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VOICE STRESS ANALYSIS IN UFO WITNESSES

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ABSTRACT

This paper provides evidence why UFO investigators and others should use caution in the use of specialized equipment which claims to analyse the amount of stress present in the human voice. Six technical limitations are documented: (1) poor inter-judge scoring reliability, (2) problems caused by different words used by the witness, (3) scoring problems caused by the quality of the tape recorder used, (4) scoring problems caused by the speed of the recording, (5) difficulties caused by the possibility that vocal responses may be subject to voluntary control, and (6) scoring problems related to the level of stress present and the witness' stress response threshold. Such devices do have some merit when used with proper training and with an understanding of their technical limitations; some of these factors are also discussed.

INTRODUCTION

The use of equipment to determine if someone may be under either actual (physical) or implied (psychological) stress has been increasing both in criminology and in the investigation of unidentified flying object (UFO) related phenomena for some time. In the case of the criminal suspect the use of the polygraph is to try to determine if he shows evidence of lying (Trankel, 1972) while in UFO usage the primary intent is to try to find out if the reported experience was, in fact, real. Research has indicated that the more emotionally involved a person is with his lie, the more easily it is detected (Gustafson & Orne, 1963) and that the harder one tries to "beat the test", the easier his lies are detected. (Lykken, 1960). Polygraphic

exams using such measures as heart rate (EKG), skin resistance (GSR), and respiration rate are common with several million exams being given every year by more than 3,000 professional polygraphers (Lykken, 1974). Indeed, various other physiological responses can also be measured (Orne, Thackray & Paskiewitz, 1972). More recently, the human voice has been considered as another candidate for the study of short-term physiological responses of people under stress. Certainly the use of the voice for such measurements is attractive because no uncomfortable wires or (body) surface electrodes need be attached, and, if it is justified,

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the monitoring can be carried out at a distance or more covertly.² Such a technique would also help reduce the effects of stress that are caused simply by the sometimes fearful testing situation itself. Additionally, such an approach makes possible after-the-fact evaluations of recorded voice such as those by O'Toole (1973) on the assassination of President Kennedy and of the voice stress of people far removed from the experimenter such as research by Simonov & Frolov (1973) of Soviet cosmonauts in space.

This paper deals primarily with an apparatus known as the Psychological Stress Evaluator (PSE) manufactured by Dektor Counter-Intelligence and Security, Inc. of Springfield, Virginia but also with other devices that are based on the same general principle(s) of operation. This paper is prepared because the PSE has already been used in numerous UFO investigations and this practice is bound to increase with time.

The primary findings of qualified researchers who have used this (PSE) device have been summarized recently by Dr. Malcolm Brenner and Harvie Branscomb in a paper prepared for hearings held September 19, 1978 before the U.S. Senate Committee on the Judiciary (Brenner & Branscombe, 1978);³ the present paper draws heav-

ily upon their presentation (by permission) for which the author is grateful. Rather than review in detail how the PSE is supposed to work according to the brochures and other literature supplied by the manufacturer (which may be obtained by writing: 5508 Port Royal Road, Springfield, VA 22151), suffice it to say that slow-speed filtering of tape-recorded speech is carried out (Anon., 1975(b)) and provides a continuous time/amplitude record of the filtered signal (Green, 1973). More importantly, perhaps, is the fact that this record must be scored (interpreted) by the user. It is largely this matter of subjective scoring of the PSE record that raises some serious concerns; the UFO investigator who intends to use the device in field research should do so with an understanding of the limitations outlined below.

TECHNICAL LIMITATIONS OF THE PSYCHOLOGICAL STRESS EVALUATOR

"Based on our research experience with this device, we believe that PSE is not of a technical quality to be used in lie detection and our testimony documents five technical shortcomings which affect the present instrument." So began Brenner and Branscomb's recent testimony before members of the U.S. Senate Committee (op. cit.). Following is an abbreviated review of these five alleged limitations as well as a sixth identified by another investigator.

The first technical limitation is that scoring the PSE record is very subjective, i.e., the outcome one gets is highly dependent upon the particular person who does the scoring. This factor is signified mathematically by a number between zero and one. The larger this "reliability coefficient" number is, the greater the agreement between two scorers who are analyzing the same tape recording. Unfortunately, previous investigators using the

² Voice stress analysis has, indeed, been conducted over the telephone completely without the knowledge or permission of the person(s) involved. Such usage raises serious questions related to our Constitutional rights. This practice is not advocated under any circumstances in UFO research; UFO research organizations should agree to adopt clear statements of policy in this regard.

³ It has also been pointed out that a congressman, the American Polygraph Association, and later the media have tried to "discount the effectiveness of the (PSE) machine." (Anon., 1975(a)).

PSE have found that these coefficients range from zero to one (cf. Heisse, 1976; Horvath, 1978; Worth & Lewis, 1973). What this means is that it is difficult (at present) to be sure that two users of the device on the same voice recording will score it in the same way.

The second technical limitation is that the specific words spoken by the witness have been found to affect the scoring (Brenner, Branscombe, & Schwartz, 1979). Of course, this kind of difficulty becomes particularly serious in situations in which continuous speech occurs where there is no practical restriction on the words used. The UFO investigator who requires a narrative description of the sighting details from the witness and then attempts to use the PSE to analyze the presence or absence of stress faces this problem directly. The use of a well designed, structured verbal "script" by the investigator must be developed to circumvent this limitation.⁴ Additionally, further research is needed to find out whether simple "yes" or "no" responses will bias the scoring.

The third technical limitation of the PSE is that the scores that are given ".....tend to vary according to the quality of the available tape recordings." (*Ibid*, pg. 6) Evidence for this is presented by Older & Jenney, (1975) who analyzed 2040 spoken ut-

terances by Skylab astronauts during periods when their work load demands varied. Certainly such limitations have important implications for the use of the PSE over telephone lines and with tape recorders of different recording qualities.

The fourth technical limitation is that PSE stress scoring patterns are influenced by the tape-recording speed. As Brenner and Branscombe (1978) cogently remark, "Whatever the cause, this artifact contradicts company training, which leaves the choice of transcription speed completely at the discretion of the interrogator (Heisse, 1976)."

The fifth technical limitation of the PSE is "...perhaps the most serious issue raised in this (Senate) testimony." (*op. cit.*, p. 9) It is that preliminary research has shown that vocal responses monitored by the PSE may be subject to conscious control of the speaker. Because this possibility is such an important issue, it is worthwhile to describe the research study on which this statement is based.

In this study, Brenner and Branscombe and Schwartz (1979) used an experimental technique developed earlier by Lykken (1974) known as the "guilty knowledge task". Brenner et al. used fifteen male and five female test subjects who were asked ten personal questions, for example, "What is your mother's first name?". Each subject was offered a monetary reward to try to conceal their correct answer to each question from an interrogator who, later, would use the PSE to analyze their verbal responses. The interrogator read each item out loud followed by six possible answers; the subject repeated out loud all possible answers. In every case, the correct answer (as supplied by the subject to the investigator earlier) was placed randomly in positions two to five within the series of ten questions so that

⁴ It can be pointed out that one of the reports supplied by the Dektor firm with its descriptive brochures of the PSE, viz., Green (1973) remarks, "Questioning techniques used in conjunction with the PSE are, in general, the same as those used with the polygraph. In using both instruments, careful pre-testing routines must be established. Testing, and if necessary, retesting must be established. Outside issue and guilt complex questions must be structured to identify these problems when they arise." It is presumed that the three- or five-day long training course one receives from the firm with the purchase of a PSE unit includes this kind of information.

the subject would not necessarily be influenced by their presentation order. In Lykken's earlier work, it was found that skin resistance monitoring provided detection of "guilty"⁵ knowledge questions for twenty subjects out of twenty tested, even though they had been offered a monetary reward and were also given extensive information before their interrogation. The results of the study by Brenner et al. showed that "the PSE results from our experiment were in direct contrast: nineteen subjects out of twenty successfully concealed their correct responses..... Although several interpretations are possible for this difference, one clear possibility is that subjects are able to voluntarily influence their vocal responses in a way which they are unable to influence GSR response." (op.cit., p.9)

Still another possible limitation to the reliable use of the PSE was reported by Barland (1973) in which he conducted two separate experiments, a low stress and a high stress study. While differences existed among the size, age, education, socio-economic status, IQ, number of arrests, etc. of the two test groups, as well as in the testing procedures used, the authors concluded that "....on the low-stress laboratory experiment, no significant findings were obtained (ibid., p.7) using the PSE as the response meas-

ure. In the second high-stress experiment, fourteen criminal suspects undergoing polygraph examinations as well as simultaneous PSE monitoring were tested. The results were interpreted as showing that of the three polygraph measures used, skin resistance (GSR) was the most effective single predictor of a correct judgment of whether or not the person was lying. Respiration rate was the second-most effective predictor and heart rate (EKG) was the third. A statistically significant correlation was also found between the PSE scores and the composite polygraph score. The experimenter summarized the results of his high-stress experiment by saying, "The results of the high-stress study clearly show that reliable changes occur in the voice which are correlates of short-term psychological stress evidenced by changes in the autonomic nervous system." Since no significant results were found in the low-stress study, one must question whether a "...certain amount of stress must be reached within an individual before reliable stress-related changes occur in the voice." (Ibid., p. 14) If this conclusion is correct, it would appear to make the PSE somewhat less reliable a tool than previously thought because there is no *a priori* way of knowing whether someone possesses a low, intermediate, or high stress threshold level. It might, therefore, be necessary to administer polygraph tests concurrently with the PSE to make possible the reliable detection of stress response patterns in different people each of whom may possess different stress response thresholds.

DISCUSSION

An example of how the PSE has been used in a UFO-related case is found in a recent prominent newspaper article which stated, "After using the PSE to analyze the stress in Higdon's voice as he related his experience,

⁵ The commonly accepted meaning of the term "guilty" refers to having committed an offense, crime, or violation against moral or penal law, none of which apply to the typical UFO witness. Still Lykken's guilty knowledge test requires the examiner to be able to determine a number of facts that only a "guilty" (perhaps "knowledgeable" would be a better term here) witness will be able to recognize. From this point of view, UFO witnesses may also fall within this terminology and, there, may be testable by this technique to the extent that the investigator possesses independently verified information on the sighting details such as location, exact time, colors, etc.

McQuiston (co-inventor of the PSE who performed the voice stress analysis for the newspaper; insert mine) told the ENQUIRER: "The PSE proves something extraordinary happened to Higdon --- something totally outside his normal realm. He did have a strange experience.

"Some parts of his statements show stress, but other parts show no stress at all, indicating he's telling the truth. For instance, when he says that he hovered over the trees, the PSE charts show he's being truthful.

"And when he says the alien waved his arm and the pickup truck disappeared, he fully believes he's telling the truth. According to the PSE test, something really did happen to the guy." (Burt, 1978)

Faced with very carefully worded yet misleading articles such as this, the uncritical reader may be lead to the conclusion that the PSE is fully able to perform all of its intended functions without difficulty. Nevertheless, shouldn't one ask if any device can prove without a doubt that ".something extraordinary happened to Higdon --- something totally outside his normal realm"? Apart from the probability that Mr. Higdon actually experienced what he claims is the equally critical matter of the adequacy of the experimental procedures and testing apparatus that are employed to quantify the possibility of deception. The science of detecting deception has shown again and again the very real if subtle pitfalls present for anyone bold enough to venture into such work (e.g., Davidson, 1968; Kugelmass & Lieblich, 1966; Lee, 1953; Reid & Inbau, 1966; Trovillo, 1939). Regarding the newspaper statement that "according to the PSE test, something really did happen to the guy" (op. cit.), one should ask what such a statement means. Certainly something happened to Mr. Higdon --- the searchers who found him will attest to that. Finally, the fact that some seg-

ments of Mr. Higdon's statements showed stress while others did not does not necessarily prove that he was telling the truth.

Needless to say, many people who experience UFO phenomena are emotionally distraught for long periods of time afterward. The individual emotional responses these witnesses contribute to the difficulties field investigators face in trying to discover what actually happened from what seemed to happen from the witness' point of view. The use of voice stress measurements, after the fact, may well prove to be a useful approach someday. However, it is the opinion of this writer that much more validation work is needed on voice stress analysis before this will take place.

When one deals with a domain of study (such as UFOlogy) where the boundary between the real and the surreal is extremely amorphous, we must keep one foot firmly planted on the solid ground of traditional scientific methodology while at the same time taking small steps forward with the other foot into the new territory that is illuminated by the phenomena under study. Only by following this approach will we know which way to "come back" when necessary (Haines, 1979(b)).

CONCLUSIONS

Those of us who interview UFO witnesses should take seriously the findings outlined above. As tempting as it may be, we must not assume that just because a particular apparatus is commercially available and even in use by more than 100 police departments in the U.S. and in 17 foreign countries (Anon., 1975(a)) that it is a proven reliable instrument. Until further research has been done to deal with each of the technical limitations discussed above, this writer cautions against the use of the PSE, the Hagoth HS-2, and other such devices. Until then, UFO investigators are better off collecting

written and tape-recorded, full and unbiased narrations by the UFO witness following investigative practices that are outlined in detail elsewhere (APRO, 1972; BUFORA, 1976; Haines, 1979(a);

MUFON, 1975).

This paper draws in particular on the work of Brenner and co-workers. I am most grateful for his labors and permission to quote portions of his papers.

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HYPNOSIS OF IMAGINARY UFO "ABDUCTEES"

Alvin H Lawson

ABSTRACT

In an attempt to evaluate objectively the claims of UFO "abductees", imaginary abductions were induced hypnotically in a group of volunteers who had no significant knowledge of UFOs. Eight situational questions comprising the major components of a typical abduction account were asked of each subject.

Although the researchers expected major dissimilarities, an averaged comparison of data from four imaginary and four "real" abduction narratives showed no substantive differences. Also, extensive patterns echoing well-established details from "real" UFO reports emerged from the "naive" subjects' imaginary sessions.

There is as yet no satisfactory explanation for the patterns and other similarities between imaginary and "real" abductions. But more significantly, there are parallels between these patterns and the "image constants" or recurrent descriptions of form, color, and movement reported by subjects in drug-induced hallucination experiments, and in so-called "death narratives", among other mental processes. Thus there is reason to accept at least some parts of the "real" abductees' stories as accurate reflections of what their sensory mechanisms have reported.

However, despite many similarities, there are crucial differences ---- such as alleged physical effects and multiple witnesses ---- which argue that UFO abductions are separate and distinct from imaginary and hallucinatory experiences. With these distinctions in mind, an abduction model is proposed. Witnesses actually perceive images ---- from whatever source ---- such as bright and pulsating lights, lattice-textured forms moving randomly in the sky, lighted tunnels, humanoid figures, etc. These abduction constants are combined with data from the imagination, memory, and existing UFO data known by witnesses to create a "real" UFO encounter. The subjective reality of the intense hallucinatory experience is a physically real event. Subsequently they may report the "truth" as they have experienced it, although actual occurrences remain unclear.

The complexities of the UFO phenomenon are affirmed by the above model, since still unexplained are many puzzling matters, including the greatest mystery of all, the nature of the stimulus which initiated the imagery in the witness and so triggers the abduction sequence.

The writer prefers a dualistic UFO hypothesis. But while there is a continuing absence of unambiguous physical evidence, this study concludes that UFOs are ---- in psychological terms --- unquestionably real, and further that non-physical UFO research is promising.

INTRODUCTION

Since early 1977, sixteen volunteers have been hypnotized and given imaginary UFO "abductions" by a clinical hypnotist working with a group of Southern Californian ufologists.* The purpose of this paper is to describe the series of experiments and to discuss their implications for UFO research in the light of several analogs to abduction experiences, particularly drug-induced hallucinations.

The imaginary "abductees" were volunteers from local colleges and communities. The group was composed of ten females and six males and ranged in age from 12 to 65. Based upon a brief questionnaire, the oral portion of which was administered before and again during hypnosis as a check, all subjects were judged to be "naive" --- that is, generally ignorant about UFOs and the extensive if uneven literature about them.

The imaginary abduction study came about primarily because of researchers' dissatisfactions with results from allegedly real abduction case investigations. Objections included: 1) the uncertain credibility of witnesses; 2) the ambiguous nature of the anecdotal and other evidence supporting abduction witnesses; and 3) unresolved questions as to the efficacy of hypnosis and/or hypnotic procedures followed in particular cases. The researchers began the study with the assumption that imaginary abductions would be clearly distinct from the "real" cases and so would offer some proof of the "reality" of actual abductions. But what we found was both surprising and unsettling, and much of the intervening time has been spent in trying to deal with the implications of those results.

MATERIALS AND METHODS

As the case literature indicates, most of the 200 or so reported abductions typically contain several distinct stages, the whole of which can be thought of as the abduction sequence:

- I. Witness in normal physical and mental environment
- II. Witness in "pre-abduction" condition
- III. Initiation of experience
 - A. Loss of control
 - B. Witness senses UFO
 - C. Witness senses being taken aboard UFO
 - D. Witness senses UFO interior
 - E. Witness senses UFO entities
 - F. Witness senses being "examined"
 - G. Witness senses being given a "message"
 - H. Witness senses being returned to normal physical/mental environment
- IV. End of abduction experience
- V. Aftermath of abduction experience

A series of eight situational questions based on this abduction sequence was incorporated into an interrogation form which was used with all subjects involved in the experiment. An abstract of the question form follows:

- I. Preliminary statement to subject describing the general nature of the experiment.
- II. Hypnosis.
- III. Idea of imaginary UFO encounter is presented, with the subject urged to tell all details eagerly.
- IV. Questions are asked about each of eight segments of an imaginary UFO encounter/abduction:
 - A. Imagine you are in your favorite place, relaxed and comfortable, when you suddenly see a UFO. Describe what you see.
 - B. Imagine you are aboard a UFO. How do you get aboard?
 - C. Imagine that you are inside

* The group included Dr. W.C. McCall, John DeHerrera, and the author. Earlier versions of this paper were presented at the 1977 MUFON UFO Symposium (Scottsdale, AZ) and at the 1978 meeting of the American Psychological Association (Toronto).

of the quantification and comparative analysis, all of the imaginary subjects described many patterns and details identical to those found with varying frequency throughout UFO report literature (not only abduction cases). The patterns ranged from the obvious ("saucer-shaped") to

rare and even obscure through established details of high strangeness ("tunnel of light"). Some of the interesting patterns from the first eight imaginary sessions which the author noted are listed below (classified into "standard" and "unusual" categories for additional clarity):

TABLE 1 : PATTERNS FROM IMAGINARY ABDUCTIONS

STANDARD PATTERNS

UNUSUAL PATTERNS

"UFO sighted"

UFO too bright to see
Disc-shaped UFO (3)
Haze surrounds UFO

Erratic movement

UFO more brightness than color
Saturn-shaped UFO (3)
Saturn rings move counter to body
UFO becomes "larger & smaller"
S senses UFO is "observing" her

"Aboard UFO"

S carried aboard in trance

S "blacked out"

S taken through "tunnel of light" (3)
Boarding seemed "long journey"
S taken through solid bottom of UFO

"UFO interior"

Consoles, furnishing (5)
Very bright lights (6)
Cold inside (3)
Loud humming

No consoles, furnishing
Fumes and mist present (2)
Cold and warm by turns
Humming almost "hypnotic"
TV-screen "windows" inside
S inside "bubble" throughout exp.

"Entities"

Human (2)
Humanoid
Robot
Lacking some facial feature (6)

Webbed fingers, toes

S senses entities telepathic (3)

Animal
Exotic (3)
Apparition (2)
Two entity types on same UFO (2)
Retracting beam from entity's eye

cont.

- that UFO. Describe what you see.
- D. Imagine you are seeing some entities or beings on board that UFO. Describe them.
- E. Imagine the beings give you a physical examination. Describe what is happening to you.
- F. Imagine that you get a kind of message from the occupants of the UFO. What does the message say and how is it made known to you?
- G. Imagine that you are returned where you were before you saw the UFO. How did you get there, and how do you feel?
- H. Imagine that it has been some time since you have had that UFO encounter. Is there anything that indicates that your personality or your physiological and/or psychological functions have been affected in any way by your UFO experience?

In order to gain perspective on the experiment, an attempt was made to quantify the data from both "real" and imaginary abductions. Transcripts of four "real" and four imaginary cases were analyzed line by line and compared under the following eight categories:

1. Pattern (obvious parallel with previous cases in the literature)
2. Possible pattern (parallel which the analyst judged probable)
3. No recognizable pattern
4. Strangeness of data
5. Subject's objectivity (response judged to show absence of bias)
6. Subject's bias (response deemed to indicate cueing or prejudice)
7. Possible paranormal data (i.e., alleged ESP data such as telepathy, etc.)
8. Emotional component (strong emotional factor in subject's response)

The following two categories were used in the analysis but not in the comparison in Figure 1.

9. Intentional cue (a planned, deliberately leading question)
10. Unintentional cue (unplanned and/or accidental cueing or questioning)

The four "real" abductions were selected mainly because they were credible dual or multiple-witness cases for which regression transcripts or other narrative records were readily available. The "real" abductees included: A) Betty Hill, whose abduction along with her husband Barney in New Hampshire in 1961 is perhaps the most well-known such case. The imaginary study utilized Mrs. Hill's "dream narrative" (5) --- a detailed report of a series of dreams which she says followed her alleged abduction --- rather than her hypnosis tapes because of its greater conciseness and its essential identity to the Hills' regression records. B) Judy Kendall (7), one of three sisters who allege they were abducted near Woodland, California, in 1971. The Kendall case was investigated by the same team of researchers involved in the imaginary study. C) Sandy Larson (8), who says she was abducted with her daughter and a boyfriend in North Dakota in 1975. D) Elaine Thomas (9), one of three women allegedly abducted near Liberty, Kentucky in 1976.

The quantification attempt is subjective and uses a tiny sample, but the same analytical machinery was applied to both types of abduction narratives. It is emphasized, also, that well-investigated, multiple-witness abduction cases are very rare.

RESULTS

The eight-category analysis computed its results simply by totaling the number of information bits in each category and dividing to get percentages. While individual categories varied as much as ten points, striking similarities emerged when averages of four "real" & four imaginary cases were compared, as Figure 1 illustrates.

Whatever the possible weaknesses

TABLE 1 cont.

"Examination"	
Head-to-foot, orderly (3)	Blood sample "vacuumed" from S
Entities kindly but businesslike	S senses mind-probe (2)
Paralysis during exam (4)	Bleeding is stopped, healed quickly
S calmed by entity (3)	S sleeps long time after exam
"Message"	
Telepathic (4)	Verbal (2)
Content of message: ecological, scientific, "will return", "you will forget" (2)	Other (2) No message (3) Entity's mouth moves, no sound
"Return"	
Fatigue, disorientation	Itchy skin, dry throat
"No one will believe me"	Skin "burns"
S feels good about UFO exp.	S feels "taller" afterward
"Aftermath"	
S has "more open mind"	S puzzled about "time lapse"
S forgets experience	S expects "something will happen"

One of the most intriguing patterns relates an imaginary narrative with a 1974 Rhodesian abduction report, both of which describe apparitional entities that assume whatever form the observer wish-

es. This pattern suggests provocatively that "real" witnesses are somehow responsible for significant elements of their own abduction experiences:

IMAGINARY APPARITION DESCRIPTION

"...The more I look at it, the more it--it--it actually becomes more human as I look at it. It--it started out very elongated...it had parts of a human face, but they -- it didn't look right somehow. It -- it's like there was no ears, or -- the more I look at it -- it begins to conform to what I want to see as being human.. I wonder if it's giving me this illus-

"REAL" APPARITION DESCRIPTION

"...We were programmed inside the motor car...And then the form which was beamed straight to the back seat and sat there the entire journey, told me I would see what I wanted to see in and around itself. I would only see what I wanted to see: if I wanted it to look like a monster, then it looked like a monster. I don't know ...what they did...Same basic form

ion of itself strictly through my mind ...because it keeps changing as it walks toward me. I get the feeling that it's changing for me"
--- Imaginary subject #4

as humans, with large trunks, necks, ...what they did...Same basic form as humans, with large trunks, necks, hairless, two arms, two legs....."
-- Witness (under hypnosis) in Rhodesian case (from FLYING SAUCER REVIEW, 21, No. 2, 9).

Entity types from "real" & imaginary cases make a remarkable pattern. It is noteworthy that all of the six known categories of entities (human, humanoid, animal, robot, exotic, and apparitional) were described in just the first eight imaginary regression narratives. The sketches in Figures 2 & 3 provide the most compelling evidence of the extensive in-depth pattern parallels between imaginary and "real" abductions.

DISCUSSION

The imaginary/"real" patterns are as a group too abundant and complex to have sprung from ordinary pop culture sources such as TV, film, magazines, & other media. A thorough knowledge of the UFO case literature would be essential for references to pattern details such as a retracting light beam, a UFO which changes its size, being levitated through a tunnel of light, and reports involving unusual entity types. Yet our protocol made significant UFO knowledge by the volunteers improbable.

Whatever their origin, the patterns seem to prove that the imaginary abductees were not fantasizing in absolute freedom --- they did not, for instance, describe kelp-like entities or UFOs that breathe. The absence of such far-out whimsy suggests that the patterns provide a structure around which subjects fantasize their experiences, following a limited imaginative range which parallels the bulk of "real" abduction cases.

It should be pointed out that the patterns apparently confirm that imaginary narratives are substantially reliable indices of "real" case details. This baf-

fing development may well become significant for future abduction research, but at present there seems to be no way to account for it.

The question remains, where have these non-trivial patterns in imaginary UFO abduction narratives come from? Several suggestions follow.

A. The Hypnotic Procedure: Since hypnotic regression has been used increasingly in recent years to obtain information about alleged abduction experiences, it is reasonable to ask whether the patterns are encouraged by the hypnosis procedure. Certainly one should be cautious about the results from hypnotic regression in UFO case investigations. As experienced hypnotists know, "mesmerization" --- whatever its nature and whatever else it might be --- is no sure road to the truth. A witness can lie, or believe his own lies, and thus invalidate a regression. A more common result may be that hypnotized witnesses subtly confuse their own fantasies with reality --- without either the witness or the hypnotist being aware of what is happening. As far back as 1947 an attempt to use hypnosis in a UFO investigation resulted in apparent examples --- though completely unwitting ones --- of imaginary abduction narratives (2). It may be impossible to know for certain when witnesses are fantasizing in this way.

However, hypnotic regression has been employed in only a tiny percentage of the thousands of reports which provide the known details about the UFO phenomenon, and yet many unusual pattern details (such as retracting light beams)

have been reported in cases where no hypnotic regression was used. Thus while the imagination may embellish and so corrupt a regressed witness's testimony, hypnosis can be a valuable research tool when properly employed. There the question will have to rest --- albeit uncertainly.

B. Leading questions: A related inference is that the patterns are caused by a series of leading questions which bias the protocol of the imaginary abduction experiment. In reply, I quote from imaginary regression narrative #6. Note that the hypnotist merely asks a single question, whereas the subject responds with an extended descriptive passage in which I count more than 35 observational details --- none of which can be said to result from cueing or otherwise improper procedure:

Q.: "Now imagine that you're seeing some entities, or beings...Describe them as completely as you can."

S #6: "They seem to be humanoid in form. They have round heads that are much larger than --- humans. It's almost as though they're kind of --- checking out to see if I'm hostile or not. Their bodies are different colored than their faces and hands. Maybe --- maybe clothes..... Their skin is kind of --- waxy --- waxy yellow. They don't have any hair. They have kind of bumpy-like...skin.... Their faces seem kind of humanoid. But their hands are the same waxy yellow, and they have bumps on the top. They don't really have fingers. They seem to be kind of webbed. Yet I don't see definite projections, or fingers. Kind of bumps on the end of --- of the --- the hand. They don't seem --- to have --- I can't see any legs, or feet, because they're ---- what looks like possibly a --- an article of clothing goes right to the floor. Both of them are dressed alike. Costume isoh....more purplish than blue in color. Seems to be all one --- all made in one piece. They don't seem to be any

seams on the costume. Their eyes are very, very deep-set. Can't really see eyes or pupils. What may be a nose is in the middle of the face, but doesn't really project from the face at all. And the mouths are --- round openings, without lips....They seem to have very short necks, and very broad shoulders... They stand about four feet, two inches tall. Maybe a little taller....They have no tools or weapons with them. They're just kind of walking around me...And the floor seems to be going down, as if it's an elevator. And --- and the door seems to be going up. I think we're traveling down. Doesn't really seem to upset them at all. I think they're probably examining me as well as I'm examining them."
(The subject's sketch of the entities described above appears in Figure 4.)

While no hypnosis session can entirely avoid unconscious bias and cueing, the imaginary series was generally free from such flaws. Perhaps I should repeat here that our comparative analysis checked for subjects' bias and for leading questions, discounting both where appropriate.

C. Are "real" abductions imaginary? The existence of extensive and non-trivial patterns between imaginary and "real" narratives leads easily to the inference that "real" abductions are imaginary. But there are major differences between the two experiences, as the following comparison shows:

(See following page)

An interesting sidelight on one imaginary session was that the subjects involved (a couple) could not say for certain they had not experienced an encounter when awakened from hypnosis. Similarly, some "real" abductees were unable to say for sure whether they had imagined parts of their narratives or not.

In any case the investigators are aware that any explanatory theory must confront considerable distinctions.

IMAGINARY
ABDUCTION EXPERIENCES

Voluntary

Witness usually controls emotion
No enduring sense of "time lapse"
No physical effects
No physiological effects
No amnesia
Few dreams, nightmares
No apparent aftermath

Usually no conscious "memory" of
UFO encounter experience

"REAL"
ABDUCTION EXPERIENCES

Involuntary

Witness often frightened, emotional
Often involves "time lapse"
Physical effects alleged
Physiological effects alleged
Amnesia common
Dreams, nightmares, etc.
Aftermath of disturbing psychic, emo-
tional effects
Often a conscious memory of UFO en-
counter

D. The ETH inference. UFOs and certainly their popular misnomer, "flying saucers", imply for most people the possibility of extraterrestrial visitors, superior beings with advanced technology who may treat humans as specimens. Although there is no more certain evidence for the extraterrestrial hypothesis than for any other, none of the several viable UFO theories --- psychic manifestations, extradimensional objects, exotic natural phenomena, divine emissaries, etc. --- rivals the prevalence of the ETH. The "nuts and bolts" theory, then, may have distorted UFO report data by creating a complex set of ETH-oriented expectations which emerges in witnesses' narratives in the form of patterns.

The standard imaginary patterns may originate from excessive ETH awareness. If imaginary data were completely culture-free, we might expect evidence of other hypotheses to manifest itself, but it apparently has not done so. Of course, ETH patterns may dominate simply because other theories are invalid.

However, the unusual data patterns probably do not stem from an ETH inference since, unlike the standard patterns, they have a mythic depth about them that would preclude easy cultural influence. In addition, the unusual patterns have affinities with other mental processes which will be discussed later.

E. Jungian archetypes. Many imaginary/"real" abduction patterns suggest the archetypal concepts hypothesized by Carl Jung, who developed the idea with regard to UFOs in his book, FLYING SAUCERS, (6). The patterns lend themselves to a Jungian interpretation since both "real" & imaginary narratives seem to imply a collective awareness of such imagery. This idea is acknowledged briefly here, but is best considered only as an interesting speculation.

