

*Internal
Memoranda*

MEMORANDUM

To: UFO Investigators
From: D. Saunders
Subject: The Wertheimer-Zeno Paradox

January 21, 1967

All of us undoubtedly recall the Greek philosopher-of-science, Zeno, whose zealous insistence on logic led to a number of very remarkable proofs, the most famous of which established that motion from point A to point B is scientifically impossible. Within its own frame of reference, there was absolutely nothing wrong with Zeno's logic, yet his conclusion is preposterous and must have seemed so even to his contemporaries. The difficulty, of course, can be expressed in a number of ways -- such as that Zeno confused infinitesimal with finite quantities, or that he had no concept of rate, or what have you.

For several weeks now we have been confronted by an unmistakable reincarnation of Zeno's spirit and logic, in the form of Wertheimer's proof that we can never prove the existence of ETI. The proof is airtight, of course, so long as we treat it merely as a formal exercise. But as soon as we treat it as an analogy with reality, i.e. as a basis for action or, as Wertheimer proposes, inaction, it is preposterous. If this proof is valid, then absolutely nothing scientific has ever been proved or ever will be proved, and the whole scientific enterprise is a waste of time. Something is wrong!

As a quasi-philosopher, I would agree that absolute proofs are impossible. But as a quasi-scientist, I believe we must employ a system of logic that recognizes the common necessity of acting as if something were true. These two propositions lead, of course, to the idea that when we act we must sometimes make mistakes -- sometimes with and sometimes without becoming subsequently aware of them as mistakes. Statistical decision theory provides an objective framework hospitable to these ideas. The central concept of this more sophisticated logic is "risk" -- a concept seemingly absent from Wertheimer's formulation, just as "rate" is absent from Zeno's. The utility of data in a decision theory framework is to permit a relatively more precise determination of risks, so that mistakes can be reduced in number and cost.

Under the circumstances, I shall persist in attaching a non-zero probability to the "ETI Hypothesis;" if this brands me as a "quasi-believer," make the most of it! I shall also persist in urging that we do look at whatever data may have the greatest potential for altering our assessment of the multitude of risks which our investigation must face.

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MEMORANDUM

TO: UFO Investigating Team

DATE: 19 January 1967

FROM: Robert J. Low

SUBJECT: Methods

Mike emphasizes, and I think we would all agree, that we ought to settle rather definitely on our method of proceeding before Frank leaves for Hawaii. I would like to move this along toward resolution by offering the following thoughts:

First, let us view the study as three rather separate investigations, each proceeding substantially independently of the others. These are:

1. The "scientific" problem,
2. The political problem,
3. The educational problem.

The scientific problem addresses itself, among others, to the following questions: Are UFOs framesands or ETIs? Are they a threat to the national security? Are they solid objects? Is there any scientific merit in - i.e. can we learn anything from - the study of UFOs? These are the questions that the public, at least, is interested in.

How do we attack this problem? It seems to me that the psychologists have produced just about all of the ideas here. To summarize, and I may need correction, one searches for correlates of UFO observations. One studies everything he can about the physical circumstances of the observation, about the physical and cultural setting in which the observation occurs, and about the observer himself. He sees what he finds out about sightings this way, he learns what the correlates are, and the question of whether the object is an ETI, a framesand, or an IFO is something that is secondary in the investigation. It is not a result that is sought directly. My own feeling is that this is exactly the way to proceed. We go as far as we can with it. Any progress at all, no matter how tiny it may be, would be important and would be a contribution.

