kapitza to explain the formation of ball lightning. "We were not handicapped by knowledge," Manwaring modestly admits.

Manwaring said he tried to interest several newspapers in the idea that such plasmas might explain UFO sightings, but without success. He did, however, interest the Atomic Energy Commission's Brookhaven National Laboratory which recently purchased one of RFC's "Macrowave Ovens" and is using it to investigate plasma formation and lifetimes.

Man-Made Plasma

Man-made plasmas that exhibit many characteristics reported for UFOs also are being created for demonstration purposes at the University of North Carolina's Morehead Planetarium at Chapel Hill.

These synthetic UFOs are plasmas generated by an arc discharge in a partially evacuated glass-tube of air, according to A. F. Jenzano, planetarium director.

By varying the direct current voltage applied to the electrodes at opposite ends of the tube and the internal air pressure and by capacitance effects induced by the position and movement of the operator's hand along the tube, "we can produce almost any reported shape and color UFO, including saucer and cigar shapes," Jenzano told AVIATION WEEK & SPACE TECHNOLOGY (see photo, p. 65). "We can even produce fleets of them in formation flight." They can be made to hover, to spin, or to quickly zoom out of sight.

During a demonstration last April, Jenzano speculated that similar plasmas produced by natural means could explain some UFO sightings. He too theorized that suitable atmospheric conditions were required. Jenzano emphasized that the planetarium is not conducting basic scientific investigations of plasmas or UFOs and that its discharge tube is used only for demonstration purposes.

Ball-Lightning Admission

The admission that "ball lightning probably accounts for some UFO reports" recently has come from Richard Hall, assistant director of Nicap. He also said the organization has been investigating ball lightning "for at least five or six years."

Yet the 184-page report called "The UFO Evidence," which the organization prepared and sent to every member of Congress two years ago made no mention of ball lightning or its possible connection with UFOs. At that time, however, Nicap publicly charged that the Air Force was withholding information that it inferred would confirm the theory of extraterrestrial visitors.

Erratic Blip Shows Plasma Characteristics

On Mar. 10, 1954, at about 3 a.m. on a clear night, an Air Force control tower operator spotted a target on his radar that was "at least as big as any of our larger transport planes."

He followed it on radar to within 15 mi. of the base and then to his surprise, it suddenly stopped. It remained fixed in the same position for about 30 min., according to a report of the National Investigations Committee on Aerial Phenomena (see story).

An inbound Douglas C-124 Globemaster was vectored on an intercept heading toward the unidentified object. The crew was alerted to look for it. "Then, when it seemed that the two [blips] would collide, at about a 1/2-mi. separation on the scope, the stationary object simply disappeared, vanished. . . ." The crew was never able to make visual contact and did not therefore see the object "leave."

In reporting the encounter the tower operator said: "How anything could vanish so suddenly from a radar screen without leaving a trace of what direction it went is really amazing. . . ."

The answer is that when the plasma's energy collapses rapidly it can easily disappear in the several seconds required for a 360-deg. azimuth sweep of the radar antenna. The cooled plasma becomes part of the surrounding air and no longer retains its plasma characteristics, although it has not physically departed.

Nicap data shows that UFOs come in a remarkable variety of shapes, sizes, colors, motions and side effects. Even more remarkable is the evidence that UFOs can change size, color and shape while under human observation. These are not chameleon-like changes that indicate the UFO is attempting to blend in with its background, but the reverse, as if it were seeking to attract attention.

These are precisely the changing characteristics that would be expected if the objects were plasma of ionized air that contains a variety of different elements and contaminants.

Perhaps the most remarkable of these characteristics is the observation that many UFOs can make abrupt right-angle turns, reverse directly or stop in an instant, even while traveling at very high speed. This is especially unusual for objects that occasionally are reported to be as large as a jetliner.

In this respect, UFOs appear to defy the fundamental Newtonian laws of inertia which have demonstrated their approximate validity throughout the solar system and the known universe.

This apparent scientific inconsistency disappears if UFOs are plasmas, for the total mass of the involved particles is infinitesimal although the over-all plasma size can appear quite large. For example, it requires only a fraction of a cubic centimeter of mercury in a fluorescent lamp to generate a plasma that fills the tube.

A commonplace example that shows the ability of charged particles to stop and change direction can be found in the picture tube of a television receiver. The electron beam stops and reverses direction more than 30,000 times per second.

On July 27, 1952, near Ann Arbor, Mich., at 10:40 a.m., 15 small UFOs were sighted. The observer reported

that they "seemingly floated; one got the impression that they were of very light weight." In another sighting in the Antarctic, an observer reported seeing the UFO "abruptly dividing in two as if exploding," an easy trick for a plasma. The observer said the UFO appeared "neither solid nor purely light."

When UFOs take leave of their human observers, they often seem to depart at fantastic speed and sometimes vanish with the suddenness of an apparition (see box, above). One observer, reporting the departure of a UFO seen at Pompano Beach, Fla., on May 18, 1962, appropriately described its movement as being "like a flash of lightning."

Departure Description

On Jan. 8, 1959, at 5:15 p.m. near the Illinois-Wisconsin line, an observer described a UFO's departure by saying that it "seemed to go out of sight, disappear or disintegrate." Another observer on Nov. 14, 1956, near Mobile, Ala., reported that the UFO "diminished rapidly to pinpoint and disappeared."

This will-o'-the-wispish quality of so many UFOs is again illustrated by an object sighted on Jan. 10, 1951, by a private flyer at 6,500 ft. The object appeared to glide to a landing on the outskirts of Vera, Tex., and the pilot was able to guide a police patrol car, by radio, to "within 100 yards of the landing spot."

"During this period the glow from the UFO which had been visible to [police officer] Rutledge on the ground, was diminishing to a dull red. About the time that [police officer] Stone approached it unknowingly and blinked his lights, the glow from the UFO vanished completely."

The UFO itself disappeared as mysteriously as its glow, which would be logical if it were a plasma. When a plasma loses enough energy, due to a

variety of possible natural causes, to no longer be luminous, it looks no different than the surrounding air.

Where a UFO appears to zoom off at fantastic speed in a direction radial to the observer, it often is an optical illusion caused by the rapid collapse of the luminous core of the plasma. But actual high-speed movement also is possible, as evidenced by numerous ball lightning reports.

Nicap places great credence in the numerous radar sightings of UFOs by air defense and traffic control radars, as well as airborne radars. The reason, it explains, is that "in general, a blip on a radar always corresponds to a reflection off some solid (or liquid) surface. . . ." This simply is not true.

Radar Echo

Under most conditions, a plasma provides an excellent radar echo, usually far stronger and/or larger than an echo from a solid object having the same dimensions. For example, the plasma wake produced by an ICBM during atmospheric entry provides a stronger radar signal than the vehicle itself.

On Mar. 29, 1957, a Pan American Airliner flying off the east coast of Florida at approximately 7:30 p.m. made a visual sighting which the crew described as a "very bright light" that "seemed to grow in intensity . . . then would subside."

The weather radar was turned on and showed a target in the same location as the visual sighting. The radar blip had "an apparent size in excess of normal aircraft," which would be expected for a plasma.

The UFO remained visible to the naked eye only for several minutes but continued to produce a radar echo for 20 min. This indicates a gradual loss of plasma energy, initially falling to where its luminosity was below the threshold of human vision but retaining sufficiently energetic particles to produce a radar echo for a much longer time.

DOD Network

The Defense Dept. maintains a very close watch on all objects in space, using high-power space-oriented Air Force radars and a Navy operated surveillance network that stretches across the entire width of the continental U.S. This network has been able to detect tiny metal strips a few inches long in orbit as well as small debris from rockets that have exploded in orbit.

If UFOs were extraterrestrial in origin, they should be detected at least occasionally by this extensive network. Yet so far as Nicap data indicates, there is not a single reported sighting of UFOs outside the atmosphere but there are dozens within the atmosphere made by air defense and traffic control radars.

This is understandable only if UFOs

are plasmas generated within the earth's atmosphere and not spacecraft having an extraterrestrial origin.

More than 100 UFO sightings have included some form of accompanying electromagnetic effect, such as interference with radio or television receivers or disruption of electric power.

Dr. Martin Uman of Westinghouse Research Laboratories, who advanced an explanation for some forms of ball lightning, earlier had suggested to AVIATION WEEK & SPACE TECHNOLOGY that if UFOs were plasma, and were in close proximity to a magnetic compass, they should cause its needle to spin madly. Nicap cites an incident where campers reported that their "compass needle wavered wildly as the UFO passed overhead." This indicates the presence of a strong magnetic field.

The oscillating and gyrating charged particles even within a low-energy plasma such as the fluorescent lamp or commercial neon sign are well known as sources of radio interference. Another example is the plasma formed by a high-altitude nuclear blast. There also are numerous reports of radio interference effects from kugelblitz.