F. Paranormal cueing. The investigators considered that some imaginary subjects might be "reading the minds" of the three or more informed ufologists present during the hypnosis sessions. Paranormal communication could account for the ability of the naive volunteers to describe obscure details of UFO lore. However, evidence for this fascinating possibility is ambiguous at best.

G. The limitations of the brain's responses. The patterns could be explained if, as is theorized, the human brain responds similarly to a variety of stimuli, in which case supposedly unrelated phenomena produce identical mental effects (11). If the brain does mask its activities in this way, comprehending anything about the stimulus for abduction experiences will be difficult. Also, the lim-

ited-brain notion seems to open up an epistemological can of worms: even if we choose to trust witnesses, we can't know how their testimony relates to reality (see Figure 5). We will return to this matter later.

None of the above suggestions accounts adequately for the patterns and all related questions. In addition, a significant implication of the patterns remains: "real" abduction witnesses are very likely telling the truth as they have experienced it. Support for this statement is found in two areas: 1) recent work on drug-induced hallucinations by R.K. Siegel and others (11, 12, 13); and 2) anecdotal evidence from "death" narratives compiled by Raymond Moody and others (9).

There are substantial similarities between the UFO abduction sequence and what are called "image constants" or recurrent descriptions of form, color, and movement reported by subjects in drug-induced hallucination experiments. Some of the more obvious similarities include: 1) the initial bright, pulsating light; 2) images of tunnels and/or tubes; 3) varied but intense colors; 4) rotating or spiraling images; 5) geometric patterns; 6) erratic movement of imagery; 7) the subject's becoming part of the imagery or otherwise participating in the experience; 8) reports of multiple "TV screens", often displaying autobiographical data; 9) integration of the subject's own memories into the experience; 10) various "complex imagery" --- i.e., recognizable human (often cartoon-like), animal, and other forms.

While several of these hallucinatory images are virtually synonymous with familiar segments of the abduction sequence, an unusual parallel is provided by a participant's painting of a scene from a hallucination, and it may serve to introduce perspective on the abduction/hallucination patterns. The picture suggests the interior of a high-domed UFO with surrounding "windows" (see Figure 6). Large, domed rooms are common in both

"real" and imaginary abduction narratives as Figure 7 illustrates.

The tunnel/tube image is one of the most common in both hallucinations and imaginary/"real" abduction narratives. At times the expression of the image in the three experiences is very similar, implying a common origin (see Figure 8):

#1, Imaginary Abductee ("elevator - shaft" room): "They seem to have..... brought me to this.....it almost seems like a tube. The ceiling is about 20 feet high. And I seem to be about 3 feet from the floor...." (Subject #6)

#2, "Real" Abductee ("volcano room"): "I can see sky up there!....I'm looking up through rocks!....It's a volcano, maybe.Like a long tube....jagged..." (Witness to 1976 Kentucky abduction)

#3, Hallucinating Subject ("tubelike room") "It's a sort of like a tube, like I sort of feel....that I'm at the bottom of a tube looking up...You can see the (screens) & imagery converging with a point in the center..." (Siegel (13), p. 117.)

But the tunnel/tube images take various forms in UFO reports. Some of these are clearly tunnel-like, while others seem to be figurative extensions of the image. As Figure 9 shows, they emerge in reports as UFO passageways, cubicles, transparent containers, rooms, etc. The similar tube image appears as a hose-like appendage hanging from the UFO, and also in a miniversion as a cylindrical tube frequently wielded (as if a medical instrument) by entities during alleged physical examinations.

The tunnel/tube image also seems to recur in many reports of cylindrical UFOs. (Some typical examples appear in Figure 10). One of the most unusual manifestations of this image is the retracting light beam, which witnesses describe as akin to a lighted tube or tunnel. From ground perspective it is as if they were looking into a tunnel of light. This

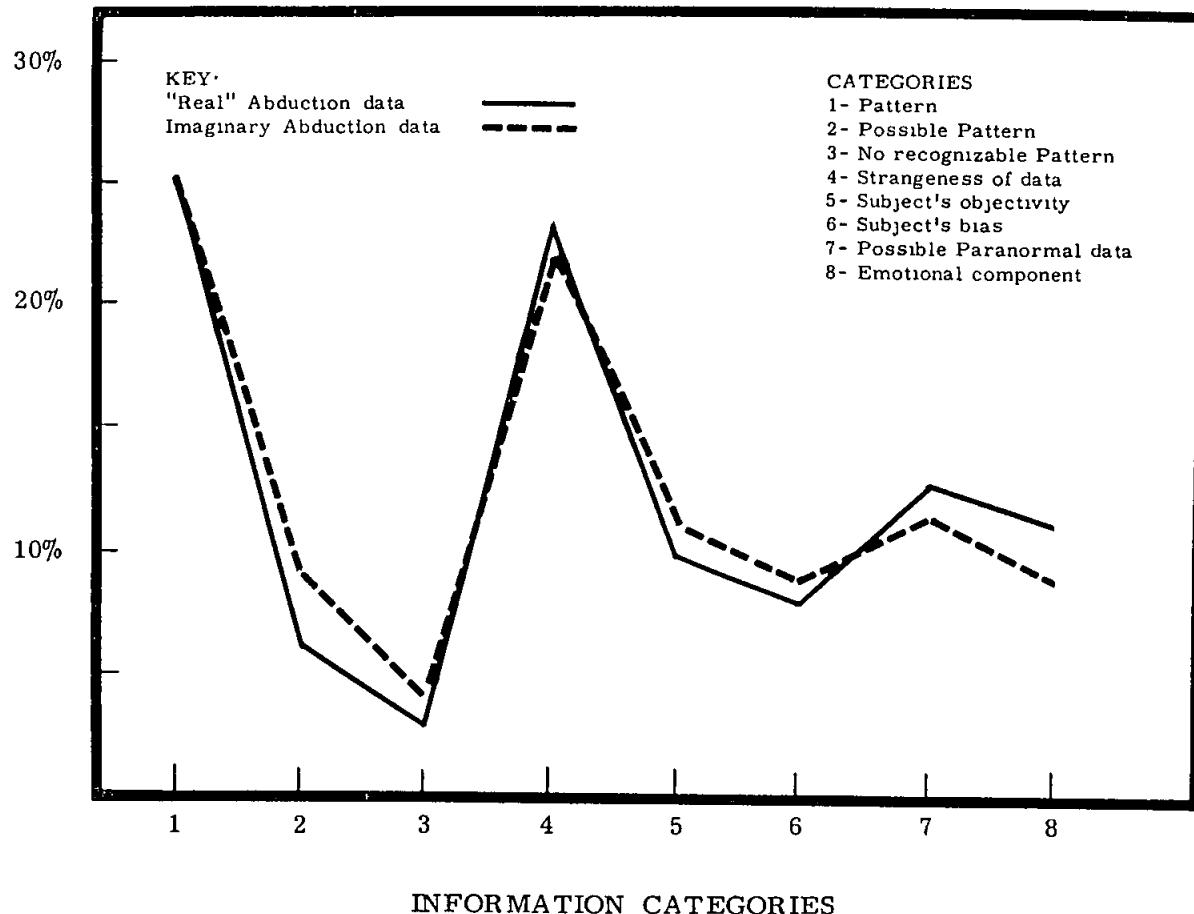


FIGURE 1: GRAPH SHOWING EXTENSIVE SIMILARITIES BETWEEN DATA FROM COMPOSITES OF 4 "REAL" AND 4 IMAGINARY ABDUCTIONS

tubelike beam has several bizarre qualities: it reportedly emerges and retracts slowly, showing a flat "end" (as in Figure 11); its bright light often casts no shadows; and it allegedly has physical effects upon witnesses and environment.

One function of these tubes of light is the levitation of witnesses. Figure 12 shows a typical rendering of a "real" levitation. Similar events were described by three imaginary subjects:

Subject #1: "A long tube came out of it, and it was about two feet above me..... And this long cylinder-like tube came down. It was grey and....was like all colored lights inside of it...I seem to be

floating for a second, and then --- I was inside..."

Subject #3: "...gentle suction...it just sort of drew me up into it, sort of through the bottom...like some sort of tunnel of air and light, drawing me up inside of it...I'm inside of a tube when I first come in...."

Subject #4: "I was pulled in...a particle of dust into a vacuum cleaner. I mean, I'm just suddenly there..."

Another common image in hallucinations is the geometric or lattice pattern, which is sometimes found combined

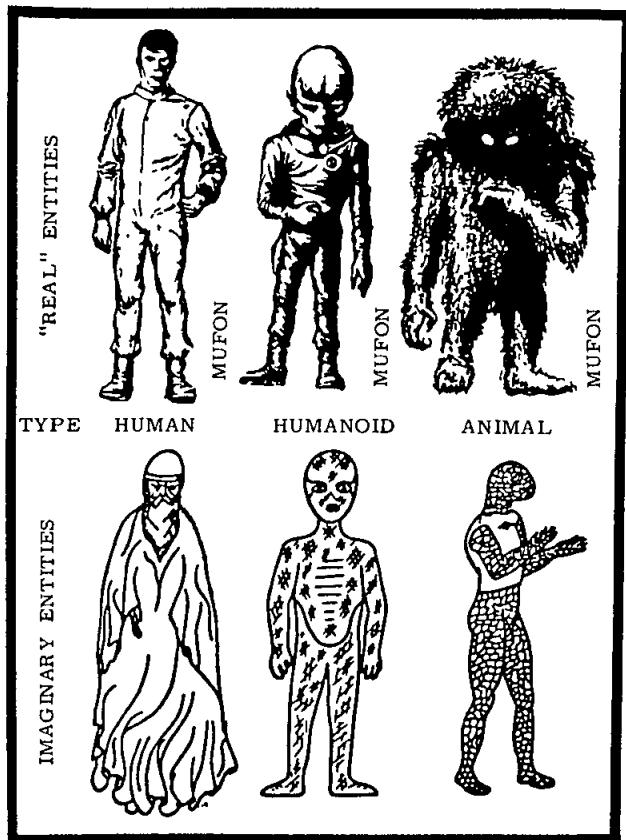


FIGURE 2: IMAGINARY AND "REAL" ENTITY TYPES

with complex or recognizable imagery (as in Figure 13). Geometric patterns are also found in witnesses' sketches of the textured surfaces of UFOs (various examples are shown in Figure 14). Many UFO geometric patterns are apparent rectangular or circular light sources which are interpreted as "windows" by witnesses. An interesting point about reported UFO shapes is that virtually every geometric form can be found among witnesses' sketches.

Thus UFOs can be directly associated with a sequence of hallucination image constants (see Figure 15): pulsating light sources; tunnels and/or tubes; rotating images; geometric patterns; colors; and random movement. These and other parallels support the idea that sequential patterns exist in drug-induced hal-

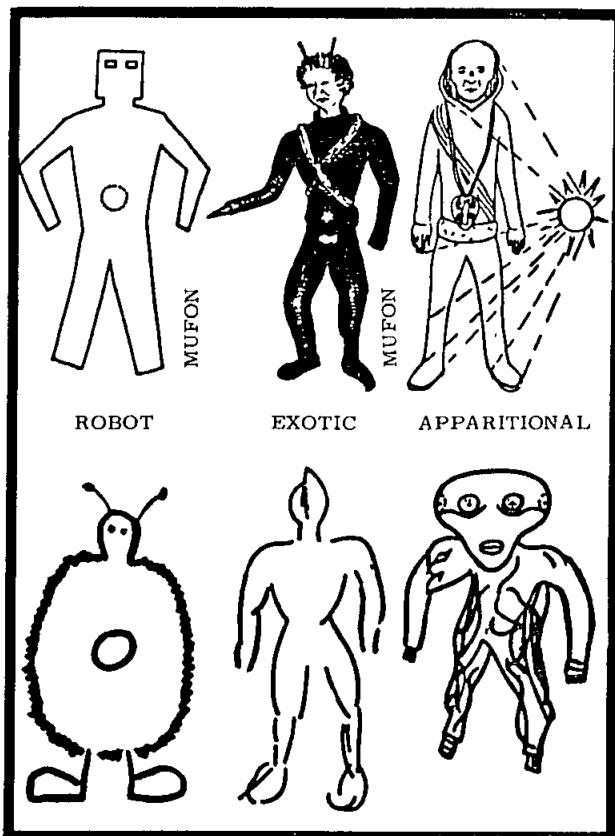


FIGURE 3: IMAGINARY AND "REAL" ENTITY TYPES

lucinations as well as abductions. Siegel says that at least cocaine hallucinations seem to progress toward increasingly intense levels of experience, "from simple snow lights through geometric forms to tactile sensations" (11).

Remaining parallels are even more dramatic. The imagery from hallucinations and close encounter reports is often so similar as to be nearly interchangeable. In Figure 16 are four such sketches: first "A", from a CE III in which a UFO with a "honeycomb texture" was observed with an entity in the window; "B" is a typical geometric pattern from a hallucination, not very different from the textured surface of "A"; "D", also from a hallucination experience, shows a rotating tunnel with a figure in a "window" & resembles both "A" and "C".

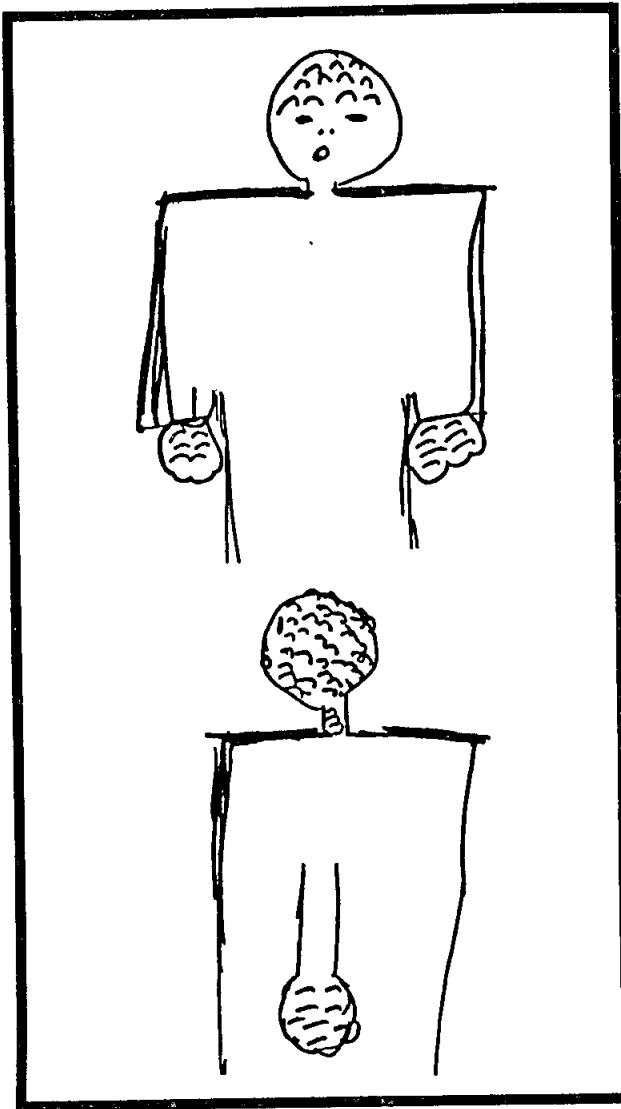


FIGURE 4: ENTITY DRAWN BY IMAGINARY SUBJECT NO. 6

In Figure 17 a "complex" or recognizable hallucinated human figure can be compared with a reported entity. Similarities between the two cartoon-like figures include their aura, their expressions, and that both seem apparitional. Oddly, both hallucination and abduction witnesses perceive human forms as cartoon-like on occasion.

There are other similarities. Hallucinating subjects apparently integrate their own memories into their sessions, experiencing old events with some chang-

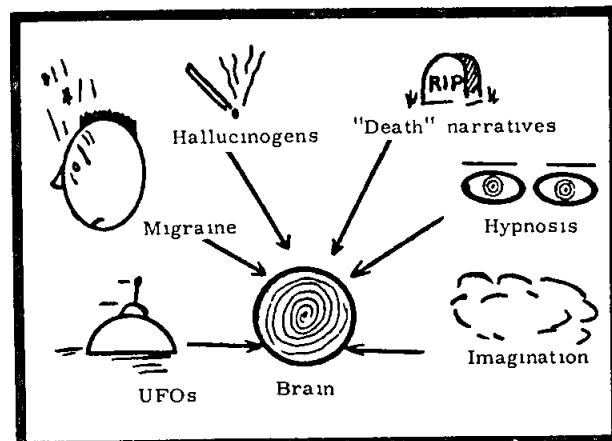


FIGURE 5: DIAGRAM OF THE BRAIN'S HYPOTHEZIZED SIMILAR RESPONSES TO A VARIETY OF DIFFERENT STIMULI

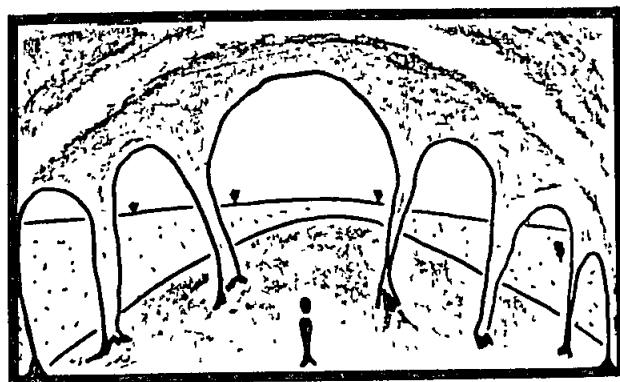


FIGURE 6: SKETCH SUGGESTED BY DRUG-INDUCED HALLUCINATION. NOTE RESEMBLANCES TO UFO INTERIOR AND "BIG ROOM". (After HALLUCINATIONS)

es and a new intensity. One interesting manifestation of this process is illustrated in Figure 18. Hallucinating subjects commonly observe a series of "TV screens" displaying various personal events from their past. Similarly, both imaginary and "real" abductees report seeing groups of such screens bearing autobiographical data.

Personal data emerges in other segments of abduction narratives. For instance, Judy Kendall described her "catheterization" by aliens, and then re-

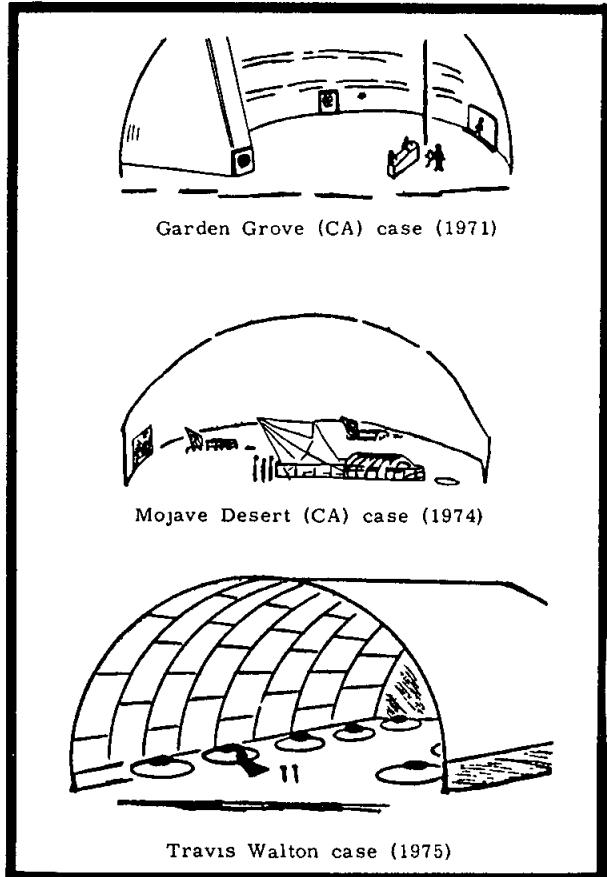


FIGURE 7: "BIG ROOMS" FROM RECENT "REAL" ABDUCTIONS

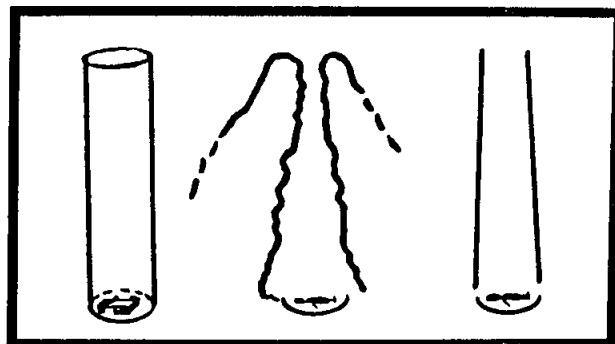


FIGURE 8: SIMILAR TUBE IMAGES FROM (l. to r.) IMAGINARY AND "REAL" ABDUCTIONS, AND A HALLUCINATION

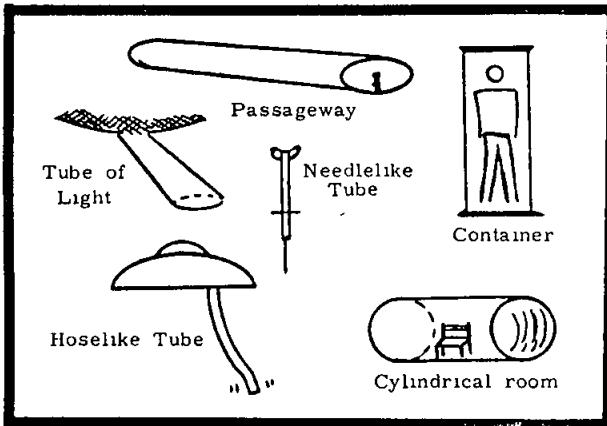


FIGURE 9: TUNNEL/TUBE IMAGERY IN UFO REPORTS

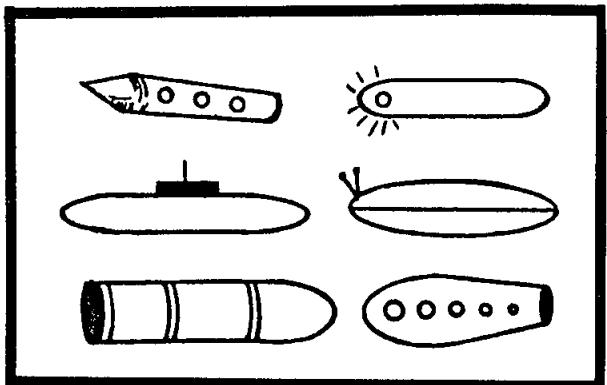


FIGURE 10: TUBE-SHAPED UFOS

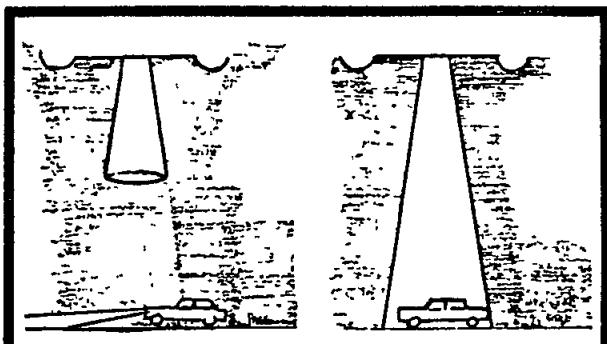


FIGURE 11: TYPICAL RETRACTING LIGHT BEAM FROM UFO SHOWING FLAT "CUT-OFF" END

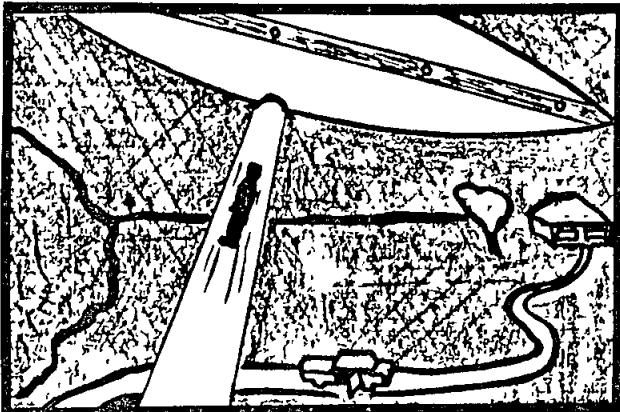


FIGURE 12: REPORTED LEVITATION BY BEAM OF LIGHT

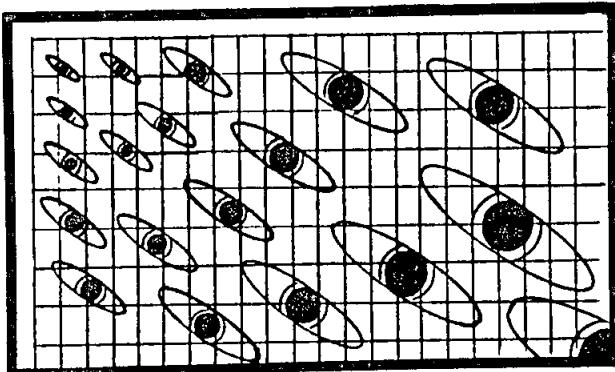


FIGURE 13: GEOMETRIC PATTERN & "COMPLEX" OR RECOGNIZABLE IMAGERY FROM HALLUCINATION

vealed she had been catheterized while in a hospital (7). Sandy Larson told of having her sinuses "scraped" by her alien examiner, but she had had a sinus operation previously (8). There are other examples in the literature. Surprisingly, one of the imaginary subjects also experienced this medical-memory phenomenon: subject #3 said a large mask apparatus was put over her face during her examination and then remembered that a similar mask was used when she was given a tonsillectomy as a child. If remembered medical details can find their way

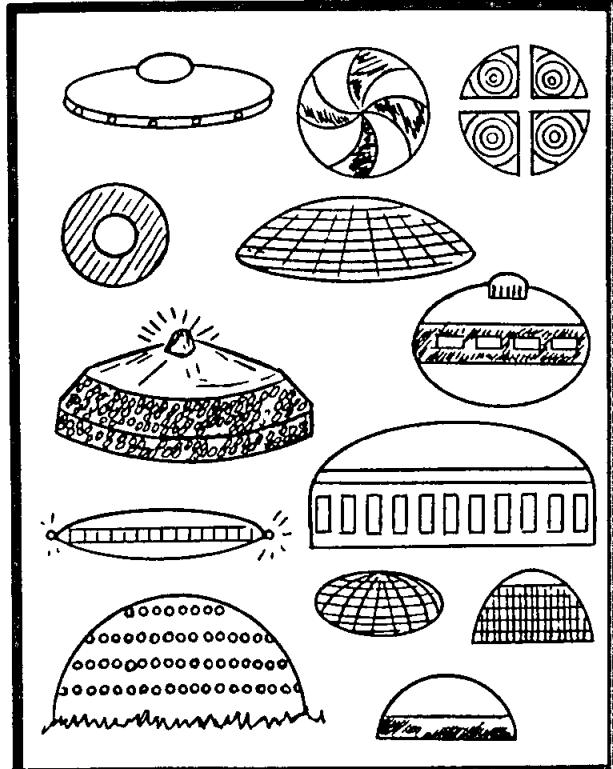


FIGURE 14: GEOMETRIC PATTERNS REPORTED ON UFO SURFACES

into imaginary and "real" abduction narratives, there is no reason why other personal data should not turn up as well. As in the case of hallucinations, it is clear that the interplay of memory and imagination may promote a wide variety of details originating in the subject's personal experience.

Witness misinterpretations may also be involved in a second body of evidence supporting the "reality" of abductees' experiences. This evidence is provided by "death" narratives or descriptions of events supplied by persons who have apparently experienced clinical death before being resuscitated or otherwise "returned" to life. As described by Raymond Moody and others (9), the evidence is anecdotal rather than rigidly scientific, and this should be kept in mind. But besides being intriguing and provocative,

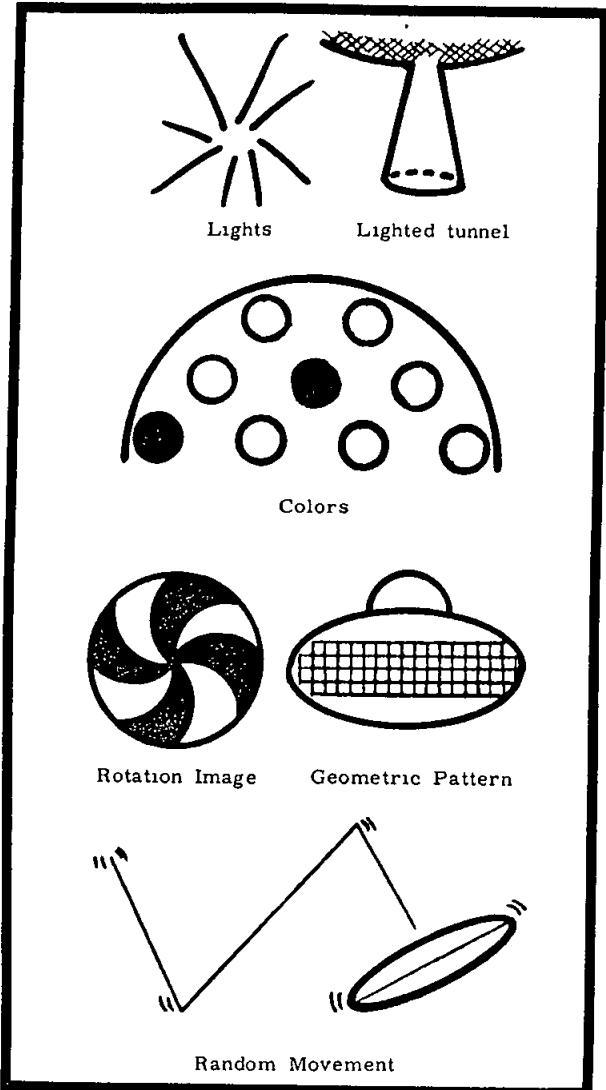


FIGURE 15: SOME UFO-HALLUCINATION PARALLELS

in its generally informal character it is not too different from the bulk of UFO evidence. "Death" experiences typically involve a series of events which have many parallels with the UFO abduction sequence. Although "death" narratives do not always follow an identical sequence of events, many of the described phenomena are consistent with details from abductions. Similarities include: 1) a bright light; 2) a humming (musical or annoying); 3) a sense of "floating" out of the

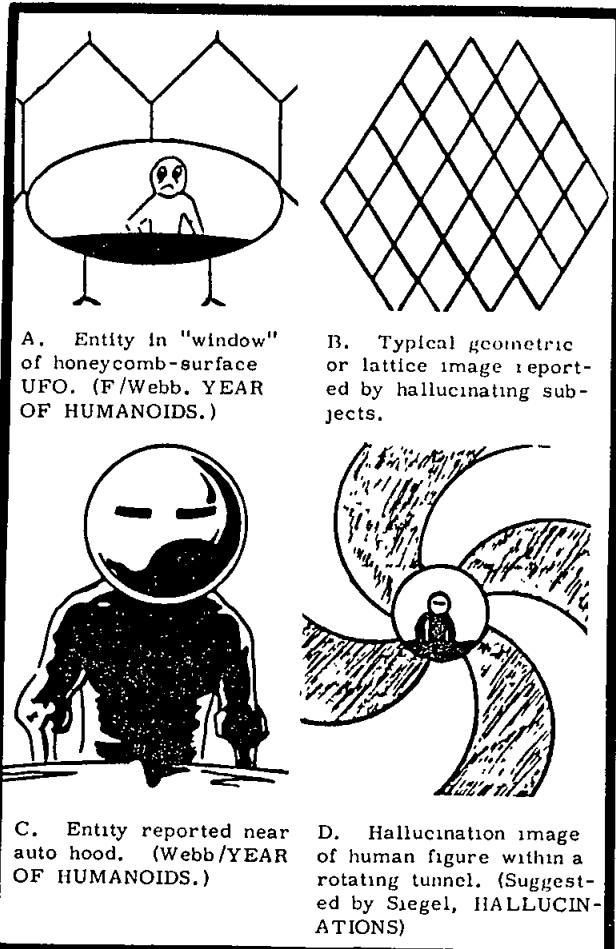


FIGURE 16: SIMILAR UFO/HALLUCINATION IMAGES

body; 4) moving through a "tunnel" or a "tube"; 5) approaching a "door" or border of some kind; 6) encountering a being of light; 7) telepathic communication with the "being"; 8) a rapid review "as on a movie screen" of events in the witness's life; 9) a kind of "moral examination" (roughly akin to the abductee's physical exam) involving past deeds; 10) a moral "message" of some kind; 11) a "return"; 12) an "aftermath" in which the witness experiences varying degrees of personality change.