The political question involves the following questions (proceeding on the assumption that the UFO problem will remain a problem - i.e. there will still be many unexplaineds - when the project is over): What does the country do about keeping track of UFOs after the C.U. project has ended? How much taxpayers' money is it in the nation's interest to spend on this? How should the work be done in the future? (We might certainly leave to future UFO investigators a method for keeping track statistically of sightings.) Who should do the work? Is the Air Force withholding information? Is it

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involved in a conspiracy? Before one can answer these questions, one must examine the implications of the procedure proposed under #1. If the purpose there is to study correlates and not finding out whether the unexplaineds are framesands or whatever, then one can make the recommendation that others do likewise. Blue Book represents an effort to tell framesands from ETIs from IFOs and is therefore wrongly structured. One might make the recommendation that further funds be used to study specific correlates and that the study of UFOs, as UFOs, be discontinued. This is the construction that we might use as a working hypothesis, at least for the present. It could mean, for example, that one settles the argument between FTD and OAR with the recommendation that certain funds be set aside for OAR earmarked to study specific correlates - not UFOs. How that would be sold to the public as a politically acceptable approach, since it involves a highly intellectual line of reasoning, I'm not sure. Perhaps one tells the public that UFOs are being studied, but investigators, in their proposals, would talk mostly about possible correlates, although the relationship of the proposed study to the UFO problem would be emphasized.

In line with the political question, I think it is necessary that someone in the project - and I think I'm probably the person - needs to go back to review the celebrated sightings - defining "celebrated" as those sightings that we are most likely to be asked about in a hypothetical Congressional hearing. We just need to know so it is apparent that we've done our homework. We need to do it to make our efforts and our final report credible and relevant. We need also to explore as carefully as possible - and this, too, is probably my job.- the conspiracy question. Clearly, as a group, we have already made some headway with this. Finally, as a political matter and whether or not it makes sense in terms of the requirements of problem #1, I think we need to investigate current sightings, so we can report that we have done some of what all the other UFO studiers have done - namely investigate sightings. It's kind of like being able to say that you've met a payroll. We have to say that we've been out in the field.

With regard to assignment of responsibility, it seems to me the psychologists have all the initiative in #1; they, together with Rush, Blumen, Roach, and Condon, should move in there. #2 is probably the primary responsibility of Condon and Low. #3 appears to be the principal responsibility, because he has already started on it and has shown a strong interest in it, of Frank Roach.

This little paper is intended as a talking piece, a reference point from which discussions can be started to produce the result that Mike has been urging, the formal adoption of a method of procedure and assignment of responsibilities to carry the work forward.

END OF MEMO

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Memoranda
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MEMORANDUM

TO: Edward Condon and Robert Low

January 20, 1967

FROM: Stuart Cook

SUBJECT: Notes on alternative activities for the UFO project

Recently I have tried to organize for myself the alternative activities we have considered over the past months as possible undertakings in the UFO project. Since we seem to be at a point where we must choose among a large number of possibilities I thought it might be helpful to you and to others on the project staff to have my notes available.

A. Methods of data collection on sightings

We have considered at least five methods of collecting data on sightings, sighters and conditions under which sightings occur. These are outlined below. I suspect they are listed in order of the amount of support they have obtained.

1. Intensive on-site study

This type of study would involve development of the following:

- a. An early reporting system, e.g., via the wire service.
- b. A screening system, e.g., like that of Hynek for selecting the sightings to be studied.
- c. A high-speed transport system, e.g., jet transportation from Boulder to the sighting locale.
- d. A study plan, e.g., a check list of conditions, a kit of apparatus, an interview, etc.
- e. A trained team of investigators, e.g., at least two persons available at any time of day or night, trained to conduct thorough and standardized investigations.

2. Study based on reports of experienced observers

Such a study would involve us in the following:

- a. Selection of groups of reporters, e.g., airline pilots, "sky watchers," NICAP teams, etc.
- b. Enlistment of assistance from reporters, e.g., approaching officers of organizations for endorsement.

- c. Development of a reporting form, e.g., developing, pre-testing, printing, and distributing a form providing for report on conditions, description of the sighting, etc.

3. Study based on instruments

This would involve the following:

- a. Selection of instruments to be used, e.g., camera.
- b. Selection of persons to whom instruments would be provided, e.g., police, "sky watchers," etc.
- c. Financing and procurement of instruments.
- d. Plan for instructing users regarding instruments and regarding reporting.

4. Study based on radar sightings

To my knowledge no details of this plan have been discussed.