Some low-altitude UFO encounters are reported to have caused automobile engines to stall and/or headlights to fail. This is explainable if the plasma envelops the automobile battery or ignition, but it involves a density and intensity higher than some theories have suggested. A study of such reports could provide useful clues about the energy level present.

After-Effects Reported

Persons viewing UFOs at very close quarters sometimes report physiological effects or after-effects. Eyes that are bloodshot, swollen or otherwise irritated sometimes have been experienced.

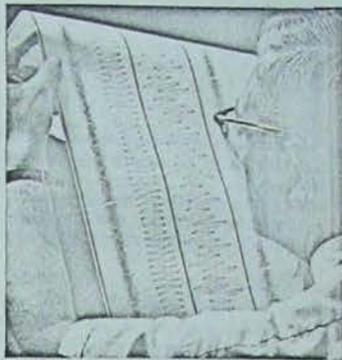
An intense dosage of ultraviolet light could produce these symptoms and plasma often radiate in this part of the spectrum as well as the visible. Even the plasma within the household fluorescent lamp generates enough ultraviolet to irritate the eyes, but this is filtered out by the glass envelope.

Others have reported minor facial burns, a "prickling sensation like electric shock" and intense heat, or combinations of these. These would be expected only for certain forms of high-energy plasmas. The same effects are sometimes reported for ball lightning encounters.

One plasma specialist points out that a very-high-intensity plasma could generate X-rays. There is one report of a higher-than-normal radioactivity measurement on the ground where a UFO had "landed." The radioactivity quickly subsided as it would if produced by X-ray radiation.

An interesting polarization effect was

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reported for a UFO sighted on May 5, 1953, near Yuma, Ariz. at about 9:45 a.m. by an observer who was wearing Polaroid glasses. He removed them to get a better look, but when he replaced the glasses he observed "several uniformly spaced concentric circles around the new circular object. The circles were distinct dark bands which enveloped the silvery disc."

He removed the glasses again and the dark concentric rings vanished, only to return when the glasses again were used.

"The rings with glasses [on] faded to invisibility before the disk became too small to see," he noted.

Sequence of Events

Seeking a possible explanation for this effect, AVIATION WEEK & SPACE TECHNOLOGY talked with Richard Adams, a polarization effects specialist with Polaroid Corp., Cambridge, Mass. The nature of the object was not disclosed initially to Adams, only the sequence of events and observed effect.

After first ascertaining that the object was being viewed outdoors in daylight, illuminated by sky light which itself is polarized, Adams concluded that the dark rings were an interference pattern, a familiar optical effect. This indicated that the object was generating light that had a different polarization from sky light.

When Adams was asked what could cause the object's light to have a different polarization, he replied: "A strong magnetic field, for example." Such a magnetic field would be present in at least some plasmas.

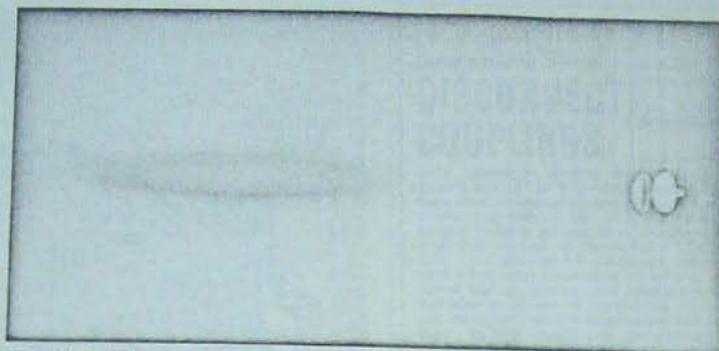
Although UFOs are usually said to be noiseless, this is based on a comparison with the sound of aircraft and other known vehicles. The Nicap report says that UFOs often exhibit a "humming" or "whirring" sound when hovering or moving slowly. This correlates closely with the sounds reported for ball lightning, when any sound is heard.

These same words could be used to describe the noise made by a neon sign or a fluorescent lamp.

Explosive Noise

During rapid acceleration or high-speed flight, UFOs occasionally produce "sharp explosive noise," Nicap says. Ball lightning can disappear by collapsing silently, or with a loud bang, according to many observers.

Analysis of hundreds of Nicap reports reveals that the two adjectives most frequently used to describe night sightings are "glowing" and "luminous." Other frequently used adjectives are "phosphorescent" and "fluorescent." It is impossible to find more precise adjectives to describe the appearance of a plasma.



Cigar-shaped glow, a man-made plasma generated by arc discharge in an air-filled tube, exhibits characteristics typical of unidentified flying objects. The display was generated at Morehead Planetarium of the University of North Carolina. The planetarium has generated "unidentified flying objects" in a variety of shapes and colors, and even formations. One of two electrodes used for excitation is at right.

One observer quoted in the recent book "Incident at Exeter" described the appearance of the UFO as "cerie, like a neon sign." Three UFOs seen near Dubuque, Iowa, on Mar. 4, 1960, were described as "glowing a neon-like blue-white."

The variety of colors, and the ability to change color quickly, as reported for many UFOs in night sightings dovetails perfectly with the characteristics of a plasma. The color radiated by a plasma depends not only upon its constituent materials, which for air includes oxygen, nitrogen, carbon dioxide plus such gases as argon, helium and neon, but also on its internal energy level as well. As the internal energy changes the plasma color can change dramatically.

The nitrogen present in air will generate a bluish glow when energy is high, and the color will shift to red as energy is dissipated. At certain energy levels, where the atoms and molecules of many elements in the air are all excited, the variety of colors radiated will combine to give a predominantly white glow with periodic flashes of many individual colors.

The most frequently reported colors

Hurricane Analogy

Ball lightning resembles the hurricane in its challenge to scientific explanation, one investigator has suggested.

No meteorologist today can explain why or how nature singles out one of hundreds of tiny tropical disturbances and empowers it to grow into a full-fledged hurricane. Nor can scientists explain how a hurricane can maintain its high-velocity winds for many days without dissipating its internal energy to the surrounding atmosphere.

"If no one had ever seen a hurricane and we had no other evidence that one could exist, we certainly would conclude that such a phenomenon was impossible," the scientist said.

for both UFOs and ball lightning, are orange-red and white, with an occasional observation of blue and green. There are almost no reports of violet.

Because internal energy level can influence dynamic behavior of a plasma as well as its color, changes in motion should often be accompanied by changes in plasma color. In one group of UFO sightings, Nicap found that 28% of the observers reported a color change that "occurred during and seemed to be associated with [UFO] acceleration."

In a group of nine sightings where the UFO changed color, the shift always was toward the red end of the spectrum, which would be expected for plasmas that were dissipating their internal energy.

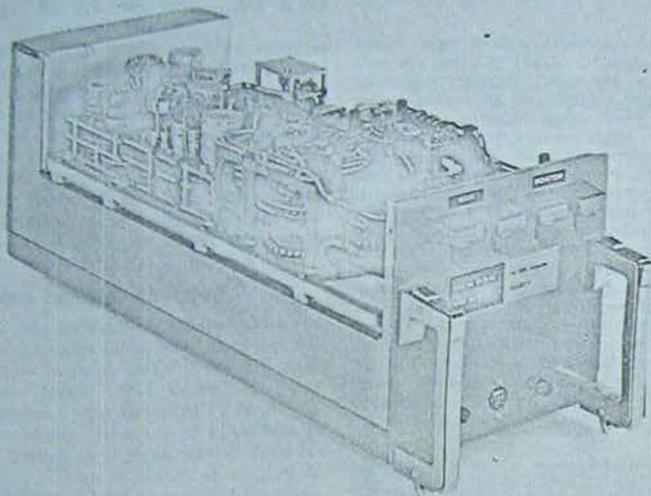
Effect of Sunlight

Colors seldom are reported for daylight sightings. This is understandable if UFOs are plasmas. Their luminosity, which can seem quite bright at night, is easily washed out in bright sunlight. The adjectives most frequently used by observers to describe daylight encounters are "silver/metallic" and "white," in about equal proportions. Other adjectives include "reflective," "gray" and "silhouette."

Objects with a metallic or silhouette appearance might seem to defy explanation as plasmas but this is not the case; the human eye can be tricked easily when viewing the unfamiliar.

On Mar. 18, 1950, a private pilot flying near Bradford, Ill., at 8:40 a.m. spotted what he described as a "metallic appearing disk. . . the UFO shone in the sunlight," or so it first seemed. But when the object flew below an overcast, it "continued to glow, indicating that it was self-illuminated," the observer noted.

On Sept. 26, 1963, at Sunnysvale, Calif. a policeman saw an object the size of a basketball at a distance of



C-5A Air Data Computer Shown at Farnborough

Elliott-Automation's modular central air data computer that will be used on the USAF/Lockheed C-5A heavy logistics transport was displayed at the Farnborough Air Show. The company has received a contract from Lockheed to supply the device, which is composed of different combinations of a basic series of mechanically compatible modules for military and civil aircraft. It is also being used on the Hawker Siddeley HS 801, Avro 748, BAC 111, and the proposed Anglo-French Concorde.

approximately 8 ft. "The disk appeared grayish in color except when the small spot of light lighted up about every 3-4 sec. The color then changed to yellowish-white, some trace of orange . . . this produced a pulsing effect every 3-4 sec."