The overall context of death and dying is of course remote from UFO abductions, but in that respect it is like

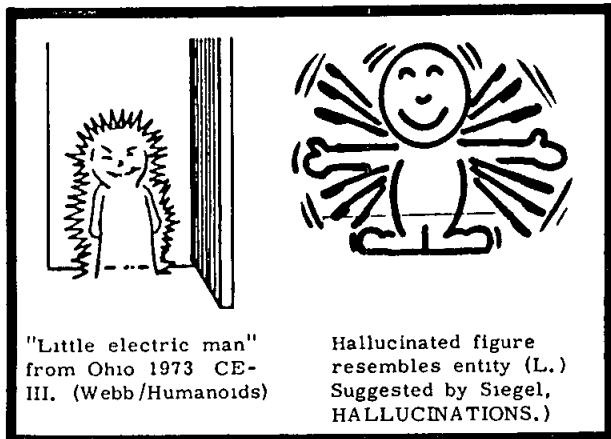


FIGURE 17: SIMILAR FIGURES FROM A UFO CASE (left) AND A HALLUCINATION EXPERIENCE (right)

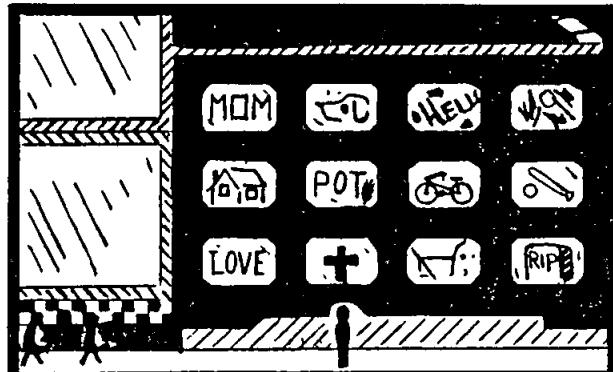


FIGURE 18: "ABDUCTEE" AND "TV SCREENS" BEARING PERSONAL DATA. SIMILAR PHENOMENA ARE REPORTED DURING HALLUCINATIONS.

reports of hallucination experiences. In Figure 19 are listed some of the signal parallels between abductions ("real" and imaginary), hallucinations, and "death" narratives. These apparently near-identical details suggest that whatever differences exist among these phenomena stem not from essential qualities but from the participants' interpretations of them.

Do the extensive parallels among hallucinations, "death" experiences, and imaginary/"real" abductions prove that UFO abductions are illusory? I think not, for four reasons: first, many abduction (and other close encounter) reports involve dual or multiple witnesses and there is scant evidence that multiple hallucinations or shared "deaths" occur at all ---- let alone spontaneously and extending over several hours. Second, there are reported physiological, psychological, and physical effects associated with abduction experiences which --- if true --- are uncharacteristic of the other events. Third, hallucinating and "death" subjects are convinced of the "reality" of their experience only during or after peak intensity periods; but most abduction or other close encounter witnesses are persuaded very early of the "reality" of the event --- however incredible they know it to be. Fourth, while the triggering mechanism

or stimulus for hallucinations and "death" apparently can be determined with some accuracy, the stimulus for "real" abduction experiences continues to be one of the major unknowns of ufology.

While abduction experiences are probably not simply hallucinatory, their association with hallucination and "death" image constants provides objective evidence of substantial significance to ufology: these similarities argue that at least parts of "real" abductee narratives are accurate reflections of what their sensory mechanisms have reported. That is, witnesses have really perceived bright pulsating colors; lighted tunnels; lattice-textured "somethings" in random movement in the skies; and humanoid figures! These "abduction image constants" provide a structure which "real" witnesses could so interpret as to lead them to develop an encounter narrative --- just as the imaginary subjects may have done.

A briefly sketched model of a "real" abduction experience could involve the following: 1) the abduction image constants (which the witness actually perceives) are integrated with data from 2) the imagination, 3) the memory, and 4) the witness's (ETH-biased) general awareness of UFOs. The witness's conviction of the "reality" of the image con-

FIGURE 19: PARALLELS AMONG 4 TYPES OF EXPERIENTIAL PHENOMENA

<u>IMAGE</u>	"REAL" ABDUCT- IONS	IMAG. ABDUCT- IONS	HALLU- CINATIONS	"DEATH" NARRA- TIVES
Intense light	*	*	*	*
Pulsating light	*	*	*	*
Colored lights	*	*	*	*
Geometric patterns	*	*	*	*
Geometric shapes	*	*	*	*
Tunnels/tubes	*	*	*	*
Spirals	*	*	*	*
Rotating Images	*	*	*	
Shape changes	*	*	*	
Size changes	*	*	*	*
Humming sound	*	*	*	*
Sense of floating	*	*	*	*
"Big room"	*	*	*	*
Approaches "door"	*	*	*	*
Encounters "being"	*	*	*	*
Telepathic communication	*	*	*	*
"TV screen" review	*	*	*	*
Moral examination			*	*
Physical examination	*	*		
Fog, mist present	*	*	*	*
Message	*	*		*
Return	*	*		*
Aftermath	*	*	*	*
Ineffability of Experience	*		*	*

stants encourages uncritical acceptance of data from the imagination and memory, and another UFO encounter event is experienced.

This model, unfortunately, falls short of explaining major segments of the UFO phenomenon, particularly the nature of the stimulus which initiates the witnesses' perception of abduction image constants --- the first and most mysterious event in the abduction sequence. In this connection, the French ufologist Claud Rifat's speculative conclusions appear apt (10): "UFO reports..... do not give us any indication of the true stimulus which elicited the report; they give us only what the subject fancies about the

nature of a UFO....CE III's are LSD-like experiences in which a subject perceives a mixture of the real world and of her/his inner unconscious one...."

This epistemological dilemma should suffice, but its complexities multiply. A recent study by the psychologist Richard Haines finds no substantial differences between sketches of UFOs by "real" witnesses and non-witnesses (4), indicating that anyone can sketch a UFO "accurately" whether or not he/she has had a UFO experience. Like the imaginary study, the Haines results make one wonder how much --- if any --- UFO witness testimony is ever "true". Further, researchers have determined that during

REM or dream sleep, the human muscular system undergoes a mild paralysis (perhaps to prevent the physical acting out of dreams (1)). Close encounter witnesses frequently report a sense of paralysis at the first approach of a UFO and/or at other intense moments. But several imaginary abductees --- and their enigmatic consistency is maddening --- described feeling paralyzed at similar moments. If the paralysis means that UFO experiences are related to dreams, then how do we explain the imaginary abductees' reports of paralysis?

It is likely that dreams, hallucinations, death experiences, and a variety of other mental phenomena from meditation to migraine attacks to schizophrenia have major similarities to UFO experiences, & all are related by some common aspect of consciousness. While psychologists do not understand any of these matters completely, two theories (both of which recall Jung's collective unconscious, interestingly) seem worth considering. Siegel proposes that "underlying mechanisms in the central nervous system" are operative in hallucin-

ations. (13) Stanislav Grof suggests that there are archetypal matrices in the mind which are activated after a requisite stimulus. (3)

For our purposes we call this process the encounter matrix. We feel that it can be seen as serving many situations in common, with the individual's subjective interpretation determining whether a given event is experienced as a death vision, say, or an abduction.

The idea that processes of the central nervous system and unconscious matrices are involved in UFO encounters certainly seems worth pursuing. If ufologists have learned something from hallucinations, hypnosis, and deathbed visions, perhaps psychologists and other specialists in human consciousness may learn something from abduction narratives and other UFO reports. Aids to such study may well include the encounter matrix theory and hypnosis of imaginary abductees; these have provided one of the first informed series of apparent replications of UFO experiences. (14)

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ASSESSING BELIEF IN EXTRATERRESTRIAL LIFE: THE BEXTL SCALE

Paul J. Lavrakas & Dennis P. Rosenbaum

ABSTRACT

With the advent of organized attempts to search for extraterrestrial life (e.g., SETI), it has become important to plumb the depths of the public's belief in its existence. The measurement of such a quantity is facilitated by the use of a scale developed by the authors: the Belief in Extraterrestrial Life (BEXTL) Scale. With the existence of this scale, it will now become easier to quantify and understand the social phenomenon of belief in the extraterrestrial hypotheses.

There is currently great popular and scientific interest in the possibility of extraterrestrial life. Paralleling the public's reaction to recent movies such as "Star Wars" and "Close Encounters of the Third Kind", extraterrestrial life has become a topic of interest to respected media sources, e.g., SCIENCE (Kuiper & Morris, 1977) and the NEW YORK TIMES (Ferris, 1977). While the physical sciences have pursued evidence of extraterrestrial life, e.g. the SETI Project, the social sciences have shown comparatively little interest in the social phenomenon of believing in extraterrestrial life. With the exception of some Gallup polls (e.g., 1974) which survey the general level of belief in UFOs, we are unaware of any attempts to measure such beliefs. The present paper describes a scale that has been developed to reliably measure belief in extraterrestrial life. It is important to have a scale that can provide a dependent

variable with good construct validity before rigorous research into the correlates of such beliefs can validly be undertaken.

Bem (1970) has suggested that individuals' belief systems can be represented by an interrelated hierarchy. At the foundation of this hierarchy are "zero order" beliefs which are taken as "givens", i.e., they do not rest on any other assumptions. For many individuals, religious dogma functions as a zero order belief. Since many religions purport to explain the cosmos, it is not unreasonable to suggest that religious beliefs will be associated with beliefs about the existence of extraterrestrial life. A few unpublished research studies (e.g., Cusick & Lavrakas, Note 1; Reda & Lavrakas, Note 2) have found that religious beliefs are significantly correlated with belief in extraterrestrial life. Specifically, these studies found that persons who held more extrinsic and fundamentalist

Christian beliefs were the least likely to believe in extraterrestrial life (Lavrakas, Note 3). In these studies, a four-item scale was constructed to measure belief in extraterrestrial life, but no adequate reliability checks were performed. Hence, the present research focused on the construction of a scale having known reliability and validity for measuring belief in extraterrestrial life. Once this is established, we can more confidently explore the correlates (e.g., religion) of belief in extraterrestrial life.

METHOD

Scale Construction: The scales used by Cusick and Lavrakas (Note 1) and Reda and Lavrakas (Note 2) were revised to develop a twelve item scale used in the present study. (See Figure 1)¹

Each item was first worded so that anyone who did not believe in extraterrestrial life would logically disagree with the statement. However, someone who did believe would agree or disagree depending on the specific nature of their belief. Half of the items were then reworded to the negative form, i.e. all disbelievers could logically agree with these items.

Because this was a first attempt at measuring opinions about each item, an explicit decision was made to use a four-point forced choice response format. A respondent would indicate whether he/she strongly agreed, mildly agreed, mildly disagreed, or strongly disagreed with each item.

Subjects: A questionnaire containing the twelve item Belief in Extraterrestrial Life Scale (BEXTL Scale) was administered to 196 females and 182 males ranging in age from 14 to 75, with an average age of 23.72 (standard deviation of 10.81). The sample was predominately

Catholic (65%), Caucasian (78%), and well-educated (average years of education completed was 13.7 with standard deviation 3.64).

RESULTS

A Cronbach's alpha coefficient (Guilford, 1954, p. 385) was calculated for the BEXTL Scale, yielding a value of .853. This indicates that the scale has a high internal consistency and that all items are reliably discriminating subjects' beliefs on the extraterrestrial life construct. More specifically, this finding means that 85% of the total observed variance can be associated with individual differences in belief about extraterrestrial life. In addition, the corrected item-total correlations are all within an acceptably high range (see Table 1). A factor analysis of the twelve items provided support that the scale was basically unidimensional. The first unrotated factor accounted for 40% of the total variance with an eigenvalue of 4.78. The item loadings on this factor are shown in Table 2.

These items were scored so that a strong disbelief was given a "1" and a strong belief was given a "4". Therefore, scores on the BEXTL Scale could range from 12 to 48. The mean score on the test was 36.17 with a standard deviation of 6.47. Actual scores did range from 12 to 48. This indicates that subjects, on the average, were positively disposed toward the idea that extraterrestrial life exists. This is consistent with the findings of a Gallup survey (1974) showing that a majority of Americans feel it is possible that Earth has been visited by extraterrestrials.

In addition to collecting data on the BEXTL Scale, our questionnaire contained other attitudinal and demographic questions. Supporting the validity of the BEXTL Scale, it correlated in the expected manner with other attitudinal variables. Subjects with high scores on the BEXTL Scale were signi-

* We would like to thank Barbara J. Lavrakas and Susan Rosenbaum for their input into the wording of our scale items.

FIGURE 1: BELIEF IN EXTRATERRESTRIAL LIFE (BEXTL) SCALE
Copyright, P.J. Lavrakas & D.P. Rosenbaum

1. There are no extraterrestrial beings in the universe whose intelligence is equal to or greater than the intelligence of humans.
2. The Earth will never be visited by extraterrestrials.
3. Books and movies about life forms from outer space are pure fantasy, because extraterrestrial life does not exist.
4. Scientists should be encouraged to search for extraterrestrial life.
5. It is possible that certain ancient civilizations were visited by extraterrestrial beings who aided their development (e.g., building the pyramids).
6. Given the probability there are millions of planets with atmospheric conditions similar to Earth, life exists elsewhere in the universe.
7. Radio signals beamed into space to try to contact extraterrestrials are a waste of time and money because there is nothing out there that could understand these signals.
8. Life does not exist anywhere except on Earth.
9. Despite the uncertainty of findings of the "Viking Lander" experiments, life may still be found on Mars.
10. There may be some future time when the human race encounters life from other planets, solar systems, or galaxies.
11. None of the reported sightings of UFOs has anything to do with extraterrestrial life.
12. Extraterrestrial life may be responsible for some of the strange disappearances in the Bermuda Triangle.

fificantly more likely to think that Earth would be visited by extraterrestrials in the next 100 years ($r(375) = .55$; p less than .001). In addition, high believers are more likely to consider communication with extraterrestrials as good news

($r(354) = .45$; p less than .001), to predict being less afraid by such news ($r(350) = .15$; p less than .002), and to be more interested in such news ($r(361) = .41$; p less than .001). Finally, it is of interest to note that in this sample

TABLE 1: CORRECTED ITEM-TOTAL CORRELATIONS

<u>Item</u>	<u>Correlation</u>
1	.472
2	.629
3	.613
4	.402
5	.543
6	.530
7	.534
8	.644
9	.338
10	.651
11	.614
12	.404

Note: N=378; all correlations are significant beyond the 0.001 level.

($r = 378$) age, education, and sex were not significantly correlated with scores on the BEXTL Scale.

DISCUSSION

The present study was designed to test the reliability and validity of the BEXTL Scale. The items have good face-validity. In addition, the internal consistency of the scale is high, and scores on it correlate with other attitudes toward extraterrestrial life in the expected manner. Therefore, it is our conclusion that we have constructed a reliable instrument that can be used to help fill the knowledge gap which cur-

TABLE 2: LOADING ON THE FIRST PRINCIPAL LOADING FACTOR

<u>Item</u>	<u>Loadings</u>
1	.527
2	.684
3	.672
4	.430
5	.565
6	.578
7	.586
8	.723
9	.364
10	.718
11	.665
12	.430

rently exists regarding the determinants and consequences of belief in extraterrestrial life. This is not to say that the scale in its present form can not be improved. In a subsequent study we have found that items 5, 11, and 12 can be deleted without significant loss of internal consistency. We feel that the BEXTL Scale represents a first step towards providing a dependent variable with known reliability. Use of an instrument such as the BEXTL Scale will aid scholarly attempts to better understand the social phenomenon of believing in extraterrestrial life.

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ANGELS HAIR REVISITED

Joseph S. Accetta

ABSTRACT

Laboratory analysis of a sample of possible "angels hair" from a widespread fall (Oct. 11, 1977) in the San Francisco, CA area is reported. The samples analysed showed none of the volatility of that obtained in classic reports. Analysis tentatively identifies the substance as airborne spider web. Nonetheless, a variety of analyses performed is of importance should a "genuine" angels hair specimen connected with a UFO make its appearance.

From time to time a phenomenological accompaniment to UFO reports is a substance referred to as "Angels Hair" presumably because of its resemblance to the silky white substance commonly used as a Christmas decoration. Whether or not this association is valid is unknown to me but, irrespective of it, I thought it enlightening to subject a specimen of alleged Angels Hair to a fairly extensive series of tests to determine its composition and properties.

According to my information the sample investigated was originally retrieved by J. Harder in the San Francisco area on Oct. 11, 1977 or thereabouts. A newspaper clipping from the Austin-American Statesman, Austin, TX Oct. 12, 1977 entitled "San Francisco Covered in White" (a slight exaggeration) was the source of background material on the sample. Apparently the San Francisco Bay area was inundated with white, thick, sticky clumps of the material. The phenomenon was observed as far as 100 miles from San Francisco and reported dimensions reached 20 ft. An on-the-scene explanation by an entomologist from the University of California at Berkeley identified the substance as aggregations of baby spiders webs which have been previously observed when the environmental conditions are favorable. The event is called "ballooning" and is a migratory technique common to almost all families of spiders. We will shortly see how valid this explanation was.

In the past, Angels Hair specimens were alleged to be quite unstable and so, as a precautionary measure, the sample was kept in a freezer until such time as some analytical techniques could be applied.

Preliminary tests indicated that the sample was stable on exposure to sunlight and insoluble in water or in conventional cleaning fluid. Nor was it affected by immersion in H_2SO_4 (sulfuric acid) with the exception of a slight yellowing of the fiber. Boiling the sample in NaOH (sodium hydroxide) produced a change of state from fibrous to an insoluble gelatinous mass. A simple protein test was negative revealing that if it were a protein, it was a very stable one.

The sample was transmitted to a-

another laboratory where it was subjected to investigations under the scanning electron microscope (SEM). The first result noted was that the sample was rather stable in the electron beam which is quite unlike the behavior of normal textile fiber. Figure 1 shows a photomicrograph of the fibers as they appeared under the SEM. The scale in the lower right hand corner is 5 microns or 5 millionth of a meter in length. Further investigation of the sample showed fairly homogeneous trace amounts of Cl (chlorine), S (sulfur), K (potassium), and Ca (calcium) with some localized concentrations of Si (silicon) and Fe (iron) presumed to be sand and rust residue. These last items also were observed under the visible microscope. A representative qualitative scan is shown in Figure 2; the peaks superimposed on the continuum are the characteristic x-ray lines of several elements symbolically identified by the vertical cursors.

A final and somewhat surprising result was that particles of Al (aluminum), Ag (silver), and Ti (titanium) ranging in size from 1-10 microns were also detected. A typical particle of Ag (silver) is shown in Figure 3. The remainder of the sample was presumed to be organic.

Analysis at yet a third laboratory confirmed the organic supposition. The results indicated that the fiber was 43.2% C (carbon), 6% H (hydrogen) and a rather large 13.6% N (nitrogen). Its oxygen component was indeterminate.

Another test called Infrared Attenuated Total Reflectance (ATR) showed a very close match with known curves for silk. A more sophisticated primary amine test indicated that nearly half of the total weight of the sample consisted of a substance called glycine which is one of the simpler amino acids and a building block of complex protein molecules. It was not determined whether this was a synthetic or natural glycine.

Trace element analysis yields the

following results.

TABLE 1: TRACE ELEMENT ANALYSIS

Element	Concentration (ppm)*
K (Potassium)	13000
Li (Lithium)	520
Na (Sodium)	13000
Ca (Calcium)	10000
Al (Aluminum)	25000
Ti (Titanium)	2500
Ag (Silver)	250
Cu (Copper)	1300
Zn (Zinc)	4000
Mn (Manganese)	1000
Mg (Magnesium)	10000
Si (Silicon)	130000
Pb (Lead)	6300
Fe (Iron)	21000

* Parts per million.

Uncertainty: a factor of two.

In conclusion, if this specimen represents a classic example of Angels Hair, it is neither unstable nor evanescent. This appears to contradict a popular belief. The phenomenon is tentatively identified at the time of its occurrence as migratory behavior of baby spiders. Spider webs are known to be composed of a protein called fibroin which consists predominately of the amino acids glycine and alanine. The structure is similar to a class of organics known as acrylo-nitriles (nylon) and silk. These substances are strong, stable organics. All chemical evidence supports the original explanation: spider web.

The only anomaly appears to be the presence of silver, titanium, and aluminum revealed under the SEM. These elements and others were also revealed under the SEM. These elements and others were also revealed in the trace analysis. Some further checking with outside sources on this point indicated

that the above results seemed unusual.¹ A spider web is inherently sticky and presumably would "catch" quite a few things that happened to be carried by the wind.²

The author would like to acknow-

ledge the contributions of C. Miglionico who spearheaded the main analytical thrust, J. Harder, J. Warren, K. Ewing, and L. Burkhardt and, of course, several others who, alas, must remain unnamed.



FIGURE 1: SUBSTANCE UNDER THE SCANNING ELECTRON MICROSCOPE
Scale = 5 microns in length

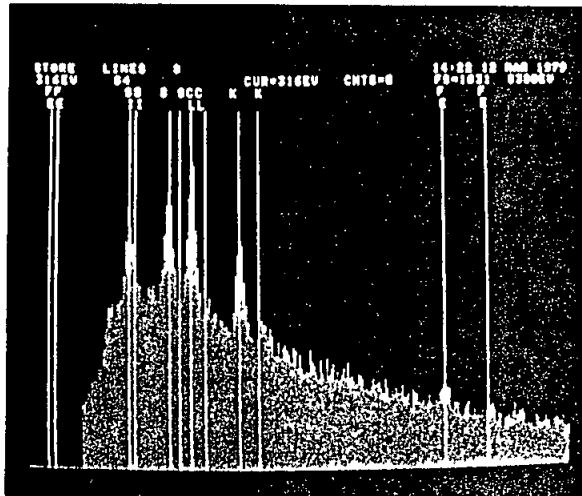


FIGURE 2: REPRESENTATIVE TRACE OF THE X-RAY SPECTRUM OF THE MATERIAL. SOME OF THE CONSTITUENT TRACE ELEMENTS ARE IDENTIFIED ON THE SCALE.

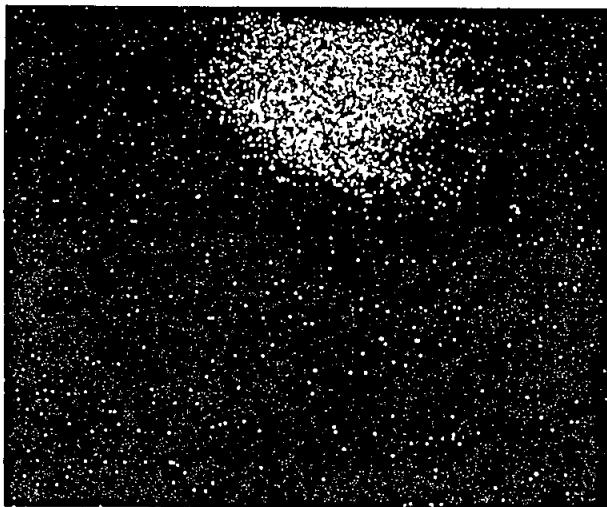


FIGURE 3: SILVER PARTICLE IMAGE TAKEN WITH THE SILVER X-RAY LINE

¹ With the exception of the above, no judgments are offered with respect to what may or may not be anomalous concentrations of the other elements found in the trace analysis but in a subjective way some appear to be rather high.

² Perhaps this exercise has shed more light on the air quality of San Francisco than the essence of angel's hair, but these things are to be expected now and then.

THE EFFECT OF CONSCIOUS AND UNCONSCIOUS ATTITUDES ABOUT UFO EVIDENCE ON SCIENTIFIC ACCEPTANCE OF THE EXTRATERRESTRIAL HYPOTHESIS

Don C. Donderi

ABSTRACT

Current scientific attitudes toward UFO evidence are reviewed and contrasted with the growing interest in communicating with extraterrestrial intelligence (ETI). Conscious rejection of the extraterrestrial UFO hypothesis is attributed to the rigidity of current paradigms, Bayesian thinking with zero prior probability for the extraterrestrial hypothesis, and a low signal-to-noise ratio in the publicly available data. The interest in ETI, on the other hand, is partially attributed to unconscious acknowledgment of the UFO data and its extraterrestrial implications.

Starting with Kenneth Arnold's 1947 report¹, thirty-one years of modern evidence, which includes electronic and photographic data supplementing carefully verified human testimony, has not erased the hostility of a few and the skepticism of many towards the UFO phenomenon. Thomas Jefferson's nineteenth century comment about meteorites reported in France: "I find nothing surprising in the raining of stones in France....the reason is that the exuberant imagination of a French-man..... creates facts for him which never happened and he tells them with good faith."²

expresses a state of mind found as often today when the evidence does not match the preconceptions.

Since Jefferson's time there have been advances in understanding the psychology of evidence as it relates to the development of natural science³ and advances in understanding of those characteristics of the human personality which allow an intelligent rationalist to turn a blind eye in good conscience to evidence which is troublesome to confront. Freud has taught us that data which is apparently ignored or outwardly rejected, may affect behavior uncon-

sciously and in ways which are not directly associated with the supposedly rejected ideas.⁴ I hope to explain in this essay why the UFO evidence is easy for scientists to ignore, how it has already affected --- albeit indirectly --- the cosmology popular among some scientists, and what effects the evidence may have in the near future.

We begin with a paradox. There is a growing conviction, convincingly backed by money, that intelligent life exists elsewhere in the universe. The number of different planets with intelligent life can not be estimated accurately, but recent calculations based on estimates of the number of sun-like stars, the probability that an inhabitable planet might exist around such a star, and the probable lifetime of a civilization on each such planet give an estimate for the number of stars in our galaxy around which intelligent life might now exist as high as one million.⁵ Serious and expensive efforts to transmit galactic radio messages as well as to listen for them are being made in Project Ozma,⁶ and new and even more expensive proposals have been prepared and endorsed by an official multinational symposium.⁷

The same people who search for extra-terrestrial intelligence with radio telescopes reject the UFO phenomenon as unrelated to the search for extra-terrestrial life. Carl Sagan, a leader in the fields of exobiology and the search for extra-terrestrial intelligence (ETI) says, for example, "The interest in unidentified flying objects derives, perhaps, not so much from scientific curiosity as from unfulfilled religious needs.....at the present time, there is no evidence that unambiguously connects the various flying saucer sightings and contact tales with extra-terrestrial intelligence."⁸

The reason for this contradiction in attitude is not that the UFO evidence is inadequate, which is the usual skeptics' explanation. The strength of the scientific conviction that extra-ter-

restrial intelligence is worth searching for rests on unacknowledged acceptance of the UFO evidence as well as on other sources. The UFO skeptic rejects the empirical data when his or her scientific scruples can not accept demonstrable but unexplainable physical phenomena. Accepting the "distant" extra-terrestrial intelligence as a substitute hypothesis allows the skeptic to partially acknowledge this evidence without disrupting the intellectual structures of organized science which serve and are served by the skeptic.

Science is an enterprise which enlists volunteers with varying motives and abilities. Most scientists are not innovators; they are problem-solvers who find in the host of problems which greater scientists leave behind, ample occupation for their time without going beyond the accepted methods, tools, and materials of their trade. These people accept the current paradigm, as Kuhn puts it.⁹ And the current paradigm is hard to ignore. A generation of physicists had difficulty with the paradigm shattering but verified conclusions of Einstein's relativity; Einstein himself could not accept the probabilistic paradoxes of quantum mechanics.

The UFO evidence fits no currently acceptable scientific paradigm, and all ordinary scientific work proceeds under the direction of such a paradigm. Therefore, there is no place for the straightforward, "unimaginative" scientific interpretation of the UFO evidence as a consistent new phenomenon of nature which requires explanation --- because the only adequate scientific explanation would require an entirely new system of thinking about nature, which most scientists are unwilling to entertain.

There are, of course, several easier and more acceptable "explanations" for UFOs. Many people who talk about UFOs do so within a religious belief system which bears little relation to the UFO evidence. Groups

of UFO "believers" have extrapolated a religious message from the UFO phenomena and present their message, rather than the evidence, to the rest of the world.¹⁰ This makes it easy to associate all the UFO evidence with the followers of a UFO religion, and to dismiss the evidence as psychological phenomena like earlier examples have no correlation with a scientific understanding of nature.¹¹

Another explanation for the UFO evidence is that the phenomena are real, rather than religious or psychological but that they are optical or meteorological. The late Donald Menzel, an astronomer, argued that phenomena like "sundogs" during the day and refracted lights at night account for the UFO evidence.¹² Either the religious or the meteorological explanations can account for some of the evidence, but it is not necessary here to detail the many cases where neither explanation fits the data. However, both conventional explanations provide the undiscriminating scientist with an easy cocktail party answer when a layman raises the UFO question.

Another reason that the UFO evidence is ignored by scientists is the extraordinarily high volume of "noise" associated with the "signal" buried in the publicly available data. The cost of defining the signal in a UFO investigation is still so high that it constitutes the main problem for students of UFOlogy. The uninformed scientist generalizes incorrectly from the newspaper headline, and assumes that the signal to noise ratio of a newspaper account must be the signal to noise ratio for all the UFO data. There is not yet a general appreciation of the degree to which UFO data presented for a serious study has already been filtered. A conscientious but poorly informed scientist, aware of the "religio-psychological" and the "meteorological-optical" classifications and also aware of the vast amount of noise in the data, might be excused for assuming that, once the

noisy data is properly evaluated, the two ordinary classifications could account for all of it.

