PROJECT 10073 RECORD

1. DATE - TIME GROUP 28/1400 28 July 68 28/1900Z	2. LOCATION Cuming County, Nebraska
3. SOURCE Civilian	10. CONCLUSION Probable Other (PLASMA) It is quite possible that sighting is of an air plasma which resulted from the associated E & M effects from a daylight meteor
4. NUMBER OF OBJECTS One	
5. LENGTH OF OBSERVATION 30 Seconds	11. BRIEF SUMMARY AND ANALYSIS that was seen in the area at the approximate time of the sighting. The observer sighted a tear drop shaped object that was "incondescent-ultra-violet' in color. The phenomena was slightly higher than the high tension lines in the area but in no way connected to them. The phenomena disappeared in a shower of gold colored sparks.
6. TYPE OF OBSERVATION Ground-Visual	
7. COURSE Stationary	
8. PHOTOS ☐ Yes ☒ No	
9. PHYSICAL EVIDENCE ☐ Yes ☒ No	

FORM
FTD SEP 63 0-329 (TDE) Previous editions of this form may be used.

28 JUL 48 Commdr [redacted] MEMOR

MOTOR INN
Commodore

DODGE AT 24th STREET • OMAHA, NEBRASKA 68131 • AREA CODE 402/342-7755

[redacted]

July 31, 1948

Chief of Staff,
USAF
Washington, D.C.

SMIC

Unidentified
Flying
Object.

Dear Sir:

This is a report on Unidentified Flying Object as follows:

At about 2 PM. July 28, [redacted] on the [redacted] farm in Cuming County, Nebr., I became aware of a tear drop shaped object in the sky moving in an easterly direction from me and at about the height of the

MOTOR INN
Commodore
DODGE AT 24th STREET • OMAHA, NEBRASKA 68131 • AREA CODE 402/342-7755

electric power lines which crossed the farm. The object could have been 6-12' in length, but I'm not sure about the object - it was a phenomenon of light or electricity. The heavy end of the tapered end was pointed towards the ground. The color was shining blue. As I watched, it burst open with a flashing light & then disintegrated into fragments of light. There was no noise.

Nothing came down to earth. No one saw this but me, & I

MOTOR INN
Commodore
DODGE AT 24th STREET • OMAHA, NEBRASKA 68131 • AREA CODE 402/342-7755

Have told me me except Mrs
[redacted],
at the time I was on the
shore of a small lake on her farm
doing some brush clearing work
for her.

Temp. was app. 85° F. Sky was
cloudless, Sun was very hot.

The incident occupied a
small but indeterminate number of
seconds. There was no noise.
This was not a man made object
nor was any human associated
with it.

If you wish to question me,
I am available.

Very sincerely,

[redacted]

SAF-OICC/Miss Turnure/76526/Aug. 5, 1968

AUG 5 1968

Dear M[redacted]:

This will reply to your letter dated July 31, 1968, in which you described your sighting of an unidentified flying object (UFO).

Without additional information, we cannot offer an explanation of your sighting. However, if you will complete the attached questionnaire and mail it in the inclosed envelope, our technical people at Wright-Patterson Air Force Base, Ohio, will be able to investigate further and make an evaluation.

Should you ever sight another UFO, please report it as soon as possible to the nearest Air Force base. Each base in the United States has a UFO investigator, who is in a better position to make an on-the-spot investigation, which usually results in a more accurate analysis.

In the meantime, you might be able to identify the sighting yourself by looking at the categories of objects often reported as UFO's in the Project Blue Book report we are inclosing.

Sincerely,

JAMES H. AIKMAN
Major, USAF
Chief, Civil Branch
Community Relations Division
Office of Information

Attachments

M[redacted]
Cheyenne, Wyoming 82001

Coord Cy - SAF-OICC
Cmbk Cy - SAF-OIC
Activity Cy - SAF-OIC
Reader Cy - SAF-OI
Stayback

SAF-OICC

SIGHTING OF UNIDENTIFIED PHENOMENA QUESTIONNAIRE

BUDGET BUREAU APPROVAL NUMBER 21-R258

THIS QUESTIONNAIRE HAS BEEN PREPARED SO THAT YOU CAN GIVE THE U.S. AIR FORCE AS MUCH INFORMATION AS POSSIBLE CONCERNING THE UNIDENTIFIED PHENOMENON THAT YOU HAVE OBSERVED. PLEASE TRY TO ANSWER ALL OF THE QUESTIONS. THE INFORMATION YOU GIVE WILL BE USED FOR RESEARCH PURPOSES. YOUR NAME WILL NOT BE USED IN CONNECTION WITH ANY OF YOUR STATEMENTS OR CONCLUSIONS WITHOUT YOUR PERMISSION. RETURN TO AIR FORCE BASE INVESTIGATOR FOR FORWARDING TO FTD (TDETR), WRIGHT-PATTERSON AFB, OHIO 45433, IAW AFR 80-17. *(IF ADDITIONAL SHEETS ARE NEEDED FOR NARRATIVE OR SKETCHES ATTACH SECURELY TO THIS FORM OR ANNOTATE WITH YOUR NAME FOR IDENTIFICATION.)*

1. WHEN DID YOU SEE THE PHENOMENON? DAY 27 MONTH July YEAR 1965

2. WHAT TIME DID YOU FIRST SIGHT THE PHENOMENON? HOUR Appx 2 MINUTES _____ ☐ A.M. ☒ P.M.

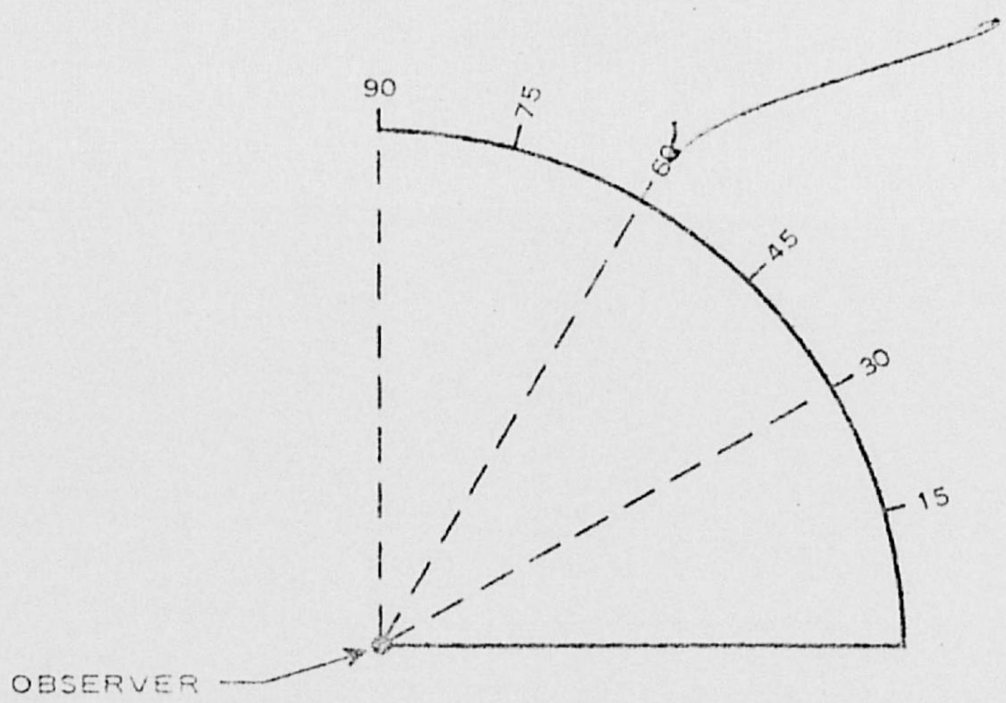
3. WHAT TIME DID YOU LAST SIGHT THE PHENOMENON? HOUR Appx 2 MINUTES 42 ☐ A.M. ☒ P.M.

4. TIME/ZONE ☒ DAYLIGHT SAVINGS ☐ STANDARD
☐ EASTERN ☒ CENTRAL ☐ MOUNTAIN ☐ PACIFIC ☐ OTHER

5. WHERE WERE YOU WHEN YOU SAW THE PHENOMENON? IF IN CITY, GIVE THE NEAREST STREET ADDRESS AND INDICATE ON A HAND DRAWN MAP WHERE YOU WERE STANDING WITH REFERENCE TO THE ADDRESS. IF IN THE COUNTRY, IDENTIFY THE HIGHWAY YOU WERE ON OR NEAR AND TRY TO FIX A DISTANCE AND DIRECTION FROM SOME RECOGNIZABLE LANDMARK.

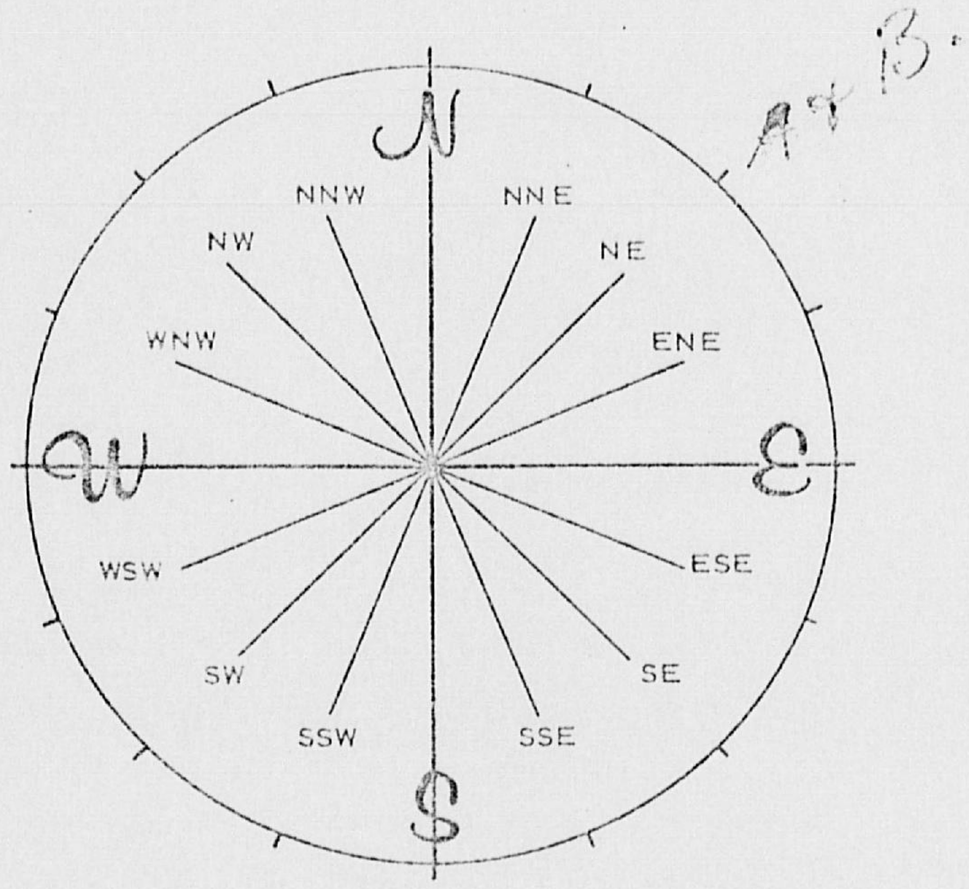
Crouter Farm,
Cuming Co., Nebr.
Farm on the west side of the
lake on the farm, which is on the
Hwy between West Point & Norfolk, Nebr.

6. IMAGINE YOU ARE AT THE POINT SHOWN IN THE SKETCH, PLACE AN "A" ON THE CURVED LINE TO SHOW HOW HIGH THE PHENOMENON WAS ABOVE THE HORIZON, OR SKYLINE WHEN FIRST SEEN. PLACE A "B" ON THE SAME CURVED LINE TO SHOW HOW HIGH ABOVE THE HORIZON THE PHENOMENON WAS WHEN LAST SEEN.