What had begun as a "grayish" object now "gave an eerie lighted haze or mist illumination of the area just outside the disk circle itself as if it were glowing or surrounded by a gas or thin cloud, halo, etc."

The optical illusion that the objects are metallic or solid would be enhanced if some UFOs involve a "cold plasma" or charged dust particles, or ice particles at high altitude. These could be set to whirling by electrostatic and other natural forces and would then assume a body-of-revolution shape which would include spherical, ellipsoid (cigar-shaped) and circular.

At least two American scientists have suggested ball-lightning theories in which charged dust particles play a key role. This idea may have stemmed from the fact that some reports of ball lightning in years past noted that it was seen to emerge from a chimney or fire place, suggesting that carbon or dust particles had a role in its formation.

On Nov. 5, 1955, near Cleveland, Ohio, at approximately 6 p.m., a UFO

was reported in which "an intensely white glow or beam or light shone steadily. . . . The light rays were so bright we could see air dust in them." The UFO's color was described by one observer as "weathered aluminum," and by others as "pearly aluminum." Observers seldom use the term "aluminum" without adding a qualifying adjective.

A thunderstorm physics specialist at Arthur D. Little, Inc., Dr. Bernard Vonnegut, has demonstrated in the laboratory that tiny charged ice particles in the presence of a strong electric field will orient their surfaces parallel to one another. Such strong fields exist during thunderstorms but also are found in clear weather and at long distances from thunderstorms.

Depending upon the angle of incidence of sunlight striking these thousands of tiny mirror surfaces, it can be reflected without the means of reflection being apparent or visible to a human observer. This, Vonnegut says, can create strange optical effects and would explain a pilot's observation while flying above a thunderstorm of a bright band that suddenly moved across the anvil of the cloud.

If the angle of incidence of sunlight playing on a vortex of ice crystals aligned by electric fields were such that reflected light was directed away from an observer, it conceivably could pro-

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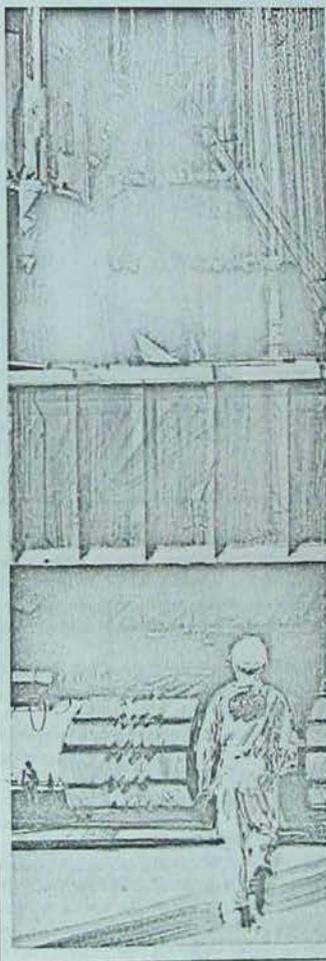


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duce a silhouette effect, although Vonnegut did not speculate on this in his original scientific report.

But if the airborne vortex contains charged dust particles, similarly aligned by electric fields present in the atmosphere, a very pronounced silhouetted object could result. If electric discharge is taking place within the vortex between charged dust particles, as has been suggested by some ball lightning theories, it could easily create the illusion of a solid spacecraft with small lighted windows.

Flying Particles Observed

Flying vortices of charged dust and sand particles have been observed frequently in desert areas. They are commonly called "dust devils" or "dust dervishes." One measured by Dr. G. D. Freir of the University of Minnesota in the Sahara showed an electric field intensity as high as 400 v. at an altitude of 300-600 ft. and a proximity no closer than 100 ft. The dust devil had a diameter estimated at 25 ft. In the presence of a strong atmospheric field, small dust devils should be able to reach even higher altitude.

Those who hold that UFOs are extraterrestrial visitors contend that their behavior demonstrates "intelligent control." Some airborne UFOs, for example, seem to exhibit a curiosity about aircraft, while lower flying ones show a similar interest in automobiles or trains.

Often UFOs seem to be playing a game of tag with an airplane or automobile, and not infrequently will "buzz" them in what can only be described as a "hot-rod's game of chicken."

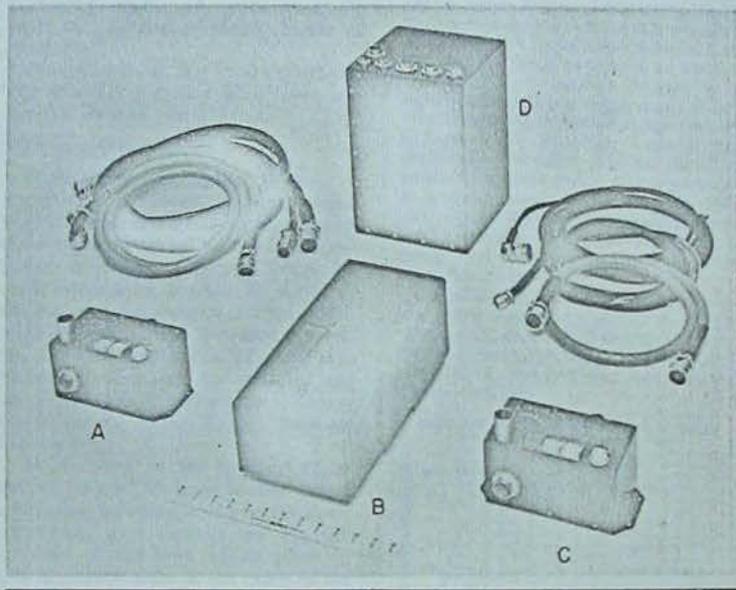
"Intelligent Control"

There are reports of military jet fighter pilots who have attempted to close upon a UFO, only to have it suddenly zoom ahead when the aircraft comes near. Then the UFO sits and waits until the aircraft has nearly closed again. Then, the sequence is repeated. At other times the UFO darts at the aircraft on a collision course, often coming out of the clouds at nearly vertical angles of climb or descent. In some encounters, the UFO will circle an aircraft in flight as if inspecting it. This, it is claimed, demonstrates "intelligent control."

Such behavior merely demonstrates the well known physical law that two charged objects having opposite electric polarity will attract and two having identical polarities will repel. Aircraft fuselages usually carry a charge, sometimes a very high one, acquired from impact with charged vapor and dust particles in the air. Jet aircraft also acquire a charge from their turbine engines.

Laser Range Finders for Tanks Developed by TRG, Inc.

Laser range finders, developed by TRG, Inc., for tanks to obtain accurate range to targets, include gun-shield mounted laser (below) for the United Kingdom-produced Centurian Battle Tank. Components are (A) commander's control and display, (B) laser transmitter and receiver, (C) gunner's control and display and (D) power supply and counters. The unit at right was developed for the West German-Lowlands Leopard tank. The Leopard device, which has laser transmitter and receiver, with viewing optics housed in cylinder atop control and display (E), is mounted through tank turret. U.S. Army is planning comparable installations for its tanks, a major innovation in offensive tank fire power. TRG is a subsidiary of Control Data Corp.



There is evidence that indicates that one type of kugelblitz generates its own "magnetic bottle" which sustains it, although not all forms achieve magnetic containment. One theory advanced to explain ball lightning suggests that its stability comes from a core of spiraling electrons surrounded by a crust of positive ions.

Under these and other conditions, a plasma should behave as previously described, being attracted to the aircraft when the two have opposite charges, repelled when they have the same. When attractive forces exist but are too low to enable the plasma to penetrate the aircraft windstream, it could be dragged along by electrostatic forces in the vicinity of the aircraft, easily giving the appearance of "flying formation."

When the plasma charge dissipates sufficiently it will depart or disappear. If aircraft and its plasma come near a stronger electric field, such as a cloud, the plasma may zoom off toward such a field.

A jet fighter attempting to close on a plasma having the opposite charge has a hopeless task, for so long as the plasma's charge persists it will avoid interception.

When the charge dissipates, the UFO will vanish in thin air, as frequently happens.

A typical encounter cited by Nicap occurred during World War 2 on Aug. 10, 1944, while a bomber was returning from a strike in Sumatra. The aircraft was flying at 14,000 ft., above "broken clouds with an overcast above us," when the crew spotted a "very bright

and intense red or orange" object pacing the aircraft off the starboard wing. Its distance was estimated at 1,500 ft and its diameter at 5-6 ft.

The airplane commander said it "seemed to have a halo effect . . . to throb or vibrate constantly." When he took evasive action, changing heading by as much as 90 deg, and altitude by 2,000 ft., the object followed doggedly for 8 min.