5. Study based on analysis of available photographs of the sky

This would involve the following:

- a. Selection of photographs and time period for analysis.
- b. Selection and training of personnel to examine photographs.

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B. Data processing and analysis plans

We have discussed a possible plan for the coding and recording of data on sightings. This has assumed that the recording be in a form suitable for analysis by a computer. The following possibilities have been considered with respect to the data to be treated.

1. Analysis of available data on selected sightings

This will involve the following:

- a. Development of criteria for selecting sightings from data available.
- b. Plans for screening and procuring selected reports.
- c. Reading, selecting, and coding reports.
- d. Computer analysis.

2. Analysis of available data on total pool of sightings for a selected time period

This will involve the same steps described under 1 above.

3. Analysis of data on new sightings

This will involve us in the following:

- a. Development of a list of variables to be coded and recorded.
- b. Selection of personnel for the coding and recording operation.
- c. Computer analysis.

C. Studies of induced sightings

We have considered two possibilities for studying induced sightings.

1. Utilization of known future aerial events

This will involve the following:

- a. Location of such events, e.g., rocket firing.
- b. Plan for receiving reports of sightings.
- c. Plan for quick investigation of multiple sightings.
- d. Public relations policy with respect to this approach.

2. Study of arranged aerial events

This will involve the following:

- a. Plans for arranging selected aerial events, e.g., dispatch of wingless craft.
- b. Plan for receiving reports of sightings.
- c. Plan for immediate investigation of multiple sightings.
- d. Public relations policy with respect to this approach.

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D. Study of sighters

Two types of studies of sighters have been suggested.

1. Study of persons who report dramatic sightings, e.g., UFO's on the ground

This will involve the following:

- a. Criteria for selection of sightings to be studied.
 - b. Plan for studying selected characteristics of sighters.
 - c. Choice of comparison persons with whom these sighters might be contrasted.
 - d. Public relations policy with respect to this type of study.
2. Study of persons who report sightings in relation to non-sighters and to sighters who do not report

This would involve us in steps essentially similar to those under 1 above.

E. Commissioning of panels on special problems

We have considered establishing panels on the following phenomena:

1. Electromagnetic phenomena, e.g., ignition failures
2. Physiological effects, e.g., burns
3. Anomalous sounds

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1. Statistics (Saunders, with Mrs. Haslett and graduate student) —
2. Investigate Current Interesting Sightings
 - a. Interview procedure (Roach & Saunders)
 - b. Instrumentation (Rush) —
 - c. Organization of Investigation Teams (Unassigned) —
3. Review Celebrated Past Sightings (Low)
4. Investigate Promising Physical Hypotheses - Robey, Ball Lightning, Cool Flame Combustion (Condon)
5. Sighters, but lower priority (Saunders)
6. Manual and Handbook (Roach and Wertheimer)
7. Alleged Air Force Conspiracy, but lower priority (Low)
8. New Sources Of Data - Amateur Astronomers, for example (Rush) ←

all present
but S.W.C.

It was determined that, for the most part, investigations of current sightings would be handled by teams from Boulder and that we would not create stand-by teams at other universities.

The following was decided with respect to the graduate students: Wertheimer felt he had no work for a graduate student. Wadsworth will work under Low's direction. Culberson will work for Saunders if a satisfactory arrangement can be found for Culberson to go to Dayton and Washington to take data from Wright Field and NICAP files. No one could think of a job for Sheets, although Saunders and Low agreed they would meet to discuss possibilities for Culberson and Sheets during week of Feb. 6th.

Screening System - responsibility

MEMORANDUM

TO: E. U. Condon

DATE: January 20, 1967

FROM: F. E. Roach

SUBJECT: Suggestion of Priority Program in the UFO Investigation.

I. The priority problem is, in my judgment, the evaluation of that residue of reported sightings in the Air Force, NICAP, and APRO files which are listed as "unidentified."