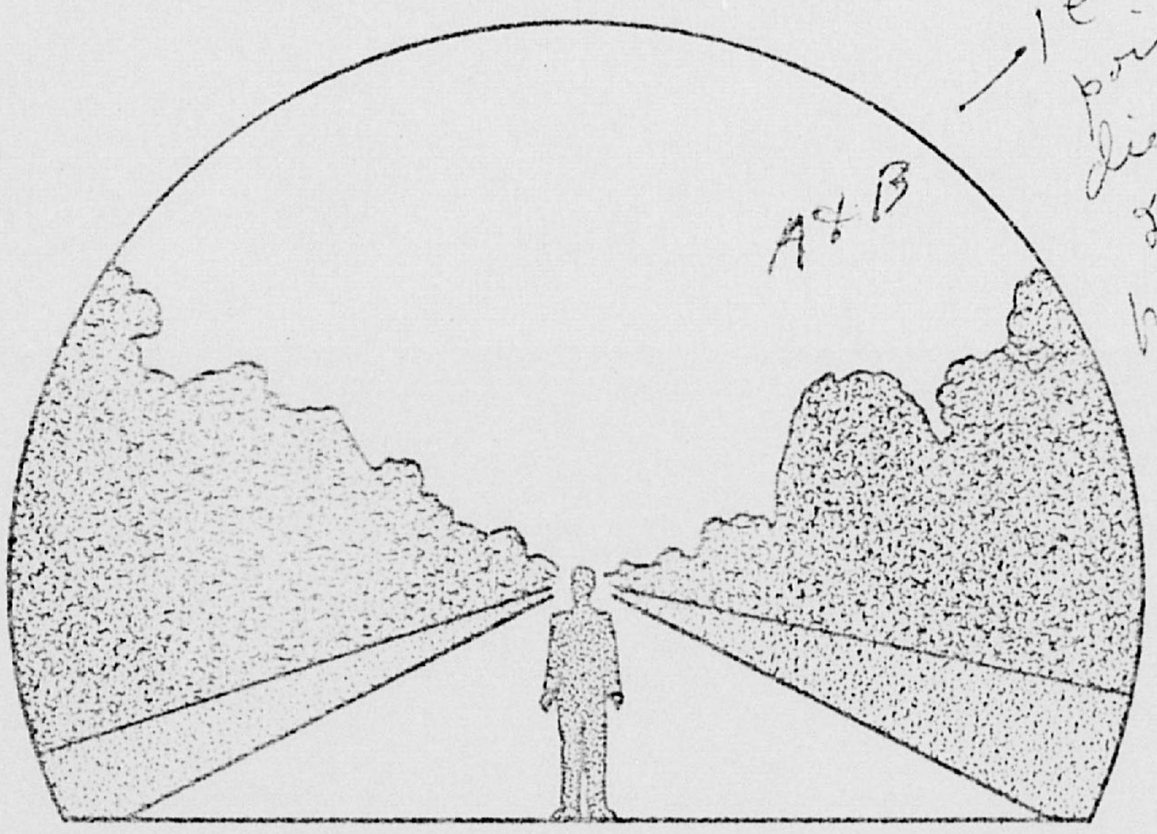


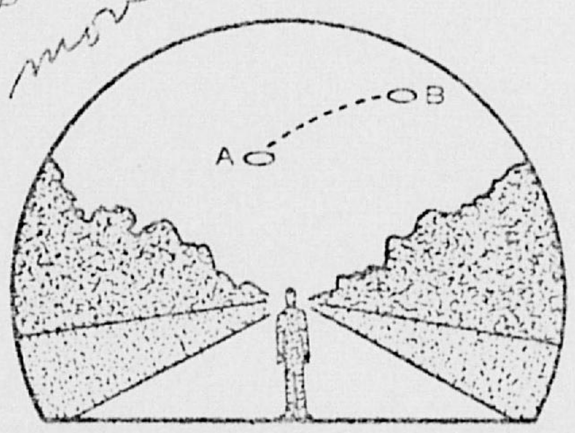
AF FORM AUG 67 117

6A. NOW IMAGINE YOU ARE AT THE CENTER OF THE COMPASS ROSE. PLACE AN "A" ON THE COMPASS TO INDICATE THE DIRECTION TO THE PHENOMENON WHEN FIRST SEEN. PLACE A "B" ON THE COMPASS TO INDICATE THE DIRECTION TO THE PHENOMENON WHEN LAST SEEN.



7. IN THE SKETCH BELOW, PLACE AN "A" AT THE POSITION OF THE PHENOMENON WHEN FIRST SEEN, AND A "B" AT THE POSITION OF THE PHENOMENON WHEN LAST SEEN. CONNECT THE "A" AND "B" WITH A LINE TO APPROXIMATE THE MOVEMENT OF THE PHENOMENON BETWEEN "A" AND "B". THAT IS, SCHEMATICALLY SHOW WHETHER THE MOVEMENT APPEARED TO BE STRAIGHT, CURVED OR ZIG-ZAG. REFER TO SMALLER SKETCH AS AN EXAMPLE OF HOW TO COMPLETE THE LARGER SKETCH.





i.e. - Some phenomena appear to be a point, phenomena did not move it just burst into view, it was, after I saw it.

8. WHERE WERE YOU WHEN YOU SAW THE PHENOMENON? *(Check appropriate blocks.)*

✓	OUTDOORS		IN BUSINESS SECTION OF CITY
	IN BUILDING		IN RESIDENTIAL SECTION OF CITY
	IN CAR ☐ AS DRIVER ☐ AS PASSENGER		IN OPEN COUNTRYSIDE
	IN BOAT		NEAR AIRFIELD
	IN AIRPLANE ☐ AS PILOT ☐ AS PASSENGER		FLYING OVER CITY
	OTHER		FLYING OVER OPEN COUNTRY
			OTHER

A. IF YOU WERE IN A VEHICLE, COMPLETE THE FOLLOWING:

WHAT DIRECTION WERE YOU MOVING?

	NORTH		EAST
	SOUTH		WEST
	NORTHEAST		SOUTHEAST
	NORTHWEST		SOUTHWEST

HOW FAST WERE YOU MOVING?

DID YOU STOP ANYTIME WHILE OBSERVING THE PHENOMENON? Not I Stood Still.

✓ YES ☐ NO

EXPLAIN WHETHER SUCH MOVEMENT AFFECTS YOUR SKETCHES IN ITEMS 5 AND 6.

No movement.

DESCRIBE TYPE OF VEHICLE YOU WERE IN AND TYPE OF ROAD, TERRAIN OR BODY OF WATER YOU TRAVERSED DURING THE SIGHTING. STATE WHETHER WINDOWS OR CONVERTIBLE TOP WERE UP OR DOWN.

I was standing by the lake on the Courtright Farm.

HOW MUCH OTHER TRAFFIC WAS THERE?

None

DID YOU NOTICE ANY AIRPLANES? ☐ YES ✓ NO. IF "YES," DESCRIBE WHEN THEY WERE IN SIGHT RELATIVE TO THE TIME OF SIGHTING THE PHENOMENON AND WHERE THEY WERE IN THE SKY RELATIVE TO THE POSITION OF THE PHENOMENON.

9. HOW LONG WAS THE PHENOMENON IN SIGHT?

LENGTH OF TIME Appx 30 sec.

	CERTAIN OF TIME		NOT VERY SURE
✓	FAIRLY CERTAIN		JUST A GUESS

HOW WAS TIME DETERMINED? Estimate

WAS THE PHENOMENON IN SIGHT CONTINUOUSLY? ✓ YES ☐ NO. IF "NO," INDICATE WHETHER THIS IS DUE TO YOUR MOVEMENT OR THE BEHAVIOR OF THE PHENOMENON, AND DESCRIBE SUCH MOVEMENT OR BEHAVIOR. INDICATE DISAPPEARANCES ON PREVIOUS SKETCHES.

ie one. This is a scratch mark not part of the sketch.

10. IF THERE WERE MORE THAN ONE PHENOMENON, HOW MANY WERE THERE? DRAW A PICTURE TO SHOW HOW THEY WERE ARRANGED. DID THIS ARRANGEMENT CHANGE DURING THE SIGHTING?

Yes
The shape bright object
was golden light & disintegrated in many
separate flashes.

11. CONDITIONS *(Check appropriate blocks.)*

A. SKY		B. WEATHER			
	DAY		CUMULUS CLOUDS *(Low fluffy)*		FOG OR MIST
	TWILIGHT		CIRRUS CLOUDS *(High fleecy or Herring-bone)*		HEAVY RAIN
	NIGHT				LIGHT RAIN OR DRIZZLE
✓	CLEAR		NIMBUS CLOUDS *(Rain)*		HAIL
	PARTLY CLOUDY		CUMULONIMBUS CLOUDS *(Thunderstorms)*		SNOW OR SLEET
	COMPLETELY OVERCAST				UNKNOWN
			HAZE OR SMOG		NONE OF THE ABOVE

C. IF THE SIGHTING WAS AT TWILIGHT OR NIGHT, WHAT DID YOU NOTICE ABOUT THE STARS AND MOON?

(1) STARS		(2) MOON		
	NONE		BRIGHT MOONLIGHT		NO MOONLIGHT
	A FEW		MOON WITH HALO		UNKNOWN
	MANY		MOON HIDDEN BY CLOUDS		
	UNKNOWN		PARTIAL *(New or quarter)*		

D. IF SIGHTING WAS IN DAYLIGHT, WAS THE SUN VISIBLE? ☐ YES ☐ NO. IF "YES," WHERE WAS THE SUN AS YOU FACED THE PHENOMENON?

	IN FRONT OF YOU		TO YOUR RIGHT		OVERHEAD *(Near noon)*
	IN BACK OF YOU		TO YOUR LEFT		UNKNOWN

E. SPECIFY THE MAJOR SOURCE OF ILLUMINATION PRESENT DURING THE SIGHTING, SUCH AS THE SUN, HEADLIGHTS OR STREET LAMP, ETC. FOR TERRESTRIAL ILLUMINATION, SPECIFY DISTANCE TO LIGHT SOURCE.

Sun.

12. GIVE A BRIEF DESCRIPTION OF THE PHENOMENON, INDICATING WHETHER IT APPEARED DARK OR LIGHT, WHETHER IT REFLECTED LIGHT OR WAS SELF-LUMINOUS AND WHAT COLORS YOU NOTICED. DESCRIBE YOUR IMPRESSION OF WHETHER IT WAS SOLID OR TRANSPARENT, WHETHER EDGES WERE SHARP OR FUZZY. DESCRIBE THE SHAPE OR INDICATE IF IT APPEARED AS A POINT OF LIGHT. INDICATE COMPARISONS WITH OTHER OBSERVED OBJECTS, LIKE STARS, A LIGHT OR OTHER OBJECT IN YOUR FIELD OF VIEW.

Tear drop or pear shaped.
Incandescent + ultra-violet. Self-luminous
Edges sharp.
The phenomenon hung
in the sky slightly higher
than the high tension electric
lines, but beyond them & in no
way connected with them.

13. DID THE PHENOMENON	YES	NO	UNKNOWN
MOVE IN A STRAIGHT LINE? No movement		✓	
STAND STILL AT ANYTIME?	✓		
SUDDENLY SPEED UP AND RUN AWAY? It Disintegrated in place		✓	
BREAK UP IN PARTS AND EXPLODE?	✓		
CHANGE COLOR?	✓		
GIVE OFF SMOKE?		✓	
CHANGE BRIGHTNESS?	✓		
CHANGE SHAPE?	✓		
FLASH OR FLICKER?	✓		
DISAPPEAR AND REAPPEAR?		✓	
SPIN LIKE A TOP?		✓	
MAKE A NOISE?		✓	
FLUTTER OR WOBBLE?		✓	

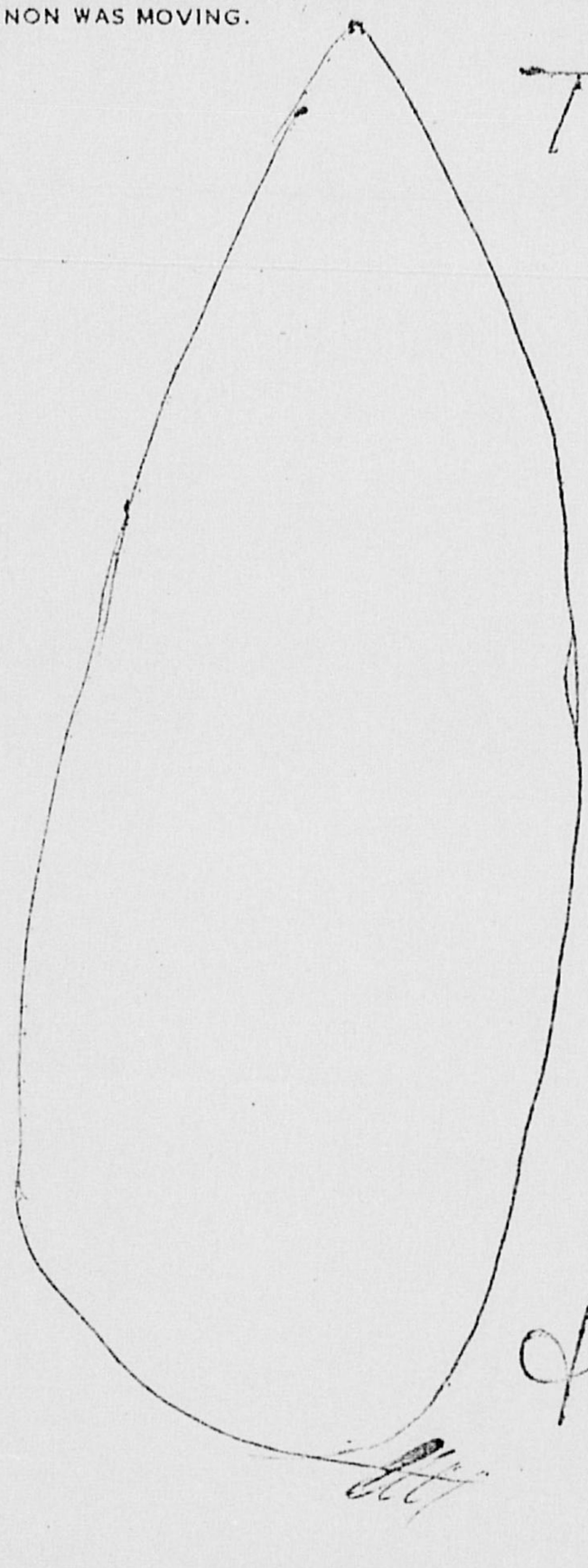
14. WHAT DREW YOUR ATTENTION TO THE PHENOMENON? Its BRIGHT Light.