"When it left, it made an abrupt 90-deg. turn, up and accelerating rapidly; it disappeared in the overcast."

Another Report

One private flyer on Aug. 15, 1957, near Woodlawn Hills, Calif., observed a UFO "hovering between two drifting cirro-stratus clouds."

A book to be published next spring, written by two Nicap members, will cite evidence to show that UFOs have been scouting the earth for at least 200 years. It seems more than mere coincidence that a book entitled "Der Kugelblitz," by Walther Brand, published in Germany in 1923, presents 600 accounts of ball lightning that date back to 1665, and a Russian report published in 1954 refers to a brief mention of ball lightning in 60 B.C. by the Roman poet Lucretius.

If extraterrestrial visitors have scouted the earth for at least 200 years, perhaps for close to 2,000, it is difficult to understand why they have not attempted to establish contact through formal channels. "After all, Columbus did not spend 200 years scouting the New World before landing to see if the Indians were friendly," is the way one skeptic puts it. "This indicates great scientific curiosity but no courage," he adds.

Nicap Explanation

Nicap officials have a ready explanation for this curious reticence. Extraterrestrial visitors, they explain, may be fearful of creating widespread panic on earth if their existence and presence were known.

For this reason they prefer to observe in secrecy.

But this makes it even more difficult to explain the capricious buzzing maneuvers and games of tag that UFOs seem to play with dozens of aircraft and cars, or the low-level visitations within sight of human observers—unless the UFOs are plasmas.

If secret observation is the intent, the very actions of UFOs have defeated this purpose. For example, a recent Gallup Poll indicates that at least half of the adult population in America is aware of UFOs and believes something is being seen.

Faced with this serious contradiction, Nicap officials have another ready explanation. It is not possible to use

such "earth-logic" in trying to understand the actions of extraterrestrial visitors. This precludes any further effort aimed at rationalizing the contradiction.

There are almost as many theories available to explain ball lightning as there are scientists interested in the phenomena. Most scientists agree that no single theory yet advanced, their own included, can explain all reported kugelblitz characteristics.

This leads many to conclude that there are at least two, perhaps more, different but related phenomena involved. The high-altitude UFO type plasmas may involve still other triggering and/or sustaining mechanisms. But all are believed to share a common family tree.

The late French astronomer Camille Flammarion, in a book, "Thunder and Lightning" published more than 60 years ago, devoted an entire chapter to "Fireballs."

He called them "the most mysterious and certainly the least understood domain of thunder and lightning."

Matching Reports

Flammarion recounted stories of kugelblitz seen 100-200 years ago whose reported characteristics closely match those of more recent surveys by competent American scientists. These include surveys by Warren D. Rayle of the National Aeronautics and Space Administration's Lewis Research Center, Dr. Edmond M. Dewan of Air Force Cambridge Research Laboratories and Dr. J. R. McNally of the Atomic Energy Commission's Oak Ridge National Laboratory.

At the turn of the century Flammarion wrote: "We must confess that if spheroidal lightning seems particularly capricious, it is because we are still ignorant of the laws which guide it. Our ignorance alone is the cause of the mystery. . . . We try to reproduce fireballs artificially [in laboratories] but the problem is complicated and its solution presents enormous difficulties."

These words are almost as valid today as when they were first written many decades ago. The boon, trans-

Application Symposium

Washington—Navy will sponsor a symposium on application of microelectronics to aerospace systems Oct. 17-18 at State Dept. auditorium here. The papers will be those presented earlier in Europe at a conference sponsored by NATO's Advisory Group on Aerospace Research and Development (AGARD).

Persons who wish to attend must advise A. E. Cook, Office of Naval Research, Code 403C, Washington, D.C. 20360.

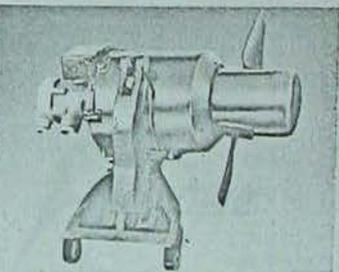
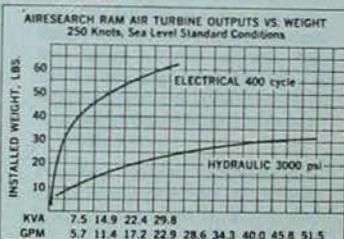
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lated by Walter Mostyn, was published in the U.S. in 1906 by Little, Brown and Co.

The interaction of charged particles and the electric-magnetic fields they themselves generate is one of the most complex subjects in modern physics. It also is very difficult to conduct plasma experiments in the laboratory and make needed measurements without interfering with the process under observation.

It is not, therefore, surprising that there are a variety of possible explanations but no fully developed theory to explain ball lightning, and thus UFOs. A contributing factor may be one cited 60 years ago by Flammarion when he wrote: "Instead of denying it, men of science ought to study it because it is certainly one of the most remarkable curiosities of atmospheric electricity."

One modern French scientist, A. Dauvillier, has speculated that ball lightning may involve radioactive carbon particles and that "this natural thermonuclear reaction might be the only one possible on earth."—"Ball Lightning and Thermonuclear Reactions," *Academie des Sciences Comptes Rendus*, 245, No. 25, 1957.

If radioactive particles do play a major or even catalytic role in some instances, it might explain the apparent cyclic nature of UFO sightings where rushes of them are followed by comparatively quiet intervals.

Air Contaminants' Role

There is cause to speculate that air contaminants also play a role in some UFO plasmas, as evidenced by the frequent encounters that often occur in a given geographic area within a matter of hours or days, after which few if any are sighted.

One theory that has gained growing acceptance as an explanation for at least some types of kugelblitz is that advanced by Dr. David Finkelstein and Prof. Julio Rubenstein of Yeshiva University, New York. It explains kugelblitz as a detached corona discharge, or a type of free-floating St. Elmo's fire, as Dr. Finkelstein sums it up.

It can be triggered by a dielectric inhomogeneity in air in the presence of a d.c. electric field such as those encountered during or following thunderstorms. This inhomogeneity concentrates electric lines of force until they cause a small localized corona discharge. Strong electric fields often are found many miles away from the thunderstorm itself.

This discharge causes an additional concentration of electric field lines which in turn causes the discharge, or plasma, to grow, and the process continues until a stable size is reached. This size could be influenced by local

atmospheric pressure, for example, among other factors.

Certain limitations of this theory disappear if the corona discharge occurs in the presence of an alternating rather than direct current field, according to an extension suggested by Dr. Dewan. This would be true even at low frequencies such as the 60 cps. used for electric power transmission.

Added Opportunities

This describes precisely the situation that would be found in the vicinity of a high-tension power line, as theorized by AVIATION WEEK & SPACE TECHNOLOGY. But the initial discharge need not await the appropriate inhomogeneity in the air. Corona discharge on the power line itself could provide added opportunities for the mechanism to be triggered, as the many sightings at Exeter demonstrated.

The Finkelstein-Rubenstein theory explains that a kugelblitz triggered by a small electric discharge under suitable conditions can have a lifetime of many minutes, perhaps even hours, without the need for generating a magnetic field to contain the plasma.

Additional modifications of the basic theory have been suggested by recent experiments at Brookhaven National Laboratory using RFC's Macrowave Oven. Dr. Finkelstein said recently. Based on experiments there conducted by Dr. James Powell, Finkelstein now believes that metastable forms of molecular nitrogen and oxygen, excited high-energy long-lived states, help explain the extended luminosity in ball lightning. The excitation of metastable atoms and molecules is a process also involved in laser action.

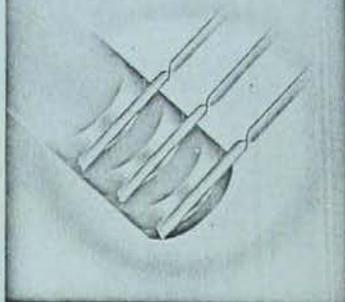
When the RF induction furnace is operated without benefit of a room-size cavity to help sustain the plasma, Powell reports he has achieved plasmas that can sustain themselves for up to 1 sec. after RF power is removed. This is not long compared with even natural ball lightning lifetimes, "but it is 100 times longer than such plasmas usually last," according to Powell.

Still longer lifetimes will be possible when the apparatus is modified to prevent vaporized metal electrode particles from entering the plasma. These collide with the metastable oxygen and nitrogen atoms/molecules and quickly rob them of their energy, causing collapse of the plasma.

Another theory involving a special type of plasma that could achieve stable containment for extended periods through a combination of magnetic, centrifugal and coulomb forces has been devised by Carsten Haaland of Oak Ridge National Laboratory.

Under Haaland's concept the plasma might take the geometrical form of a "trefoil knot," a three-dimensional

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endless loop arrangement. It could be no more than coincidence that a plasma shaped like a trefoil knot would resemble an inverted teacup resting in a saucer, similar to the "humped saucer" shape reported for some of the UFOs.