II. My recommendations are (1) that these reports be copied (preferably by xerox) and brought to Boulder, and (2) that they be catalogued on punched cards for statistical, physical and psycho analysis. This program should be put in charge of Dave Saunders with appropriate budgetary support. A time limit, not to exceed six months, should be placed on this activity.

III. On a lower priority I would place (1) real time sightings, (2) attempts to disseminate instruments, and (3) preparation of monographs and/or manuals. These activities will probably be much influenced by the analysis under II.

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MEMORANDUM

TO: The UFO Investigating Team

DATE: 31 January 1967

FROM: Robert J. Low

SUBJECT: Follow-up of Meeting of January 20, 1967

Meeting of January 20

At the late afternoon meeting on January 20th, we reached a number of decisions on what we were going to do for the duration of the project and who had responsibility to do it. Basic background documents were Stuart Cook's memorandum to the team of January 20th and mine of January 19th. Notes of the meeting indicate that the following functions and assignments of responsibility were agreed on:

1. Statistics (Saunders, with Mrs. Haslett and graduate student).
2. Investigations of current interesting sightings.
 - a. Interview procedure (Roach and Saunders)
 - b. Instrumentation (Rush)
 - c. Organization of investigation teams (unassigned)
3. Review of celebrated past sightings (Low).
4. Investigations of promising physical hypotheses - Robey, ball lightning, cool flame combustion (Condon).
5. Sighters, but lower priority (Saunders).
6. Manual and handbook (Roach and Wertheimer).
7. Alleged Air Force conspiracy, but lower priority (Low).
8. New sources of data - amateur astronomers, for example (Rush).

Investigations of Current Sightings

It was determined that, for the most part, investigations of current sightings would be handled by teams from Boulder and that we would not create stand-by teams at other universities.

Graduate Students

The following was decided with respect to the graduate students: Wertheimer felt he had no work for a graduate student. Wadsworth will work under Low's direction. Culberson will work for Saunders if a satisfactory arrangement can be found for Culberson to go to Dayton and Washington to take data from Wright Field and NICAP files. No one proposed a specific job for Sheets, although Saunders and Low agreed they would meet to discuss possibilities for Culberson and Sheets during the week of February 6th.

Low's Memorandum

Low's memo broke down the study into three separate and relatively independent phases, described as scientific, political, and educational. It would appear to be the general conclusion of the meeting, given the severe time limitation we face, that not much headway can be made on phase #1, the scientific problem. That is a five-year undertaking, more than likely, rather than a one-year quickie. It was the concensus, however, that Saunders's statistical study, even though not very many (perhaps in the neighborhood of 500) cases could be coded in the short time remaining, promised to bear fruit. It was therefore given a high priority. We are bound to learn something from it. Even if the results show an absence of significant correlations, that would be an important result.

Cook's Memorandum

On January 27th, Cook and Low reviewed Cook's memorandum of January 20th, which, among other things, provides an excellent listing of the questions on which decisions need to be made, to determine the extent to which we covered things at the meeting. Going over the memo item by item (a copy is attached), the following is revealed:

A.1.a. Low has visited with the Chief of the Denver Bureau of the Associated Press and requested that an arrangement be made to provide early notification of sightings. The reaction was favorable, but the matter must be referred to the main AP office (New York) for a decision. We will hear shortly.

1.b. Saunders previously had been given responsibility to recommend the establishment of a screening system for the selection of sightings to be studied. Low mentioned that the reliability, strangeness index proposed by Hynek seems more and more to be relevant, workable, and appropriate. For one thing, if we are notified by AP of those sightings that appear on their national wires, there has already operated a kind of selection system, and intuitively this would undoubtedly be based on strangeness and reliability. It wouldn't be reported at all if it weren't reasonably strange, and most reporters certainly would make a check of observer reliability before filing a story. SWC pointed out that we have not made a decision as to who, using the Saunders screening method, will actually make decisions on which sightings to investigate. That, clearly, should be done at an early moment.