A. HOW DID IT FINALLY DISAPPEAR? Disintegrated in a flash.

B. DID THE PHENOMENON MOVE BEHIND OR IN FRONT OF SOMETHING, LIKE A CLOUD, TREE, OR BUILDING AT ANY TIME?
☒ YES ☐ NO. IF "YES," DESCRIBE.

It hung about the level of the high tension electric wires away from trees & Not connected to them.

15. DRAW A PICTURE THAT WILL SHOW THE SHAPE OF THE PHENOMENON. INCLUDE AND LABEL ANY DETAILS THAT MIGHT HAVE APPEARED AS WINGS OR PROTRUSIONS, AND INDICATE EXHAUST OR VAPOR TRAILS. INDICATE BY AN ARROW THE DIRECTION THE PHENOMENON WAS MOVING.



Tear drop
or
pear shape.
It
hung still
for part of
a second -
then headed
& disintegrated
in flashes.

16. WHAT WAS THE ANGULAR SIZE? HOLD A MATCH AT ARM'S LENGTH IN FRONT OF A KNOWN OBJECT, SUCH AS A STREET LAMP OR THE MOON. NOTE HOW MUCH OF THE OBJECT IS COVERED BY THE HEAD OF THE MATCH. NOW IF YOU HAD BEEN ABLE TO PERFORM THIS EXPERIMENT AT THE TIME OF THE SIGHTING, ESTIMATE WHAT FRACTION OF THE PHENOMENON WOULD HAVE BEEN COVERED BY THE MATCH HEAD.

17. DID YOU OBSERVE THE PHENOMENON THROUGH ANY OF THE FOLLOWING? INCLUDE INFORMATION ON MODEL, TYPE, FILTER, LENS PRESCRIPTION OR OTHER APPLICABLE DATA.

	EYEGLASSES		CAMERA VIEWER
	SUNGLASSES		BINOCULARS
	WINDSHIELD		TELESCOPE
	SIDE WINDOW OF VEHICLE		THEODOLITE
	WINDOWPANE		OTHER

A. DO YOU ORDINARILY WEAR GLASSES? ☐ YES ☒ NO

B. DO YOU USE READING GLASSES? ☐ YES ☐ NO

18. WHAT WAS YOUR IMPRESSION OF THE SPEED OF THE PHENOMENON? GIVE ESTIMATE OF SPEED Slow speed.

19. WHAT WAS YOUR IMPRESSION OF THE DISTANCE OF THE PHENOMENON? GIVE ESTIMATE OF DISTANCE Close by.

20. IN ORDER THAT WE MAY OBTAIN AS CLEAR A PICTURE AS POSSIBLE OF WHAT YOU SAW, DESCRIBE IN YOUR OWN WORDS A COMMON OBJECT OR OBJECTS WHICH, WHEN PLACED IN THE SKY, SIMILAR TO WHERE YOU NOTED THE PHENOMENON, WOULD BEAR SOME RESEMBLANCE TO WHAT YOU SAW. DESCRIBE SIMILARITIES AND DIFFERENCES BETWEEN THE COMMON OBJECT AND WHAT YOU SAW.

A blown glass Xmas tree ornament. Like-violet colored & tear drop or pear shaped. As the object I saw was incandescent light the arc from electric welding — the object glowed steadily with iridescent brightness. It did not flicker. It did not move.

21. DID YOU NOTICE ANY ODOR, NOISE, OR HEAT EMANATING FROM THE PHENOMENON OR ANY EFFECT ON YOURSELF, ANIMALS OR MACHINERY IN THE VICINITY? ☐ YES ☒ NO. IF "YES," DESCRIBE.

A. DID THE PHENOMENON DISTURB THE GROUND OR LEAVE ANY PHYSICAL EVIDENCE. ☐ YES ☒ NO. IF "YES," DESCRIBE.

22. HAVE YOU EVER SEEN THIS OR A SIMILAR PHENOMENON BEFORE? ☐ YES ☒ NO. IF "YES," GIVE DATE AND LOCATION.

23. WAS ANYONE WITH YOU AT THE TIME YOU SAW THE PHENOMENON? ☐ YES ☒ NO. IF "YES," DID THEY SEE IT TOO? ☐ YES ☐ NO.

A. LIST THEIR NAMES AND ADDRESSES

24. GIVE THE FOLLOWING INFORMATION ABOUT YOURSELF

LAST NAME, FIRST NAME, MIDDLE NA[redacted]

ADDRESS (S[redacted] Zip Code) [redacted] Wyo. 82001

TELEPHONE (Area code and number) | AGE 61 | ☐ MALE | ☐ | FEMALE

INDICATE ADDITIONAL INFORMATION INCLUDING OCCUPATION AND ANY EXPERIENCE WHICH MAY BE PERTINENT.

[redacted] Colonel, (Ret.), AUS.

Over 20 yrs active duty, US Army. Transportation Corps. Specialty in aerial life: The Diesel locomotive.

25. WHEN AND TO WHOM DID YOU REPORT THAT YOU HAD SIGHTED THIS PHENOMENON?

Letter to USAF

NAME _____ DAY 31 MONTH July YEAR 1968

26. DATE YOU COMPLETED THIS QUESTIONNAIRE.

DAY 25 MONTH Aug YEAR 1968

27. INFORMATION WHICH YOU FEEL IS PERTINENT BUT WHICH IS NOT ADEQUATELY COVERED IN THIS QUESTIONNAIRE, ALTERNATIVELY PROVIDE A NARRATIVE EXPLANATION OF THE SIGHTING.

While I was working outside
the lake shore, I became aware
of an extremely brilliant, teardrop
to pear shaped object in the sky
- approx. 200 yds away - on the other side
of high tension electric lines, but
not connected to them in any way.
Color was white-gold - diminishing
as I watched, the object
took on a metallic gold
color. Almost simultaneously
it disintegrated into many
fragments, each disappearing
in a separate flash.
Completely silent throughout.

28 Jul 68

2 SEP

TDFT (UFO) Lt Col Quintanilla, Jr/70916/mhs/6 Sep 68

Request for UFO Information

[redacted]
Washington, D C 20024

1. Reference your letter of August 4, 1968, with regards to an unidentified flying object (UFO) sighting that occurred on 26 - 27 July 1967, near Newton, New Hampshire. Attached is the ground plot of a typical Molniya. Since there were several over the United States during the time period you were interested in, only a typical ground plot was made. The curve itself may be shifted either right or left, as indicated, depending on the particular satellite. Since these satellites characteristically have a stellar magnitude of +10 to +15 the observers would need a good telescope to see one.

2. You may find the inclosed case from Cuming County, Nebraska, which occurred on 28 July 1968, interesting. Unfortunately, we have no idea of the reliability of the observer.

HECTOR QUINTANILLA, Jr, Lt Colonel, USAF
Chief, Aerial Phenomena Office
Aerospace Technologies Division
Production Directorate

2 Atch
1. [redacted]
2. Cuming County, Nebraska
28 Jul 68 sighting

Sept. 12, 1968

Dear Hector:

I'm delighted to receive the Cuming County, Nebr. UFO report of July 28, 1968, for it shows precisely the kind of plasma phenomena near hi-tension lines that I think was involved in the most famous of the Exeter, N.H. sightings.

I've written to Rogers for a few more details, including a sketch of the locale.

I'm sure that you have developed a sort of 6th sense in spotting the obvious hoaxes and in spotting the seemingly honest reports. While I admit that I might be prejudiced on this one--because it supports my hypothesis--I tend to believe those reports where the person limits themselves strictly to describing WHAT they have seen, without trying to interpret it.

Now, since Rogers does not refer to "craft" or "spaceships", I suspect he was not a UFO buff previously. (But in my later correspondence with him I will sound him out on this point.) Most important, he seemingly had NOT heard of the association of UFOs and power lines (where it is suggested that the UFOs are sabotaging or drawing power from the lines) because he stresses that there was no physical contact with the lines--almost as if he thought there was really no relationship.

And of course his description of the object, and how it disappeared, it precisely what one should expect.

Thanks also for the [redacted] plots. I have begun to dig into the case in more detail and now believe that Molniya was NOT involved (I suspect a hoax). BUT I THINK YOUR TIME WAS NOT WASTED BECAUSE MOLNIYA COULD BE MISTAKEN FOR A STAR THAT MOVES BACKWARDS!

over

McGraw-Hill, Inc., 425 Natl. Press Bldg., Washington, D.C. 20004

The folks at the Smithsonian also agree that one would need a pretty good telescope to see Nolmiya.

Well, you can't win 'em all.

As Dean Martin says on his TV show: "Keep them postcards and letters coming," Hector.

Look forward to hearing your reactions to the tape recording of my telconwith [redacted]

[redacted]

Phil

27 SEP 1968

Mr Philip J Klass
560 "N" Street, SW
Washington, D C 20024

Dear Phil:

You may find the attached material an interesting addition to the 28 July 1968 sighting from Cuming County, Nebraska, by Mr. William C. Rogers. The section on Electromagnetic Disturbances during fireball events is a chapter from Memorandum RM-3724-ARPA, July 1963, entitled, "Anomalous Sounds and Electromagnetic Effects Associated with Fireball Entry" by Mary F. Romig and Donald L. Lamar, both of whom work for Rand Corporation. The second is of a fireball that was sighted at 1:45 pm, CDT, from Iowa.

I do not have a good trajectory for the meteor but I feel it probably impacted near Atlantic, Iowa, and it is quite conceivable that it passed over Cuming County, Nebraska, which isn't all that far from the probable point of impact.

I have included part of my investigation on this meteor. If you want our entire report, I can have it Xeroxed for you; however, it would probably be more profitable to contact Mr. Citron, Center for Short Lived Phenomena, Smithsonian, 60 Garden Street, Cambridge, Massachusetts, 02138, for details of the sighting. By the way, his telephone extension is 348.

I've requested complete weather data for the Cuming County sighting which I'll send as soon as I receive it.

Sincerely,

Lt Carmon Marano, USAF
Aerial Phenomena Office

2 Atch
1. Ch IV fm Memo RM-3724-ARPA
2. Meteor Investigation

IV. ELECTROMAGNETIC DISTURBANCES DURING FIREBALL EVENTS

Astapovich calls the various electromagnetic phenomena observed during fireball passage "meteorelectric" and "meteormagnetic."[18] Electromagnetic effects could arise, for instance, if a net charge accumulated in the trail of the fireball. The charged trail could perturb the earth's electric field in much the same way as a thundercloud. Lightning, ball lightning, and St. Elmo's fire might be seen, and local discharges could occur on the vegetation. It is also possible that motion of the plasma around the fireball through the earth's magnetic field could induce ground currents which would cause perturbations in the magnetic field. Also, electromagnetic radiation could result from acceleration of charged particles in the trail. Each of these mechanisms could cause radio static and a variety of electromagnetic effects.

There is a paucity of evidence that meteorelectric disturbances occur during fireballs. Astapovich reports a few instances which he attributes to St. Elmo's fire or ball lightning: The first occurred during the fireball of November 29, 1662 (old calendar), near the village of Novye Ergi, in which "fire fell to the earth in many places and on the roads and dwellings like burning ropes, and people ran from it and it rolled after them..." On November 12, 1761, many people saw "fire around and near them" during the flight of a large fireball near Dijon, France. The Mazapil, Mexico, meteorite was accompanied by fine sparks: "the corral was bathed in luminescent light and there were small sparks in the air...which gradually disappeared."[18] In the first example the "fire" behaved like ball lightning, when it "rolled" after the people. The second item is so vague that the "fire" could be attributed to reflected light. In the third, a careful rereading of Farrington's original description of the Mazapil fall gives the impression that the sparks seen were remnants of the trail as the meteorite cooled during its fall at lower altitudes.[24] We know of no reports of lightning occurring simultaneously with the passage of a fireball.

Other electrical disturbances have been observed in more recent years. According to eyewitnesses of the Madrid fireball of February

10, 1896, the city's electric-light system lit up and went out during the flight; it occurred before the detonation and earth tremor.[18] A witness of the Kybunga fireball stated that "the fireball caused the electric wires on the front of our neighbor's house to burn out." This report was not corroborated by other observers.[14] LaPaz[25] gives another example of an electrical effect associated with the passage of an "exceedingly bright" fireball near Charleston, South Carolina, in 1954. Shortly before the meteor exploded, scatter occurred on the signal received at the local weather bureau from a radiosonde, a balloon-borne instrument which transmits weather information. The radiosonde was located at an altitude of 10.65 km, and the signal went out completely at the instant of explosion. A high-pitched noise was heard between the time of scatter and blackout. Krinov reported an electromagnetic effect associated with the Sikhote-Aline meteorite of 1947; an electrician on a telephone pole within 15 km of the fall zone received a strong electric shock from the wires at the instant of flash of the meteor.[26] One could hardly attribute this to pure coincidence, because the line was disconnected at the time the shock was felt. It is evident that the passage of the fireball coincided with a current induced in a long line. It is well-established that this type of induction occurs during strong auroral displays.[27] Astapovich asserts that the above example, the auroral disturbances, and sympathetic sparking during thunderstorms are analagous in effect.[13] The causes, however, must be different, for auroral disturbances are magnetically induced, and lightning is an electrostatic phenomenon.