Unlike a conventional plasma where electrons and positive ions intermingle, the Haaland model involves electrons spiraling around the small-radius filament of the trefoil knot while positive ions orbit around its outer surface.

Because plasma physicists are experiencing great difficulty in successfully achieving near-perfect magnetic containment required for fusion power, some are inclined to doubt that nature succeeds even infrequently with even a less perfect "magnetic bottle." But in a Cambridge Laboratory report, "Eyewitness Accounts of Kugelblitz," based on observations collected by Dr. Dewan, there are instances where the collapse of ball lightning appears to induce current in nearby conductors. This indicates it has a strong magnetic field.

'Preposterous Possibility'

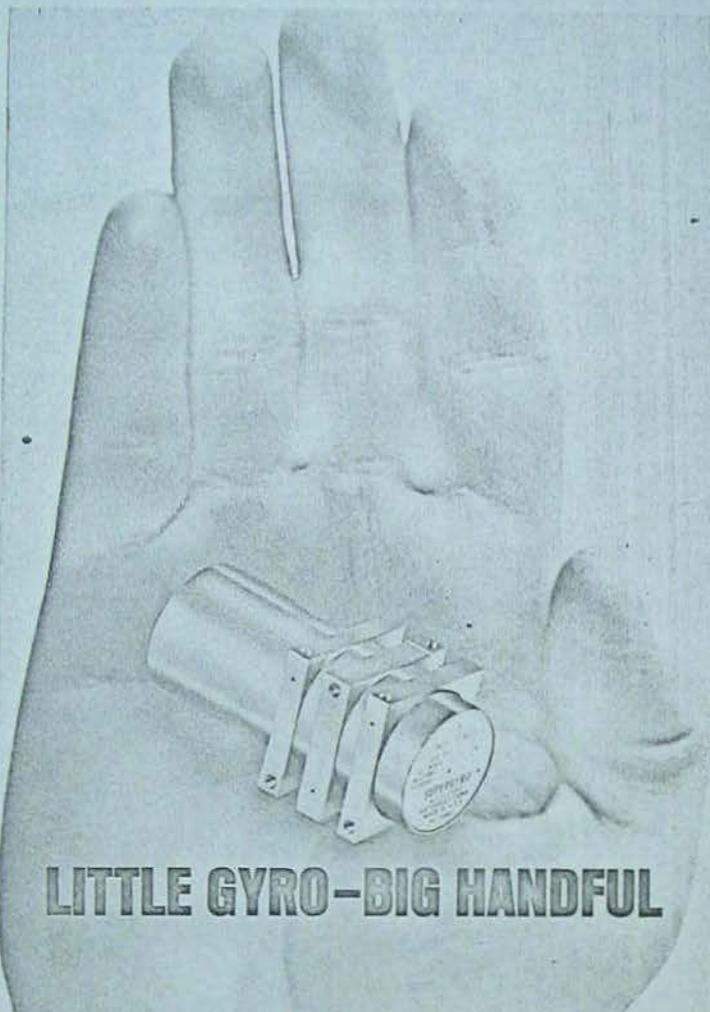
"This possibility seems preposterous in many ways," Dewan wrote, "but since the mere existence of kugelblitz is almost 'preposterous', we are not at this time in a position to ignore any possibility." "Almost no inanimate natural phenomenon," Dr. Dewan wrote, "exceeds the extent to which the kugelblitz mocks science by its complete lack of even a plausible hypothesis." Since that was written early in 1964, modest progress has been made in this field.

When scientists working in atmospheric and plasma physics recognize UFOs as an unusual plasma phenomena and begin to study some of the many reported observations, it may show that under freak conditions nature is accomplishing "the impossible." Invariably, demonstrations such as these later produce logical scientific explanations.

Observations Misinterpreted

Nicap itself does a moderately good job of weeding out the "crackpot reports," as evidenced by the fact that the fingerprints of plasma phenomena are clearly evident even though some observers misinterpret their observations as evidence of extraterrestrial visitors.

Even more valuable data could be obtained if UFO observations were collected by a scientific organization that had no preconceived ideas as to the nature of the objects. A new reporting form designed to elicit data having special value to scientists in plasma and atmospheric physics also would be helpful.



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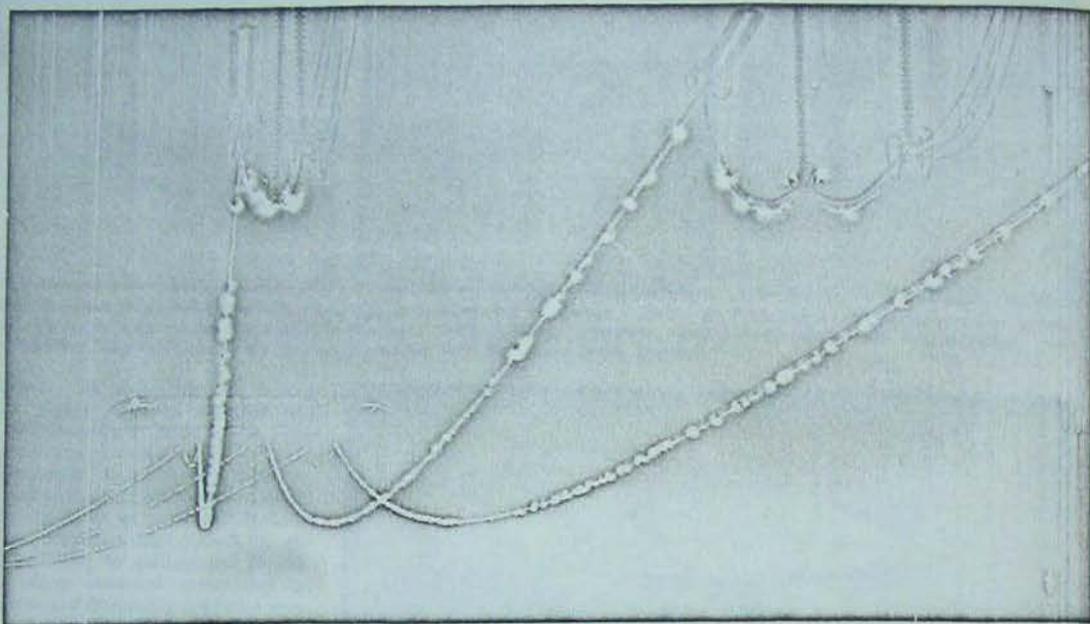
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Spectacular corona display along General Electric's experimental 500,000-v. transmission line near Pittsfield was produced by application of more than 120% of rated voltage. Corona also is induced by dirt, salt crystals or other foreign particles on the line or insulators. An extremely high voltage gradient can develop across these, exceeding breakdown voltage of air.

Plasma Theory May Explain Many UFOs

By Philip J. Klass

Washington—Luminous plasmas of ionized air, a special form of "ball lightning" generated by electric corona that occurs on high-tension power lines under certain conditions, may explain many sightings of lower-altitude "unidentified flying objects." It is related to St. Elmo's fire, sometimes seen on or near aircraft in flight.

If this theory is correct, it would explain the increasing frequency of UFO sightings in recent years when there have been growing numbers of very high-voltage power lines. Also there has been increasing atmospheric pollution whose contaminants may play a catalytic role in the phenomenon.

Descriptions contained in a recent book, "Incident At Exeter," appear to support this theory. John G. Fuller, its journalist author, interviewed dozens of persons who reported seeing UFOs in the vicinity of Exeter, N. H., approximately a year ago.

Fuller expresses the belief that top Air Force and government officials know that the UFOs are extra-terrestrial spacecraft but have successfully kept this a secret for nearly two decades to prevent national panic. But a much more plausible scientific explanation emerges when the Exeter sightings are analyzed.

Most of the UFO sightings in the Exeter area occurred along or very near to high-tension power lines, according to the author. The same is true of two other sightings he investigated in western Pennsylvania and others reported at the time of the Northeast power black-

out last November. Fuller speculates that the extra-terrestrial spacecraft may be attracted to the power lines as a source of energy for refueling their propulsion systems.

Electric corona, which this writer believes is the mechanism that triggers one form of "ball lightning" under suitable conditions, is a moderately well understood phenomenon. But most scientific investigations of corona have been aimed at devising means of suppressing it, rather than gaining fundamental theoretical understanding.

Ball lightning, most frequently reported during or immediately following a thunderstorm, is poorly understood. Until recent years it attracted little scientific attention, having been treated by many as an "old wives tale." But in the late forties and early fifties, ball lightning attracted the attention of several

top Soviet scientists, including Academician Peter Kapitsa.