There is another good reason why scientists who are aware of the conventional explanations and who are aware in a general way of the UFO evidence, are not strongly moved by the evidence to accept an extra-terrestrial explanation for UFOs, or even to reject the conventional explanations and to argue that more inquiry is necessary. The reason is that current evidence is always interpreted in the light of a priori beliefs. What is true of formal Bayesian statistical reasoning is also true of informal scientists' thinking. A form of Bayes' theorem, in words, is: the given probability of a hypothesis, given the evidence, is proportional to the initial probability of the hypothesis, times the conditional probability of the hypothesis given the experimental or observational event in question.¹³ Bayesian statistics and ordinary thinking agree that if the initial probability of one hypothesis is zero, no amount of evidence for that hypothesis can make the final probability of that hypothesis, following presentation of the evidence, greater than zero. The conditional probability of alternative hypotheses, given the evidence (e.g., extra-terrestrial vs. religious explanation for a UFO sighting) will be irrelevant in determining the final likelihood ratio of these hypotheses, if the initial probability of one hypothesis --- the extra-terrestrial one, for example --- is fixed at zero.

This means that a scientist with a zero probability towards the hypothesis that UFOs are extra-terrestrial phenomena will retain a zero final probability despite the evidence. A zero initial probability goes with a mental set which does not allow for physical events of the visual, electro-magnetic and photographic kind reported as UFO evidence. Forced to acknowledge the existence of the UFO evidence, this scientist will carry out a likelihood ratio calculation based on a high initial

probability for the "religious" or "meteorological-optical" hypothesis, and retain his preference for these hypotheses as explanations for the data puzzle, rather than treat the evidence as a counterexample to existing paradigms.

Thus among most scientists there is rejection of the UFO evidence: a rejection anticipated in Kuhn's analysis of paradigm shifts in science, justified on Bayesian grounds as inconsistent with the *a priori* impossibility of a non-paradigmatic explanation, and eased by the erroneous belief that the data is too noisy to be useful in any case. Yet there is a strong "belief" in the existence of ETI!

The rational basis for this belief is a change in the picture of the universe which has increased the presumed number of planets on which life like ours could have begun. There was an increase in the assumed number of planetary systems with acceptance of the solar-system dust-cloud hypothesis¹⁴, and an increase in the estimated number of stars with invisible companions which might be planets.¹⁵ These discoveries may be said to make plausible the possibility of extra-terrestrial intelligence but they neither make it probable nor demonstrate its existence. Given only this veneer of plausibility, what explains the currently respectable interest in communicating with extra-terrestrial intelligence? Scientists who are bound to their paradigms are seldom willing to venture so far from their "facts of nature" to embrace such a wild hypothesis to the point of testing it, however crudely, by sending out and listening for the return of intelligent radio signals. Yet this hypothesis is being tested with instruments and the cash of big science.

Here is where psychological knowledge suggests an explanation. The unconscious is a concept developed by several nineteenth-century psychologists, but primarily by Sigmund Freud.

Freud hypothesized that the behavior of neurotic people --- and by extension, of normal people --- could be interpreted by causes of which the people were at the time themselves unaware. Freud developed a theory of personality based on the assumption that mental processes repressed these sources in order to protect the individual from the unpleasantness associated with an awareness of them. According to Freud, these unconscious motivators were mostly sexual and aggressive.¹⁶

The concepts of the unconscious and of repression of unconscious material no longer play a leading role in psychological therapy, but they are still important in understanding mental organization. Modern therapeutic treatment sometimes induces the recollection of memories which were not consciously available until the treatment was undertaken. These memories are not as Freud thought, limited to sexual and aggressive urges.¹⁷ Thus, there can be unconscious experiences which may never be consciously acknowledged but which nevertheless can be recollected and which definitely have an effect on current behavior.

I claim that the intense scientific interest in communicating with extra-terrestrial intelligence is behavior which draws in part on experience of UFO evidence for its motivation, while allowing the interested scientist to refuse to consciously acknowledge that source. The "scientific" ETI interest is in part a rational but unrealistic attempt to deal with the problems presented by the overwhelming UFO evidence in ways which are acceptable in current scientific understanding of the universe. This behavior minimizes the anxiety which would be caused by accepting the reality, and the possible extra-terrestrial origin, of the UFO phenomenon. There are two sources of this anxiety. First,

the intellectual discomfort produced when one scientific paradigm is overthrown in favor of another; second, the real anxiety that our existence and society is threatened by contact with another technologically more capable extraterrestrial civilization. This is anxiety which several of the scientist-participants at a recent conference on communicating with extra-terrestrial intelligence were quick to dismiss, although the danger, based on the historical contacts between technologically unequal human civilizations, was clear to the historian present.¹⁸ An interest in communicating with ETI is certainly not scientific behavior which can be justified on the basis of its results: as one critic (equally critical of UFOs) noted: "Exobiology is still a 'science' without any data, therefore no science".¹⁹

The consequence of this theory is that, as more and more evidence of UFO activity accumulates, the motivation to search for long-distance contact with extra-terrestrial intelligence will grow even stronger, since the motivation feeds on the UFO evidence, which is currently considerably better than the results of the radio astronomy search for ETI.

At some time in the future, the UFO evidence will probably become so clear that responsible scientists will no longer be able to dismiss it as "psychological-religious" or "meteorological-optical". At this point the accumulated data will be seen as a coun-

terexample to the current paradigms, rather than as a puzzle to be explained by reference to established knowledge.²⁰ Then we will have to face the realization that we are in contact with one or more technologically superior extra-terrestrial civilizations.

There is no advantage in postponing the day of intellectual and emotional reckoning. Responsible students of UFO data should present their evidence so clearly and so carefully that it will be accepted as of legitimate interest to scientific minds. Then the evidence can no longer be assigned on the basis of insufficient information or careless analysis either a religious-psychological or an optical-meteorological explanation by the many intelligent, dedicated, and imaginative (within their limits) scientists, engineers, and bureaucrats who must eventually deal with the problems which will force themselves on us when the acknowledgement finally comes. Thomas Kuhn has the last word on the care with which the evidence should be presented:

"Normal science does not aim at novelties of fact or theory and, when successful, finds none...novelty ordinarily emerges only for the man who, knowing with precision what he should expect, is able to recognize that something has gone wrong."²¹

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A STRUCTURED APPROACH TO THE ANALYSIS OF NON-PHYSICAL UFO EVIDENCE

Donald A. Johnson

ABSTRACT

The lack of indisputable hard evidence of the UFO phenomenon is thought likely to continue and therefore, the author attempts to provide a realistic, orderly approach to the analysis of non-physical UFO data. Four levels of analysis are suggested and discussed: the studies of the witness, the phenomenon, the report, and the myth of UFOlogy. Possible research directions are suggested.

Over the years many students of the UFO phenomenon have come to the realization that the solution to the UFO enigma is probably not going to fall into their laps in the form of that long awaited, indisputable piece of physical evidence. Any attempted explanation of the phenomenon based on the current supply of physical evidence would be deemed by most as wholly inadequate. In fact, this lack of indisputable hard evidence has led many to speculate that the phenomenon may not have a physical dimension at all. Be that as it may, the stress put upon the importance of physical evidence is undeniable.¹ Perhaps this emphasis may yet prove justifiable. However, it is also equally true that we have until recently largely overlooked the possibility of gaining much insight into the problem through the systematic

study of our most abundant form of data, the non-physical or "soft" UFO evidence.

This article is an attempt to provide a realistic and orderly approach to the problem of the analysis of "soft" UFO evidence by interdisciplinary study. Specifically, these recommendations are relevant to individuals involved in or interested in the study areas of psychology, history, statistics, sociology, anthropology, and folklore. By "soft" evidence we are referring to the psychological and sociological process involved in the experiencing of a UFO event, the generation of this experience into a report, the generalization and categorization of this experience into a phenomenon, and the mythification of the phenomenon or a combination of phenomena into a folklore.

If there are still any readers

left at this point, some clarification for their benefit will be attempted. We are defining the overall phenomenon as an ongoing process, and we are structuring it into four levels of increasing abstraction for the purpose of study. Basically, the four levels of analysis visualized by this approach are:

- 1) the witness
- 2) the report
- 3) the phenomenon
- 4) the myth

In this model each level of the phenomenon poses separate and unique questions. By approaching the evidence through this structure the special talents of the scientific disciplines mentioned above (as well as others since the list is in no sense meant to be exclusive) can be brought to bear in an effective manner.

The psychologist, for example, is interested primarily in the witness, his psychological profile, his perceptual abilities, his personality. His training allows him to properly judge the relationship between a hypnopompic hallucination and certain categories of close encounter UFO events. The sociologist on the other hand would more likely direct his energy to the report level of the evidence. He is interested in the societal factors that motivate an individual to report his experience and in explaining the dynamics that permit bias to creep into an account. The statistician and historian are properly at home with the phenomenon level, both skilled in documenting factors responsible for such things UFO waves. Finally, the social anthropologist and the folklorist are interested in the dynamics of myth building, the symbolism evoked, the techniques for the transmission of myth and the cultural needs that are met or fulfilled by the UFO myth.

It should be noted that each discipline overlaps the structural levels to

a greater or lesser degree, and none has exclusive domain over any one level. In any interdisciplinary study the objective is not to parcel out shares along lines of authority but rather to share knowledge and assist in the group's understanding through the contribution of a different perspective.

THE WITNESS

Let us examine the current status of the phenomenon using the outline of the analytical model. We first approach the entire process from the level of the witness. On this level we are not so much interested in what is described as who is describing it. In those situations where there is no logical explanation for the sighting, where we do in fact have a UFO and there is no physical trace, the person making the report must become the object of the investigation.² As our only tangible form of evidence, the witness is extremely important. Ideally we would like the full gamut of information on each individual witness: his history of mental health, his status in the community, his educational level, his perceptual abilities, his psychological profile drawn from a series of interviews and a battery of psychological tests.

In a very few unique cases all of this information has been obtained. Usually as the level of strangeness of a report increases, the importance of this information increases proportionately. Therefore, it is not unusual that in the instances where this information has been gathered, it is for the very high level close encounters --- cases such as Betty and Barney Hill, Stella Lansing, or Parker and Hickson. However, for the majority of cases this extensive information on the witness is absent. There are some very good reasons for this. Most of it is very difficult and time-consuming material to obtain. Furthermore, there are ethical questions involved in compiling and releasing this information

and serious legal questions raised with the advent of new privacy laws in the U.S.

This information does have value beyond determining whether a witness is a liar or a fool, and there are some very real issues that could be resolved with it. For instance, is there a "selection effect" for UFO witnesses? Why do some people go through their entire lives without seeing anything while others have several UFO incidents? Should the repeaters be disqualified or believed? Is there a correlation between demonstrated "psi" ability and UFO experiences? Is there a correlation between mild cases of adaptive schizophrenia and UFO experiences? Are percipients of UFO events prone to hallucinations?

Many of these questions are speculated upon without any real evidence. The article "Psychiatry and UFO Reports" by Grinspoon and Persky³ is a good example of an attempt to relate psychological phenomena to UFOs without citing a single actual example from a UFO case!

As an example of research that would be useful in this area, Benton Jamison presented one research proposal at the 1976 CUFOS Conference⁴ which would test whether or not there exists significant sociological and psychological difference between a sample of people who have had a UFO event and a sample of those who have not. In his proposal he recommends including measures of hypnotic suggestibility and beliefs about psychic abilities in the witness testing.

Research in this area should be supported and encouraged both because of the importance of the questions raised and because the research could begin today, which is not true of studies that need physical data.

THE REPORT

The next level of the model is the report. Reports are exclusively what our perceptions of the enigma at

the phenomenon level are based upon. It is therefore very important that we understand the dynamics of reporting and the reliability of our evidence before we begin to make any conclusions on the nature of UFOs.

Basically the reporting process involves the following societal filtering effects: an individual or a group of individuals must conceptualize an event as unusual enough to make a note of it, must be motivated enough to report it, and must have enough status or credibility to have the report accepted.

Because we know there is a very definite selection effect involved in the reporting of a UFO event, a prime objective of research into this area should be to obtain as close to a random sample of actual incidents as possible. Even obtaining the services of a professional opinion survey firm and going back to the subject pool to collect a new independent sample of witnesses would not be carrying this effort too far. We could then compare the characteristics of such a sample of the population reports we have on file to determine what some of the "laws" of reporting this phenomenon are and how badly biased our current sample of reports is.

For a further discussion on the nature of these societal filtering effects and how they effect the reporting of UFOs I refer the reader to an excellent treatment of the subject by Dr. Ron Westrum in his article entitled "Knowing About UFOs".⁵

THE PHENOMENON

As used herein, the phrase "UFO" phenomenon is defined as the product of the categorization of reports of extraordinary events which share as their common attribute the observation of unusual aerial objects. The word "phenomenon" is therefore not synonymous with "event" or "occurrence" as it would be in its strict dictionary definition. It implies rather a compilation of events, and is hence an abstraction and

not an event.

The Battelle Memorial Institute study that became Project Bluebook #14 established statistically that the population of true "unknowns", i.e. unidentified reports, is significantly different in attributes to misidentifications.⁶ This makes it very unlikely that the UFO phenomenon can be attributed to any currently known natural phenomenon "if we just tried harder". It also means that we do in fact have a real and not just an imaginary problem on our hands. We should examine this problem both in terms of what we currently know about it and where we can go with our knowledge from here.

Perhaps our most important asset in this study is our ability to discern patterns within the UFO phenomenon. This is true because the presence of patterns reaffirms our original hypothesis that a certain set of events should be classed together.

When we look at the UFO phenomenon we find some patterns which might be categorized in the following manner:

- 1) Patterns in descriptions
- 2) Patterns in behavior
- 3) Temporal patterns
- 4) Spatial patterns

There exists, for example, similarities in the descriptions of objects including size, shape, color, number of lights, etc. and in descriptions of humanoids associated with those objects. One very obvious area for further research would be to continue the work started by the Battelle study to determine how these patterns co-vary with one another and how they correlate with patterns observed in occupant or object behavior. An example of such a study is provided by Fred Merritt.⁷ By studying similarities in descriptions of landing marks, and reports of the objects and occupants associated with these events, he was able to cluster landing reports into five groups or "catenas", one group of which he was able to elim-

inate as indicative of ball lightning or a similar atmospheric effect.

We also know that UFO reports occur with marked variance in frequency over time and that reports are not evenly distributed geographically. Ballester Olmos has found from statistical data that close encounters tend to manifest themselves in sparsely populated areas whereas light-in-the-sky reports have a random spatial distribution that is directly correlated with population.⁸

David Saunders has determined that the five year cycle waves (1947, 1952, 1957, 1967, and 1973) are characterized by negatively skewed distributions.⁹ These waves build up slowly to a crescendo and taper off quickly, as opposed to waves that seem to be sparked by a few well-publicized cases which peak early and taper off as interest dies. Saunders¹⁰ and Anderson¹¹ have linked the temporal aspect of UFO events with their spatial occurrence. By following development of the major five year waves they separately traced the movement of reports outward and predominantly eastward from theoretical longitudinal starting points. Further research in this area may result in almost total predictability of when and where a major UFO wave may occur.

Finally, Saunders has also advanced the scientific case for orthoteny, or the heavy frequency of occurrence of UFO reports along certain great circle lines around the globe.¹² While the meaning of these "orthotenic" lines appears to be beyond our present comprehension, their existence is nonetheless suggested.

Historians can be a valuable asset to this level of research by documenting the historical examples that correspond and contribute to the presence of UFO reports over time. The "swamp gas" fervor of 1966 is one obvious example. Time series analysis such as that done by Saunders could be linked to an historical analysis of the cycles of public interest. The integration

of these two forms of analysis could offer new insights.

THE MYTH

Finally we come to an analysis of the myth associated with UFOs. This subject is purposefully treated last because the processes involved in the dynamics of myth development seem to draw upon all levels of the phenomenon for material. Just dealing with the term "myth" is a problem in itself. On the one hand the word carries definite connotations of storybook images, of things that "can't really exist" and it is often employed in the sense of "fiction" or "untruth". On the other hand, myth has also come to mean something quite different to anthropologists, folklorists, and students of comparative religion. Myth in this sense is a dynamic process that explains reality, or more exactly, how reality came to be.¹³ It is this function of myth that sets it apart from common folklore. As such it supplies models for human behavior and gives meaning and value to life.

Translating this understanding of myth to the UFO enigma, we find a mechanism to explain the phenomenological reality of UFOs. Throughout the world we can find many examples of "living myths". Myths are alive in the sense that they are believed and used as examples to explain our daily world. In our own culture science and technology have largely supplanted myth as the mechanism for explaining reality. The case of UFOs is one notable exception.

The need to know is a universal human trait. Some social scientists describe it as a need for "closure", i.e. a need for predictability in an uncertain universe. When a strong man suddenly sickens and dies for no apparent reason, some reason must be created. In a primitive culture his death could be attributed to witchcraft. In our own culture we would ascribe it to a virus or unseen micro-organism.

The UFO myth is indeed a "living myth" in our own modern, myth-less culture because in the absence of an adequate scientific explanation to UFOs, myth is called upon to supply the answer.

What exactly is the "UFO myth" then? That is not an easy question. We know that myth is a product of empirically observed facts, beliefs and some very strong human emotions. As such it represents a fairly awesome subject:

"It seems to be impossible to gauge the power of what Jung called the 'modern myth' of UFOs, a myth generated by our post WW II encounter with a real phenomenon, (made no less real by its failure to be universally recognized as such) sustained not only by years of rumor, denial, newspaper, radio, and TV accounts, but by an unending stream of mostly unpublished UFO incidents, and charged psychically by virtue of its connection with almost universally held aspirations and fears. If this myth does not have the power to somewhat create perhaps thousands or even tens of thousands of spurious UFO sightings on the part of people who show no apparent signs of malfunction or derangement, then some way must be found to explore the mechanism by which these sightings are generated on the one hand, and on the other to separate them from sightings of physically real objects."¹⁴

Anthropologists and folklorists have long been aware that the deciphering of myths is always a sticky business. Some of the dynamics of myths are thought to be fairly well understood, mostly dealing with the techniques of

myth transmission (through psychological studies of telling and retelling stories, through anthropological studies of cultures with active oral traditions, and through sociological studies of modern media). The importance of symbolism in myth to account for human needs is also recognized (through psychoanalytic analysis of classical mythology).

I think that it would be fair to say that most people ascribe some form of alien visitation to the UFO myth, be it extraterrestrial or otherwise. Visitation by spacecraft is not the only aspect or message of the myth, however.

John Rimmer was the first to recognize the importance of the UFO as an anti-scientific symbol.¹⁵ As such, the UFO represents the forces of magic in a technologically dominated modern world. The attractiveness of this symbolism should not be underestimated. Several millenarian movements have already developed around UFOs as agents of salvation.¹⁶ This subconscious symbolism may also help explain why the leadership of the scientific establishment is so threatened by the UFO question and have, up to the present, refused to examine the issues rationally and dispassionately.

We know that the myth encompassing UFOs is persistent. It has endured in more or less the same form over thirty years. It may well have persisted in altered form for thousands of years before that. This raises the question as to whether the "real" phenomenon behind the myth is the causal factor for that persistence or whether the "reality" of the myth is so powerful and the symbolism evoked so very important that success and permanence of the UFO story is guaranteed through time with little change.

In *PASSPORT TO MAGONIA*, Jacques Vallee makes the connection between modern day UFOs and medieval myths.¹⁷ He bases this connection on:

- 1) similarities between the appearances of UFO occupants and the descriptions

of elves and gnomes; 2) similarities in the absurd, ludicrous behavior of UFOs and UFO occupants and the antics and pranks of fairies; 3) the religious and mystical motivations behind apparitions and percipient experiences; 4) the evolutionary process of the observation of objects from airships to dirigibles to ghost rockets to flying saucers.

Many of the similarities he provides between the UFO phenomenon and the fairy phenomenon do appear to be more than just coincidental. Vallee states that he was forced to make parallels between UFO reports and the main themes of fairy-lore because some details in UFO reports were simply unbelievable unless taken in context with accounts of encounters with fairies.¹⁸ This raises a few more questions. What share of these similarities between UFOs and other myths should be attributed to human factors? And how strange and divergent can these accounts get before we are forced to discard the hypothesis that they are caused by a real external phenomenon?

One of the areas where the greatest contribution by folklorists can be made is in documenting and relating to the UFO problem the differences in the development of myth that is the product of fiction and myth that evolves from real events and becomes imbued with mythical symbols. We might speculate that real events, translated into myth, would have a more limited range of strangeness than "true" stories that are the products of hoaxes or actual works of fiction (although even these are limited to a cultural frame of reference). The 1896-7 data reveals that the most reliable reports were of objects similar to those described today.¹⁹ Hoaxes are the most elaborate in their descriptions of the airships, putting all the "bells and whistles" imaginable on the object.

CONCLUSION

This article provides a conceptual framework for the analysis of UFO

evidence that hopefully will foster further interdisciplinary interest in research on the UFO question. It is hoped that the few research proposals suggested as examples within will spark interest in and generate other proposals from

informed parties so that when the eventual day comes that scientists are able to sit down and address the UFO problem with a respectable operating budget a good outline exists for a plan of attack.

NOTES

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6. J. Allen Hynek, THE HYNEK UFO REPORT, pp. 272-275 (Dell: 1977)
7. Fred Merritt, "A Preliminary Classification of Some Reports of Unidentified Flying Objects Based on Shape and Dimensions of Imprint Patterns", PROCEEDINGS OF THE CUFOS CONFERENCE, pp. 183-195.
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9. B. Ann Slate, "Interview with Dr. David R. Saunders", SAGA UFO REPORT, pp. 20, 41-42, (December, 1976)
10. David R. Saunders, "A Spatio-temporal Invariant for Major UFO Waves", PROCEEDINGS OF THE 1976 CUFOS CONFERENCE, pp. 1-5 (1976)
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12. B. Ann Slate, op. cit., p. 48
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14. Benton Jamison, op. cit., p. 126
 15. John Rimmer, "The UFO as an Anti-Scientific Symbol", MUFOB, vol. 2, no. 4, pp. 40-43 (July-Aug., 1969)
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 19. Loren Gross, CHARLES FORT, THE FORTEAN SOCIETY AND UNIDENTIFIED FLYING OBJECTS, (1976)
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1897: THE AIRSHIP IN ILLINOIS

Robert G. Neeley, Jr.

ABSTRACT

The author presents an in-depth analysis of the airship wave of 1897 in Illinois as derived from an exhaustive study of Illinois newspapers. Sightings were discovered to fall into one of three categories: the moving lights, the "description" sightings, and landing/occupant sightings. Each group was examined and encapsulated and possible identifications of some of the sightings are suggested. Several classic cases of the airship from the literature are examined.

The 1896/97 airship remains one of the greatest unsolved mysteries of the last century. It is not the airship itself that remains the mystery, but its origin. I feel that the answer to this question lies in scattered bits and pieces in microfilm files of historical societies & libraries.

It was the quest for this answer that led me to the microfilm files of the Illinois Historical Society where there exist 233 newspapers on file for the period of March - May, 1897. Each of these papers was reviewed and articles concerning the airship were photocopied and later studied. It became apparent that there were three classifications of sightings: Moving light sightings, "description" sightings, and landing/occupant sightings.

The moving light classification will be presented first since it contains the majority of the reports; i.e., 184 of the 207 reports that were found were of this class and will be presented as a group study.

Their date and time functions can be found in Figures 1 and 2, respectively. It can easily be seen that the greatest number of sightings occurred between April 9 and April 16, and that the greatest concentration of sightings was between 7:30 and 9:00 PM. Of course, both of these observations do not include sightings that were undated and those of which no definite time was given.

The following table is intended to give an indication of the duration of the sightings and the number of witnesses / report.

(see following page)

There were estimates of speed ("slow" to 150 MPH) and of altitude ("very low" to one-half mile). However, since they represent estimates, they are of no true value.

The following table is a summary of the various descriptions of the moving lights:

(see following page)

TABLE I: DURATION & NO. OF WITNESSES PER SIGHTING

DURATION:

45 sec.	1	15-20 min.	4
1-2 min.	1	20 min.	1
2-3 min.	2	30 min.	6
5 min.	2	40 min.	1
Sev. min.	4	1 hr.	4
10 min.	2	1.5 hr.	1
15 min.	6	2 hr.	2

NUMBER OF WITNESSES:

Many	40	Twelve	1
Several	14	Twenty	3
Few	2	Twenty-five	1
Some	1	Thirty	1
Number	6	Fifty	2
One	18	Hundreds	6
Two	9	Two hundred	1
Three	4	Eight hundred	1
Four-Five	1	Thousands	3
Six	1		

TABLE II: DESCRIPTIONS OF THE MOVING LIGHTS

Light	60
Airship	81
Red light	10
Red and white light	8
Green and white light	6
Red, green, and white light	4
Red and green light	3
White light	3
Yellow, red, and green light	2
Orange light	1
Yellow light	1
Red, white, and blue light	1
Blue and green light	1
White, red, green, and blue light	1
Blue and white light	1
Red and blue light	1

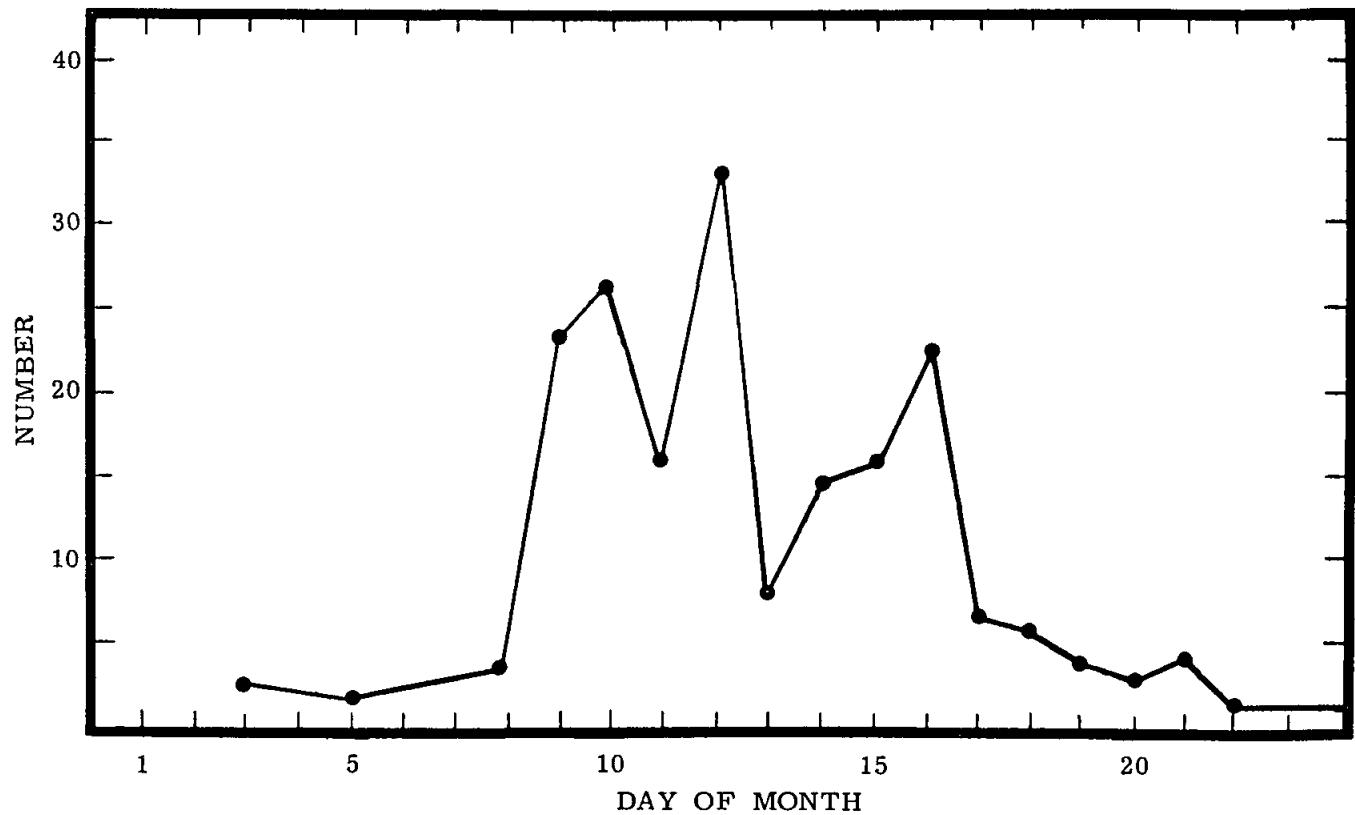


FIGURE 1: NUMBER OF AIRSHIP SIGHTINGS PER DAY OF MONTH (APRIL)

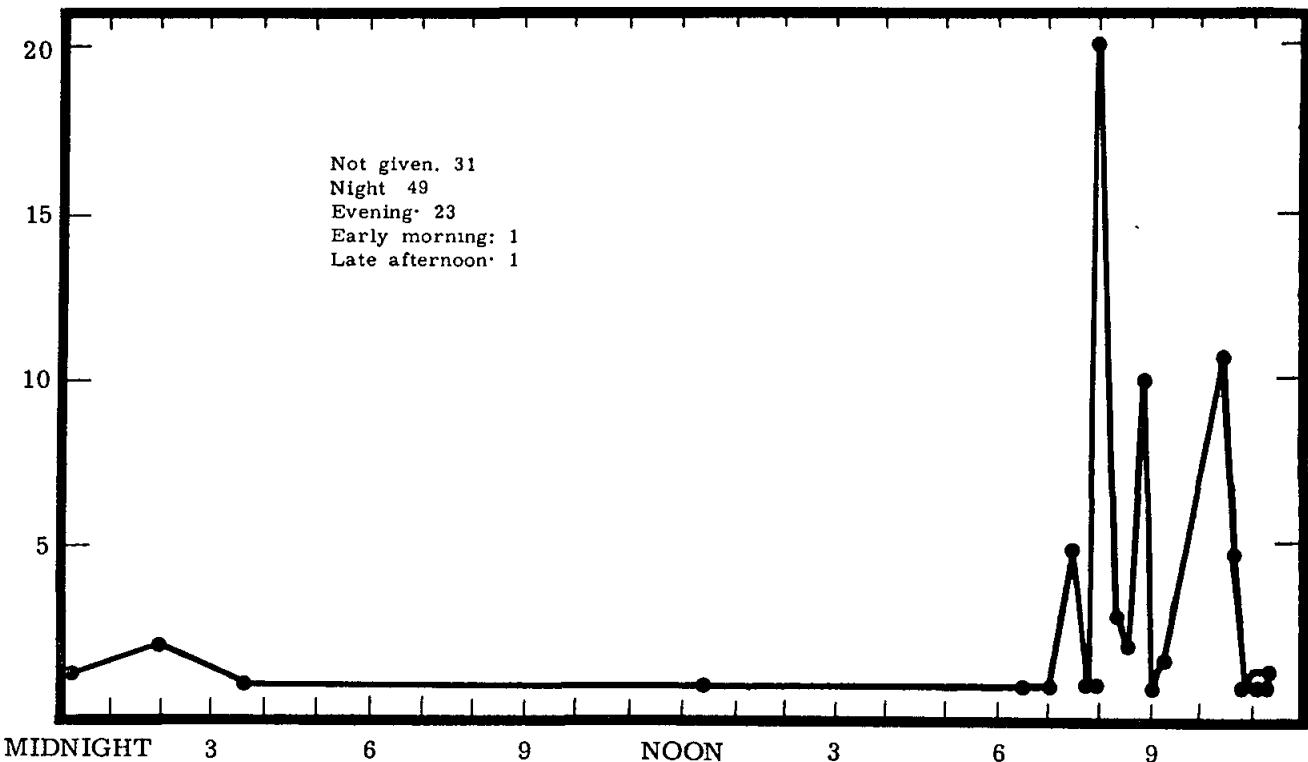


FIGURE 2: NUMBER OF AIRSHIP SIGHTINGS PER TIME OF DAY

These descriptions alone seem to indicate possible astronomical explanations. The multi-colored lights bring to mind the descriptions of stars seen through haze and natural twinkling effects.