1.c. No conscious decision has been made on the method of transportation to the location of sightings. Low indicated that, from his two previous investigations, he felt that commercial transportation is the most satisfactory way to do it, in terms both of speed and safety. The group should make a decision on this, however, and shouldn't let it be made by default. (RJL will attempt to get hold of a map showing all the cities served by commercial air transportation.)

1.d. Interview forms are now in preparation. Saunders, now that Roach is gone, is solely responsible. This should clearly have a high priority. The kit of apparatus is the responsibility of Joe Rush. Joe is already making good progress with that.

1.e. No decision has been made on selection of a trained team of investigators. SWC proposed, with RJL's agreement, that a two-man investigating team be employed

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for the specific purpose of conducting sighting studies. The team would be composed of a physical science type and a psychologist. They would be on call to leave on an investigation at any moment. That would be their principal, their absolutely #1 priority, job, and they would be persons with a high level of education, capable of mature judgment and resourceful handling of interview techniques. The group should probably make a decision on this at a very early time, because, if we do it this way, we need to begin recruitment immediately.

A.2.a. We have already approached the FAA with a request for assistance. A copy of Dr. Condon's letter to General McKee is attached. With respect to enlisting the support of other organizations, the most useful suggestion that has been made is that of Joe Rush, who proposes to approach the amateur astronomers and similar types through the amateur section of Scientific American. This could be fruitful, because, while we don't have a problem of not having enough data, we do have a problem of not having enough good data. Joe's approach might entail a lot of work. Do we send out reporting forms all over the country? Do we, by soliciting reports in this way, invite an avalanche of information that we would not be able to cope with? Here is a subject for discussion at an early date.

A.3. a,b,c,d. Joe Rush, as noted above, is working on the selection of instruments. There seems to be little enthusiasm within the group for the Hynek scheme of putting a camera in every police car - or a similar broadcasting of observing instruments. It would be RJL's reaction, from his two investigating trips, that one would be much more likely to get really good data from amateur astronomers than from police officers. The cost of doing such a broadcast job, anyway, would be prohibitive, and it would be difficult to organize on a volunteer basis. There would also be an unmanageably large educational job to perform. This is discussed as a sort of implicit decision. It should be reviewed explicitly.

A.4. No specific action has been taken with respect to study of radar sightings, except the letter to the FAA (a large proportion of all radar sightings, do originate from FAA traffic controllers). Are there other ideas? We probably should make an attempt to bring David Atlas, the most widely recognized expert on anomalous radar phenomena, to the campus for a talk to the group. Is there agreement on that?

A.5. There seems to be agreement that the possible results could not justify the cost of examining existing plates in the possession of astronomers (all-sky photographs, etc.) for possible unidentified objects.

B.1. a,b,c,d. Decisions have been made here. Saunders is responsible.

B.2. The decision has been made, for the time being at least, that selected sightings (selection based, in all probability, on the strangeness, reliability index) from all existing files will be examined, and no attempt will be made to analyze all sightings that occurred during any given time period.

B.3. a,b,c. This will be done on Saunders's authority.

C.1. The decision seems to have been made implicitly that we will not attempt to conduct a controlled UFO event. The rocket shots, however, even though announced in the press, serve to some extent this purpose. People seeing such things, are

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not aware that they are connected with the press announcement, and it is possible to learn something from the variance of the reports from the actual physical event. The Fort Churchill firing is one of the best ones to look at.

C.2. Discussed above.

D.1. This, by in large, is regarded as a part of the scientific problem, which requires a longer time to study than we have. It has therefore been assigned a low priority. Saunders has responsibility and will pursue the problem as time permits.

D.2. Given the time available, this seems to be beyond the scope of the present project.

E.1.2.3. It appears, if promising physical explanations of UFO observations are to be studied, that such studies will be done by outside groups. This means a subcontract and the expenditure of substantial amounts of contract funds. At the moment, two items are being looked at in particular: the Robey icy-cometoid hypothesis, and the Melpar cool-flame combustion proposal. EUC must make final decisions here.

END OF MEMO

RJL:mla

Attachments