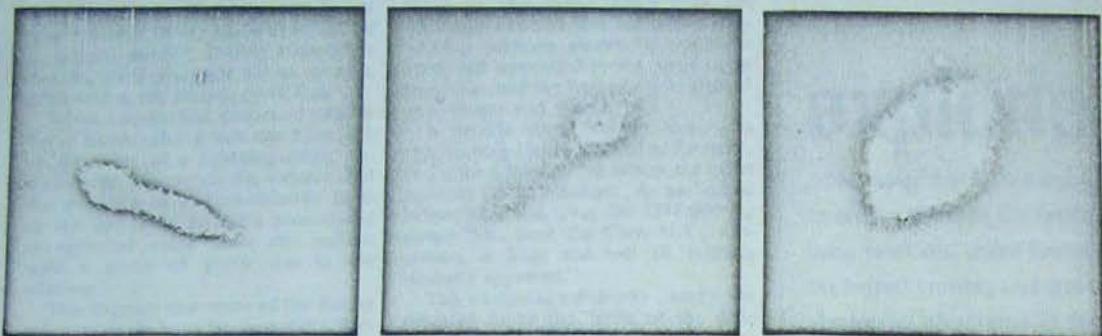
Five years ago, several U.S. laboratories began to investigate the phenomenon, motivated in part by its possible application to anti-ICBM defenses (AW&ST Dec. 4, 1961, p. 52). These included the Bendix Research Laboratories, the Illinois Institute of Technology's Research Institute and Raytheon's advanced development group.

There is a striking similarity between the reported characteristics of ball lightning and the UFOs sighted by dozens of persons in the Exeter area, as reported by Fuller, who used a tape recorder to insure accurate observation details. For example:

■ **Color:** Ball lightning is multi-colored, but red is the most predominant color reported, followed by intense bluish-white and green. A vast majority of the sightings reported from Exeter said the object was red, while the remainder were either bluish-white, green, or a combination of all of these.

■ **Shape:** Ball lightning normally is either spherical or ellipsoidal with many reports of a doughnut-shaped or ring configuration. The Exeter sightings were mostly round, oval-shaped or dome-shaped.

■ **Sound:** Ball lightning is often ac-



Ionized plasmas produced by electric discharge in laboratories of Illinois Institute of Technology's Research Institute several years ago show some of the characteristic shapes of UFO sightings. However, these pictures were made with extremely short film exposure times of 0.2-0.5 microsec., far briefer than the Lucci photo (below).

accompanied by a sizzling or hissing sound. Exeter sightings reported that the UFO sometimes made a soft humming or hissing sound.

■ **Dynamics:** Ball lightning has been reported as hanging motionless at times, yet able to move up, down and horizontally at extremely high speeds. It appears to move by rolling and gliding, often along electrical conductors or structures and frequently exhibits a spinning motion. The Exeter sighting reports said the objects often hovered over a fixed location, frequently power lines, often rolled or bounced along, sometimes exhibiting a spinning motion and would then appear to zoom off at great speed and disappear from sight.

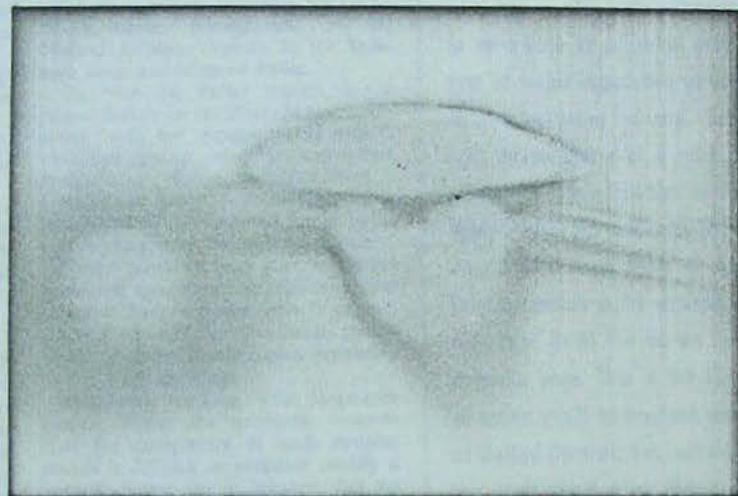
■ **Lifetime:** Ball lightning reports indicate that they can have a lifetime ranging from several seconds to many minutes. Observers at Exeter reported that objects remained in view for a few seconds or as long as 15 min.

■ **Size:** Ball lightning has been reported in sizes up to 15 ft. in diameter. Exeter observers estimated the size of objects sighted at from the size of a basketball to as much as 200 ft. in diameter.

This apparent size discrepancy is explainable in several ways. All but two of the sightings reported at Exeter by Fuller were made at night and one of the two occurred at dusk. The absence of visible landmarks for size comparison would make it difficult for a layman to estimate size accurately, especially when the object could induce fright in the observer.

Additionally, the type of ball lightning triggered by electric corona may be a lower-energy plasma of larger size than that usually induced by lightning discharges.

Electric corona is a luminous plasma caused by ionization of the air surrounding a transmission line or one of its insulators. When electric corona first occurs, it briefly resembles a small stroke of lightning. The corona can remain fixed or can travel along the



Unidentified flying object photographed over high-tension power lines near Beaver, Pa., in August, 1965, by James Lucci with full moon visible to the left of UFO, is believed to be a form of ball lightning induced by electric corona discharge. Photo was taken using film with ASA speed of 100, lens opening of f/3.5, set at infinity, and exposed for 6 sec. Film development time was 12 min.

power line until cooled and extinguished by external forces.

So long as a transmission line and its insulators are clean and suitably designed, corona does not normally occur. But if small particles of dust or salt crystals, for example, become affixed to the line or insulators they can trigger the corona, according to Darrell Shankle, manager of field research in Westinghouse Electric's electric utility operations. The reason is that an extremely high-voltage gradient develops across the dust or salt crystal which exceeds the breakdown voltage of air.

Even flying insects that alight on the line can trigger a corona. For example, during the months of August and September a very high-voltage transmission line in West Virginia experiences frequent coronas caused by "flying spiders" that are carried by the winds and alight on the lines, according to Shankle.

Transmission lines near the ocean are also susceptible to corona because salt crystals deposit on the lines and insulators, according to A. F. Rohlf, manager of high voltage development for General Electric at Pittsfield, Mass.

Exeter is located only 10 mi. from the ocean. The power lines of the Exeter and Hampton Electric Co., which were involved in the sightings, run right down to the ocean beach beyond Hampton. The company's chief engineer, Stanley Sawyer, says that corona occurs more frequently "when there is not much rain to clean off the lines."

A check with the U. S. Weather Bureau shows that conditions during the summer of 1965 preceding the Exeter sightings in September were especially conducive to corona in that area because it was an extremely dry summer.

For example, during the months of

July, August and September the Exeter area received barely more than half of its normal rainfall. During these three months, there was only 6.0 in. of rain, compared to the average of 10.8 in.

When corona first occurs, it usually has a bluish color which can then take on the color of a lightning strike, according to experts on the subject. But the presence of sodium-chloride (salt) on the line could give it a pronounced orangish-red color from the sodium with a touch of green due to the chlorine.

This suggests that some of the Exeter sightings could have been no more than a corona discharge traveling along the power line. Here are some of the first-hand observations described by Fuller in his book:

■ Meredith Bolduc: "This thing was coming up the power lines toward the road . . ."

■ Mrs. Jerline Jalbert: "We see it regularly along here. Always seems to be somewhere near the power lines."

■ Mr. Heselton: "Just the other night, some other people saw it along another section of the power lines."

■ Mr. A. Reid Bunker, Sr.: "We were under the high-power lines . . . when at 10:45 p.m. we saw an object approach . . . It had red lights most, and sort of green and white lights . . ."

First Sighting

The first Exeter sighting on Sept. 3, 1965, that triggered many subsequent reports, made by a teenager and subsequently witnessed by two policemen, was located near the 34,500-v. transmission line of the Exeter and Hampton Electric Co. The line is mounted on wooden poles approximately 29 ft. above the ground. In total there were 73 instances, Fuller writes, where persons reporting UFO sightings near Exeter used the words "power lines" or "transmission lines" or referred to locations near power lines.

During the period in which Fuller was researching the Exeter incident, he visited Beaver, Pa., near Pittsburgh, to check UFO reports. One night sighting during the previous month near high-tension power lines had been made by 17-year-old James Lucci and two friends and Lucci had managed to photograph the object (see photo, p. 49).

When Fuller and Lucci visited the area of the sighting and he was asked to pinpoint its location, the youth responded: "I'd say it was right up there, directly over the wires, not more than fifty or sixty feet."

A sighting was made three days later in the same general area by Donald de Turka from his yard. His house, Fuller reports, was "down the street from a section of high-voltage transmission line."

The Northeast power blackout pro-

vided an unexpected opportunity for additional evidence that indicates a relationship between electric transmission lines, and associated power distribution apparatus, and the type of object sighted near Exeter and Pittsburgh.