On eight occasions the moving light was identified by local astronomers and weather observers as Venus. These all occurred during the major rash of sightings of April 9 - 16. All descriptions were of a bright light seen low in the northwest.

On two occasions the light was seen and identified by astronomers. On April 9, Professor G.W. Hough of the Dearborn Observatory, Chicago, IL confirmed that the light (seen at 10 PM) was Alpha Orionis or Betelgeuse. The star became visible at 7:45 PM and was very bright. On April 12, Arthur C. Lunn an astronomer at Lawrence University, in Appleton, WI, trained his telescope on the light and again identified it as Betelgeuse. He also indicated that Antares, a star very like Betelgeuse in magnitude and color, was visible in the southeast. He felt that the color changes which were often reported and the apparent motion was due to atmospheric refraction.

The following is a table of probable explanations (derived by the author), for the moving light classification:

(see following page)

My reasons for selecting these probable explanations will become more apparent in later paragraphs.

At this time I would like to present the 15 unknowns of the moving light classification. These will be in summary form from the original newspaper articles.

1. APRIL 3: Rochelle, IL. At 7:30 PM many residents saw the airship approach from the southwest. At first, it was seen low and it rose as it passed over. It was seen for 30 minutes and it left going east. The speed of the light varied and the "hum of either voices or machinery was heard."

From the Aurora BEACON, April 6, 1897

2. APRIL 9: Carroll, IL. At 8:40 PM over a hundred people saw the airship approach from the northeast. When it was opposite the city, it changed its course and went due west at a very high speed. The object was oval and carried a red light. It was 8 - 10 feet long and 2 - 3 feet high.

From the Chicago TRIBUNE, April 10, 1897.

3. APRIL 9: Rockford, IL. At 8:30 in the evening, Captain Elisha Thayer and his brother Frank saw a light or lights moving southwest. There were two green and two white lights. It sailed low and they heard voices.

From the Rockford REPUBLIC, April 10, 1897.

4. APRIL 9: Evanston, IL. During the evening, over 800 people saw lights moving west. Robert Lowen saw the lights with the aid of field glasses. He was "able to discern four lights a short distance apart and moving in unison. The first was a bright white light and appeared to be operated like a searchlight. Behind it was a green light and farther to the rear were green and white lights set closely together." A few of the observers claimed to have seen a red light. It appeared to be about 400 feet up and went west. About half an hour later, similar lights were seen over the lake and they were moving south.

From the Chicago TIMES-HERALD and the Chicago TRIBUNE, April 10, 1897.

5. APRIL 10: Chicago, IL. Residents saw a light the size and color of an orange hanging in the west at 2 AM. It had the appearance of a full moon.

From the Chicago TRIBUNE, April 10, 1897.

6. APRIL 10: Kankakee, IL. At 6:55 PM, a bright light was seen in the west at 40 degrees elevation. By 7:30 it had lowered or moved farther away. At 8:00, one of the witnesses saw a light appear

TABLE III. PROBABLE EXPLANATIONS FOR "MOVING LIGHTS"

Insufficient Data -- these were the reports that stated that merely a light, or airship, was seen but no information about time, duration, or direction was given.	63
Venus -- these were reports of a light, or airship that was seen in the west or northwest during the time that Venus was visible in that part of the sky.	56
Stellar -- these were the reports of a multi-colored light seen and probable twinkling due to atmospheric conditions.	28
Unknown -- these were the reports which could not be easily explained due to the movement of the light, altitude, size, and noise associated with it.	15
Betelgeuse -- these were the reports of a multi-colored light which was seen in the direction & time span in which this star was visible.	13
Mars -- these were the reports that concerned a red light seen in the direction and time span occupied by this planet.	6
Optical illusions -- these were the reports that concerned a bright light seen from a moving train. The light could have been very easily a star or Venus seen through the window and apparently altering directions due to the train's motions.	3

on the left side of the white light and it moved down to the lowest portion and up the other side of the light. By 8:30, it had grown dimmer and shortly disappeared. The witness returned to the same spot the following evening at 7:30 and found that the light was not visible even though the night was clear.

From the Kankakee GAZETTE, April 15, 1897.

7. APRIL 10: Nora, IL. At 9:00 PM, Charles Lutter saw a bright light "half as large as the Sun" in the west. It slowly swung in a half circle. He went and got his wife and they watched until it gradually grew dimmer. As it disappeared, it threw out a "train of red light which changed to a pale blue." The light was seen for fifteen minutes.
From the Warren SENTINEL, April 14,

1897.

8. APRIL 11: Bloomington, IL. At 12:15 in the afternoon, residents saw the airship pass over. It was flat, yellow, and like a piece of canvas.

From the Bloomington PANTAGRAPH, April 12, 1897.

The Chicago TIMES-HERALD of the same day indicated that the object was first seen at the zenith and that it was moving to the northeast.

9. APRIL 11: Lincoln Park, IL. During the late afternoon, the airship was seen hovering.

From the Chicago TRIBUNE, April 12, 1897.

10. APRIL 12: Rushville, IL. At 8:35 PM, the airship was seen by many people. Dr. L. Warren saw a headlight as large as the headlight on a train in the southeast. As he watched, it suddenly shot upward and moved rapidly to the north. Then it suddenly changed direction and went west and left. A few moments later, another light was seen going from north to south. This one dipped and rose as it moved along.

From the Rushville TIMES, April 15, 1897.

11. APRIL 15: Muncie, IL. Two men saw the airship pass over at 10:30 PM. They said it made "a grinding noise like some self-binder". It was the size of a passenger coach and it was going 100 MPH.

From the Danville WEEKLY PRESS, April 21, 1897.

12. APRIL 16: Mason City, IL. A large crowd of people saw a peculiar light almost directly overhead at 9:30 PM. It was much brighter than a star and shone intermittently. It went south for a while, then back north, and then left west at a high speed. It was seen for thirty minutes.

From the Bloomington PANTAGRAPH, April 17, 1897.

13. APRIL 17: Chicago, IL. At 7:30 PM, Sam Roeder saw the airship to the southwest. It took 45 seconds to cross the sky to the northeast horizon. It gradually got smaller and disappeared.

From the Bloomington PANTAGRAPH, April 22, 1897.

14. APRIL 19: Galesburg, IL. During the night, residents saw the airship to the northwest. It passed around to the northwest. It passed around to the north and then to the southeast where it was lost to view. The light had a reddish tinge and was brighter than any star. The light would take a great dip and seemingly stop. Then it would shoot forward.

From the Galesburg EVENING MAIL, of April 20, 1897.

15. APRIL 9: Buckingham, IL. Several residents saw the airship at 8:30 PM. It had a reddish color and moved in various directions. It finally left to the east.

From the Kankakee GAZETTE, April 15, 1897.

Reports 1, 3, and 11 could possibly be stellar in origin. However, the fact that sounds were heard makes this an unlikely possibility. It is nevertheless possible that the sounds were of terrestrial origin and were not connected in any way with the sightings.

Reports 4, 5, and 6 are considered to be the most outstanding of this class. It is entirely possible that the remaining members of this class are merely balloons equipped with lanterns. This possibility will be dealt with later.

The next classification that will be considered is that of the "description" sightings. These reports contain descriptions of an object rather than just a moving light. These will be presented as direct quotes from the sources.

1. APRIL 8: Rock Island, IL. "The

airship has been seen in Rock Island. A member of Andy Etzel's force of stargazers claims to have been the modern Christopher Columbus. The blue coat declares that while patrolling his beat in the east end of town last night, he heard a rustle in the atmosphere and, gazing skyward, was astonished by the appearance of a swift moving mass that seemed to have an eye like a ball of fire. It was not more than half a mile overhead, the copper asserts, and was traveling north of east. It was in the early hours of the morning and its passage broke the still air of the night like the distant whiz of an electric motor car. There seemed to be a glittering steel hull with dim wing-like fans on either side, and it swayed gently in its flight. The policeman did not speak to the strange traveler. He was too amazed to give utterance to sound, and before he fully realized what had happened he awoke to a realization of what had happened, or had not happened about him."

From the Rock Island ARGUS, April 9, 1897.

2. APRIL 9: Sterling, IL. "The sky was cloudless when at 8:30 the ship was seen moving in a northwesterly direction. It was thousands of feet in the air and appeared like a large star. The workings of wings or side propellers could be plainly seen and the vessel appeared to be making rapid progress..... Owen McGinnis of Fernberg's and Charlie Johnson, the market man, viewed the airship through a powerful field glass. It was so far distant that they could not distinguish much regarding its form other than it was oblong. Part of the time the machine emitted a red light, then at times the light would be green and sometimes white...Last evening when he (S.S. Greider) saw it, it was headed towards the west. He estimated its velocity at about sixty-five miles an hour."

From the Sterling EVENING GAZETTE, April 10, 1897.

3. APRIL 9: Chicago, IL. "The latest glimpse of the traverser of darkness was caught by south Chicagoans about 9:30 o'clock, when numerous persons state they saw an object like that already described approach the land from out over the lake, and, after reaching a point some distance inland, turn slowly to the northwest and fade away into the night and darkness. These persons offer affidavits and previously good reputations. At several points the moving wonder was observed by persons equipped with small telescopes or powerful field-glasses, and these persons claim to have described the outlines of a structure bearing the lights. The consensus of judgment on the uncertain basis for estimating dimensions of bodies moving through the air at unknown distances, is that the main body of the nightflyer was about seventy feet in length, of slender proportions, & fragile construction. To this body, it is reported, were attached the moveable headlight and the other lights described. A few observers claim they also saw, a short distance above the body, lateral structures resembling wings or sails. These appeared to be about twenty feet in width, and, as they were seen from 1 side, their length could not be accurately estimated."

From the Chicago TRIBUNE, April 10, 1897.

4. APRIL 9: Ridott, IL. "They are seeing things at night down at Ridott, too, judging by the following from our correspondent in that village: Friday evening about 11:59 o'clock the town was surprised by seeing a bright light in the east. The light moved about, drawing nearer all the time. When it was directly over the town, three more lights appeared, one white and two green. When viewed with a powerful telescope, the lights were at the ends and sides of a cigar-shaped ship. It appeared to have wings on each side & a propeller at each end. It was supposed to be the famous Kansas airship. It mov-

ed slowly in a westerly direction." From the Freeport JOURNAL, April 12, 1897.

5. APRIL 10: Jacksonville, IL. "What was undoubtedly the mysterious airship passed over this city about 10:30 o'clock tonight. It was seen by all the police officers on duty, the firemen, and hundreds of citizens. Its course was from east to west. Attention was first attracted by a bright light a few hundred feet above the earth and moving swiftly. The light swayed from side to side, like a big searchlight, and threw out a stream of light several hundred feet in length. It rapidly approached the city, and when it had arrived over Jacksonville, the body of the mysterious visitor could be plainly distinguished. The body was long and narrow, and it reflected the rays of the moon as if made of some bright metal. Shadowy things on the sides were taken to be wings, and the ship appeared to be eighty or ninety feet long. Many reliable persons assert that they plainly distinguished human voices on the ship."

From the Quincy WHIG, April 11, 1897.

6. APRIL 10: Quincy, IL. "It was shortly after 11 o'clock when the strange aerial visitor was first seen, and as the night was perfectly clear, with a half moon high in the heavens, the opportunities for observation were all that could be desired outside of daylight. Hundreds of men who were on the streets at that hour saw it, or say they did, and the description of it given by different persons who witnessed it from different points are remarkably similar.....The airship was first seen by some men on the levee and at that time it was over the river north of the city, and appeared to be a short distance north of the bridge. Their attention was first attracted by a bright white light, and they supposed it to be the searchlight on some steamer coming down the river, especially as there were red and green lights on either side of the white one, but it was so close to the Illinois

shore, while the channel and the draw of the bridge are close to the Missouri side that they watched it, wondering what a steamboat could be doing there. It was flying very low when first seen, but as they watched the light, which occasionally waved from side to side, the thing rose in the air and sailed over Riverview Park or thereabouts. It travelled in an easterly direction for a mile or so, then slowly circled to the south, and then headed to the west again. It hovered for several minutes at a point about over South Park. It swung around until the light from the headlight streamed to the north and then it started in that direction as if intending to come back over the city along about Eighth Street. It proceeded perhaps half a mile, when the thing appeared to change its mind, and stopped. The headlight, which seemed to be backed by powerful reflectors, was waved up and down several times, the smaller lights just back of it were whirled around in a circle several times the same way that a railroad switchman waves his lantern, and then turning suddenly about, the thing started off to the south. Its speed must have been tremendous, for in a few minutes it was clear out of sight.....

What it was, where it came from or where it went, no one knows but there appears to be no reason to doubt but that it was a veritable airship. Its motions were such that it was manifestly guided by human hands, and moreover, it was at times so close to the earth that a tolerably fair view was had of it. At times it did not appear to be more than 400 or 500 feet above the ground and in the bright moonlight was plainly silhouetted against the clear sky. Men who saw the thing describe it as a long, slender body shaped like a cigar and made of some bright metal, perhaps aluminum, on which the moonlight glistened. On either side of the hull extending outwards and upward were what appeared to be wings, and above the hull could be seen the misty outlines of some sort of superstructure, a clear view of which, however, was inter-

cepted by the wings. In the front end of the thing was a headlight, and from the brightness and intensity of the stream of light thrown out, it was apparently similar to the searchlight used on steamboats. About midway of the hull were small lights, a green light on the starboard or right hand side, and a red light on the port or left hand side, the same as on the smoke stacks of steamboats. Several of the men who saw the strange craft said they thought they heard voices coming from it, and from the way that the light was manipulated there were atleast three men on it. The aerial navigators certainly had their craft under perfect control, for they sailed in all directions and at varying heights...Men who saw it agree as to the general appearance of the airship, but they differ as to the size of it. One witness said that he thought it about seventy feet long, another put it at twice that size, and still another said that it was not more than fifty feet in length. From the Quincy WHIG, April 11, 1897.

7. APRIL 11: Decatur, IL. "The mysterious airship seen by so many in Nebraska, Iowa, Missouri, and Illinois recently, was seen Sunday night at 11:15 passing over Decatur northward, going at a rapid rate of speed. The one party who claims to have seen the machine is a bank clerk. He says it looks like two monster cigars with three bright headlights. He has been a doubter on the ship question, but now he is certain that the thing is a reality, and he is curious to learn all that he can about the mystery that is puzzling millions of people."

From the Decatur EVENING REPUBLICAN, April 12, 1897.

8. APRIL 12: South Moline, IL. "A farmer named Kerr, living on Rock River, claims to have seen the airship following the Hennepin Canal south of South Moline at 8:30 this morning. It was moving west at the time."

From the Rock Island ARGUS, April 12, 1897.

9. APRIL 12: Williamsville, IL. "It was last sighted at Williamsville about 8:45 o'clock, headed toward Peoria. Those who saw it say that it had a boat which was cigar-shaped, with oars or wings extending from the side, and a canopy on top similar to that of a picnic stand."

From the Chicago TIMES-HERALD, April 14, 1897.

The Lincoln COURIER of April 13 indicated that the airship had landed at Williamsville and "then suddenly ascended faster than a pigeon could fly."

10. APRIL 12: Lincoln, IL. "Lincoln was under the far-famed airship last night at 7:45. We know it because some of our reputable citizens saw it and are ready to take affidavit to that effect along with several others who are not classed with the strictly conscientious and truth telling portion. Descriptions of the 'blamed thing' are as varied as the many colored lights which were distinctly visible when the unknown visitor got a focus on Lincoln. It didn't hang around very long. Officer Moos threatened to take the visitor to the lockup if it persisted in causing the concentration of mobs in the streets, completely blocking all traffic. When he asserted his intentions the ship veered from its course, which was northwest, & hustled out of sight going directly south. No one attempted to follow the mysterious bird of the air....

Ora Paisley got a snapshot of the strange object and we publish an exact likeness below as taken from his photograph. It is rather crude, rough looking but it is the very best that can be secured, under the circumstances. Considering that it was dark and raining like the very mischief, with now and then flashes of lightning of very short duration, we pride ourselves on scoring even this triumph in journalism....

It was fifteen minutes to eight when someone on Chicago Street rushed into Vopel's announcing a strange light several hundred feet in the air down by

the central school building. 'It's come' was the unanimous shout of all present & out they went to spread the news that the far-famed airship was hovering over Lincoln. In less than five minutes two hundred people were standing out in the heavy rain studying the phenomenon and cracking jokes at its expense. The more timid and superstitious took a beeline to their places of abode to pray and if possible avert the destruction of the which, to them seemed imminent....

The majority remained to study the phenomena. It had wings, they could see them flapping. It was inhabited, they could hear voices and it had a good supply of colored lights for it changed headlights every minute or so....

The wonderful enigma came from the southwest but when midway over Lincoln suddenly changed its course & went skimming away towards the south."

From the Lincoln NEWS, April 13, 1897

11. APRIL 16: Boynton, IL. "Our village blacksmith reports that on last Friday evening while taking a moonlight stroll about 9:30 PM, he saw the famous airship which has been reported in all the papers as being seen floating over the central states for the past week. John says it passed directly over Boynton Center going in a southwesterly course. He described it as near as he could as being about 150 feet long by 50 feet wide; shaped something like a cigar, tapering at both ends; with two large wings, one on each side; lit up very brilliantly; with different colored lights; about 300 feet high, traveling at the rate of 30 miles per minute. He said that it presented a very beautiful sight."

From the Delavan TIMES, April 22, 1897

12. APRIL 19: Goodrich, IL. "On Monday night the people of Goodrich were very much excited over what was supposed for a time to be a most destructive conflagration, but which after investigation proved to be the reflection upon the buildings of the town of the

mammoth searchlight of the airship discovered in the heavens northwest of the village, going west. Robt. Gregg trained his gigantic telescope on the object & after a few minutes observation informed his almost breathless auditors that the object seen was crescent-shaped with fan-like projections on each side, and what carried several powerful lights."

From the Kankakee GAZETTE, April 22, 1897.

Most of these reports have inconsistencies that cause some concern as to their reliability. The most generally disturbing of these is the time/altitude factor. It is doubtful that the witnesses could see an object well enough to describe its shape and even the wings at a distance of over 300 feet at night.

Report 1, as quoted by the paper, seems to have an overtone of an editorial belittling the local police force. This press attitude along with the time/altitude factor and the single witness seems to decrease the likelihood of this being a valid incident.

Report 2 has one major problem: internal inconsistency. How could the men with the field glasses see no details other than just a light when other witnesses who saw it with the naked eye saw details?

Reports 3, 4, and 5 seem to be good reports. However, there remains the time/altitude factor. Report 4 also causes some concern in that the source of the report had previously carried several hoaxes and false reports.

Report 6 is the best in this class. It is interesting to note the many comparisons of the craft to a steamboat.

Report 7 carries a single witness as well as the time/altitude factor and the statement that the craft had three headlights, which is inconsistent with other reports.

Report 8 is very hard to evaluate due to great differences in data.

Report 9 is affected by the time/altitude factor and the differences in the

two sources.

Report 10 is the least believable.

Report 11 is another single witness report with the time/altitude factor.

Report 12 brings forth the problem that only Mr. Gregg saw the object through the telescope while the other witnesses saw only a bright light.

The last classification, the landing/occupant cases, will be presented at this time. They, too, will appear as quotes from their sources.

1. APRIL 16: Danvers, IL. "Many of the citizens of Danvers declare they saw the airship which was reported from Leroy to be coming in this direction, and also a trailer which followed it very closely and was much smaller. They presented the prettiest sight that has ever been seen in this part of the state. The mandolin club, which is comprised of the best and most truthful young people of the town, say they saw them first and gave alarm to others. It was three minutes after twelve this morning. The ships were of some bright material and the occupants were dressed in western style."

From the Bloomington PANTAGRAPH, of April 17, 1897.

2. APRIL 17: Bartonville, IL. "Every morning a P. & P.U. train makes a run for coal to Schoal's new mine which is about one mile distant from the main tracks and in the neighborhood of the Insane Asylum. A single track leads to the mine and winds along through a big ravine this side of the institution. The train made its usual run yesterday morning and on board were Conductor Donnelly, Baggage man Haley, Brakeman Hardinberg, Engineer Schem, and Fireman Miford. The story as it was told in all apparent sincerity to a HERALD reporter by Hardinberg runs in this wise. The train had gone about one half of the distance from the main track to the mine and was moving along at a leisurely gait when off in the ravine and to one side

was a peculiar object about which several persons were standing that at once arrested their attention. The train was stopped and the crew hastened to the spot where they beheld the cause of the big sensation of the day in all its splendor, resting upon the ground. Hardinberg avers that there were three young men & a comparatively young woman in charge of the boat and that the men were dressed in blue uniforms with the brass buttons of a United States Officer. The railroad men asked them many questions but the answers were few and reluctantly given. The proprietors stated that they had left Omaha, Neb., or thereabouts at 8:50 o'clock the previous night and arrived at Bartonville at 3 o'clock in the morning after a leisurely trip. They had anchored their craft in a secluded spot in the ravine so that inquisitive people would not cause them trouble. The proprietors gave out the information that the ship had been constructed on Grosse Island in the Maumee River near Toledo, Ohio, and that five more were now being built and were to be sent to Greece for war purposes. These three strange men were likewise inquisitive. They wanted to know what the people had to say concerning the aerial boat as it went over the country night after night. They said that they had seen no newspapers and really wanted to know if any interest was being taken in their enterprise. The flying machine as it appeared to the awestruck Peorians was about 28 feet long and 14 feet wide. Two huge horizontal projectiles, resembling cigars in shape, formed the body and seemed to be made of a light metal. The machinery and in fact the larger part of the craft was concealed by a canvas. On the front end was a headlight about the size of those used on locomotives. A large propeller wheel was on the rear end and was propelled by electrical machinery. A small pilot house was on top and near the front of the boat and was occupied by the man who steered. A four inch revolving gun was directly back of this. The boat

throughout was fitted with the finest of electrical appliances and Hardinberg describes it as being a wonderful contrivance in every particular. While the proprietors had no objection to the visitors viewing it, they allowed no one to even touch the ship. After remaining at the place about a half hour, the train crew departed, after being informed that the aerial monster would leave at dark. Returning to the city they told the story at the Union depot and with such apparent truthfulness that the report soon spread all over the city. Engineer Schem was seen but did not care to talk for publication. He said that Hardinberg & Haley were the only ones who visited the place and upon returning to the train, reported having seen an airship.

This office was called up over the telephone last night by a prominent citizen of Bartonville who said that he and several others had seen the ship, that there were six or seven people in charge of it and that the stop was made on account of a break in the machinery. Furthermore, he had espied beneath the canvas a number of animals, among which was a tiger belonging to Ringling Bros. and advertising their circus."

From the Peoria HERALD, April 18, 1897

3. APRIL 18: Jordan, IL. "The airship put in its appearance in Jordan last Sunday night. A citizen of the town (who declares that he can tell a flock of wild geese from an airship) saw the ship about 9 o'clock in the evening going from the east to the west. He positively declares that the ship landed at Bressler's Mill where it took in a supply of water. It was impossible to discern if any of the occupants got out of the ship. After taking in the water, the ship rose straight up about 1573 feet and disappeared in the west. The ship was the same cigar-shaped floating instrument seen by others."

From the Sterling EVENING GAZETTE, April 21, 1897.

4. APRIL 18: Bonfield, IL. "Will A. Henry of Bonfield says he saw the airship Sunday night. It was canoe-shaped, gold-plated, studded with diamonds, satin-lined and from it came the most enchanting music and bewitching perfumes, while within stood a lovely maiden smiling on and beaconing to him. Will had intended to go West soon, but has postponed his trip indefinitely..."

From the Kankakee GAZETTE, April 22, 1897.

5. APRIL 18: Nora, IL. "Last Sunday as Dan Manley, Jr., the station agent at this place, was sitting in the depot half asleep, he thought he heard the rumbling of a distant train. Springing to his feet, he rushed to the door and looked down the track, but saw nothing. He heard the sound still, this time louder than before and appearing to come from the sky. Glancing up he was amazed to see that much talked of Kansas flying machine right above him. The machine seemed to be slowly settling although the propellers traveled with lightning rapidity. Thoroughly awakened by the strange sight, Dan gazed at it for a moment in wonder, but soon his wonderment was changed to horror as he thought of the result should the airship settle on the depot. Slowly the airship settled within about one hundred and fifty feet of the ground when it was caught up by a strong current of air and carried in a westerly direction. Dan, knowing that something was wrong with the ship, started up the track at a pace that would have left Joe Patchen far behind. As he rounded the curve on the Illinois Central track, one mile west of town, he saw the ship settle to the ground near a duck pond. Throwing aside his coat and cap so as to lighten himself as much as possible he continued on up the track to where he had seen the ship settle. As he drew near he saw what the aerial navigators had descended from their ship and were trying to repair a shaft which manipulated the steering apparatus. He rendered

them every assistance in his power and after a half hour's hard work, they were able to proceed on their way. Before leaving, however, one of the men climbed on board the ship saying that he wished to make Dan a present for the assistance he had rendered them. He soon reappeared, carrying on his shoulder a large iron cage, containing a strange looking bird, which he said was a very rare specimen of 'zuxaquakta zuzlok', which translated in English means black parrot. Dan brought the cage and its strange occupant home and now has them in the depot where they can be seen by anyone who calls. The bird speaks in a strange tongue but Dan has strong hopes of being able to teach him English, as since his sojourn here he has thoroughly learned to imitate the cackle of a hen."

From the Warren SENTINEL, April 21, 1897.

6. APRIL: (no date specified) Elburn, IL. "The biggest whopper of all comes from Elburn in Kane County, where it is claimed that the airship touched ground. Trainmen running through there say that some stockmen say that some farmers say that the ship had a breakdown near there and come down for repairs. These farmers come across it, and found that two men accompanied it. The machine apparently weighs about 500 pounds and was made of some light substance like aluminum. They conversed with the men but learned little. The men said they were going from the Pacific to the Atlantic coast and were following the Northwestern railway."

From the Rockford REPUBLIC, April 12, 1897.

7. Undated: Downs, IL. "Henry Savige, a resident of Downs township, declares that one day this week, while he was at work in a field, an airship alighted near him and that six people disembarked therefrom, remained a few minutes and conversed with him, and then jumped aboard, ascended, and sailed away."

From the Chicago TIMES-HERALD, April 17, 1897.

8. Undated: Greenfield, IL. "Greene County has scored the biggest airship story yet evolved, and Mr. M.G. Sisson the editor and postmaster at Greenfield is entitled to the medal. The story was telegraphed to the St. Louis Star Tuesday. While out walking in the woods along Taylor Creek, Mr. Sisson claims that he saw the airship approaching him and only about 150 feet from the ground. It was about 100 feet long, had wings & a promenade deck. A lady standing at the bow catching pigeons for a pot-pie with a long-handled net. The occupants discovered him, and immediately, the ship rose rapidly and disappeared. If Bro. Sisson had only brought in some of the pigeon feathers by way of proof, we could have placed most implicit confidence in his story."

From the Carrollton PATRIOT, April 23, 1897.

By reading these claims closely, it is apparent that they tend to speak for themselves. At the present time, I plan to only record them.

For those who are familiar with the airship lore, it will be noticed that there are two airship classics from Illinois that I have not mentioned: namely, the Girard and the Springfield occupant sightings. These will now be presented and it will become readily apparent why they were not classified.

I will concern myself initially with the occupant sighting at Girard, Illinois on April 12. The following was reported in the press:

"About 2:30 o'clock Monday afternoon it alighted on the farm of Z. Thacker, one mile north of Nilwood. It was seen by William Street, Ed Teebles, and Frank Metcalf. It remained about fifteen minutes and continued north."

From the Chicago TIMES-HERALD, April 14, 1897.

"The report from authentic sources is that the airship, which has been seen at many different places the past month, was seen about halfway between the towns of Milwood and Girard at 6:15 Monday evening. When first seen it was descending, and was noticed by Wm. Street, Frank Metcalf, and Ed Steeple and the telegraph operator at Girard. These men saw it alight and a man got out and fix some part of the machine. They started for the place where it had alighted, but when within a quarter of a mile it rose and disappeared from view in a northerly direction."

From the Decatur EVENING REPUBLICAN, April 14, 1897.

"The airship was distinctly seen here (Girard) last night by P.F. McCraner, William Street, Frank Metcalf, and Ed Steeple. McCraner is night operator at this place and when he came on duty at 6 o'clock the operator at Carlinville called him up, said the airship had passed over Carlinville in the direction of Girard and advised him to be on the lookout.

McCraner stepped outside and fifteen minutes later saw what he believed was the airship passing over this town in the direction of Nilwood. It was rapidly approaching the ground. McCraner asked the day operator to hold the wire for him and calling to Street, Metcalf & Steeple, who were standing near, he started on the run down the railroad track, they following. As they went they saw the strange craft drop to the ground behind a clump of trees about a quarter of a mile distant. Before they could reach the spot, the ship was seen to rise, ascend to a great height and disappear to the north. They were so near where it rose they could see persons in the boat and could also distinguish a large letter 'M' on the side. All the men agree the craft was cigar-shaped and had oars or wings extended.

They continued on, to the spot where it had alighted and saw distinctly

the imprint of a man's feet. These footprints did not lead anywhere and it was evident they were made by someone who had jumped out of the ship."

From the Jerseyville DEMOCRAT, April 15, 1897.

There were several articles that the airship had landed at Green Ridge on the same day and at one of the times above. The general description was identical even to the detail of the letter 'M' on the side. It was found that Green Ridge was a mining camp located two miles south of Girard which would be between Girard and Nilwood. I feel that these represent the same story or at least versions of the same story.

I feel that this story is a hoax for the following reasons:

"The airship continues to attract the attention of our exchanges in various parts of the country, but all confess that the Girard story, sent out by way of Carlinville, is the boss-liar. The charge that as telegraphed to the city dailies, this story was made up in this city and in a newspaper office, may have a show of truth."

From the Carlinville DEMOCRAT, April 29, 1897.

It should be noted that the Girard story was dispatched from Carlinville rather than Girard or Nilwood. I feel that this would seem to indicate the strong possibility of a hoax.

Now I will turn my attention to the second classic Illinois airship report. The following was a typical dispatch:

APRIL 15: Springfield, IL "Adolph Winkle and John Hulle, two farm hands, have made affidavits that the airship landed two miles north of here at noon today. They rushed to the ship and conversed with the inmates, who are two men and one woman. They were repairing the ship, and said they came here

from Quincy in thirty minutes. They left for the south at 1 PM."

From the Galesburg EVENING MAIL, of April 15, 1897.

The Decatur EVENING REPUBLICAN of the same date stated that the inmates were repairing the electrical apparatus & the searchlight mechanism. They indicated that they would "report to the government when Cuba is declared free."