Magnetic disturbances during fireball passage are difficult to detect; the observer is rarely prepared to make measurements, and the measuring instruments which are available are inadequate because of slow response time. Astapovich[18] has reported observations of compass-needle deflection during fireball passage. The most recent example summarized by Astapovich occurred in 1939, when two members of the Tiumensk Museum noted that the north end of a compass needle was deflected toward the east during the flight of a red fireball toward the northeast. After the fireball passed, the needle resumed its usual position.

Kalashnikov built a high-response induction magnometer in 1946 and began a series of systematic observations of the flux change during meteor showers.[28] The apparatus consisted of a 200-m-diameter loop and a coil of insulated wire of several dozen turns, attached to a fluxmeter which measured the induced current. The large area of the loop permitted detection of fluxes as small as 10^{-7} oersted. Measurements made during the Draconid maximum in 1946 showed that the shower caused a flux of 4×10^{-4} oersted; a distant lightning discharge, 10^{-6} oersted; and aurorae on the same date, 10^{-5} oersted. To obtain flux of 10^{-7} oersted, 0.5 per cent of the kinetic energy of a 1-g mass moving at 70 km/sec would have to be converted into field energy. Astapovich believes this is feasable, for this is close to the ionization energy created by a meteor.[18] To obtain a local electric discharge on the ground, or a deviation of the compass needle, at least 10^{6} times more field energy must be available. Although Kalashnikov observed a strong pulse from a visual meteor of -8 magnitude, the flux intensity was not given. The experiments indicated that meteors produce a radio noise at a frequency of 1 - 5 cps.[28]

The results of subsequent research are not conclusive. Hawkins has conducted similar experiments with more sensitive equipment and showed that there was no consistent radio emission from meteors of from +5 to -1 magnitude in the frequency range from 1 cps to 500 cps/sec. He suggested that the statistical correlation obtained by Kalashnikov between meteors and fluxmeter deflections was within the random scatter of the experiments.[29] On the other hand, Jenkins et al. reported increased nighttime magnetic activity[30] during several visual meteor showers. Recently Campbell found increased activity of magnetic micropulsations during the η Aquarid, δ Aquarid, and Perseid showers of 1958.[31] Campbell attributed the previous controversy to the fact that Hawkins made measurements close to natural sferics sources and the major fraction of pulses on his equipment was probably due to lightning. Kalashnikov and Jenkins operated in periods of minimum sferics noise.

The difficulty of distinguishing meteormagnetic phenomena from natural atmospheric noise also prevents a good correlation of radio

disturbances with fireballs or meteor showers. Disturbances from industrial sources and static from lightning must also be considered. It is difficult to tell from the descriptions given by observers what kind of radio noise was heard. According to Astapovich, there is a difference between self-generated meteoritic noise and the signal received by reflection of a broadcast wave from the fireball. The former noises are certain crackling sounds noticed on a "clean" background. These are supposedly emitted by the meteor and trail. Doppler whistles are observed against normal broadcasting background and could be a result of reflection from the moving plasma.(18) On the other hand, if the fireball were generating an electromagnetic signal, Doppler shift would also be observed as a result of the fireball motion. Such a Doppler shift has been noted in the signals received from orbiting satellites.(32)

Radio noises described as a succession of short clicks were heard in Ashabad in 1944, at the end of visible flight of a fireball. These noises were sporadic and were received best in the long-to-medium-wavelength broadcast bands. There was some correlation with meteor brightness, but some faint meteors were "radioacoustic," while some brighter meteors were "mute." Astapovich attributes this lack of correlation to inhomogeneities of the atmosphere.(18) Millman and McKinley made a survey of 30-mc radar observations of meteors and observed that some bright meteors emitted a signal independent of transmitted radar pulses.(33) The frequency range of this emission, which may be related to the meteors, is not known at the present time.

Reports of very unusual radio noises occurring simultaneously with the passage of a fireball could be attributed to a Doppler effect. It is unlikely that static would account for the comment, "I heard a strange sound...over the radio. I have never heard a sound on the radio like it." Such an observation was made at the time of the Pennsylvania fireball of January 1931.(34) Crackling sounds were heard on radios during the fall of the Pervomaiskii Poselok meteorite on December 26, 1933, and during the Elenovka meteorite of October 17, 1951.(18) On March 24, 1933, a pilot, flying by radio beacon, noted an atmospheric roar at the time the Pasamonte fireball passed; a review

of the literature on this fireball has, however, failed to substantiate this statement, which is not referenced by Astapovich.[13]

Astapovich estimates that several hundred kilowatts of power are emitted by the fireball sources of radio interference. A reception field of 10 - 100 μv/m is assumed, which would be heard only on receivers with a 10-kc or more bandwidth. This could account for the relatively few reported instances of radio interference. Wide variations in radio-interference reception could also be explained if the intensity of the effect was a function of the relative direction of the trajectory and local magnetic-field lines, i.e., if the emission was due to some magnetohydrodynamic process.

NICAP

28 July 68
Iowa
Meteor

Received a call from Mr. Sitron, Smithsonian, and wanted to speak with Lt. Marano, about several sightings north from Leon, Iowa, and east of Iowa City, Iowa. He stated it was observed at 1340 on the 28th of July for several seconds and very bright. He wanted to know if Lt. Marano received any reports from this date. He asked for Lt. Marano to return his call to him.

Complete copy sent To Phill Klass 14 Oct 68

Subject: Meteor Report

Date: 28 July 1968

Time: 1945 Z 1345 L

Pos: 185 mi East of Omaha 91° 40'w
41° 29'w

heading 256 deg

alt 31,000 ft

First saw obj: 30 deg elev st. ahead

Last saw obj: 20 deg elev st. ahead

Course: St. down (pass slightly N to S)

Comments: 17 minutes later (aircraft speed 420 knots) The Captain of the Aircraft said that he passed under the meteor trail which he estimated to be at 60,000 feet (pos at this time 94° 54' 41° 18'N) The wind was from 260° magnetic at 80 knots at 60,000 feet.

Info given by [redacted]

ATLANTIC

Atlantic City Police

243.3512

Lt. Bode

Nothing reported to them.

ATLANTIC

State Highway Patrol, Atlantic, Iowa

[redacted]

They received no reports but said that there was an article in the paper.

Atlantic News Telegraph

712 Atlantic Iowa

712.243.2624

Mr [redacted] will call back if someone calls and says.

ATLANTIC

712.243-2624

Called the Atlantic News Telegraph, Atlantic, Iowa, Mr. [redacted]

Mr [redacted] said that there was a golf tournament going on at Atlantic at that time. Some of the people looked up and saw a rainbow-like cloud. They also heard a soft or muffled boom like from lightening. The sound didn't seem to come from any direction but from overhead. (second-hand data) Mr. [redacted] of the paper saw it but he wasn't in just then. Also Mrs. [redacted] Street saw the cloud but didn't hear rumble (second-hand data).

Other Newspapers in the area are:

Oakland Acorn

Harlan Tribune

Red Oak Express 2568

[redacted]

712.243.3138

[redacted]

712.243.4397

ATLANTIC

Called Mrs. [redacted]

[redacted]

Atlantic, Iowa

She didn't hear any noise but the cloud was to the south

of Atlantic at about 45 deg. elev. and was from east to west. or vise -versa

Corning

Corning

Adams Co. Sheriff

[redacted]

No reports from Adams Co. Mr [redacted] said that he would check wi[redacted] and if they have anything, [redacted] would call us.

Council Bluffs

Council Bluffs

712.322.2515

[redacted]

No reports

Creston Iowa

City Police

Creston, Iowa

515.782.2109

[redacted]

No reports.

Creston

Creston

Union Co. Sheriff's Office

515.782.7717

Mrs. [redacted]

No reports

Des Moines

Des Moines, Iowa

Control Tower

Mr. [redacted]

No reports.

Green Field

Greenfield City Police

515.743.2741

[redacted]

Nothing

Green Field

Greenfield Sheriff's Office

Adair Co. Sheriff's Office

515.743.2148

No answer 1330 hrs. 31 July 1968

No answer 1400 hrs. 31 July 1968

HARLAN

City Police

Harlan, Iowa

712.755.1252

[redacted]

No reports.

OFFUTT AFB

Called Offutt AFB, Nebraska

Base Info 4050

Asked for Cap[redacted]. Cap[redacted] said that he had not received any reports fro yesterday (July 28), however if he gets any that resemble a meteor or if he sees anything in the paper regarding someone finding it he will call.

Red Oak

Called the Red Oak Express, Red Oak, Iowa, 2568

They don't have any information but are going to print a request for Smithsonian Rep. at Lincoln, Nebraska.

Red Oak

City Police

Red Oak, Iowa

2516

[redacted]

No reports.

Waterloo

Called Waterloo F.A.A.

319.233.5528

[redacted]

No reports that they know of.

Called Cedar Rapids Control

Nothing in Fog.

No one remembers anything.

WAVERLY AFS

Called Waverly AFS, Iowa, and talked to Lt. Carr

319.352.3780, ext. 351

ext. 353

Lt. Carr stated that he had not received any reports for the 28th but that he would call us if he got any useful information.

Winterset

Called Winterset, Iowa Police Dept.

515.462.1422

Mr [redacted]

Said someone at Indianola had seen it. Will send news article.

WINTER SET

CITY OF WINTERSET

WINTERSET, IOWA 50273
462-1422

MAYOR AND CITY COUNCIL

BOARD OF TRUSTEES
ELECTRIC LIGHT PLANT, WATERWORKS

July 31, 1968

Lieut. Carmon Marano
FTD TDFT UFO
Wright Patterson AFB, Ohio 45433

Dear Sir:

In keeping with your request in our phone conversation, we are enclosing herewith, a clipping from the July 29 issue of the Des Moines Register concerning the sighting of an object reported to be a meteor.

Very truly yours,

O. D. Simmons

O. D. Simmons, City Clerk

IOWANS SIGHT METEOR IN DAY

An extremely rare daytime meteor was sighted over Iowa Sunday afternoon by at least two observers.

K. B. Newcomer, 2015 Thirty-eighth st., reported he was driving west on Highway 92 near Martensdale, in Warren County when he saw a short contrail in the western sky which was followed by a bright red ball of fire with a yellow center. He said the flash was high in the west, and a little to the north.

What apparently was the same flash was seen by the Rev. Paul J. Davis, 4115 Tonawonda drive, while he was driving west on Interstate 80 near the Grinnell rest area. He said it occurred about 1:20 p.m.

The flash lasted only about 2-3 seconds, the Rev. Mr. Davis said. It seemed to be a little south of west.

Officials of the Smithsonian Institution's Meteorite Recovery Project with headquarters at Lincoln, Neb., asked that any further sightings of the object be reported to them.

Gunther Schwartz, field supervisor, said it could have been either a meteor or a falling earth-orbiting satellite that burned up as it entered the atmosphere.

cc: Lt. Cormon Marano: Many thanks. It strikes me as more than mere coincidence that there was this fireball sighting at almost the same time and date when you got a fix on the meteor flight path. As you see, I put more confidence in the pilot report as to time, his aircraft heading and position al...

560 "H" Street SW
Washington D.C. 20024
Sept. 20, 1965

[redacted]
Cheyenne, Wyo. 82001

Dear [redacted]

I apologize for bothering you once again on your UFO sighting of July 28, but the Air Force has just sent me some material which might possibly provide a clue.

It seems that there was an unusual daylight meteor ("fireball") sighted by a number of people, including an airline crew, on July 28, 1960. The observations were made from Iowa and the aircraft was headed toward Omaha at the time.

Now one theory that has been proposed is that these freak glowing phenomena, or some of them, might be produced by chunks of plasma produced in the wake of a meteor as it plunges into the earth's atmosphere. These chunks might separate from the main wake and drift down to earth.

Perhaps the most accurate of the sighting reports of the fireball came from an aircraft flying near Iowa City, Iowa, headed toward Omaha. It reported seeing the fireball heading down at 1:45 p.m. on July 28th. A few minutes later, when the aircraft neared Omaha, the captain reported seeing a meteor trail which he estimated to be at an altitude of 60,000 ft.

Now my question to you is this: You originally estimated the time of your sighting at approximately 2 p.m. Did you look at your watch after the incident, or was this an estimate you made later in the afternoon in trying to estimate about when the incident occurred?

Do you recall whether you examined the sky after the incident? Whether you saw any unusual thin cloud-like formations, sort of like an aircraft contrail?

Your answers will be most helpful, as has your past assistance.

Cordially,

Philip J. Klass

MEMO

PHILIP J. KLASS

Oct. 7, 1968

Dear Hector:

Reference the Wm. Powers/Cuming County, Nebr. UFO sighting...enclosed is a quick/dirty map plot of the location and estimated direction of the UFO sighting and the meteor sightings reported on July 28 from various points in Iowa.

The important question is whether Rogers merely saw the meteor and badly mis-estimated its distance or whether he did indeed see a close-range plasma which may have been precipitated by the meteor wake and drifted earthward.

I'm exploring the matter further with Rogers.

Aviation Week
Space Technology

McGraw-Hill, Inc., 425 Natl. Press Bldg., Washington, D.C. 20004

IOWA

Scale: 0 5 10 20 miles

One inch equals approximately 33.4 mi

HAND MCNALLY & CO.

Rogers
2 p.m.

Golf-Tourney Observers
Muffled boom; rainbow-like cloud

Airline Crew
Sees Meteor Trail
2:02 p.m.

Rev. [redacted]
1:20 p.m. (?)
(Westbound)

[redacted]
(Westbound)

Several Reports
1:40 p.m.