A private pilot, Weldon Ross, was approaching Hancock Field at Syracuse, N.Y., for a landing "at almost the exact moment of the blackout. As he looked below him, just over the [345,000 v.] power lines near the Clay, N.Y., substation, a huge red ball of brilliant intensity appeared."

This particular substation initially was reported to be the "crux of the difficulty," Fuller writes.

Same Report

A total of five persons reported the same phenomenon, including Robert C. Walsh, deputy commissioner for the Federal Aviation Agency in the Syracuse area, according to Fuller.

On Nov. 26, Fuller reports that a power failure in St. Paul, Minn., coincided "with the appearance of objects overhead giving off blue and white flashes . . . Fifteen minutes later a resident on Hogt Avenue reported a 'blue-glowing' UFO as all house lights and appliances in the area went dead."

Fuller hints at foul play by extraterrestrial spacecraft by claiming that scientists have not been able to explain the causes of the Northeast power blackout or the simultaneous proximity of the UFO sightings.

Engineers working with large-area power distribution networks concede that the complexity of such systems makes it difficult to pinpoint readily a specific faulty circuit breaker. But no competent expert has publicly advanced the idea that the blackout resulted from external causes.

Voltage Surges

During conditions of such power network instabilities, there are voltage surges at some points in the network. These higher-than-normal voltage conditions would induce very large corona discharges.

The leakage current during corona contains harmonics in larger than usual proportions, creating an inductive effect which aggravates network instability. But only to this extent could the corona or corona-induced ball lightning have contributed to the blackout problem, according to several experts.

The marked resemblance between many of the Exeter sightings and reported observations of ball lightning appears significant, as well as their frequent appearance on, along or near high-tension power lines under atmospheric conditions likely to produce corona discharges along the lines.

The only unresolved question is the mechanism by which the corona dis-

explode

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UFO-Ball Lightning Observations Compared

CHARACTERISTICS	EXETER UFOs	BALL LIGHTNING
Color	Usually reddish-orange and/or bluish-white, sometimes green.	Multi-colored, with red dominating or bluish-white.
Shape	Round, oval or dome-shaped	Spherical, ellipsoidal or doughnut-shaped.
Movement	Often hovering or moving up/down slowly. Also moves horizontally at slow or high speed.	Sometimes hangs motionless or moves vertically and horizontally at slow or high speed.
Dynamics	Often seems to move with rocking or undulating motion. Sometimes appears to be spinning.	Appears to bounce or roll in horizontal direction. Sometimes exhibits spinning motion.
Sound	No sound, or slight humming or hissing?	Sometimes exhibits a sizzling or hissing sound.
Lifetime	From several minutes to up to half an hour.	From few seconds to many minutes.
Size	Difficult to estimate by most observers during night sightings, but those given range from basketball size to 200 ft. in diameter.	Daytime sightings (in brighter ambient light) usually are a few inches in diameter but have ranged up to 15 ft.

charge expands into a larger plasma with ball lightning characteristics. Present limited knowledge of both phenomena complicates this problem. But the similarity of electric corona discharge and natural lightning discharge which is known to induce ball lightning would seem to support strongly the theory presented here.

Despite long years of experience with corona, the experts disagree even over the effect of temperature, barometric pressure and humidity in inducing corona. The reason is that power line corona is difficult to duplicate realistically for study under controlled conditions. To do so would require construction of a huge facility, large enough to house a long transmission line within a chamber so that barometric pressure and temperature could be varied while a variety of atmospheric contaminants were introduced.

There is considerably less scientific information available on ball lightning, although a number of conflicting theories have been advanced to explain it. Several years ago Dr. J. Rand McNally, Jr. of the Atomic Energy Commission's Oak Ridge National Laboratories made an informal survey of 1,962 persons in the laboratory. Surprisingly, he found that 110 of them, or 5.6% of the total sample, had observed ball lightning at some time. Usually it was associated with a conventional stroke of lightning, but not always.

Analyzing the returns, McNally concluded that ball lightning can originate randomly in space but is most often

seen in proximity to wires or structures. It is usually airborne or partially airborne, moving randomly in space or along electric conductors. It often exhibits rolling, tumbling or spinning motions.

Small-diameter ball lightning has been reported inside houses and other buildings. Recently an Air Force Strategic Air Command flight crew reported seeing it inside an aircraft during flight. AVIATION WEEK & SPACE TECHNOLOGY was told by a scientist working in the field.

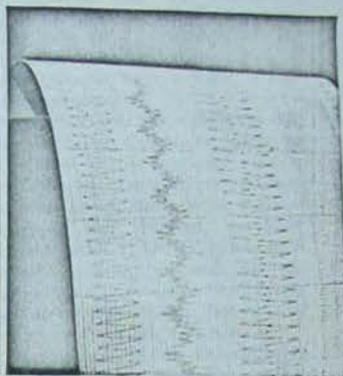
Many of the ball lightning sightings reported by persons surveyed by McNally occurred on or near power lines.

Many different theories and mathematical models have been advanced by scientists here and abroad to explain the basic mechanism which generates ball lightning and the internal-external forces that enable it to survive for extended periods.

Within recent months two Westinghouse Electric research laboratory scientists, Dr. Martin A. Uman and Dr. C. W. Helstrom published a mathematical model that predicts many of the unusual properties of ball lightning. The Westinghouse research was partially funded by the Office of Naval Research.

This theory suggests that ball lightning is a luminous, high-temperature region of air having high electrical conductivity that has been heated to the required temperature by a stroke of lightning under suitable conditions. When cloud-to-ground lightning currents are symmetrical through the ball,

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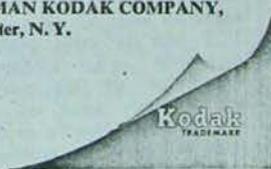
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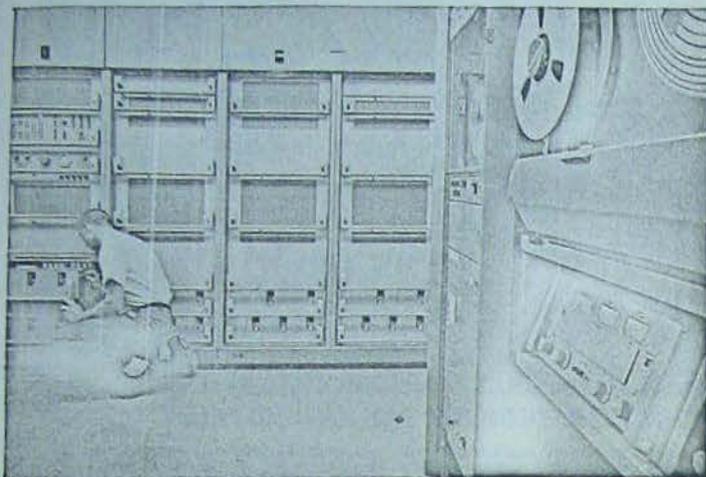
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it hangs stationary in air, but if these currents become unsymmetrical, the ball will move.

The lightning ball will disappear quietly if the internal electric currents gradually fade away, according to the Westinghouse scientists' theory, but it can also collapse with a bang if the current drops sharply.

One scientist who has worked in the field for some time, Carsten M. Haaland, says that none of the proposed models fully explains the phenomenon and that it is possible to find flaws in all theories proposed so far. Haaland, currently employed by AEC's Oak Ridge National Laboratory, previously conducted experiments in ball lightning when he was a member of the Illinois Institute of Technology's Research Institute.

Using relatively crude discharges in air produced by exploding wires, Haaland was able to create small ball lightning for brief intervals (see p. 49).

Haaland believes that there are at least two different types of ball lightning, perhaps more, which would explain why none of the theories advanced to date explains all sightings.

Most theories on ball lightning hold that some external source of energy is needed to sustain the plasma for more than a few seconds. Haaland pointed out, in support of the proposed new theory, that the electromagnetic lines of force from high-tension lines extend for a considerable distance and could supply such energy. The Exeter lines are at a relatively low height (29 ft.) above the ground.

Another scientist working in the field, who declined to be quoted by name, was asked if he could positively exclude the possibility that power line corona could generate ball lightning. He re-

Transmission Grating

Washington—Tiny, low-cost transmission grating which can be used to view UFOs to determine if they are balls of ionized air, as a new theory predicts, can be obtained from two scientists employed by the Westinghouse Research Laboratories.

The transmission grating, roughly the size of a 35-mm. color slide, is small enough to fit into a man's wallet. If the object when viewed through the grating shows an intense red line rather than a full color spectrum, it is a plasma.

Readers interested in obtaining a grating and instructions for its use should send \$1. to cover fabrication and mailing cost, to Drs. J. L. Moruzzi/Martin Uman, 579 Lucia Road, Pittsburgh, Pa. 15221. The gratings are being made by the scientists in a home workshop. It is not a Westinghouse sponsored effort.