The Illinois STATE JOURNAL (Springfield) of April 16 gave a very negative reaction to the story. The paper did not even print the story. It stated, "As the Carlinville story has been shown to be without foundation except in the mind of an ambitious space writer, it is probable that its local counterpart had its origin in a similar, but less ingenious source."

The April 22 issue of the Carlinville DEMOCRAT carried another version of the story. It appears to be a very important version. It was indicated that the article was taken from the April 15 issue of the Springfield NEWS. However, the latter paper was not in the file which I searched, though the newspaper did exist. "The airship was seen at frequent intervals the past few days by citizens of Illinois and Iowa, and effected a landing last night at 9:30 at a point on the Jefferson Street road, three miles west of the city, near the country store owned by the Reilly estate. At about 8 o'clock last night John Halley, a farm hand, was returning home from the city. He suddenly observed, high in the heavens, a mysterious object with a large light, suddenly coming from the west. Mr. Halley, supposing it to be a large balloon, stood watching it awhile when suddenly he became conscious that the object was lowering. At this point, Adolf Wenke, who is the owner of a vineyard at this place, joined Mr. Halley, & both men gazed curiously at the descending object. It was but a moment when with a hissing sound, the thing landed about

200 feet ahead of where the men stood. At first the two farmers stood in abject fear, but readily seeing no apparent danger, they ventured toward the 'fangled thing' as they called it, and were aware at once face to face with a long bearded man. The latter spoke to the farmers readily, inquiring the name of the city close by. Being told it was Springfield he seemed surprised, saying his airship reached here from Quincy in thirty minutes. The air navigator kindly explained the several requisites necessary for a craft of this kind to take flight. Inside the car was seated another man and also the scientist's wife. He said he generally rested in the daytime in obscure portions of the country, not wishing to lay bare the working of the huge wings, which could be easily seen in daytime. This accounts for his night travels. When asked if he was backed by the government, he was loathe to answer but signified to the farmers that as soon as Congress recognized Cuban beligerency (sic.) his airship would be heard from.

The car carried numerous electrical apparatus, including a powerful searchlight, which was not at present used. He carried an ordinary locomotive headlight, which was continually used. The frame of the car was made of aluminum, covered with canvas. When asked the scientist's name, he smiled & pointed at the letter M, which was painted on the side of the car. After bidding the farmers adieu, he entered the car, took a seat, and pressing an electric button, the ship rose from the Earth & sailed due north. It was soon lost to view.

The reliability of John Halley and Adolf Wenke is beyond question, and it is reported that quite a number of people living in West Springfield saw the aerial visitor about the above named hour."

Since I have already indicated that I feel that the Girard sighting is a hoax, it is suggested that the Springfield sighting should also be called a hoax, due to the report similarity. It is interesting

to note that neither of the two male witnesses are listed in the 1896 or the 1900 City Directory for Springfield.

These were by no means the only hoaxes to originate in Illinois. There were 25 documented instances of people launching balloons or kites with lanterns attached. It is entirely possible that these accounted for many of the moving light unknowns. There were several stories that were so outlandish that they were not evaluated. For example, one was published by a reporter for the Rockford REPUBLIC, claiming that he had been taken for a ride in the airship. Aboard it, he made contact with a local criminal, as well as Cupid, Eros, and many other legendary folk. Another appeared in the form of a letter which stated that the writer owned the airship and was using it to transport merchandise from Chicago. He bought it from some Chicago merchants and it was being piloted by an engineer from Kansas. The pilot was using it during April to show his family the Mid-West.

There were two hoaxes that demand more attention. The first was a crash report from Lanark, Illinois. According to the story, the airship crashed on April 12. Witnesses saw a man get out. He was described as "not more than two feet in height", wore an immense pinkish beard, wearing robes made of something like hippopotamus skin, sandals made of iron, and a string of 234 diamonds around his neck. He would not answer any questions and indicated that he was thirsty or hungry. He drank 2 buckets of water and ate three sides of bacon. Soon afterwards, three more similar beings descended from the craft via long ropes. A reporter was sent to Lanark to investigate the story and found the crashed craft and two dead beings. The lone survivor was unconscious and in a barn. The reporter took some drugs (cocaine and hashish) and went into the room with the being. When the being returned to consciousness, he spoke in a language which the reporter knew to be

Volapuk. They conversed for awhile & then the being wanted to see the craft. He patched the hole in it, took the two bodies and placed them in the craft, and left. It should be noted that had the reporter not mentioned the use of drugs to fortify himself and that he knew the language, this story would have rivaled the famous Aurora, Texas story.

On April 15, the Peoria TRANSCRIPT ran a very lengthy article concerning the airship which had been seen at 8:45 on the previous evening. The object was seen by many people and the descriptions varied. Some heard the music, and still others merely sounds. Most stated that it was traveling at velocities over 100 MPH. It was generally described as a "hideous monster with wings, tail, a fiery furnace, ship rigging, etc." One of the witnesses stated that it was 2000 feet up and over 80 feet long. It was soon revealed to be a balloon that had been sent up by three TRANSCRIPT reporters in an effort to find out how the witnesses' imaginations affected the descriptions of the airship. There would seem to have been quite an effect!

There were three instances in which letters were found and alleged to have come from the airship. The first letter was found in Astoria, IL, and this is commonly found in current UFO literature. This letter states that the author claimed that he worked with Edison and that his name was C.L. Harries. The second letter was found near Chapin, IL, and it stated that the airship was named "The Pride of the Air". The rest of the letter produced no information that was associated with the sightings. The last letter was found near Markham, IL. This letter told the finder that if he presented it at the airship exhibition at the Omaha Exposition, he would get a ride in the craft.

There were two reports of the airship in Illinois. On April 11, at Rogers Park, Chicago, Walter McCann alleged to have photographed the airship at

5:30 AM. He was supported by several others who allegedly saw him take the photos. The photo which was published in the April 12th issue of the Chicago TIMES-HERALD shows several buildings, portions of railroad track, three telegraph poles, and two men apparently looking and pointing at the airship. The airship occupies a position in the upper right and center of the photo. According to an expert from the newspaper, the photo was genuine. He stated that he had put it to several tests which indicated that the negative had not been tampered with. However, an expert at the Chicago TRIBUNE office stated that it was a fake, in fact a double exposure. He also stated that there was far too much in the photo for it to be genuine. The Chicago EVENING POST showed their copy to an expert, who stated it to be a hoax. He stated that the image of the airship was far too large. For the airship to produce the image seen, it would have to be the size of 4 or 5 buildings. The airship was an estimated one mile away & 1000 feet up; yet its image was 1.25 inches in length. The second photo (from the April 12 report from Lincoln, IL) has been previously discussed in the section on the description sightings. This photo also seems to have been a fake due to the weather conditions at the time: heavy rain, clouds, night, etc.

There were three possible crash reports mentioned in the press. One of these occurred in Illinois and the other two elsewhere. The April 12 issue of the Rockford REPUBLIC carried the following: "It is claimed that near Moberly, MO, the wreck of an airship has just been found and with it the mangled and unrecognizable remains of two men." The Chicago TIMES-HERALD of April 17 carried a dispatch from Jefferson, Iowa which stated, "A local paper this morning printed a lurid story concerning an 'airship' which was alleged to have plunged into the Earth north of town. Before noon a number of people had actually visited the place to see the hole where it disappear-

ed."

The third possible crash report came from Walnut Grove, Illinois. The Decatur EVENING REPUBLICAN of April 15 carried the following:

"A gentleman living in the Walnut Grove addition, who works in the city, on going home last evening, took his milk pail as usual and started to the barn to milk the cow. While going to the barn he noticed a bright light in the northwest moving toward the southeast. He paid no attention to it, however, but went into the barn, sat down, and commenced to milk the cow. Just about the time he finished, he heard a loud crash, a large portion of the roof was torn off, so frightening the cow that she let drive at Mr. T and laid him cold. A neighbor called to see the gentleman and his wife said that he was in the barn. When the gentleman reached the barn, he found Mr. T. unconscious; the usual restoratives were used but seemed to have no effect, and he was given up for dead. His wife happened to think that he was very fond of onions, & thought that maybe a whiff of one might recall the departed spirit. It was tried with such success that Mr. T. soon showed signs of life. As soon as he could speak, he gave a good description of the airship and said that was what had struck the barn, but the ship sailed on."

Perhaps the most important find of this study concerns the well-known Merkel, Texas sighting. To refresh some memories, on April 25 many people saw the airship while returning from church. They said that it was dragging something heavy on a rope and that this object caught in the railroad tracks. "After some ten minutes, a man was seen descending the rope. He came near enough to be plainly seen; he wore a light blue sailor suit and was small in size. He stopped when he discovered parties at the anchor and cut the rope below him and sailed off in a northeast direction. The anchor is now on exhibition...."

It is my belief that this is a hoax

and the following is the basis for my belief. This is taken from the April 12 issue of the Monmouth REVIEW:

A SEA ABOVE THE CLOUDS
Extraordinary Superstition Once Prevalent in England (copyright, 1897)

"The curious superstition that there is an ocean above the clouds is illustrated by the following strange story by an old English writer: 'One Sunday the people of a certain village were coming out of church on a thick, cloudy day, when they saw the anchor of a ship hooked onto one of the tombstones --- the cable, which was tightly stretched, hanging down from the air. The people were astonished: & while they were consulting about it, suddenly they saw the rope move as though someone labored to pull up the anchor. The anchor, however, still held fast by the stone, and a great noise was heard in the air, like the shouting of sailors. Presently, a sailor was seen sliding down the cable for the purpose of unfixing the anchor. When he had just loosened it the villagers seized hold of him, & while in their hands, he quickly died, just as though he had been drowned. About an hour after, the sailors above, hearing no more of their comrade, cut the cable & sailed away."

This story and another version appear constantly in connection with the Merkel sighting. However, this is the first time that it has been shown that the story was in circulation prior to the Merkel sighting. It is apparent that the author of the Merkel story had prior knowledge of the old English story and based his story on it with very little change. It would be interesting to know if this story appeared in Texas newspapers prior to April 25; it had done so already in the Illinois newspapers.

Having presented the data concerning the airship in Illinois, let us examine the original question again. Perhaps we can not answer it, but at least can shed

new light on it.

The "Earthly inventor" was the most popular origin belief at the time of the sightings. There were many claims to the airship; however, neither the airship nor its inventor ever appeared. The following are the stories of the airship inventor that appeared in the Illinois papers.

1. The April 12 issue of the Rock Island ARGUS carried an article which was concerned with a letter received by the Trans-Mississippi Exposition Directors requesting space for an airship exhibit. The letter was signed "A.C. Clinton". It was postmarked Omaha, Nebraska. However, Clinton did not appear and his name was not listed in the Omaha City Directory.
2. The April 12 issue of the Chicago JOURNAL carried an article concerning a Mr. Oscar D. Booth, a local man, who claimed that he had built an airship and that it would be ready to fly in May. He indicated that he felt that the airship being seen recently belongs to Charles Clinton of Dodge City, Kansas. Booth stated that Clinton's airship matched the descriptions of the one being seen.
3. The Alton EVENING TELEGRAPH of April 14 carried an article which was taken from the Kansas City TIMES. In it there was indication that a man named Stover had built the airship. It was called the "Great Auk". He built the craft in such a form that it would move in an undulating fashion. The "Auk" was propelled by revolving fans and raised and lowered by two fans working horizontally. These were operated by a small steam engine. The craft was 75 feet long and 25 feet wide.
4. The April 15 issue of the Chicago TIMES HERALD carried an article which indicated that the airship was owned by a man named Carr, who lived in southern Illinois. Carr said that he got the origin-

al model from a New York man named F. Meyer, who died two years ago. Carr indicated that the craft made a test flight in 1888 over Governor's Island, New York.

5. The above source also mentioned a letter found in Appleton, Wisconsin, that claimed to have come from the airship. The letter said that the airship was named "Pegasus" and that it was built in Lafayette, Tennessee.

6. The Decatur EVENING REPUBLICAN of April 15 carried a full page article concerning the airship inventor. According to the reporter, he had become acquainted with a Mr. C. Devonbaugh, who lived near Vandalia, Illinois. Mr. Devonbaugh claimed to have solved the problem of aerial navigation and showed the airship to the reporter. He wrote: "The machine or airship was composed of two cigarshaped spheres of aluminum, each 45 feet in length, and eight feet in diameter at the center, tapering to a point at the bow and stern. The two were bound together by slender but exceedingly strong steel rods. A flooring composed of pine lumber, dovetailed together joined the tubes. Near the center of the craft was a cabin built of light stuff, and covered with thin sheets of corrugated iron. The cabin would accomodate five or six persons, and was fitted with divans for sitting and sleeping, lockers for provisions, etc. The machinery which propelled the craft was located forward but this part of the craft Mr. Devonbaugh refused to exhibit, stating that while electricity was the force used, it was generated by a new process which he wished to perfect and cover with letters patent before allowing the secret to pass into other hands. Hinged to the side of the craft were two huge wings formed from varnished canvas and braced by slender steel rods. These were of the same length as the craft and when extended covered a space of about 40 feet in width. They were used to steady the craft when in motion. The raising and

propelling power were derived from three 'rothascopes', composed of canvas and steel ribs which were attached to revolving masts and which could be set at any desired angle. The rudder was fashioned on the plan of a steamboat propeller, and operated by a wheel, set in a small house located well forward. Towering above the 'rothoscope' mast were two slender wooden masts which Mr. Devonbaugh explained were to support parachutes especially designed for the purpose and which would support the craft in case of accident to the wings or machinery....To give greater buoyancy the aluminum cylinders were to be charged with gas..." The remainder of the article concerned an alleged trip to Chicago by the reporter and most of the Devonbaugh family in the airship. They attained to speeds of 100 MPH and an altitude of 3000 feet. During the trip Mr. Devonbaugh revealed that some parts and the engine were made in Omaha. Over Chicago, Mr. Devonbaugh turned on a row of lights along the sides of the craft.

This theory has more difficulties than it does positive elements. As stated, neither the airship nor the inventor ever conclusively appeared. It would seem very illogical for someone to discover aerial navigation at this time and not capitalize on this achievement. It is possible, of course, that the airship crashed and the inventor was killed. However, from the varied descriptions it is possible that there was more than one of these craft and surely one of the inventors would have capitalized on it. Another point against this theory is that the great majority of the sightings were at night. Without the technology capable of night flights, it would be illogical, as well as dangerous to fly at night. The absence of noise in most of the sightings is another point against the inventor theory. To have the power to propel and light the craft as described, an engine or engines would have been necessary. Engines at this point in time would have been quite noisy. However, it is entirely possible

that the craft was at such a height as to go unheard. It should be noted that this type of craft had actually been developed and experimented with prior to 1897. However, none flew to any great extent.

Another theory that received the attention of the press in 1897 was the idea that it was an advertising scheme of some sort. This would also seem very unlikely since it would also require an inventor. There were numerous accounts declaring that the airship was being used by the Ringling Brothers Circus. This story has even appeared in current literature. The Chicago TIMES HERALD of April 15 indicated that the airship belonged to that circus and the inventor was named Carr (the same man mentioned in the inventor list). The Kankakee GAZETTE of April 15 indicated that it was a balloon sent up by the Star Chewing Tobacco Co. The May 5th issue of the Aurora DAILY BEACON paraphrased the St. Louis REPUBLIC statement: "The aerial monster was manufactured originally in New York of papier mache and ordinary balloon material to advertise a certain brand of cigarettes. When it was set free at Denver, some wine merchants and other mercantile gentlemen infringed the patent and made papier mache airships for their own use."

Another explanation which the papers advanced for the airship was that it was due to the "effects of whiskey". This is rather self-explanatory, though there were some interesting comments put forth concerning this hypothesis. The Bushnell RECORD of April 16 stated: "It was also seen at Prairie City the same evening. There are only two saloons in Prairie City, and yet the airship was two hundred feet long when it was observed there. Figured out mathematically, it should be at least seven hundred feet long when it arrives in Bushnell, as we have seven saloons." The April 16 issue of the Byron EXPRESS stated: "It needs a strong glass to be able to see much of it but it can be seen most any night if your glass is strong enough."

Another explanation that was advanced was that the airship was largely an artifact of the human imagination. This theory is supported when one takes into account stories like that of the Peoria balloon hoax and the false reports written by newspapermen, such as the Girard, Springfield, and Merkel sightings.

CONCLUSION

Let us first consider the people of 1897. They lived in very interesting and stress-filled times. They were amazed at the technological achievements of the time. The telephone was a mere fourteen years old, electricity had just been made available for practical uses, x-rays had been discovered merely two years earlier. The horseless carriage was just around the corner as was flight. They had just dealt with a bad winter and the spring had brought forth one of the greatest floods to hit the Midwest. It was raining constantly and only snow broke the monotony. A clear sky was a rarity. Affairs had just returned to normal following the Civil War and there were accounts of wars in Greece and Cuba. Astronomers were beginning to speculate on the possibilities of life on other planets and Jules Verne was writing stories of Martians and an electric airship. Suddenly the skies cleared and in the northwest a bright light was seen. The cry "Airship!" went up and a crowd gathered to watch. Soon a cloud obscured it and the airship had "left". Or a bright light was seen in the southeast and the witnesses "followed" its flight path behind a cloud until a bright light was seen in the northwest. Surely they had seen the airship cross the sky.

At present and with the data I have studied (only the Illinois sightings), I feel that the airship phenomenon was due to a combination of stimuli. I feel that it was a period of average UFO activity amplified by press influence and the psychological makeup of the human mind. It should be noted that the press was virtually the only form of mass communication and had complete control of the content of its of-

ferings. The influence of the mind has also been shown. It is very probable that witnesses saw a star or a planet and the mind added preconceived ideas as to how the airship should appear.

Perhaps my conclusion is incorrect. In order to better prove it, I have begun studies in other states. At present I am researching files for Wisconsin, Missouri, Indiana, Pennsylvania, West Virginia, Kentucky, Tennessee, and Montana. Through

other researchers I have gathered a very large body of data from other states. I would like to publicly thank these gentlemen: Lou Farish, George Eberhart, & Jerry Clark.

If you have any airship data which you feel might aid my study please contact me at the following address:

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SCIENTIFIC INVESTIGATION OF UNIDENTIFIED FLYING OBJECTS: PART I

Bruce Maccabee

ABSTRACT

Many, if not most, UFO investigators would agree with the claim that "a scientific investigation of UFOs should be undertaken to solve the UFO question once and for all". Agreement with this claim would imply belief that (a) scientific investigation of UFOs is possible, and (b) no truly scientific investigation has yet been done. Probably most scientists would agree on the first point although they would disagree over which branch or branches of science should be involved, while the bizarre nature of many reports suggests that psychological and/or physiological sciences should also be involved.

Although it is my opinion that all of these sciences should be involved, I believe that the existence of UFO reports should be of special interest to physical scientists because psychologists have argued that there must be some objective phenomena (i.e., phenomena outside the body of the UFO witness, as opposed to subjective phenomena such as delusions, hallucinations, etc., which are associated with the workings of the body of the UFO witness) which has given rise to most UFO reports.^{1,2,3,4} The nature or cause(s) of these objective phenomena has been in dispute for over twenty-five years and continues in dispute at the present time. I shall not, therefore, try to identify the underlying cause or causes of UFO reports, although I implicitly assume that the cause is physical. Instead I shall concentrate on the problem of scientific investigation of UFO reports and on the Air Force's Special Report No. 14, in particular.

The approach of modern science to the investigation of phenomena is summarized in Figure 1. It is characterized in particular by a feedback path from deductions to the original data via a comparison stage. Notice at the outset that I have called the modern scientific method a theory about how to learn about the real world. I assume that the modern scientific method can help us learn about UFOs

although the non-repeatability and transience of the UFO phenomena when combined with the "soft" nature of UFO evidence (reports of witnesses) makes it difficult to apply the method in its complete form. (In particular, the checking of deductions against data is quite difficult and often arbitrary. In many cases "agreement" between data and theory is in the mind of the investigator, who may be

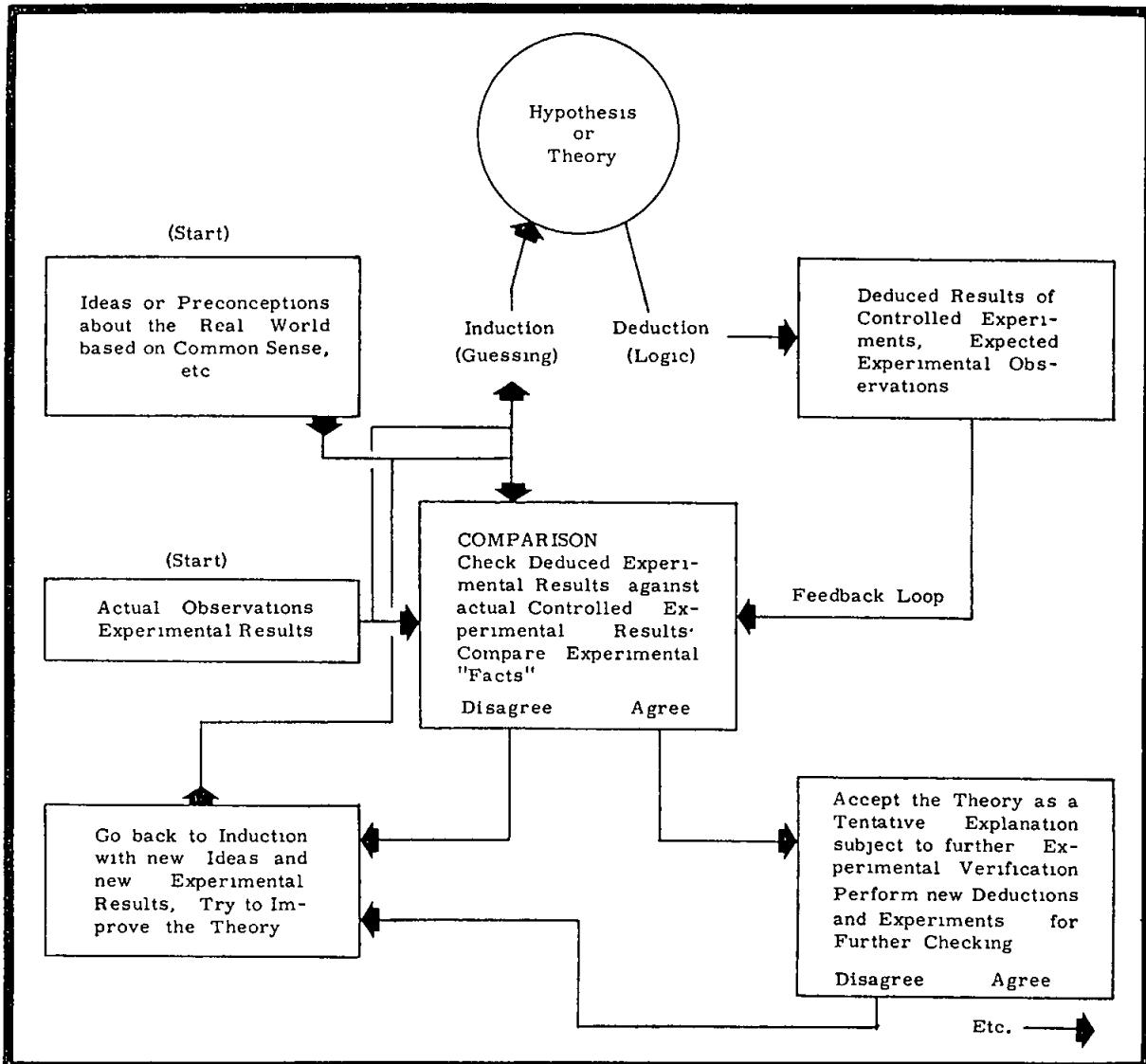


FIGURE 1 · MODERN SCIENTIFIC METHOD (A THEORY OF HOW TO LEARN ABOUT THE REAL WORLD. THE FEEDBACK COMPARISON IS MADE WITH EXPERIMENTS.)

strongly biased one way or another by his prior beliefs. This statement applies to skeptics as well as to "believers".)

I now wish to discuss a rather massive statistical study of UFO data to illustrate a scientific approach to the analysis of a collection of UFO reports. This statistical study is called Project Blue Book Special Report #14 (BB #14). In my opinion it is the most scientific

study of overall UFO data yet undertaken, although the investigators (who worked with the Battelle Memorial Institute) were somewhat unscientific in their formulation of the conclusions of the study. They (purposely?) did not mention those results of their statistical analyses which could be construed as contradicting their conclusions. However, the BB #14 study was nevertheless much more scientific in its

overall approach than the other massive study of UFO data, the so-called SCIENTIFIC STUDY OF UNIDENTIFIED FLYING OBJECTS, otherwise known as the Condon Report (CR).² The CR has been criticized elsewhere as being less than scientific (see, e.g., references 8, 9, 10, 11), so I will not discuss it here.

Other UFO investigations can be almost universally faulted for the failure to check their concluding hypotheses with all possible applicable data. The Sign-Grudge-Blue Book investigations of the Air Force have been criticized by many investigators for the failure to adhere to scientific principles, possibly because they were supposed to put military expedience ahead of science (see, e.g., ref. 11 & 12). Certain civilian investigations deserve mention for being scientific as far as they went (see, e.g. ref. 11 and 13-22), but these investigations are mainly of value only as collections of UFO reports, many of which have not been fully investigated.

BB #14 is the only known (to me) massive statistical study of UFO reports carried out by the military. It was published by the Air Force in 1955, but copies were made available only to the military even though the report was unclassified (it was marked "for official use only"). A press release echoed the conclusions of the report without mentioning the specific statistical results of the analyses that had been carried out. Since the substance of the report is not even yet well known, I am presenting here a rather detailed summary and analysis of the report.

The BB #14 investigators analyzed a collection of about 4000 UFO reports that were collected between June 1, 1947 and December 31, 1952. The analysis was carried out during 1952, 1953, and 1954, with final publication in May, 1955. The reason for the report was that initial analysis before 1952 showed that "the majority of (UFO) reports could be accounted for as misinterpretations of known objects (such as meteors, balloons, or aircraft), and a few as the result of mild hysteria,

and a very few as a result of unfamiliar meteorological phenomena and light aberrations. However, a significant number of fairly complete reports by reliable observers remained unexplained" (underlining by this author). Thus, despite the difficulties with the data, because of the "proportions this subject has assumed at times in the public mind, this work was undertaken with all the seriousness accorded to a straightforward scientific investigation". The purpose of the study was to "categorize the available reports of sightings and to determine the probability that any of the reports of unidentified aerial objects represented observations of 'flying saucers'", where the term "flying saucer" was meant to refer to "a manifestation that is not part of, or readily explainable by, the fund of scientific knowledge known to be possessed by the Free World. This would include such items as natural phenomena that are not completely understood, psychological phenomena, or intruder aircraft..."

The scientists involved were a "panel of consultants...consisting of both experts within and outside ATIC"(the Air Technical Intelligence Center, Wright Patterson AFB, Ohio). During the study the panel gave advice covering many major fields and numerous specialized fields. During the summer of 1952 the panel also included a psychologist.

Of the nearly 4000 reports initially admitted for study, "the majority were received through military channels or in the form of observer-completed questionnaires; a few were accepted in the form of direct letters from unquestionably reliable sources" (underlining by this author). The data were acknowledged to be subjective, "consisting of qualified estimates of physical characteristics rather than precise measurements". The accuracy of the reports was affected by time lag in reporting as well as by "the recognized inability of the average individual to estimate speeds, distances, and sizes of objects in the air with any degree of accuracy." However, despite such

problems, the BB #14 investigators claimed that "methods of statistical analysis of such reports in sufficiently large groups are valid. The danger lies in the possibility of forgetting the subjectivity of the data at the time that the conclusions are drawn from the analysis" (underlining by this author). They then claimed that "any conclusions contained in this report are based NOT on facts, but on what many observers thought and estimated the true facts to be." However, the reader should also note that in most cases the reported "facts" were accurate enough so that the investigators could identify the phenomena from the reports. This fact, that most UFOs were (supposedly) identified, attests to the ability of the observers to report accurately. A collection of reports that contains descriptions that are identifiable is a sort of calibration of the instrument (the human observer). Thus the fact that the BB #14 investigators were able to categorize most of the various reports as arising from known phenomena (balloons, aircraft, astronomical, etc.), added to the fact that most of the reports did not fall into the separate category known as "insufficient information", means that the human observer is generally well calibrated for the observations of phenomena which the observer himself cannot identify.

Individual reports were evaluated quite carefully, according to the description of the evaluation procedure. The steps are summarized in Figure 2. The first step was the "deduction of discrete facts from the subjective data....Care was taken to insure against the deduction of discrete facts not warranted by the original data." The BB #14 investigators apparently felt that they were sufficiently careful that "the lack of any valid evidence consisting of physical matter....was not assumed to be *prima facie* evidence that 'flying saucers' did not exist." In other words, they felt quite sure that they could obtain the relevant facts from reports alone.

The second step in evaluation concerned the observer's credibility and the self-consistency of the report. Observers were rated on experience (based on occupation, age, training) and on fact reporting ability and "attitude". The reports were evaluated in terms of general quality and completeness as well as consistency between its various parts.

The third step in evaluation was called "identification" which meant placing a report into one of several categories of phenomena or into the categories INSUF. INFO. (insufficient information) or UNKNOWN. The categories are listed in Figure 2. The first attempt at categorization or "identification" was made by the person who transcribed the report onto a worksheet. The second attempt was made by a member of the identification panel who did not know the results of the first attempt. If the two preliminary identifications agreed, and if the phenomenon was not identified as UNKNOWN, the identification was accepted. If there was a disagreement, more panel members analyzed the case. If either or both of the initial identifications was UNKNOWN, the whole panel studied the case. A group decision was required for any case marked UNKNOWN. To quote the report, "A group decision was necessary on all reports finally recorded as UNKNOWN, regardless of what the preliminary identification had been. In cases where a group decision was not made within a reasonable time, the report was put aside and later submitted to certain members of the panel of consultants for their opinions. If, after this, disagreement continued to exist the report of the sighting was identified as UNKNOWN." After a sighting had been categorized (identified) it was coded and typed onto IBM computer cards which were subsequently used for data analysis.

It should be clear to the reader that the individual report evaluation done by the BB #14 investigators was quite orderly and "scientific". Moreover, it should be clear that they took special precautions to assure that UNKNOWNS

FIGURE 2: EVALUATION IN INDIVIDUAL UFO REPORTS IN BB #14

1. Deduction of discrete facts from report.

2. Rating of observer and report

 Observer - credibility, experience, attitude,
 training

 Report - internal consistency, completeness

3. Categorizing the phenomena

 --- First categorization by person transcribing
 the report onto work sheets

 --- Second categorization by a member of the
 identification panel who did not know the
 results of the first attempt. If the second
 categorization agreed with the first the re-
 port was considered "identified". If not,
 the report was studied by the rest of the

 panel.

 --- A group decision was required for a report
 to be identified (labelled) as "Unknown".

The Categories available for identification were:

Balloon, Birds, Astronomical, Aircraft, Light Phenomenon,
Clouds, Dust, etc., Psychological Manifestations, Other,
Insufficient Information, Other, Unknown.