Airline Crew
1:45 p.m.

IOWA

Population 2,783,000
(1965 estimate)
Area: 56,290 Sq. Miles
Capital: Des Moines

Cities and Towns

Adel....D-4
Alta....D-5
Algona....A-3
Allison....B-5
Ames....C-4
Anamosa....C-7
Atlantic....D-2
Audubon....C-3
Bedford....E-3
Belmond....B-4
Bloomfield....E-6
Boone....C-4
Burlington....E-7
Carroll....C-3
Cascade....B-7
Cedar Falls....B-5
Cedar Rapids....C-7
Centerville....E-5
Central City....C-7
Charlton....D-5
Charles City....A-5
Cherokee....B-2
Clarinda....E-2
Clarion....B-4
Clear Lake....A-4
Clinton....C-8
Corning....E-3
Corydon....E-5
Council Bluffs....D-2
Cresco....A-6
Creston....D-3
Davenport....D-8
Decorah....A-6
Denison....C-2
Des Moines....D-4
De Witt....C-8
Dubuque....B-8
Dyersville....B-7
Eagle Grove....B-4
Eldora....B-5
Elkader....B-7
Emmetsburg....
Estherville....
Fairfield....
Forest City....A-4
Ft. Dodge....B-4
Ft. Madison....E-7
Garner....A-4
Glenwood....D-2
Greenfield....D-3
Grinnell....C-5
Grundy Center....B-5
Guthrie Center....C-3
Hampton....B-5
Harlan....D-2
Hawarden....A-1
Humboldt....B-3
Ida Grove....B-2
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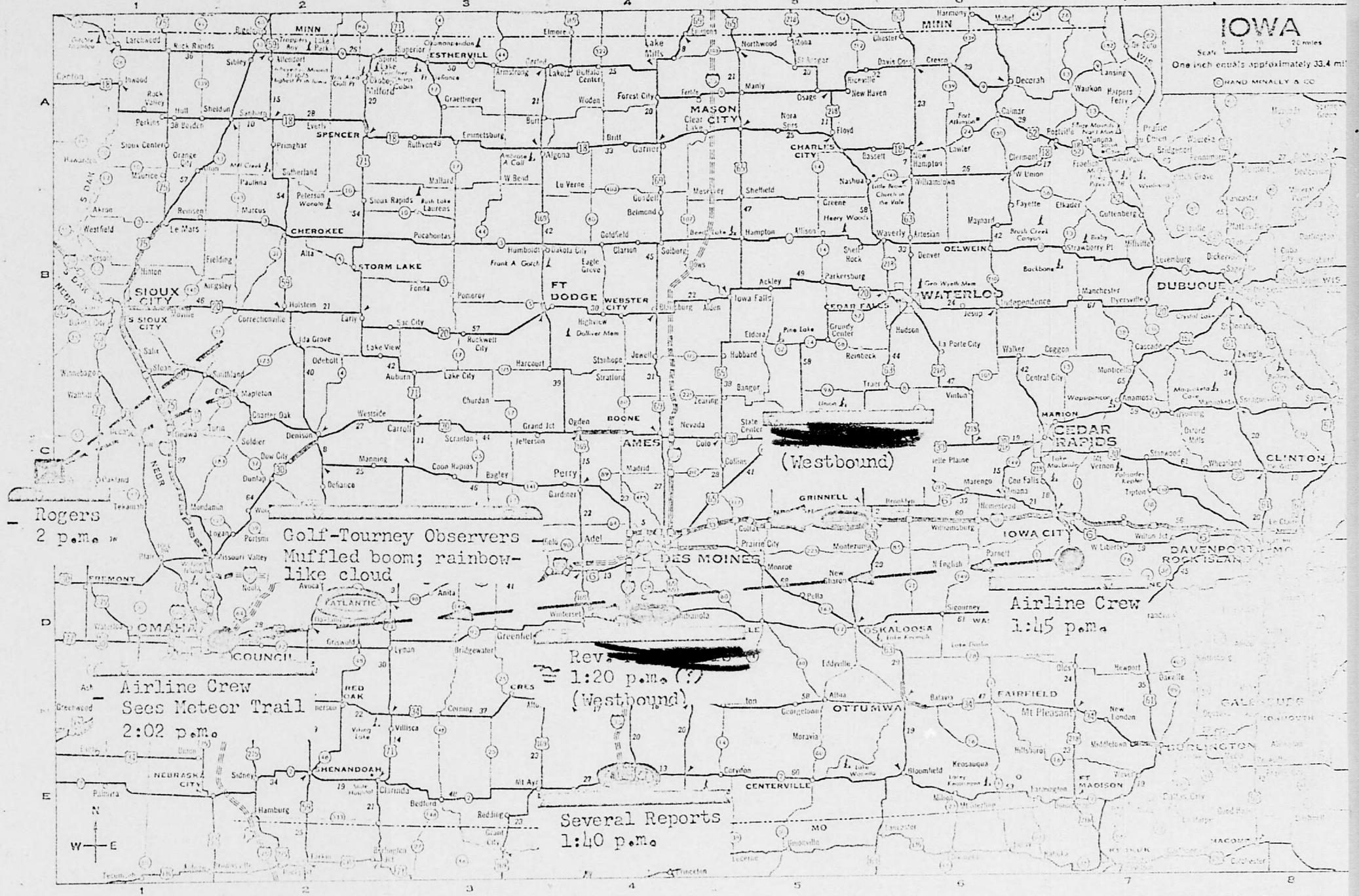
Indianola....D-4
Iowa City....C-7
Iowa Falls....B-5
Jefferson....C-3
Jesup....B-6
Keokuk....E-7
Knoxville....D-5
Lake Mills....A-4
Laurens....B-3
Le Claire....C-8
Le Mars....B-1
Leon....E-4
Logan....C-2
Manchester....B-7
Manning....C-2
Maquoketa....C-8
Marengo....C-6
Marion....C-7
Marshalltown....C-5
Mason City....A-5
Milford....A-2
Monona....
Monroe....
Montezuma....
Monticello....C-7
Mt. Ayr....E-3
Mt. Pleasant....E-7
Mt. Vernon....C-7
Muscatine....D-7
Nashua....A-5
Nevada....C-4
New Hampton....A-6
New London....E-7
Newton....C-5
Northwood....A-5
Oakland....D-2
Oelwein....B-6
Onawa....C-1
Orange City....A-1
Osage....A-5
Osceola....D-4
Oskaloosa....D-5
Ottumwa....D-6
Pella....D-5
Perry....C-4
Pocahontas....B-3
Postville....A-7
Primghar....A-2
Red Oak....D-2
Rock Rapids....A-1
Rock Valley....A-1
Rockwell City....B-3
Sac City....B-3
Sanborn....A-2
Sheldon....A-2
Shenandoah....E-2
Sibley....A-2
Sidney....E-2
Sigourney....D-6
Sioux City....B-1
Spencer....A-2
Spirit Lake....A-2
Storm Lake....B-2
Tipton....
Toledo....
Wapello....
Washington....
Waterloo....
Waukon....
Waverly....
Webster City....
W. Liberty....
W. Union....
Wilton Jct....
Winterset....
Woodbine....



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Storm Lake....B-2
Tipton....
Toledo....
Wapello....
Washington....
Waterloo....
Waukon....
Waverly....
Webster City....
W. Liberty....
W. Union....
Wilton Jct....
Winterset....
Woodbine....

25 July 68

TDPTR
Sgt. Kist

Request surface observation and upper air data:

Cuming County, Nebraska
28 July 1968
1430 hrs CDT

TDPT (UFO)

20 Sep 68

70916

DEPARTMENT OF THE AIR FORCE
ENVIRONMENTAL TECHNICAL APPLICATIONS CENTER (MAC)
BLDG 159 NAVY YARD ANNEX, WASHINGTON, DC 20333

REPLY TO ATTN OF: ETAC/EAD (#5992D/TSgt Dunham) 9 Oct 68

SUBJECT: Request for Weather Data

TO: FTD (TDPTR-4/TSgt Kist)
Wright-Patterson AFB, Ohio 45433

1. Requested surface and upper-air data required to complete evaluations of reported UFO sightings are attached. Data sources were the ETAC surface and upper-air history files.

2. Extraction or evaluation of required data were adequate for all sightings. Upper-air data is the closest radiosonde data available in space and time. Norfolk, Nebraska, was utilized as the surface observation point for Cuming County, Nebraska.

FOR THE COMMANDER

Lloyd A. Stuebinger

LLOYD A. STUEBINGER, Lt Col, USAF
Chief, Environmental Applications Div.

2 Atch
1. Surface Data Sheet, 1pg
2. Upper-air Data Sheets, 4pgs

SURFACE OBSERVATION DATA SHEET

Cincinnati, Ohio - May 31, 1968

2000L	71905	59051	17020	00908	11607
2100L	*1604	5905*	16717	*****	11***
2200L	31604	6602*	16915	*****	11***
2300L	32103	6602*	17315	*****	10305
2400L	31604	6602*	17014	*****	10***

Cuming County, Nebraska - July 28, 1968

1200L	61918	7402*	17727	*****	13***	92226
1300L	71820	74151	15626	25770	14830	
1400L	61921	7402*	14627	*****	13***	
1500L	61923	6902*	13628	*****	11***	92231
1600L	61822	6902*	12629	*****	12730	92230

ETAC Surface History Files

SOUNDING NO. 43	LOCATION: Cuming County, Nebraska	DATE 28 Jul 68

DATA SOURCE: ETAC Upper Air History Files
REMARKS: 1900L

ANALYST: TSgt Dunham

HEIGHT gpm	PRESSURE MB	TEMP °C	DEW POINT °C	DIRECTION deg	SPEED KTS
	975	26	14	090	4
	934	21	5		
1585	850	13	2	340	4
	828	11	2		
	780	11	-5		
3197	700	4	-7	295	19
	670	1	-8		
	646	0	-14		
	597	-3	-10		
	526	-7	-30		
5860	500	-9	-20	320	25
7550	400	-21	-41	290	37
	342	-30	-49		
9610	300	-36	-54	285	52
	276	-40	-57		
10850	250	-43		280	53
12320	200	-52		280	54
	151	-62		280	50
14140	150	-62		285	48
16630	100	-64		295	23
	74	-58			
18850	70	-60		340	16
	69	-60			
20980	50	-52		065	12
	48	-51			
21320	30	[illegible]		[illegible]	[illegible]

SOUNDING NO. 43 (Cont)	LOCATION: Cuming County, Nebraska	DATE 28 Jul 68

DATA SOURCE: ETAC Upper Air History Files
REMARKS: 1900L

ANALYST: TSgt Dunham

HEIGHT gpm	PRESSURE MB	TEMP °C	DEW POINT °C	DIRECTION deg	SPEED KTS
	25	-44			
	23	-45			
27040	20	-42		090	14
	16	-37			
31320	10	-36			

TDPT (UFO) Lt Marano/70916/mhs/4 Oct 68

UFO Observations, 28 July 1968

Von Del Chamberlain, Project Director
Network for (Rapid) Analysis of Fireball Trajectories
Abrams Planetarium
Michigan State University
East Lansing, Michigan 48823

Reference your telephone conversation with 2d Lt Carmon Marano, this office, on 3 October 1968. Inclosed is part of our case file for the 28 July 1968 fireball sighting. Also attached, for your information, is a copy of an unidentified flying object (UFO) sighting that could be related to the meteor sighting. Any additional information that you can provide us on the trajectory of this meteor would be appreciated.

HECTOR QUINTANILLA, Jr, Lt Colonel, USAF
Chief, Aerial Phenomena Office
Aerospace Technologies Division
Production Directorate

2 Atch
1. Meteor Rpt, 28 Jul 68
2. Cuming County, Nebraska 28 Jul 68

TDPT (UFO) OFFICIAL FILE CY

MEMO FOR THE RECORD 14 October 1968

Subj: Meteor report of 28 Jul 68

Mr Philip J Klass called regarding UFO meteor sighting of 28 Jul 1968, and spoke with Lt Marano. Mr Klass has contacted Mr [redacted] and is going to get more exact azimuth and anuglar elevation for the UFO. He has also contacted the pilot who sighted the meteor and is going to get a complete description from him. He called Mr [redacted] who wasn't in and talked t[redacted]r. The Smithsonian referred him to Von Del Chamberlain for information on the trajectory. Itold him that I had requested the trajectoryfrom [redacted] and had also sent him a copy of the case but that Mr [redacted] didn't seem too interested to me. Mr Klass asked if I wouldn't request the information again because of the potential scientific value of the sighting. I replied that I would. Mr Klass also wanted a complete copy of the 28 July 1968 meteor sighting. This was sent to him on the afternoon of 14 October 1968.

28 Jul 68

23 OCT 1968

TDPT (UFO) Lt Col Quintanilla/70916/mhs/23 Oct 68

Observations of 28 July 1968

Von Del Chamberlain, Project Director
Network for (Rapid) Analysis of Fireball Trajectories
Abrams Planetarium
Michigan State University
East Lansing, Michigan 48823

Reference our letter of 7 October 1968. Mr Philip J Klass, Science Editor of Aviation Week, is very interested in the fireball and possible plasma sighting of 28 July 1968 from Iowa - Nebraska. Because of the potential scientific value, any information that you can provide us on the trajectory of the meteor that apparently impacted in the Atlantic, Iowa area on the afternoon of 28 July 1968 would be appreciated.