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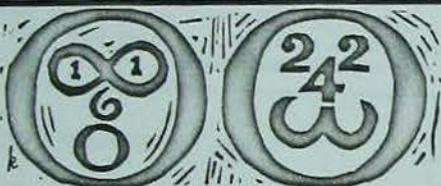
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PROBLEMATICAL RECREATIONS 341



Show, with a simple example, that an irrational number raised to an irrational power need not be irrational. —Contributed

WESCON 1966 starts tomorrow and 8 is the number of the week! We'll explain. This year's show is "8-great-shows-in-one" featuring 8 special product areas from communication and detection to computers to air and space control systems. (There are 5 other areas to see.) And we're happy to announce that our eighth puzzle booklet, *Problematical Recreations*®, is available to all problem solvers during WESCON. Pick up your free copy at the Litton booth #1507. We'll be on the main floor of the Los Angeles Sports Arena displaying our latest advances and new products. Hope to see you the 23rd through the 26th!

ANSWER TO LAST WEEK'S PROBLEM: Let BC be the side opposite the 20° angle and D the point $10''$ from A on side AB. Construct triangle ADE congruent to ABC with $ED \parallel BC$. Join EC. Then triangle AEC is equilateral and angle DEC = 40° . Triangle EDC is isosceles and angle EDC is 70° . Thus the stripe makes an angle of 150° (or its supplement) with the edge.

LITTON INDUSTRIES
Beverly Hills, California

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plied: "I wouldn't reject this possibility, because a conventional smoke-ring is an interesting example of a plasma held together under the proper conditions by a combination of internal and external forces which are difficult to explain scientifically."

This seems an appropriate analogy because not every instance of corona along power lines generates ball lightning. The presence of salt vapor near Exeter would increase the conductivity of the air, and vaporization of the salt crystals deposited during the dry summer could provide a mechanism for increasing current flow and air temperature once corona occurred. Other contaminants in the air at Exeter and at other locations could provide similar catalytic action.

A spokesman for the National Investigations Committee on Aerial Phenomena (NICAP), quoted by Fuller, says that UFO "sightings seem to concentrate in small geographic areas during any wave. But the concentration area will shift around." This indicates that when the required combination of atmospheric conditions exists, the phenomenon occurs repeatedly.

It seems more than coincidence that, only one of the dozens of Exeter UFO sightings reported by Fuller occurred in broad daylight. This prompted one police officer who was interviewed by Fuller to ask: "Where does it go in the daytime?"

It is possible that the necessary atmospheric conditions, including air contaminants, do not occur until the cooler night air arrives. Another possible explanation is that the luminous plasma of ionized air usually is too faint to be easily visible in daylight, although it could appear quite bright in the dark.

In the photograph taken by Lucci near Pittsburgh, using a 6-sec. exposure, the UFO appears to have about the same brightness as the full moon alongside it.

Westinghouse's Dr. Martin Uman suggests several possible tests which can be made in the presence of a UFO sighting to confirm or deny the ball lightning theory. If it is an electrical discharge, it should generate radio noise. At least several persons interviewed by Fuller reported that their automobile radios had briefly become inoperative when the object came near.

If the object is viewed through an inexpensive prism or transmission grating it should be possible to ascertain whether the object is a solid spacecraft or a form of ball lightning, Dr. Uman points out. If the object is a solid, the viewer will see a continuous spectrum, but if it is a form of ball lightning he will see instead a number of individual color lines, including intense red radiation due to the presence of hydrogen and blue due to nitrogen in the air.

Increasing knowledge of plasmas, their generation and containment has been gained from recent AEC programs to develop fusion power. If the efforts of a few competent plasma scientists can be directed toward ball lightning and its possible relationship to electric corona, it may be possible to explain at least some, if not many, of the UFO sightings.

If power line corona and air contaminants do play a key role in generating ball lightning, it could explain the increasing frequency of UFO sightings in recent years. During this period there has been increasing pollution of the atmosphere and expanding numbers of power lines operating at ever higher voltages which increase the likelihood of corona.

neers were able to show that they could obtain the eight shades of grey required by NASA for TV pictures. An alternate mode involving a rather complex switching process will yield a wider grey scale, they say.

In tests over the Baldwin Hills-Culver City path, the system has demonstrated a 50-db. system margin.

Besides transmitting a single 5-mc. TV channel, the system simultaneously can send a 4-kc. voice and a 1-kc. telemetry channel by multiplexing. Voice quality during TV transmission is good.

An unusual form of optical pulse code modulation, called pulse code modulation/polarized light (PCM/PL), is employed in the Hughes system and will be one of two techniques explored in the ITT effort. In this modulation scheme, a digital "one" is transmitted as right circular polarization and a "zero" is sent as left circular polarization. The modulator itself is a series of, in this case, 10 potassium dihydrogen phosphate (KDP) crystals.

Visible light emerging from the 2-w. argon laser is directed through the 20-in. row of crystals at a 45-deg. angle. Transistor-supplied voltage across the bank of crystals is varied as a function of the impressed information, retarding one component of the light beam with respect to the quadrature component. The large number of crystals is needed to permit operation with the relatively low voltages supplied by transistorized circuits.

The light beam is then transmitted as polarized modulation, rather than as an amplitude-modulated signal after it has been put through an analyzer. Earlier

Wideband Video in Digital Form Transmitted Over Laser System

By Barry Miller

Los Angeles—Feasibility of transmitting wideband television in digital form over a laser communications system was demonstrated recently by Hughes Aircraft Co.

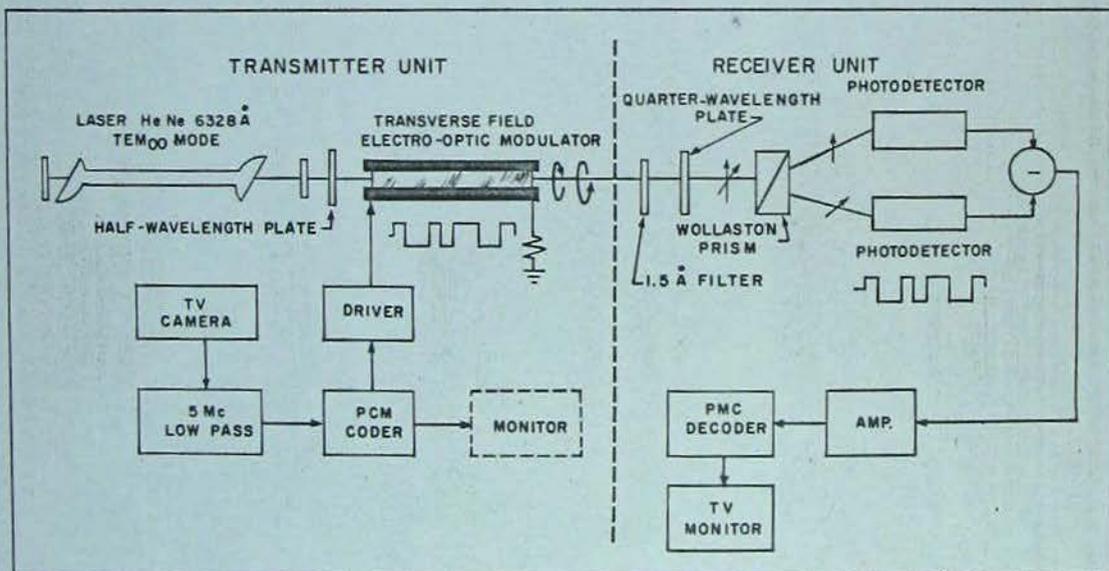
The Hughes system has transmitted digitized television data at a rate of 30 megabits/sec., roughly the equivalent of about 15 mc. of bandwidth.

The work with an ionized argon laser communications system is part of National Aeronautics and Space Administration's efforts to explore very high data rate laser systems for possible use in relaying information between spacecraft at interplanetary distances and earth (AW&ST Apr. 12, 1965, p. 34). Laser systems are attractive for this application because of the four or five orders of magnitude potential improvement in bandwidth resulting from the use of shorter wavelengths in the optical region rather than micro-waves.

Developed under contract to the space agency's Manned Spacecraft Center, it is now being field tested here in Los Angeles County. A similar system differing only in the type of laser and in the modulation scheme is being developed by International Telephone and Telegraph Corp.'s ITTFL-Aerospace for Marshall Space Flight Center. The two NASA centers intend to use their respective systems for further evaluation of laser communications technology.

Tests of the Hughes system are being conducted over a 4.2-mi. path from nearby Baldwin Hills to the company's facilities at Culver City. Television test patterns photographed on the TV monitor at the receiving link indicate a picture resolution in excess of 400 lines, thereby exceeding original NASA requirements. During tests on a clear evening late last month, resolution of the test pattern appeared to this reporter to be closer to 500 lines.

By feeding a ramp function through the communications link, Hughes engi-



Pulse-code modulated optical communications system to be built by ITTFL-Aerospace for NASA's Marshall Space Flight Center will use helium-neon laser. It is expected to have the same 30 megabit/sec. information rate as one developed by Hughes.

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