NOTE: The existence of "Insuf. Info." as a separate category sug-
gests that reports labelled "Unknown" were sufficiently detailed to
suggest that identification should have been possible.

really were unknown. Unfortunately, it dumped any reports that they did not feel
is not clear from their descriptions of were complete into their INSUF. INFO.
the procedure whether or not they tried category. The existence of this separate
to obtain additional data to establish their category is important because it means
identifications or to resolve questions they that reports classified as UNKNOWN were
may have had. My guess is that they did sufficiently detailed that the phenomena
not request additional data, but rather would have been recognized by the anal-

ysts if they had been recognizable.⁺

One further precaution was taken with the initial identifications of the reports. This precaution had to do with the subjective reliability of the identifications. To quote from the report, "All possible identifications provided in the code system, except INSUF, INFO, & UNKNOWN, could be assigned according to two degrees of certainty, designated 'Certain' and 'Doubtful'. A 'Certain' identification indicated a minimum amount of doubt regarding the validity of the evaluation. By 'rule of thumb' reasoning, the probability of the identification being correct was better than 95%. A 'Doubtful' identification indicated that the choice was less positive, but there was a better than even chance of being correct."^{*} (Note: Actually, it is meaningless to assign a probability to an individual case. However, this assignment of "certain" and "doubtful" is a worthwhile statement of the opinion of the investigators as to the validity of their identification.) The investigators evidently took a very conservative attitude toward their identifications. This attitude is further evidence that they did not let UNKNOWNs slip through easily, because "poor" UNKNOWNs could often be reclassified as "doubtful" KNOWNs.

One final comment on the diligence of the BB #14 investigators is worthy of note. To quote the report, "It is emphasized again that, as was true with other phases of evaluation, preliminary &

final identification was entrusted only to scientists and engineers who, in addition to their broad scientific backgrounds, had received instruction, where necessary, in specialized subjects. The panel of consultants provided background information for this instruction. Many of the cases representing unusual features or maneuvers were submitted to and discussed with various members of the panel of consultants prior to the final identification."

STATISTICAL RESULTS OF THE BB #14 INVESTIGATION

I have provided a rather complete description of how the reports were evaluated to emphasize the care taken in the accumulation of the data which were subsequently analyzed. I will now summarize the results.

Of the initial approximately 4000 reports, about 800 were so nebulous in description that the investigators were not able to reduce the data to a factual level. These reports were not included in the statistical analysis. The remaining 3201 reports were divided into three major groups called ALL SIGHTINGS (3201), UNIT SIGHTINGS (2554), and OBJECT SIGHTINGS (2199). The variation in numbers arises from the fact that ALL SIGHTINGS refers to individual reports, but in many cases there were several reports of the same object by several observers. To quote, "ALL SIGHTINGS refers to all reports, UNIT SIGHTINGS refer to actual sightings, and OBJECT SIGHTINGS refer to the assumed number of phenomena." Clearly there were some assumptions on the part of the investigators as to which reports or sightings referred to the same object of phenomena. Since UFOs are presumably objects, I will present analyses based mainly on the OBJECT SIGHTINGS, although a preliminary study reported in BB #14 suggested that distributions of characteristics were proportionally the same for each of the three groups.

The statistical data were compiled

⁺ Basic information was obtained from witness interviews and on the spot, detailed investigations by trained intelligence agents of the Office of Special Investigations of the Air Force. The records of these investigations are in the National Archives.

^{*} A study of the data tables in BB #14 shows that when the reports labelled INSUF, INFO, & UNKNOWN are deleted from the total, approximately 60% of the remaining cases were identified with "certainty".

in many ways and presented in 240 tables in the appendix. Two of these are partially reproduced here for illustration (Fig. 4). The results were also presented in the form of complicated statistical figures (40) and in tables (13) in the main body of the report. Although the investigators stated in their report that "no trends, patterns, or correlations are to be found" in the statistical figures, a careful reading shows that there are trends which must have been evident to the investigators. In Fig. 3, Table 1, I present some of the interesting statistical results that were "hidden" in the sense that they were not referred to in the text. Naturally I cannot reproduce most of the statistical results here. The interested reader is referred to the original report or to copies (excluding the 240 tables & some of the graphs) available from a private source.²³

In reading through the statistical graphs I find the following especially interesting statistical results:

a) the group of sightings labelled EXCELLENT by the investigators has a larger percentage of UNKNOWNs than does the group labelled POOR. The actual percentages in each group (EXCELLENT, GOOD, DOUBTFUL, POOR) is given in Fig. 4, Table A39. The reader must refer to BB #14 for the actual numbers of reports. This statistical result, that the best reports have the highest percentage of unknowns, sharply contradicts a statement, attributed by Menzel²⁴ to E.U. Condon, that "all non-explained sightings are from poor observers." Note also that the group of reports labelled EXCELLENT has a lower proportion of INSUF. INFO. cases than does the group labelled as POOR. Specifically, the group of EXCELLENT reports had 33% (71 cases) UNKNOWN and only 4.2% (9 cases) INSUF. INFO., while the group of POOR reports had only 16.6% UNKNOWN (72 cases) while it contained a "whopping" 21.4% (93 cases) INSUF. INFO. Figure 6 is a graphical illustration of the tabu-

lar data in Fig. 5. Note the decrease in the percentage of UNKNOWNs accompanied by an increase in the percentage of INSUF. INFO. in going from EXCELLENT cases to POOR cases.*

A reasonable conclusion from this analysis is that the best qualified observers make the best reports and are most likely to be reporting true UNKNOWNs, while the poorest observers make the poorest reports (most INSUF. INFO.) and are the least likely to be reporting true UNKNOWNs. Note that out of 2199 OBJECT SIGHTINGS, a total of 434, or 19% were UNKNOWN, and that of these, 71 were EXCELLENT UNKNOWNs! This means that about 3.2% of all the OBJECT SIGHTINGS were EXCELLENT UNKNOWNs. If this percentage is applied to the approximately 12,000 sightings logged by the Air Force as of Feb. 15, 1968, one gets a statistically expected 360 EXCELLENT SIGHTINGS of UNKNOWNs. This number is roughly half of the 697 sightings listed as UNIDENTIFIED in 1968 (see note 25).

b) When the reliability groups were divided into military and civilian observer groups, it was found that the military observers always had a higher percentage of UNKNOWNs and a lower percentage of INSUF. INFO. cases than did the civilian observers (see Fig. 5). There were more than twice as many EXCELLENT sightings by military personnel than by civilian observers (note: in this case sightings refers to ALL SIGHTINGS, which exceeds the number of OBJECT SIGHTINGS).

* See Appendix A for a revised analysis of the reliability distributions.

* See Appendix C for a revised Chi-Squared analysis in which only the "certain" KNOWNs have been used to compare with the UNKNOWNs.

EVALUATION OF OBJECT SIGHTINGS BY YEARS FOR ALL YEARS
 (TABLE A9 OF BB #14)

EVALUATION	NUMBER			PERCENT		
	CERTAIN	DOUBTFUL	TOTAL	CERTAIN	DOUBTFUL	TOTAL
0 Balloon	207	132	339	9.4	6.0	15.4
1 Astronomical	274	205	479	12.5	9.3	21.8
2 Aircraft	265	209	474	12.0	9.5	21.5
3 Light Pheno.	30	18	48	1.4	0.8	2.2
4 Birds	12	10	22	0.5	0.5	1.0
5 Clouds, dust, etc.	3	7	10	0.1	0.3	0.4
6 Insuf. Info.	240	0	240	10.9	0.0	10.9
7 Psychological	35	9	44	1.6	0.4	2.0
8 Unknown	434	0	434	19.7	0.0	19.7
9 Other	85	24	109	3.9	1.1	5.0
TOTALS	1585	614	2199	72.1%	27.9%	100%

FIGURE 3 : EXAMPLES OF TABLES IN THE APPENDIX OF BB #14

EVALUATION OF OBJECT SIGHTINGS BY SIGHTING RELIABILITY GROUPS FOR ALL YEARS (TABLE A39; ONLY THE PERCENTS ARE PRESENTED HERE)

EVALUATION

PERCENT IN RELIABILITY GROUP

	EXCELLENT	GOOD	DOUBTFUL	POOR
0 Balloon	11.8%	16.8%	16.5%	12.9%
1 Astronomical	24.4	23.0	19.4	22.8
2 Aircraft	19.2	22.0	24.9	15.9
3 Light Phenomena	0.9	2.4	2.9	1.1
4 Birds	0.9	1.0	1.2	0.7
5 Clouds, Dust, etc.	0.0	1.0	0.4	0.0
6 Insuf. Info.	4.2	3.6	14.0	21.1
7 Psychological	0.0	0.5	3.3	3.3
8 Unknown	33.3	24.8	13.0	16.6
9 Other	5.2	5.0	4.5	5.5
Total Percent of Group	100.0%	100.0%	100.0%	100.0%

NUMBER OF OBJECT SIGHTINGS & % OF SIGHTINGS IN EACH GROUP	TOTALS			
	2199	213	757	794
	100.0%	9.7%	34.4%	36.1%
NUMBER AND % OF UNKNOWNNS	434	71	188	103
	19.7%	3.2%	8.5%	4.7%
				72
				3.3%

FIGURE 4 : EXAMPLES OF TABLES IN THE APPENDIX OF BB #14

FIGURE 5A: (FIGURE 8 IN BB #14) DISTRIBUTION OF OBJECT SIGHTINGS BY SIGHTING
RELIABILITY GROUPS WITH EVALUATION DISTRIBUTIONS FOR EACH GROUP
(SUMMARIZED)

RELIABILITY GROUP	IDENTIFIED		INSUF. INFO.		UNKNOWN		TOTAL	
	NUMBER	%	NUMBER	%	NUMBER	%	NUMBER	% of 2199
EXCELLENT	133	62.4	9	4.2	71	33.3	213	9.7
GOOD	542	71.6	27	3.6	188	24.8	757	34.5
DOUBTFUL	580	73.0	111	14.0	103	13.0	794	36.0
POOR	270	62.1	93	21.4	72	16.6	435	19.8
TOTALS WHERE APPLICABLE	1525		240		434		2199	100%

FIGURE 5B: (FIGURE 10 IN BB #14) DISTRIBUTION OF ALL SIGHTINGS BY SIGHTING
RELIABILITY GROUPS SEGREGATED BY MILITARY AND CIVILIAN OBSERVERS
WITH EVALUATION DISTRIBUTION FOR EACH SEGREGATION (SUMMARIZED)

RELIABILITY GROUP	MILITARY OBSERVERS			CIVILIAN OBSERVERS		
	IDENT %	INSUF. %	INFO. %	IDENT. %	INSUF. %	INFO. %
EXCELLENT	60.8	1.5	37.7	61.5	8.7	29.8
GOOD	67.1	2.7	30.2	73.8	3.4	22.8
DOUBTFUL	70.4	4.9	24.7	73.8	14.1	12.1
POOR	68.5	10.5	21.0	59.5	23.0	17.5
TOTAL NO. OF EXCELLENT SIGHTINGS IN EACH OBS. GROUP	124	3	77	64	9	31

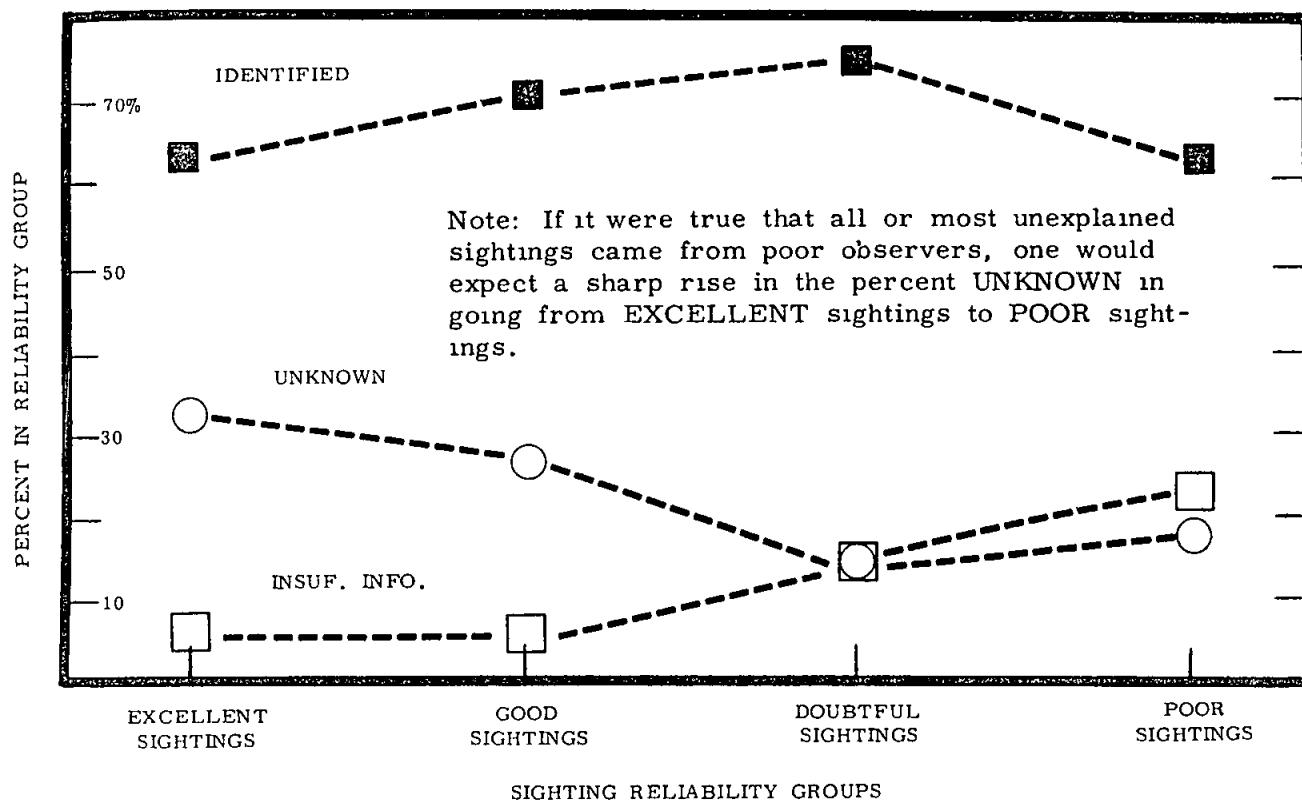


FIGURE 6: GRAPHICAL PRESENTATION OF THE DATA IN TABLE I

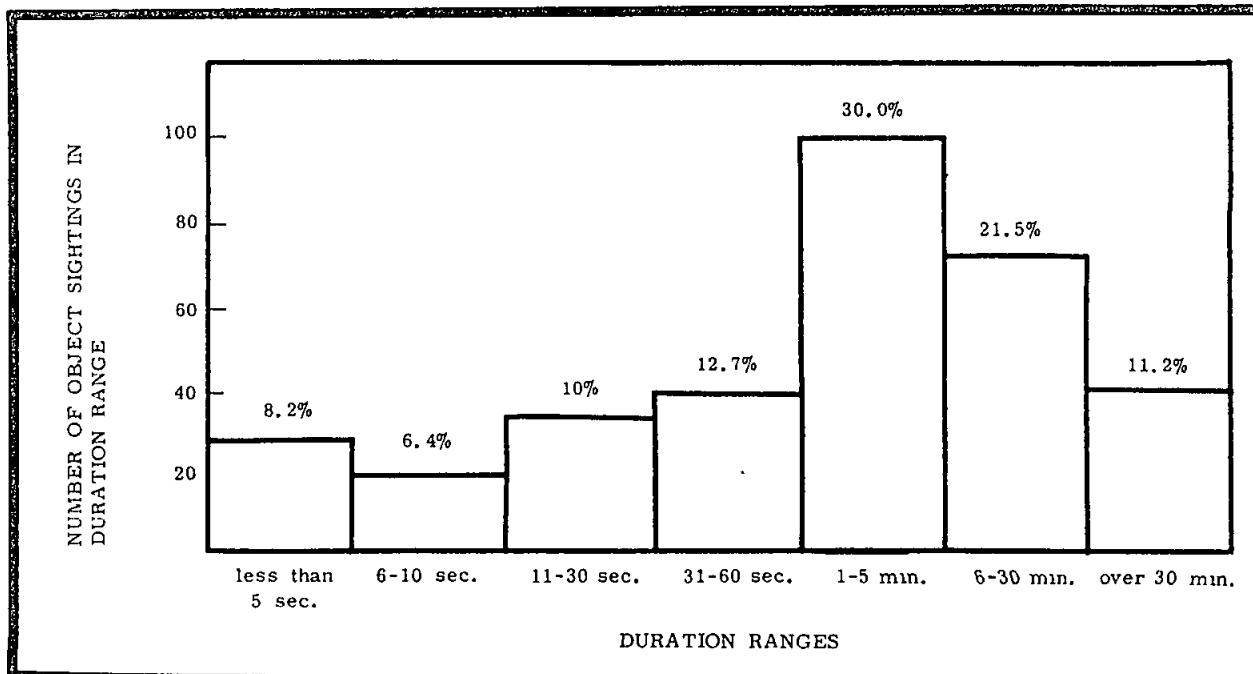


FIGURE 7: DURATION OF UNKNOWNS (OBJECT SIGHTINGS) --- PERCENTAGES ARE WITH RESPECT TO THE 330 REPORTS FOR WHICH DURATIONS WERE STATED)

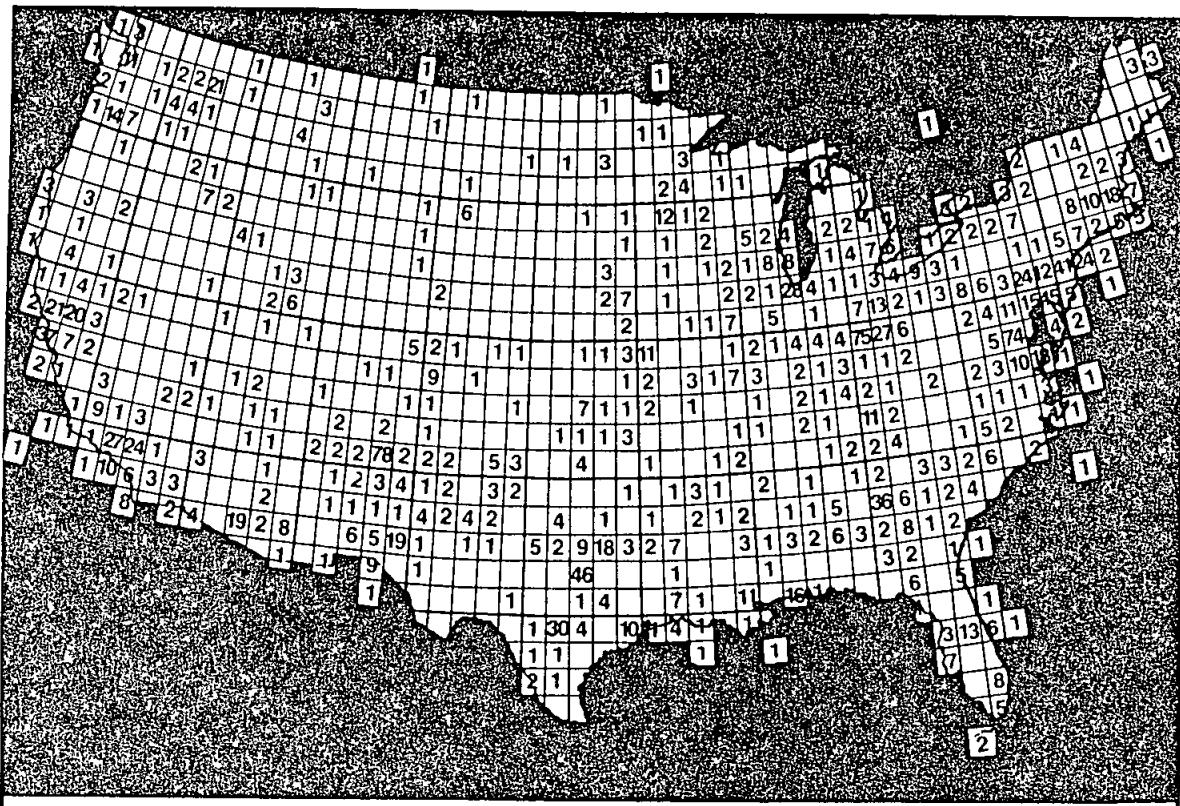


FIGURE 8: GEOGRAPHICAL DISTRIBUTION OF OBJECT SIGHTINGS

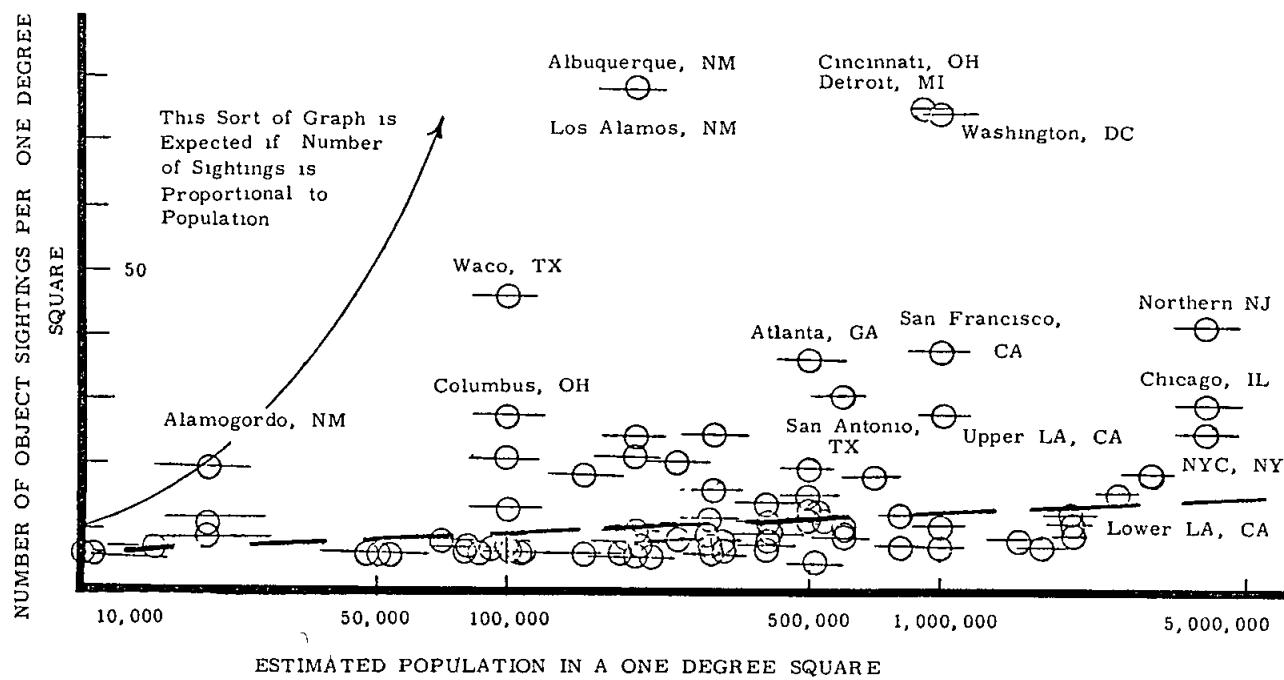


FIGURE 9: POPULATION DEPENDENCE OF THE NUMBER OF OBJECT SIGHTINGS (NOTE: THE HORIZONTAL LINE THROUGH EACH DATA POINT SUGGESTS THE EXPECTED MARGIN FOR ERROR IN ESTIMATING THE POPULATION IN ONE DEGREE "SQUARE")

c) When OBJECT SIGHTINGS were divided into subgroups according to duration of sighting, it was found that UNKNOWNS were most likely to have durations between 30 seconds and 30 minutes (see Fig. 7). This finding contradicts the generally held feeling that most UNKNOWNS result from short term observations (i.e., a few seconds). Instead, apparently most UNKNOWNS remain visible long enough so that observers would have time to identify them if they could do so.

d) When the numbers of sightings were plotted on a map of the U.S. that had been divided into one degree "squares", it was found that the distribution of reports roughly follows the population (Fig. 8). However, one anomaly was immediately apparent: the square that includes Albuquerque, NM (lat. 35° - 36° , long. 106° - 107°) with a population on the order of 200,000, had more sightings than any other area. The Washington, DC area, with a population on the order of a million, was next, and the New York area, with a population of several million, was third. I pursued this anomaly further by comparing the graphical distribution of OBJECT SIGHTINGS with estimates (which could be off by a factor of two) of the populations in each square. The results of this comparison are illustrated graphically in Fig. 9. It is apparent from the figure that there is at best a slight dependence of the number of sightings on population; the population increases by about three orders of magnitude while the average number of sightings for a given population in a square increases by a factor of two (dashed line in Fig. 9). This experimental result is not what would be expected if reports were population generated.

I also made a search for military installations in the various one degree squares and found that in most of the squares where there were large numbers of sightings (say, more than 10), there was also one or two military bases, usually one of which was an Air Force base. In Appendix B I show that there were approximately ten times as many reports

per square from squares with A.F. bases and large airports.

Thus far I have presented only a sample of the "preliminary" statistical compilations that BB #14 investigators carried out and subsequently ignored. Now I would like to present the results of the statistical analyses which they did to determine whether or not the characteristics of the group of phenomena listed as UNKNOWN matched the corresponding characteristics of the group listed as the KNOWNs. In order to compare the statistics of the two groups the investigators used a procedure known as a "Chi-Squared" test (CST). Figure 10 illustrates the CST in a tabular form. Note that only OBJECT SIGHTINGS were used, so that when the total number of KNOWNs is added to the total number of UNKNOWNS, the sum is 2199. It is important to note that the value of Chi-Squared (C^2) is a measure of the departure of two groups of data from statistical similarity. If C^2 were zero, the groups would be statistically identical. As C^2 grows, the probability that the groups are identical decreases. In order to carry out a CST one must have a number of "values" of the characteristic being tested. For the test illustrated in Fig. 10, the characteristic is color and the "values" that it may have are white, metallic, not stated, orange, red, etc. The number of "degrees of freedom" is one less than the number of values. For color, the investigators allowed nine possible values, so the color test had eight degrees of freedom. When one has a value of the total C^2 for a characteristic and the number of degrees of freedom, one can refer to a standard random probability table (a table assuming a "normal" distribution) and find the probability that the groups are statistically identical.

Referring to Fig. 10, the reader can see that the number of KNOWNs is multiplied by a ratio to "shrink" the number of KNOWNs so that it matches the number of UNKNOWNS. Multiplication by a constant does not change the relative

FIGURE 10: CHI-SQUARED TEST OF KNOWNS VS. UNKNOWNS ON THE BASIS OF COLOR (TABLE 2 IN BB #14)

COLOR	NO. OF KNOWNS *	ADJ. NO. OF UNKNOWNS (K)	NO. OF UNKNOWNS (N)	CHI-SQUARED $\frac{(K - N)^2}{K}$
White	405	100	112	1.44
Metallic	313	77	76	0.01
Not Stated	209	51	62	2.37
Orange	172	42	49	1.17
Red	146	36	33	0.25
Yellow	128	31	31	0.00
Green	130	32	14	10.13
Blue	67	17	26	4.76
Other	195	48	31	6.02
Totals	1765	434	434	26.15

Number of Degrees of Freedom: 8

Probability of match equals 5% requires Chi-Squared equal to 15.5. Probability of match equals 1% requires Chi-Squared equal to 20.1. Since the calculated Chi-Squared is greater than 20.1, the probability that the unknowns are statistically similar to a random sample of the knowns is less than 1%.

* Multiplied by (434/1765)

* proportions of OBJECT SIGHTINGS having the various values of the characteristic. The C^2 for each value of the characteristic is obtained as shown. Clearly if the distribution of values of the characteristic were the same for the KNOWNS and the UNKNOWNS, each C^2 would be zero, and so would be the sum. Looking at the individual C^2 values we find that most of the overall C^2 comes from the color value "green", but that other color values also have non-zero C^2 . The C^2 sum is 26.15, which is greater than the value for 1% probability when there are eight degrees of freedom. Thus we can say that the probability is less than 1% that the distributions match. One possible reason for this disparity in color distribution is that UNKNOWNS are not KNOWNS but there are other possible explanations

for the large C^2 which are more mundane.

A single CST such as this, with its less than 1% probability of a match between the KNOWNS and the UNKNOWNS, is interesting but not convincing. As pointed out before, there may be mundane explanations for the large C^2 . However, the BB #14 investigators carried out CST's for five other characteristics as well, and for four of these tests the values of C^2 are sufficiently large that the probabilities of matches between the KNOWNS and UNKNOWNS are less than 1%. The results of these tests are summarized in Fig. 11. In only one of these tests (light brightness) was the C^2 low enough for the test to be "insignificant" (the C^2 corresponds to a probability of about 20% that the distributions match). While it

FIGURE 11: SUMMARY OF CHI-SQUARED RESULTS

TEST CHARACTERISTIC	VALUE OF CHI-SQUARED	CHI-SQUARED FOR 5% PROB. OF MATCH	CHI-SQUARED FOR 1% PROB. OF MATCH	CONCLUSION ON PROB. OF STATISTICAL EQUIVALENCE
Color	26.15	15.5	20.1	Prob. less than 1%
Number	40.73	9.5	13.3	Prob. much less than 1%
Shape	29.05	12.6	16.8	Prob. less than 1%
Duration of Observation	49.49	14.1	18.5	Prob. much less than 1%
Speed	37.93	11.1	15.1	Prob. much less than 1%
Light Brightness	5.85	11.1	15.1	Prob. greater than 5%

SUMMARY OF REVISED CHI-SQUARED TEST RESULTS (ASTRONOMICAL SIGHTINGS REMOVED)

Color	13.40	15.5	20.1	Prob. just grtr. than 5%
Number	23.73	9.5	13.3	Prob. less than 1%
Shape	11.46	11.1	15.1	Prob. about 4%
Duration of Observation	14.34	14.1	18.5	Prob. about 5%
Speed	43.71	9.5	13.3	Prob. much less than 1%
Light Brightness	10.68	9.5	13.3	Prob. about 3%

NOTE: In the revised C^2 tests the BB #14 investigators "cheated" slightly by combining two of the values in each of the following characteristics: shape, speed, and light brightness. Without combining one would have: for shape, $C^2 = 12.7$ and prob. about 5%; for speed, $C^2 = 45.7$, and prob. much less than 1%; for light brightness, $C^2 = 19.55$ and prob. less than 1%.

seems quite possible that the C^2 for a single characteristic might be "accidentally" large enough to imply a difference between the KNOWNs and the UNKNOWNs, it seems quite unlikely that the values of C^2 for five independent characteristics would "accidentally" be that large. Rather, the high values of C^2 in five independent tests suggest a correlation, an underlying reason, for the large values of C^2 . One reason that certainly can not be ruled out by these tests is that the UNKNOWNs are basically different from the KNOWNs. No wonder the Air Force did not refer to these statistical tests in the press release!