HECTOR QUINTANILLA, Jr, Lt Colonel, USAF
Chief, Aerial Phenomena Branch
Aerospace Technologies Division
Production Directorate

TDPT (UFO) OFFICIAL FILE CY

28 Jul 68

12 NOV 1968

DDPT (UFO) Lt Col Quintanilla/70916/mhs/8 Nov 68

Meteor Observation, 28 July 1968

Mr Philip J Klass
560 N Street, SW
Washin ton D C 20024

1. Apparently, Mr [redacted]in is not going to send us any information on the trajectory of the meteor. Inclosed are weather data and copies of our letters to Mr [redacted].

2. Inclosed is a copy of the Ball Lightning section from Project Grudge which you may find interesting.

HECTOR QUINTANILLA, Jr, Lt Colonel, USAF
Chief, Aerial Phenomena Branch
Aerospace Technologies Division
Production Directorate

2 Atch
1. Info on 28 Jul sighting
2. Ball Lightning section

DDPT (UFO) OFFICIAL FILE COPY

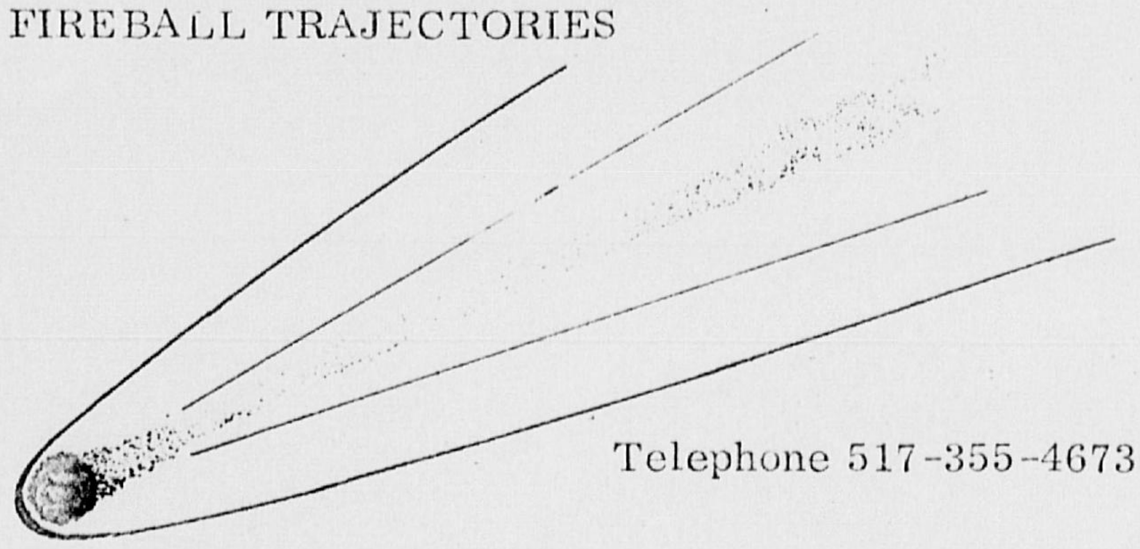
Rec. 14 Nov 68

NETWORK FOR (RAPID) ANALYSIS OF FIREBALL TRAJECTORIES

Abrams Planetarium

Michigan State University

East Lansing, Michigan 48823



Telephone 517-355-4673

5 November 1968

Hector Quintailla, Jr, Lt Colonel, USAF
Chief, Aerial Phenomena Branch
Aerospace Technologies Division
Production Directorate

Reference your letter of 23 October 1968. In responce to your request for further technical data pertaining to the fireball of 28 July 1968 in the Iowa - Nebraska vicinity, we are sending copies of all the field reports sent in. There was not enough information for a trajectory analysis, and some are of questionable value. However, we hope Mr. Klass finds this beneficial in some way.

Frank L. Severance
Frank L. Severance
NAFT Project Assistant

A
many meteor. asked for afternoon
of 28 July reports for 2230 hrs GOT.

FIREBALL DATA CARD

Time 1965 2 23 22 30 ___ EDT
year month day hour minute second time zone

Weather Clear

Location of observer when the fireball was seen Corner of 61 and Finley, in Vicksburg

Latitude ___ Longitude ___

Angle to horizontal 60°

Duration (D) 2 or 3 sec

Brightness (B) ___

Color "Burning" Pink red when high Becomes the light yellow as it got near the full moon

Form Small compared to full moon

Sounds Y

Interval after fireball (I) ___

Reliability (R) 3

Interviewer Judy Mc and Ralph

Date Dec 23 65

POSITION IN THE SKY

First seen ___ Azimuth (A) ___ Altitude (h)

End-point ___ Azimuth (A) ___ Altitude (h)

CODED REPORT

Station	Time		End-point		Flight	Sounds					
Dubuque	7-25	22-30	A	70	h	LR	63	C	N	X	3	Ralph
City	Mo.-Day	Hr.-Min.	A		h	RL, LR V, S	D	B	Y, N	I	R	NAFT Member

ADDITIONAL COMMENTS AND NOTES

Was with Mrs. [redacted], both saw it.
Both thought it looked like an airplane at
first; they had just been talking about
sonic booms. Thought it was circling plane
It had a big tail of dark smoke. at first.

Disappeared behind trees as they looked
toward Flora Pool.

Note on duration Mrs. [redacted] and
Mrs. [redacted] timed to go across
street to watch path of fireball

(Talked to Mr. [redacted] and
at plane flying saw fireball Aug. 3, 1968

Observer [redacted]
Name

[redacted]
Street

Dubuque Iowa 52001
City State Zip Code

Telephone [redacted]
Area Code Number

FIREBALL DATA CARD

Time 1968 (year) 7 (month) 28 (day) 22 (hour) 0 (minute) ____ (second) CDT (time zone)

Weather Clear

Location of observer when the fireball was seen: In living room of [redacted], looking out kitchen window.

42.5°N (Latitude) ____ (Longitude)

Angle to horizontal ____

Duration (D) >

Brightness (B) ____

Color Fuschia

Form Smaller than full moon.

Sounds X

Interval after fireball (I) ____

Reliability (R) 2

Interviewer Austin, Brant, Ryder

Date July 30, 1968

POSITION IN THE SKY

First seen ____ Azimuth (A) ____ Altitude (h)

End-point ____ Azimuth (A) ____ Altitude (h)

CODED REPORT

Station	Time		End-point		Flight	Sounds					
Dubuque	7-28	22-0	- X	- X	X	?	C	N	X	2	Ryder
City	Mo.-Day	Hr.-Min.	A	h	RL, LR V, S	D	B	Y, N	I	R	NAFT Member

ADDITIONAL COMMENTS AND NOTES

Observer Mrs. [redacted]
Name

Was visiting sister-in-law, Mrs. [redacted]

[redacted]
Street

"Ball looked like firecracker ready to explode, with spears sticking out of it."

Dubuque, Iowa 52001
City State Zip Code

Telephone [redacted]
Area Code Number

FIREBALL DATA CARD

Time 1968 (year) 7 (month) 28 (day) 21 (hour) C (minute) ____ (second) CDT (time zone)

Weather Clear

Location of observer when the fireball was seen: On front porch of home, Brown and University, Urbana

Latitude ____ Longitude ____

POSITION IN THE SKY

First seen ____ Azimuth (A) ____ Altitude (h)

End-point ____ Azimuth (A) ____ Altitude (h)

Angle to horizontal ____

Duration (D) several seconds (see back of card)

Brightness (B) As bright as moon, but more fiery.

Color Orange-red

Form Almost as big as full moon

Sounds X

Interval after fireball (I) ____

Reliability (R) ____

Interviewer [illegible]

Date July 30, [illegible]

CODED REPORT

Station	Time		End-point		Flight		Sounds				
Champaign	7-28-	21-0	/ x -	x	x	x	C	N	Y	3	Ryder
City	Mo.-Day	Hr.-Min.	A	h	RL, LR V,S	D	B	Y, N	I	R	NAFT Member

ADDITIONAL COMMENTS AND NOTES

Son saw bright object while he was on front porch, called to his mother, who came out and also saw it.
Object stayed the same color at all times.
Toward end, it seemed to have something dripping from it.

Time indicated by Mrs. [redacted]: "After 9 p.m."

Observer Mrs. [redacted]
Name (33 yr-old son)

[redacted]
Street

[redacted] 52001
City State Zip Code

Telephone [redacted]
Area Code Number

FIREBALL DATA CARD

Time 1958 7 28 22 0 ____ CDT
year month day hour minute second time zone

Weather Clear

Location of observer when the fireball was seen: In living room, looking out kitchen window.

Latitude ____ Longitude ____

Angle to horizontal 60°

Duration (D) Few seconds

Brightness (B) ?

Color bright flamingo; orange-red.

Form ?

Sounds X

Interval after fireball (I) ____

Reliability (R) 1

Interviewer ____

Date July 30, 1958

POSITION IN THE SKY

First seen: 120° Azimuth (A); 5° Altitude (h)

End-point: 55° Azimuth (A); 2° Altitude (h)

} Computed

CODED REPORT

Station	Time		End-point		Flight				Sounds			
Dubuque	7-28	22-0	55-	2	LR	3	C	N	X	1	RYDER
City	Mo.-Day	Hr.-Min.	A	h	RL, LR V,S	D	B	Y, N	I	R	NAFT Member

ADDITIONAL COMMENTS AND NOTES

Observer Mrs. [redacted]
Name

Seems intelligent; doesn't want to say anything she isn't sure of.

Mrs [redacted] was sitting in chair, saw bright light through small window about 30 feet from chair. She would not have been able to see starting point or ending point that outdoor observer could see

[redacted]
Street

~~Dubuque~~ Iowa 52001
City State Zip Code

Telephone [redacted]
Area Code Number

Interviewed Mrs. [redacted] personally on August 3, 1968

FIREBALL DATA CARD

Time 1968 (year) 7 (month) 28 (day) 22 (hour) 30 (minute) ____ (second) CDT (time zone)

Weather Clear

Location of observer when the fireball was seen: Corner of Green and Finley, in Dubuque

Latitude ____ Longitude ____

POSITION IN THE SKY

First seen: 100° Azimuth (A); 18° Altitude (h)

End-point: 90° Azimuth (A); 0° Altitude (h)

} compass read

Angle to horizontal 60°

Duration (D) 10 seconds

Brightness (B) Like red tail light of airplane when high.

Color "Fuschia" "Pretty purple" when high. White when lower.

Form "Much smaller than full moon"

Sounds X

Interval after fireball (I)

Reliability (R) 3

Interviewer ____

Date July 30, 1968

CODED REPORT

Station	Time		End-point		Flight			Sounds			
Dubuque	7-28	22-30	90	0	LR	60	C	N	X	3	Ryden
City	Mo.-Day	Hr.-Min.	A	h	RL, LR V, S	D	B	Y, N	I	R	NAFT Member

ADDITIONAL COMMENTS AND NOTES

Was with Mrs. [redacted]
Thought it was an airplane circling
at first;
Light was seen for perhaps 30 seconds
or longer.
Light grey smoke came from ball.

Interviewed [redacted]
on August 3, 1968

Observer Mrs. [redacted]
Name

[redacted]
Street

Dubuque Iowa 52001
City State Zip Code

Telephone 319 [redacted]
Area Code Number

MEMO

PHILIP J. KLASS

Jan. 28, 1969

Dear Hector:

At long last...an interim report on the Omaha Fireball and the Rogers UFO.

This could prove to be a very important case.

P.S. You probably will not hear much from me for the next three months, prompting rumors that I have (1) been kidnapped by a flying saucer, (2) gone underground, (3) am being held by the CIA or Men In Black, (4) my typewriter is broken.

Truth is that I am going skiing in Switzerland for 3 weeks, and shortly after I return to U.S. I will head back for a 5-week business trip for Aviation Week to visit avionics companies in West Europe--then will be wrapped up writing my stories.

So please help to squelch any of the above rumors.

McGraw-Hill, Inc., 425 Natl. Press Bldg., Washington, D.C. 20004

28 July 68
0

METEORS, PLASMAS AND UFOs

An interim report on an unusual plasma-like UFO sighted in broad daylight northwest of Omaha, Nebr., on July 28, 1968, at approximately the same time as a giant daylight meteor was passing over the same area which impacted approximately 120 miles southeast of the UFO locale, near Atlantic, Iowa.

This case provides circumstantial evidence which appears to confirm a hypothesis advanced earlier by Ferdinand de Wiess, Assoc. Professor at the University of Arizona Lunar and Planetary Laboratory, that some UFOs might be plasmoids created under freak conditions out of the wake of meteors.

No portion of this report may be published without written permission of the author.

Philip J. Klass
560 "N" Street SW
Washington D.C. 20024

Early in September of 1968, the Air Force Project Blue Book office sent me the following UFO report which it had received from Washington.

[Copy]

[redacted]2001
July 31, 1968

Chief of Staff
U.S.A.F.
Washington D.C.

Dear Sir:

This is to report an Unidentified Flying Object as follows:

At about 2 P.M. July 28 on the [redacted] farm in Cuming County, Nebr., I became aware of a tear drop shaped object in the sky, more or less 100' from me in an easterly direction and at about the height of the electric power lines which cross the farm.

The object could have been 6-12' in length, but it was not an object -- it was a phenomenon of light or electricity. The heavy end of the tear drop was toward the earth & the tapered end was up -- The color was shining blue.

As I watched, it burst open with blinding light & then disintegrated into fragments of light. There was no noise. Nothing came down to earth. No one saw this but me, & I have told no one except Mrs. Crouter. At the time I was on the shore of a small lake on her farm doing some brush clearing work for her.

Temperature was approx. 88-F. Sky was cloudless. Sun was very hot.

The incident occupied a small but indeterminate number of seconds. There was no noise. This was not a man-made object nor was any human associated with it.

If you wish to question me, I am available.

Very sincerely,

(Signed) [redacted]

* * *

The USAF had sent [redacted] one of its standard UFO report forms to fill out. From his responses to this report, the following additional details emerge:

1. The time was approximately 2 p.m., and [redacted] emphasized "approximately."

2. The duration of the sighting was estimated at "Approx. 30 sec." [Later [redacted] reduced this figure sharply.]

3. When asked to describe the object's appearanc[redacted] wrote: "Incandescent--ultra-violet. Self-luminous. Edges sharp. The phenomenon hung in the sky

slightly higher than the high tension electric lines, but beyond them & in no way connected with them."

4. In reply to the question: "What drew your attention to the phenomenon?", [redacted] answered: "Its bright light."

5. In response to the question of how it finally disappeared, [redacted] wrote: "Disintegrated in a flash."

6. When asked to compare the object's appearance to some familiar object, [redacted] wrote: "A blown glass Xmas tree ornament, ultra-violet colored & tear drop or pear shaped. But the object I saw was incandescent light, the arc from electric welding--the object glowed steadily with exceptional brightness. It did not flicker. It did not move."

7. In a final summary, [redacted] wrote: "While I was working beside the lake short, I became aware of an intensely brilliant, tear-drop or pear shaped object in the sky--approx. 200 yards away on the other side of high tension electric wires, but not connected to them in any way. Color was ultra-violet--incandescent. As I watched the object burst open revealing gold colors. Almost simultaneously it disintegrated into many fragments, each disappearing in a separate flash. Complete silence throughout."

[redacted] gave his age as 61. He said he had been a Colonel in the Army Transportation Corps. His specialty in civilian life: the diesel locomotive. (I later learned he is employed by the Union Pacific.)

* * *

On Sept. 12, 1968, I wrote to [redacted] introducing myself as a private UFO investigator and technical journalist. I told him briefly of my own hypothesis that some UFOs may be freak plasmas which can, under rare conditions, be created along power lines. His reply is reproduced below in its entirety, despite some repetition, to enable the reader of this report to "size up" Mr. [redacted]

[redacted]
Sept. 19, 1968

Dear Mr. Klass:

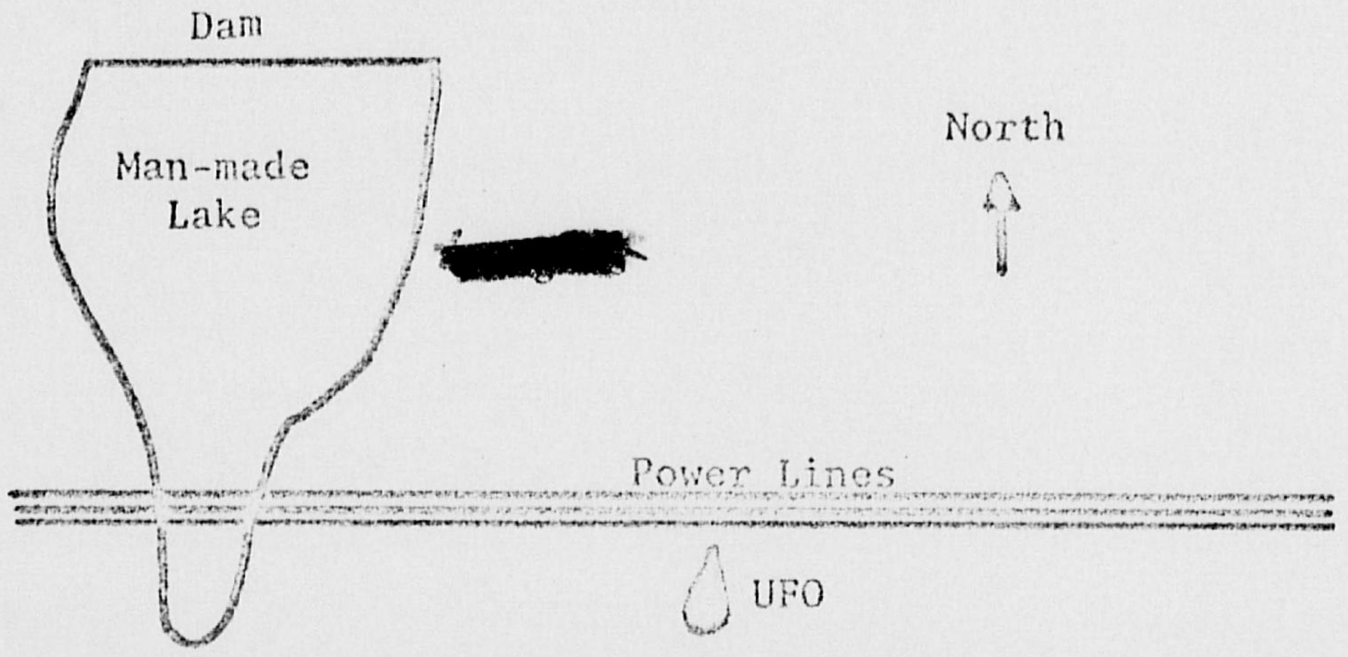
The transmission lines near which I observed the UFO were those of the West Point, Nebr. REA. [This was in response to my question: PJK] Their address is West Point, Nebr. No one connected with the REA knows I observed the UFO, and it is possible that no one with REA knows me, since I am a visitor.

On my next visit to West Point I will pace off the distance if you wish, but I was more or less 100 yds from the UFO -- this hung suspended in the clear sky at the height of the transmission lines & anywhere between 20' and 50' from them. [NOTE: Rogers subsequently paced off the distance and found it to be 250 yards.]

The UFO was in the shape of a perfect tear drop and it hung motionless in the sky while I observed it--approx. a second or more--it was at a level of the high tension lines, on the other side of the lines from me and I could not estimate if it

was 20' or 50' from the lines. The outline was as sharp as if a huge Xmas tree ornament hung in the sky. This seemed to be a three dimentional object and the surface seemed glazed as well as glowing with light. It was not inhabited & not managed by any persons. Its color was a pure, brilliant ultra-violet--glowing, or incandescent.

When the UFO opened up or burst open, the inner lining was a very brilliant sun yellow, intense glow. This interior could be seen for a measureable fraction of a second. Then it disintegrated into a number of glowing tear-drop shaped fragments, each of which went out separately & at different, minute intervals of time. During all of this incident there was perfect silence. No fragments or traces remained & there were no odors. All disappeared in mid-air. Nothing reached the ground. There was no disturbance of leaves or grass. [[redacted] then drew a sketch of the locale which is re-drawn below.]



The UFO which I have described is the third phenomenon I have observed in my life. About 3 years ago, approaching the Black Hills in S. Dakota during a darkly gathering storm with much lightning, I observed the following from S. to N. [Rogers' sketch is redrawn below.]

It was as if small tear-shaped droplets of lightning had been cast from S. to N. over a wide area of black sky above the Hills. This irregular pattern of droplets of light repeated 3 times. It was not a hallucination. The pattern was very clear and repeated 3 times. I did not report it.

More than 20 years ago, I observed a sun-colored ball of light or fire rolling along a high tension wire on a clear afternoon. My memory of the circumstances is now vague. I was in a car & remarked emphatically upon this brilliant sun-ball's rolling along the wire--But the other people in the car were so engrossed in their intense conversation that they did not observe the phenomenon, or pay any attention to my remark.

This was not a transient phenomenon. The fire ball rolled a distinct distance

between the two poles, but left the high tension wire & disintegrated instead of rolling up the slope of the wire to the next pole.

If you would like to question me the next time I am in New York, let me know & I will be glad to answer any questions whatsoever.

Very sincerely,

(Signed) [redacted]

* * *

Experienced UFO investigators usually become suspicious of "repeaters" -- persons who say they have frequently seen UFOs. But since Mr. [redacted] does not attach any exotic explanations to any of his sightings and did not report the first two, I find no reason to question his story. As a senior railroad engineer, he spends much of his time out-of-doors with his "eyes peeled."

On Sept. 21, I wrote to the Cuming County Public Power District to ask whether their records showed any disturbance or outage on the lines through the Crouter farm on July 28 at approximately 2 p.m. Their Oct. 4 reply indicated there had been none. The letter said they do not normally have corona problems on the line. Its voltage is 34,500 volts and the lines are approximately 25ft. above the ground. In subsequent correspondence I learned that the lines run due east-west through the Crouter farm.

Early in October, Project Blue Book sent me new data which cast the [redacted] report in a new light. A large daylight meteor had been sighted on July 28 at approximately 1:45 p.m. (CDT) which apparently passed over the general area of the Crouter farm and entered 120 miles to the southeast, near Atlantic, Iowa.

There were numerous eyewitness reports on the meteor, including one from the crew of a United Air Lines jetliner, flying at 31,000 ft., approximately 180 miles east of Atlantic, headed west toward Omaha. Several ground observers at Atlantic reported hearing a "muffled boom" while on a golf course and seeing a "rainbow-like cloud" overhead. As the UAL crew approached Atlantic 17 minutes later (2:02 p.m.) it said it could still see the meteor trail at an altitude estimated at 60,000 ft.

The near-coincident time and location of the [redacted] UFO sighting and the meteor, officially called the "Omaha Fireball," suggests that the two events might have been related. Several possibilities are worth consideration:

1. Was the [redacted] UFO really the meteor fireball?
2. Was the [redacted] UFO really the persistent meteor trail?
3. Was the [redacted] UFO merely an after-image of the fireball itself?
4. Was the [redacted] UFO a plasma formed out of the meteor's plasma wake?

I wrote [redacted] to ask how certain he was of the time of his sighting. Had he immediately looked at his watch, or was it sometime later that he had attempted to estimate the time of the incident. He replied that it was the latter, so his 2 p.m. estimate was only approximate. He said he had returned to work "after a long noon hour which did not begin until well after 12 noon."

(7)

At roughly 2 p.m. (estimated several hours later) [redacted] says he saw a pear-shaped luminous bluish-white UFO hovering near 34.5 kv. power line, approx. 25 ft. above the ground. Distance to UFO now estimated at 250 yds, based on re-visit to scene and pace-off. After a second or two, object disintegrated without any noise, Rogers says. Line-of-sight to object, after re-visit, now estimated at South of East.

CUMING COUNTY, NEBR. UFO AND "OMAHA FIREBALL" METEOR SIGHTINGS 7/28/68

(1)	1:45 p.m.	Airliner at 31,000 ft. altitude, heading west (262 deg. true). Crew sees red fireball "traveling straight down or slightly north-south."
(2)	2:02 p.m.	Airliner passes underneath meteor trail at this point. Crew estimates its altitude at 60,000 ft.
(3)	?	Westbound motorist, [redacted], sees meteor.
(4)	Approx.(?) 1:20 p.m.	Westbound motorist, Rev. [redacted], sees meteor.
(5)	1:40 p.m.	Several ground observer reports of meteor sighting.
(6)	?	Several persons at golf tourney hear "muffled boom" and see a "rainbow-lik cloud."

METEOR TRAIL

DISTANCE FROM ROGERS TO METEOR TRAIL
Approximately 120 miles

Prepared by: Philip J. Klass
1/27/69 Washington D.C. 20024

IOWA
Population 2,783,000 (1965 estimate)
Area 56,290 Sq. Miles
Capital: Des Moines

Cities and Towns

Adel....D-4, Akron....B-1, Albia....D-5, Algona....A-3, Allison....B-5, Ames....C-4, Anamosa....C-7, Atlantic....D-2, Audubon....C-3, Bedford....E-3, Belmond....B-4, Bloomfield....E-6, Boone....C-4, Burlington....E-7, Carroll....C-3, Cascade....B-7, Cedar Falls....B-5, Cedar Rapids....C-7, Centerville....E-5, Central City....C-7, Chariton....D-5, Charles City....A-5, Cherokee....B-2, Clarinda....E-2, Clarion....B-4, Clear Lake....A-4, Clinton....C-8, Corning....E-3, Corydon....E-5, Council Bluffs....D-2, Cresco....A-6, Creston....D-3, Davenport....D-8, Decorah....A-6, Denison....C-2, Des Moines....D-4, De Witt....C-8, Dubuque....B-8, Dyersville....B-7, Eagle Grove....B-4, Eldora....B-5, Elkader....B-7, Emmetsburg....A-3, Estherville....A-3, Fairfield....D-6, Forest City....A-4, Ft. Dodge....B-4, Ft. Madison....E-7, Garner....A-4, Garnwood....D-2, Greenfield....D-3, Grinnell....C-5, Grundy Center....B-5, Guthrie Center....C-3, Hampton....B-5, Harlan....D-2, Humboldt....B-3, Ida Grove....B-2, Independence....B-6, Indianola....D-4, Iowa City....C-7, Iowa Falls....B-5, Jefferson....C-3, Jesup....B-6, Keokuk....E-7, Knoxville....D-5, Lake Mills....A-4, Laurens....B-3, Le Claire....C-8, Le Mars....B-1, Leon....E-4, Logan....C-2, Manchester....B-7, Manning....C-2, Maquoketa....C-8, Marengo....C-6, Marion....C-7, Marshalltown....C-5, Mason City....A-5, Milford....A-2, Monona....A-7, Monroe....D-5, Montezuma....D-5, Monticello....C-7, Mt. Ayr....E-3, Mt. Pleasant....E-7, Mt. Vernon....C-7, Muscatine....D-7, Nashua....A-5, Nevada....C-4, New Hampton....A-6, New London....E-7, Newton....C-5, [illegible]wood....A-5, [illegible]nd....D-2, [illegible]on....B-6, Onawa....C-1, Orange City....A-1, Osage....A-5, Osceola....D-4, Oskaloosa....D-5, Ottumwa....D-6, Pella....D-5, Perry....C-4, Pocahontas....B-3, Postville....A-7, Primghar....A-2, Red Oak....D-2, Rock Rapids....A-1, Rock Valley....A-1, Rockwell City....B-3, Sac City....B-3, Sanborn....A-2, Sheldon....A-2, Shenandoah....E-2, Sibley....A-2, Sidney....E-2, Sigourney....D-5, Sioux City....B-1, Spencer....A-2, Spirit Lake....A-2, Storm Lake....B-2, Tipton....C-7, Toledo....D-6, Wapello....D-7, Washington....D-7, Waterloo....B-6, Waukon....A-7, Waverly....B-6, Webster City....B-4, W. Liberty....D-7, W. Ur[illegible], Wilto[illegible], Winte[illegible], Wood[illegible]

FIG. 1

It would be convenient if one could rule out the possibility that [redacted] was looking at the fireball itself, or its subsequent trail, on the grounds that it was below his local horizon. Unfortunately this is not possible. The United Air Lines airplane was flying at 31,000 ft., and its crew estimated that the meteor trail was at approximately 60,000 ft., but in all probability this was much too low. And if the 60,000 ft. altitude were correct, an object at this altitude would have been above [redacted]'s local horizon, assuming flat terrain on the Crouter farm.

Over-exposed Polaroid prints of the sighting locale which [redacted] sent me show, however, a rolling landscape in which the power lines appear to be on a low ridge, perhaps 10-15 ft. above the level at which [redacted] was standing. I have not taken the time to obtain topographical maps for more precise estimates since it is probable that the meteor trail was a good deal higher than 60,000 ft. and since its exact altitude is unknown, it would not be wise to try to exclude the meteor from consideration on the grounds that it was below [redacted]' horizon.

Instead, I contacted a number of eyewitnesses and, without any mention of the UFO, asked them to confirm or revise and expand their observations as reported in the local press accounts, to compare with [redacted] description.

Here is a summary of their individual observations. (See map for their approximate position relative to the point of entry.)

UAL Capt. [redacted] "Object (red) appeared to be traveling straight down or slightly north to south course. Smoke trail visible from time of sighting until passing underneath approximately 17 minutes (later) at 420 kts. per hour ground speed. [Pilot then gave coordinates of the meteor trail in VOR-DME coordinates.] Estimate (its) altitude (as) 60,000 ft. (wind conditions were) 80 kt. at 31,000 ft. from 260 deg." Duration of the fireball sighting was estimated at 2 seconds. Fireball was dead-ahead and first sighted at elevation angle estimated to be 30 deg. above horizon; object disappeared from view at elevation of 20 deg. (estimated.)

[redacted] (Driving southeast of Atlantic) Reported seeing"a short contrail in the western sky which was followed by a bright red ball of fire with a yellow center. He said the flash was high in the west and a little to the north." (Des Moines Register, July 29, 1968) In reply to my letter, Newcomer wrote on Nov. 2, 1968, to say the newspaper account was accurate. He added that "it was a perfectly clear, sunny day and I observed this through the top of the windshield which is well tinted and it is possible that without the tint in the glass I might not have seen it...The incident covered only a few seconds...The whole picture vanished with a 'poof'"

Rev. [redacted]: (Driving west, located ENE of Atlantic): According to Des Moines Register, Davis apparently saw the same flash which lasted "only about 2-3 seconds." He estimated it was a little south of west.

[redacted] (Reply to my letter)[Observer was on ground in Atlantic]: "There were several small scattered clouds in the sky at this time and looking to the southwest and west, a small group of these had brilliant coloring in green, pink and reddish orange. I saw no trail or pattern of direction of the meteor at all. The colors remained in the clouds for at least 10 minutes and then faded away."

Mrs. [redacted] (Reply to my letter)[Ground observer in Atlantic]: "Lasted about 10-15 minutes after I saw it before the colors faded away." She drew a sketch

showing a series of concentric rings, which I presume to be clouds. The inner core was marked: "Red and brilliant orange colors plus some bluish intermingled." The next ring was marked "fainter colors" and the outer rings were labeled: "very faint yellows."

Through the kindness of [redacted] Jr., whose sister-in-law lives near Atlantic, I received several clippings of unknown date from what I presume to be the Atlantic News Telegraph. One contains an account by a farmer named [redacted] who lives near Atlantic and reported seeing the meteor at approximately 1:45 p.m.

[redacted] was quoted as describing it this way: "It looked like the moon in the midday sky and my first thought was that it was a burning plane, then I realized a flaming aircraft wouldn't make a ball of fire that large." He called for his wife to come outside but "by the time she got there, it had burned itself out and looked like a ball of phosphorus, leaving a trail of smoke in its wake."

Another clipping, presumably from the same newspaper but a later issue, tells of the visit b[redacted] in Lincoln, Neb., to investigate the meteor case. By triangulation of numerous reports received from western Iowa [redacted] was quoted as saying that the meteor "was probably traveling from a northwesterly to a southeasterly direction."

If this estimate is correct, the meteor's path would have taken it roughly over the area wher[redacted] reported his UFO sighting had occurred.

* * *

Wh[redacted] returned to the Crouter farm later in the year to pace off the distance to the power lines and refresh his memory, and from information provided by the power company that its lines run due east-west through the Crouter farm, [redacted] concluded that he had been looking roughly to the southeast when he saw the UFO. This would mean that he was looking in the direction of Atlantic--and roughly along the flight path of the meteor--so far as is known.

All the evidence points to the fact that the meteor trail over Atlantic persisted for at least 17 minutes, based on the UAL pilot report, and then that it faded away gradually. [redacted] description of the UFO is that it disintegrated after a matter of a couple seconds, and his initial report volunteered that there was not a cloud in the sky. On this basis, it seems safe to rule out the possibility that the [redacted] UFO was really the persistent meteor trail.

The brevity of the observation period of the UFO closely matches the time duration of the fireball sighting, suggesting that the two might involve the same object. But the eyewitness reports of the meteor fireball describe it as bright red; while [redacted] described the UFO as a luminous blue. All observers of the fireball noted its high velocity; [redacted] described the UFO as being stationary.

Could [redacted] impressions have been an "after-image" -- an illusion caused by the intense red fireball? (I profess no expertise at all on this subject.)

Is it possible that a fast-moving red fireball which was actually 120 miles away could be mistaken for a stationary, bluish-white object only 250 yards away?

On Oct. 11, I wrote t[redacted] and in the closing portion of my letter I asked if it was possible that what he had seen might really have been a meteor some 120 miles away, and not a few yards away, to see what his reactions would be to this suggestion.

[redacted] replied (in part) as follows: "The UFO was not in the nature of an explosion. It hung fixed in the clear air. The tear drop shape was clear and clean. The complete outlines from upper tip to lower bulb were sharp and fixed. The UFO remained in position for an observable interval of time. Its disintegration was not in the nature of an explosion--it was as if the tear drop envelope ripped apart. I saw the gold interior. Then the interior condensed into fragments, gold colored, which 'went out' separately. All appeared NEAR (!)--yet--

"Yes, your letter is correct -- the UFO could have been at ANY height and ANY distance. I am clear that from where I stood the high (tension) lines were in my direct line of vision to the UFO. Yet vision and visual estimates away from fixed standards of comparison may well be compounded with illusion. I feel somewhat at fault for not acknowledging this previously, but my illusion was so clear.

"Yes, it is possible the UFO might have been a meteor exploding at any distance and any altitude, but what put me off this possibility was the illusion or impression described again above that I saw it fixed in space, that the tear drop outlines were clear and that there was NO movement as in a trajectory."

Clearly Mr. [redacted] has no vested commitment that the object was a "genuine UFO", as do some observers, for which he is to be complimented.

* * *

During the course of this investigation, I chanced to be re-reading the paper that [redacted] had given at the UFO Symposium in Montreal on March 12, 1968, sponsored by the Canadian Aeronautics and Space Institute. In his paper, which he had not delivered in its (long) entirety, the following caught my eye:

"Quite early in my own examination of the UFO problem, I was confronted by colleagues at the University of Arizona with challenges on the grounds that UFOs could be some unrecognized form of plasmoid. For example, scientists at our Lunar and Planetary Laboratory proposed that, since the wake of an entering meteoroid is a plasma and since a meteoroid sets up a highly turbulent wake-flow, perhaps vortical motions on the meteor-wake boundary could spin off masses of incandescent plasma that descend into the lower atmosphere and are reported as a UFO..."

[redacted] proceeded to reject this as completely impossible!

Recently, I have been able to track down the scientist who advanced this novel hypothesis. He is [redacted] chief engineer of the Lunar and Planetary Laboratory. Previously, [redacted] was engaged in plasma physics research for Avco in connection with that company's work in ballistic missile nose cone reentry.

On Dec. 20, 1968, I wrote to [redacted], telling him only briefly of a recent UFO case which might provide support for his earlier hypothesis. I asked him to outline briefly his ideas, which he has done, informally, in his reply of Jan. 7, 1969. Copy of his letter is contained in the appendix.

This report has been prepared as an interim status report for a handful of scientists who may be interested in this case in the hope of sparking interest and comment.

Philip J. Klass
560 "N" St. SW.
Washington D.C. 20024
January 27, 1969

THE UNIVERSITY OF ARIZONA
TUCSON, ARIZONA 85721

LUNAR AND PLANETARY LABORATORY

January 7, 1969

Mr. Philip J. Klass
Senior Avionics Editor
National Press Building
Washington, D. C. 20004

Dear Mr. Klass:

It is with great pleasure that I read your interesting letter of December 20, 1968. I would like to congratulate you, as you are to my knowledge the first to establish a case of space and time coincidence between the occurrence of these two elusive phenomenas: ball lightning and the entrance of a large meteor into the atmosphere.

Some fifteen years ago I became involved in theoretical and experimental research in the field of plasmas at pressures of the order of atmospheric pressures. It was then, while working with stable plasma configurations, that I became intrigued by plasmoids (ball lightning) occurring in nature, their phenomenology and origin.

In answer to an implied question in your letter, I would like to enumerate a few of the thoughts that--at that time--led me to suggest that large plasmoids may be generated during the passage of meteors through the atmosphere.

Among the great number of ball lightnings reported over the last hundred years were many with diameters up to several meters and with an observed life of tens of minutes. In many cases the reports indicate the absence of thunderstorm activities or even heavy clouds in the area of sighting.

It is more than difficult to construct a model of a plasmoid exceeding centimeters in diameters and a life of more than minutes if we assume its origin from magneto hydrodynamic processes of our atmosphere only. However, the entry of a large meteor into our atmosphere can supply the parameters needed to explain plasmoids of much larger size and longer life.

The energy released into the wake of a meteor is sufficient to cause complete ionization, whereas the plasma produced by a lightning strike is only partially ionized.

The volume of the plasma produced in the stagnation zone and augmented by the ablated meteor material is magnitudes greater than the volume of plasma generated by a lightning discharge. This together with the high velocity of the wake plasma relative to the free atmosphere, suggest the spinning off of large plasma eddies in the shearzone.

The passage of meteors through the atmosphere has been observed to generate strong electromagnetic fields. (In the twenties a meteor entry in the Southwest knocked out powerlines at a distance of 150 miles from its path.) An electromagnetic transient of such magnitude might cause a given plasma eddy to be stabilized into a plasmoid. It might also provide the force lines along which

such a plasmoid might be moved from the high altitude of its formation downwards to lower altitudes, against its buoyancy.

This characteristic of plasmoids, to move along magnetic force lines, seems to be common for many reported sightings of ball lightning, as for instance, the unproportionately large number of sightings in areas of magnetic anomalies (magnetogorsk) and the prevalence of their occurrence near transformer stations and powerlines.

The observed long life of some plasmoids is difficult to interpret if they are assumed to contain gases of our atmosphere only, gases of high ionization potential. Meteor wakes contain, however, sublimated meteor material, that is, practically the whole periodic table of elements. In consequence the presence, among the components of a plasmoid, of elements of the lower end of the table, with their low ionization potentials, should substantially extend its life.

I know of only few reported observations of the collapse of ball lightning but they reflect the expected effects of implosion and release of recombination energy, by describing carbonized vegetation and sand fused into glass at the point of ground contact.

I hope that the foregoing will help you to show that a rather large body of evidence points in the direction of our terrestrial environment as the origin for many reported UFO's and that a considerable amount of research in this direction should be done before we go off into formulating theories that belong in science fiction.

Sincerely yours,

Ferdinand A de Wiess

Ferdinand de Wiess
Associate Professor

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