The BB #14 investigators were aware of the implications of the CST, but argued that "these tests do not necessarily mean that the UNKNOWNs are primarily 'flying saucers' and not aircraft, balloons, or other known objects or natural phenomena." They pointed out that the values of C^2 could have been large because a) "the characteristics that were observed for the UNKNOWNs were different from those observed for the KNOWNs because of the psychological make-up of the observer or because of the atmospheric distortion" and/or because b) the UNKNOWNs might be KNOWNs in different proportions (e.g., more aircraft or more balloons, etc. that weren't correctly identified). I feel that the arguments are weak in view of the pains they apparently took to identify all cases. These arguments are especially weak when applied to the 71 EXCELLENT UNKNOWNs and probably also to the 188 GOOD reliability UNKNOWNs because these particular cases were characterized by having reliable observers, good observing conditions and complete reports (low percentage of INSUF. INFO.) if we are to believe the description of their evaluation procedure. Unfortunately, it is impossible to segregate out the EXCELLENT reliability and GOOD reliability reports to do a C^2 test on them alone. In responding to argument a) above I would like to point out that it seems to me to be unlikely that

the psychological make-up of the observer would affect in the same way his reporting of the several independent characteristics, such as color, speed, number, etc. Thus, whereas I think it possible for psychological make-up to affect perhaps one or two of these characteristics, I think it unlikely that it would affect five. Also in argument a) above, the investigators suggested that atmospheric distortion could account for incorrect reporting. Atmospheric distortion is generally a small quantity, but even if it were large I have difficulty in imagining that it could affect color, speed, duration, etc. in such a way that the distributions of the characteristics would become different.

Realizing that argument a) above was especially weak, the BB #14 investigators decided that (b) was the more probable "solution" to the problem of the large C^2 values. They then noted that in many of the characteristics, large C^2 values occurred when astronomical sightings accounted for large percentages of the KNOWNs with a particular "value" of a characteristic (for example, for the characteristic color, the largest C^2 came from the value "green", which was the color of a large number of objects identified as green fireballs that were recorded in the early '50's). They therefore decided that perhaps the group labelled UNKNOWNs were really the same sort of objects as the KNOWNs, but that all astronomical sightings had been removed from them (i.e., from the UNKNOWNs). In order to make the distributions match, then, they would have to remove the astronomical sightings from the group labelled KNOWNs. They did this and recomputed their values of C^2 . The results of these "revised" C^2 tests are shown in Fig. 11. To quote the report, "It is apparent that the deletion of astronomical sightings gives a better fit, although the decision is not clear-cut, since for two cases (light brightness and speed) the chi square increased." To be more specific, the reader can see from the table that in all cases now the probability

of a match is about 5% or less. Since all the characteristics are independent, it is not too "far-fetched" to claim that the probability that the characteristics of the UNKNOWNS match the characteristics of the KNOWNs is comparable to the product of the probabilities of these six tests, a number that is small to say the least: 0.00000000625! Being somewhat more conservative, I think that it would be reasonable to claim that the probability that the distributions all match (i.e., the probability that the UNKNOWNs equal the KNOWNs at least statistically) is much less than 1%.

The results of the CST's are interesting, not only because of what they suggest about the KNOWNs vs. the UNKNOWNs, but also because of how the BB #14 investigators treated these results. They claimed that "the results of these tests are inconclusive since they neither confirm nor deny that the UNKNOWNs are primarily unidentified KNOWNs, although they do indicate that relatively few of the UNKNOWNs are actually astronomical phenomena." This claim was in the main text of the report. In the conclusion they stated that "Scientifically evaluated and arranged, the data as a whole did not show any marked patterns or trends." Their only explanation of the test results was a resort to the subjectivity of the data.

They did not mention the results of the C^2 test in the conclusion, although they alluded to it as follows: "A critical examination of the intensive study of the sightings evaluated as UNKNOWN, led to the conclusion that a combination of factors, principally the reported manuevers of the objects and the unavailability of supplemental data such as aircraft flight plans or balloon-launching records, records, resulted in the failure to identify as KNOWNs most of the reports of objects classified as UNKNOWNs." Here they state, in effect, that they were not able to identify "most" of the UNKNOWNs because of insufficient information. Yet this was a separate category. Are we to

believe that these apparently careful investigators who, on the other hand, placed reports which might have been explained with more data, into the UNKNOWN category?

After disposing of their statistical test results as "inconclusive", the BB #14 investigators attempted to discover "the physical appearance, flight characteristics, and other attributes of a class or classes of 'flying saucers'". In other words, they attempted to construct a flying saucer model. In order to do this, they reviewed all the unknown OBJECT SIGHTINGS again, dividing them into two groups labelled "possible KNOWNs", "good UNKNOWNs", and "UNKNOWNs". Possible KNOWNs were defined as UNKNOWNs with a lower confidence level; Good UNKNOWNs were defined as reports with sufficient detail to be useful in constructing a model, and UNKNOWNs were all the rest of the original group of 434 UNKNOWNs. By correlating sighting times with sun angle (and finding, incidentally that most UNKNOWNs are reported in the late evening to midnight, and also during the day, but that relatively few are reported just around sunrise or sunset) the investigators were able to identify 18 "possible" aircraft, 20 "possible" balloons, and 19 other "possible" knowns (two of which were identified as mock suns). Unfortunately, the specific cases they investigated are no longer available for study to determine whether or not their identifications were truly reasonable. After this analysis they were left with 100 UNKNOWNs, and 7 good UNKNOWNs that had been seen during the day and early evening plus 265 UNKNOWNs and 5 Good UNKNOWNs that had been seen at night. The investigators' comments on the results of this final, detailed study of the UNKNOWNs is interesting in view of their ultimate conclusion that UNKNOWNs were probably really KNOWNs. Quoting the report, "Of the UNKNOWNs, there were approximately 20 sightings that were observed in such a way that they should have been recogni-

FIGURE 12: SOME CHARACTERISTICS OF THE "TWELVE GOOD UNKNOWNS"

Number of Multiple Witness Reports - 10

TECHNICAL TRAINING DISTRIBUTION

Non-Technical Civilian	4
Technical (not pilots)	4
Pilots (not Air Force)	2
Air Force pilots	2

TOTAL

12

DETAIL DISTRIBUTION

Only overall shape reported	6
Rather fine details reported	6
TOTAL	12

SHAPE DISTRIBUTION

Circular or oval or disc (saucer)	7
Rocket (exhaust at one end)	2
Other	3

TOTAL

12

DURATION DISTRIBUTION

Less than nine seconds	2
10 sec. to one minute	4
Greater than one minute	6

TOTAL

12

zed easily if they had been familiar objects, that is, there was little possibility that their shapes, as seen, could have been distorted sufficiently by one cause or another to render them unrecognizable. There were a very few that would have been identified as guided missiles or rockets, but that were not so identified because of the geographical location in which they were seen."

Although, in their own words, "approximately 20 sightings...should have been recognized...", implying that there were about 20 rather detailed sightings, they narrowed down on only 12 (7 daytime, 5 nighttime) sightings from which to construct a model. Some of the overall characteristics of the 12 sightings are listed in Figure 12. The investigators noted that the shapes and other characteristics of the reported objects were not identical although there were similarities. They therefore decided that "It is not possible....to derive a verified model of

a 'flying saucer' from the data that had been gathered to date. This point is important enough to emphasize. Out of about 4000 people who said they saw a 'flying saucer', sufficiently detailed descriptions were given in only 12 cases. Having culled the cream of the crop, it was still impossible to develop a picture of what a 'flying saucer' is." Because they could not discover a single model "flying saucer" they argued that even the 12 Good UNKNOWNS probably were mistakes and that "therefore, there is a low probability that any of the UNKNOWNS represent observations of a class of 'flying saucers'." They allowed for the possibility that some of the sightings might have been of several classes of saucer, but "the lack of evidence to confirm even one class would seem to make the possibility remote." Apparently, they considered that the multiple sighting on the afternoon of May 24, 1949 by employees of "an aeronautical laboratory", one of whom observed the

object through binoculars, and in which the object was described as having a metallic skin that was seen well enough "to show that the skin was dirty", was not evidence of even one member of a class of "flying saucers". The object in this case was observed for 2.5 - 3 minutes.

Now I agree with the BB #14 investigators that the inability to construct one or more "flying saucer" models from the data would be a weighty argument against the proposition that such things exist. However, I am bothered by the 71 EXCELLENT RELIABILITY UNKNOWNS and the 188 GOOD RELIABILITY UNKNOWNS (Fig. 4). I am bothered by the 20 UNKNOWNS that were seen well enough so that they should have been recognizable. I am bothered by the 12 GOOD UNKNOWNS that were so detailed that they could have been used to construct one or more classes of "flying saucers".

In the summary of the report the BB #14 investigators made a claim that has been heard over and over again with respect to UFO reports: "it is believed that all unidentified aerial objects could have been explained if more observational data had been available." Is this a reasonable statement considering the careful analysis described in the report? I think not, because they had a category labelled INSUF. INFO. as well as a category labelled UNKNOWN. They could have filed all the cases they couldn't explain into the INSUF. INFO. category (the fact that they didn't attest to their integrity and/or to the possibility that some reports were truly of UNKNOWNS). Had they done so, they could have provided a massive statistical proof of their claim that further information would explain all the UNKNOWNS (or in this case, all the INSUF. INFO.'s). However, since they did not file all the UNKNOWN cases into INSUF. INFO., and moreover, since they emphasized that the UNKNOWN reports were sufficiently detailed so that identifications should have been possible, I conclude that their claim does not follow from their analysis. In support of this claim, however, they ar-

gued that "better reporting" procedures had reduced the percents of UNKNOWN & and INSUF. INFO. (adding the 1953 and 1954 reports together, they reported a total of 854 with 17% INSUF. INFO. and 9% UNKNOWN; during the first half of 1955 they received 131 reports, of which 7% were INSUF. INFO. and only 3% were labelled UNKNOWN). This argument appears somewhat convincing until one studies statistical compilations produced in later years. From a 1965 compilation I find that of 487 reports in 1954, 21% were INSUF. INFO. and 9.4% were UNKNOWN; of 543 reports in 1955, 17.3% were INSUF. INFO. and 4.6% were UNKNOWN. All of these numbers are larger than the numbers given for 1955 in BB #14. The percentages for some succeeding years may be of interest: in 1959 there were about 390 reports with about 17% INSUF. INFO. and 3% UNKNOWN; in 1963 there were about 400 reports with 15% INSUF. INFO. and 3% UNKNOWN, and in 1966 there were 1112 reports with about 24% INSUF. INFO. and 3% UNKNOWN (from a 1968 compilation).* It appears therefore that better reporting procedure may have reduced the percent UNKNOWN, but that they did not reduce it to zero. In fact, there were about 3% UNKNOWN for every year succeeding 1955. This number coincides quite closely with the 3.2% EXCELLENT UNKNOWNS out of the 2199 OBJECT SIGHTINGS studied in BB #14 (Fig. 4). Thus it may be that better reporting procedures succeeded in weeding out the noise leaving only the "hard core residue". As pointed out before, 3% of the 12000 reports logged by the Air Force until 1967 is 360, which is about half of the overall unidentified "residue" listed in 1968. Thus, based on this analysis, I could claim that 3% is the true

* See Appendix D for an explicit presentation of the % UNKNOWN as a function of time and for further comments.

hard core of UFO reports and it always has been. Better reporting has merely brought the number of unidentifieds closer to the true number. (Here 3% is meant to be $3 \pm 0.5\%$ or $3 \pm 1\%$, but not $3 \pm 3\%$.)*

CONCLUSION

I have now given a rather detailed summary of what I believe is the most scientific study of the UFO phenomenon to date in order to illustrate how scientific principles can be utilized to study a mass of UFO data. The BB #14 investigators assumed that statistical analysis would be useful in determining whether or not unexplained reports in general were different from explained reports. They found that there are some differences by a straightforward scientific manner. However, they did report their analysis in the text so that future investigators could make up their own minds. As I have made evident, I do not agree with their conclusions. I think that their statistical analyses can be interpreted as indicative of the existence of some so-far unidentified phenomenon, although I don't think the data are sufficiently accurate for a precise identification even today. Although

the BB #14 investigators can be criticized for being unscientific in the presentation of their conclusions, nevertheless in my opinion it was generally a much more scientific piece of work than any other known government investigation. It had a cohesiveness and overall scope that neither the Sign-Grudge-Blue Book investigations nor the CR had.

In view of the discussion I have here presented, I think that if the reader considers the various UFO investigations of which he is aware, he will be inclined to agree with me that there has not yet been a totally scientific investigation of UFOs.

ACKNOWLEDGEMENT

When I first read BB #14 several years ago I realized that there was a mass of analysis contained within & concentrated in particular on the Chi-Square test and the geographic distribution. I am indebted to Stanton Friedman for calling my attention to the graphically presented observer reliability analysis which was not referred to in the text and which I skipped over when I read the report. Stanton Friedman and Leon Davidson have emphasized the importance of BB #14 for many years.

(Part II will appear in the next issue)

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25. The implications of Fig. 4 for observer accuracy can be compared with certain statements made by W. Hartmann in the CR (7) on pages 575 and 578. Hartmann decided that about 25% of reports are sufficiently accurate that an investigator can correctly identify the phenomenon, about 25% contain misleading statements, and the rest are "insufficiently detailed to be diagnostic".

THE FOLLOWING PAPERS ARE A SELECTION OF THOSE PRESENTED AT THE SYMPOSIUM: "USING HYPNOTIC PROCEDURES IN THE INVESTIGATION OF UFO EXPERIENCES". DIVISION 30, PSYCHOLOGICAL HYPNOSIS, AMERICAN PSYCHOLOGICAL ASSOCIATION; TORONTO, AUGUST 28, 1978.

ARE THERE PATTERNS IN UFO ABDUCTION CASES ?

James A. Harder

ABSTRACT

The abduction experiences of 104 individual subjects are examined. Male/female statistics, multiple participation, case publicity, family relationships, occupational and educational backgrounds are studied with the conclusions found that the abductees tend to be more highly educated and skilled, as well as psychologically stable than perhaps has been thought.

About fifteen years ago I mentioned to one of my psychologist friends that I thought the UFO subject deserved a psychological study. "Yes," he said, "we should try to find out why people are crazy enough to believe in them." I like to think that he was joking, for he knew that I was interested in UFOs.

A lot of opinions have been changed since then and now a recent Gallup Poll has indicated that 57% of American adults believe that UFOs are real, as opposed to only 23% who hold that they are imaginary. And although their opinions may be only given in private, scientists' opinions are remarkably parallel. The fact of this symposium is additional evidence that opinion on the UFO issue is turning around.

My own early interest was why and to what extent persons resort to the psychological denial mechanism in reacting to evidence that UFOs are real; this, I think, is still an important question. At this meeting, however, I assume that everyone is acquainted with psychological obstacles to new information, and will consider the study I am reporting on as just another extension of science into another area of the unknown.

The question to be addressed is "Is there any pattern to be discerned in UFO abduction events?"

DATA SOURCES

Data used in the tables below have been drawn from fifty-five UFO abduction cases investigated by the Aerial Phenomena Research Organization (APRO), which have involved 104 individual subjects. Of the fifty-five cases, I have drawn on four cases contributed by Dr. R. Leo Sprinkle and two from other APRO investigators. Although this does not by any means exhaust Dr. Sprinkle's cases, I have drawn on the 49 investigated by myself more heavily since I could more readily determine some of the relevant facts as presented. Not all of the 49 are as completely investigated as the six others, however, and most are under a continuing study; I have included incomplete cases for the breadth of the information they could contribute. "Incomplete" in this context does not mean questionable; all are "authentic" by a reasonable set of tests.

Authenticity in UFO cases is often subjective, and depends on the evaluation of many factors by an experienced

investigator. I should not wish to infer any parallel in the condition of the persons involved, but a good analogy comes to mind between the way an experienced investigator evaluated the authenticity of a UFO percipient and the way in which an experienced psychologist might evaluate the presence or absence of a psychosis in a subject. The process is not easy to describe, but it can work very well.

Of course, there are borderline cases in each of the two kinds of evaluation, and I have excluded such cases from the data base. Altogether, it is my evaluation that the probability of authenticity exceeds .98 in most cases, and .95 in all cases included.

Of the fifty-five cases, eleven have received some publicity; within these eleven cases there are twelve male and eight female participants. However, over the entire fifty-five cases there are forty-one males and sixty-three females. Men are most likely to be exposed to abduction experiences, since many abductions take place between two and three AM in rural areas, both of which factors would find more men than women exposed. On the other hand, the greater egotism or ego-strength of men makes them, in my experience, more resistant to the idea that something they cannot remember might be real.

Of the eleven published cases, five were multiple-participant; in the larger sample of forty-four unpublished cases, there were twenty such cases, about the same proportion. Of the twenty subjects in the publicized cases, two were related by marriage, five by blood (all, however, in one family). Of the eighty-four individuals in the unpublished cases, six were related by marriage, twenty-seven by blood. There does not seem to be a statistical difference in these figures except perhaps in the sex ratio. Table I shows these data for the published and unpublished cases.

In the following analysis, there-

fore, I shall combine the fifty-five cases to show some of the other patterns that seem to be emerging. These patterns include the extent to which the participants are members of the same family, related by blood, and the number of generations represented in a given case. I have indicated the number of participants per case; these figures are not necessarily the same as the number of participants per abduction, insofar as a "case" may include related individuals who have had one or more experiences, separately or individually.

A surprising fact is the relatively high occupational and educational level of the one hundred four participants despite rural backgrounds, and considering that sixty-one percent are female. Of the one hundred four participants, twelve have completed some graduate work and fourteen additional participants are college educated or college students. Sixteen are children (no child data were accepted into the data base unless the child was part of a group). In terms of employment, there are twenty professionals, ten white collar or skilled, twenty-one children or students, and sixty-two others.

These data are presented in Table I and in the graphs of Figure 1. In general, the picture that emerges is that the group as a whole is better educated and includes far more skilled and professional person than has heretofore been commonly believed. This is very likely related to the profound social disapproval of, or disbelief in, those reporting UFO abductions. The better educated persons are more likely to respond to this by never reporting such incidents to anyone who would publicize them in any way that would identify them as individuals. However, among the twenty individuals in the eleven publicized cases, there are three teachers, a former policeman, a retired social worker, and a non commissioned Air Force officer.

TABLE I: SIMILARITIES BETWEEN THE SET OF ELEVEN PUBLISHED AND THE SET OF 44 UNPUBLISHED CASES

DATA ITEM	11 published cases	44 unpublished cases	Total: 55
% Male	60 %	34 %	39 %
% Related by blood	25	32	31
% Related by marriage	10	7	8
% Multiparticipant/case	45	45	45

When one looks at the fifty-five cases (see Figure 2), one finds that 45% have involved two or more subjects, with two (3.5%) cases each having four and five participants. The first principal new finding is the number of cases which have involved two or more generations (usually mother and daughter), five have involved three generations, and one four generations.

Looking at the one hundred four individuals, a second interesting finding is the extent to which the subjects are related by blood and marriage. Thus, among the 104 subjects, thirty-two are related by blood and eight by marriage. A third finding is the surprisingly large number who have had more than one UFO experience.

There is a lingering opinion that persons who report multiple UFO experiences must be reporting their imaginary fantasies because there is a very small chance that random selection would hit the same person twice, let alone three or more times. The alternative hypothesis is that there is a means employed to find and re-examine abductees at various intervals, without their being aware of it. In the course of many hypnotic regressions I have found much evidence for such a hypothesis, although the exact mechanism used to keep track of the person being studied is not at all clear. It is as if a group of extraterrestrial psycholog-

ists is making a longitudinal study of humans, something that terrestrial psychologists have been doing for some while. Altogether, among the 104 participants, thirty show strong evidence of multiple experiences, forty are probables, and only thirty-four show no evidence of multiple experiences. It is interesting that among the twenty participants in the eleven published cases, my investigations show that there are four instances of "hidden" multiple experiences. Such prejudice exists against this idea that the four individuals involved do not wish this fact about themselves to be known.

The individuals in the multiple-experience and multiple-generation cases do not seem to be significantly different from the others, and indeed, it is possible that there is more to be learned from other cases that on the surface seem to contain only isolated individuals.

It is this author's opinion that it is unlikely that multiple-experience and multiple-generation persons are undergoing delusional experiences. This is not to say that they are, as a group, without their psychological difficulties. We do not know exactly how it is that the memory of a UFO experience is suppressed from the conscious part of the memory --- but in most instances, particularly in the past, this would appear to be true. It also seems that, as

in the case of a suppressed memory of a traumatic experience, there can be reactions in the consciousness of the abductee. This can take the form of strange dreams or a realization that something has happened that is very important but which can not be reached with the usual methods of conscious recall. In a few extreme cases, there is observed a consciousness of an isolation from the main streams of human culture as if a dream of a different sort

of culture has been briefly glimpsed with the attendant realization that there are ways of living that are vastly superior to what is experienced on Earth. All of this should be fascinating to the psychologist having an informed understanding. Beyond even that, there are persons who need help; but were they to say everything on their mind to a psychiatrist, they would in all likelihood be tagged with some label and not receive the sort of understanding they need.

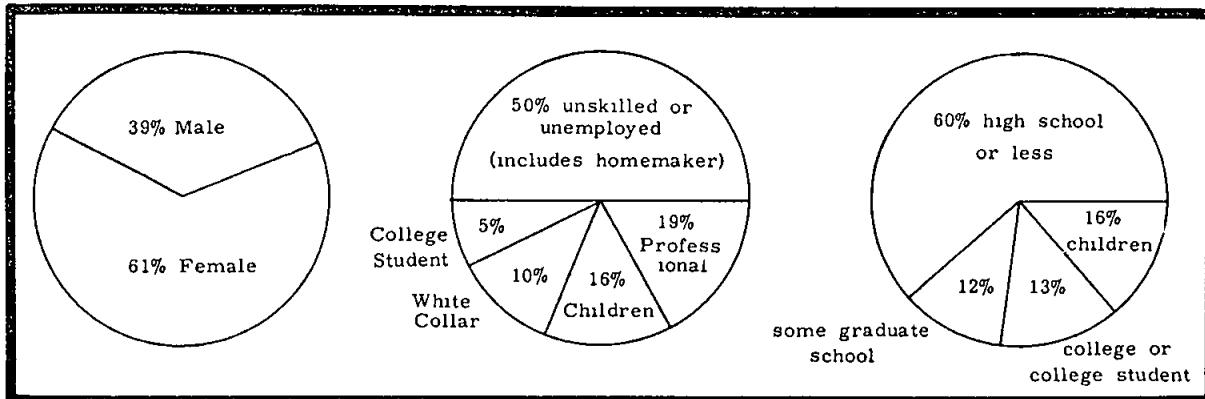


FIGURE 1: 104 SUBJECTS BY SEX, OCCUPATION, AND EDUCATIONAL LEVEL

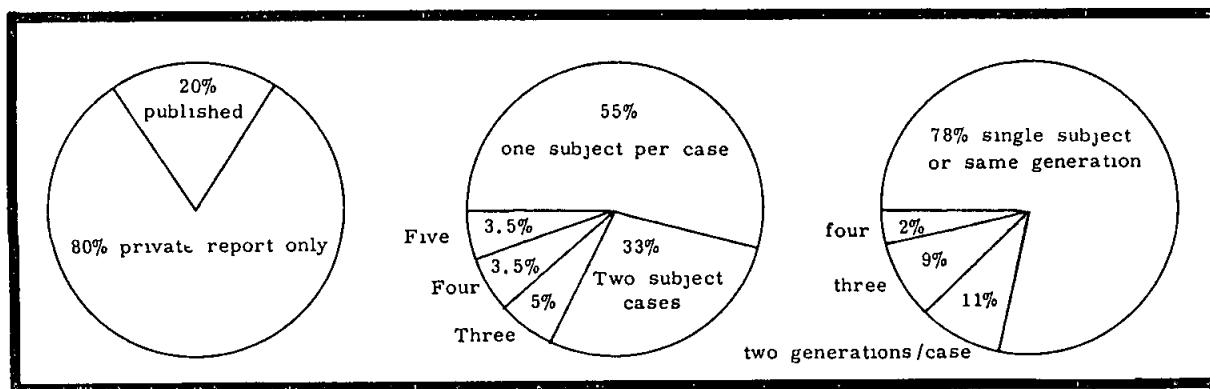


FIGURE 2: 55 CASES BY DEGREE OF PUBLICITY, NUMBER OF SUBJECTS PER CASE, AND NUMBER OF GENERATIONS REPRESENTED

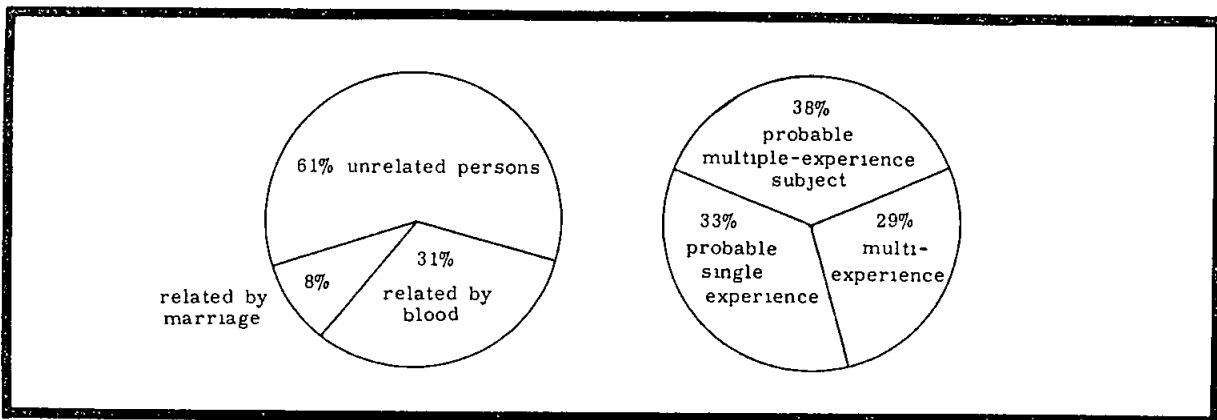


FIGURE 3: 104 SUBJECTS BY DEGREE OF RELATION AND BY NUMBER OF EXPERIENCES PER SUBJECT

WHAT WE CAN LEARN FROM THE EMOTIONAL REACTIONS OF UFO ABDUCTEES

William C. McCall, M.D.

ABSTRACT

Guidelines are given for the hypnotic age regression of UFO abductees. It is suggested that the absence of emotion in the hypnotic recounting of a UFO experience is not necessarily a negative conclusion. The use of the past tense in the hypnotic session revivication and other guidelines for proper hypnotic procedures are suggested.

I have age-regressed approximately thirty-five "real" UFO abductees and approximately fifteen "imaginary" abductees.

I have been very impressed during this experiment with the wide variations in the types, as well as the degree of emotions that are shown by these two groups of people.

When the emotional reaction of a "real" abductee corresponds to our preconceived idea of what a person should be experiencing, the reaction seems to lend credence to the story that he is telling.

As I was researching this paper, I read about our eminent Dr. Harder's regression of Pat Price and her family, which was written up in UFO REPORT by Kevin Randall. I quote: "Before Dr. Harder left, I asked him how he felt about the case. He said, 'At first I was skeptical because of the lack of emotion but that has been taken care of. I think that Pat was describing a real experience and that she was

taken onto a flying saucer.'"

Thus, whenever an abductee is telling his or her story and appears to be devoid of emotion, we tend to be more skeptical as to whether or not the experience actually happened. Whether this is valid or not remains to be seen. I have regressed people who were looking forward to this experience with a great deal of anticipation and imagination, and it would seem to me that with that set of mind, the emotion of fear that we look for universally could normally be absent in this individual.

I have had subjects whom I have had to ask if they are feeling any emotion associated with this particular event. Interestingly enough, once this suggestion has been made, the "appropriate" emotional reaction ensues. We tend to give further credence to the abductee who reacts in exactly the same emotion at exactly the same point in the story each time that he goes through it. If a person were to set out

to deliberately delude the dedicated UFO investigator, he or she could conceivably concoct a story that is entirely fictional; yet, at the same time, the story could be accompanied by emotions and anxieties which were possibly triggered by the fear that the UFOlogist will not believe the story that he or she is telling.

It appears as though the abductees who react emotionally in an appropriate manner are believed a great deal more readily than those who remain relatively detached from the experience.

As I was going through the transcripts of abduction reports, I was impressed by what appear to be relatively common errors amongst the different researchers and hypnotists that I reviewed.

Memory, under hypnosis, is little better than memory out of hypnosis. The hypnotist who age regresses the subject who continually talks in the past tense is probably not getting any more viable information than if the subject were talking with his or her eyes open. It is an accepted principle in applied hypnosis that the way to recall the details of an incident is to have the person "re-live" the experience, rather than "remember" it. We call this process "re-vivification" and if re-vivication does not occur, the information that is obtained may be unreliable.

This process of "re-living" can be indicated by the tense which subjects use in recounting their impressions. If they persist in the past tense, this is memory. This tendency of the subject is aided by the hypnotist who uses the past tense in his or her questions. Therefore, to be reliable, age regression impressions should be reported by the subject in the present tense. Often, they tend to lapse into the past tense while they are talking about their experience and it is very important for the hypnotist to bring them back into the present tense in order to increase the reliability of the information that

is given by the subject. This can be accomplished by repeating the phrase, at intervals, "What is happening now? What are you seeing? What are they doing?", etc. This type of question implies an answer in the present tense. This principle is very easy to pronounce but very difficult to practice. I have found that as I read over transcripts of my own personal cases, I would occasionally slip into the past tense when I was talking to a subject.

Another suggestion to the people who use hypnosis in abductee experiences is that it is extremely important once a question has been asked, to wait for the subject to answer the question before you go on to another question. Whenever more than one question is asked in a row, the subject tends to answer only the last question. For example, in the regression of Elaine Thomas of the Kentucky multiple witness abduction case, this is a copy of a portion of the tape of the hypnosis session:

Q. You wanted to get out of the car, why was that?

A. I guess just because... (and before this question could be answered, the next question was presented).

Q. What would you have done if you had gotten out?

A. I wanted to.... (and once again the subject was interrupted with the question).

Q. Do you remember being examined?

The answer was "yes". As a result, the investigators never found out the answer to the reason why she wanted to get out of the car or what she would have done if she had gotten out. There seems to be a widespread tendency to ask questions without waiting for an answer.

In another transcript, the subject was asked, "What impression do you have?" and, without waiting for an answer, "Did it suggest some kind of propulsion system, or what?". The subject then answered the last question

with, "No, they travel by magnetic force."

One of the important principles in psychotherapy is to wait, often keep silent, and let the patient do the talking.

I feel that the best results are obtained if one individual does the interrogation and, if there are other investigators present, they write their questions on a piece of paper and permit the interrogator to ask them. This permits the interrogator to work the question in a logical sequence, according to his or her own train of thought or logic. It need not necessarily be asked immediately.

In many of the transcripts I have read, the question would be found asked by an interrogator which would be interrupted by a question by one of the associates. For example:

Subject: "It is just so dark, it seems more like it is just...."

At this point the subject was interrupted by another interrogator with, "Do you feel like somebody was telling you something right now? Do you feel like you are receiving a message right now?"

Subject: "I think so. It is all so confusing."

I certainly agree with the "confusing". I think that I would be confus-

ed if I were the subject, sitting with questions coming from all different directions.

As investigators we have to be careful about planting ideas or thoughts into the subconscious mind. In one transcript I noticed "Can you hear anything? Maybe not a voice but maybe something through brain waves? Is somebody telling you to go someplace?" Subject: "I just seem to be waiting." Later on in that same transcript, the subject reveals that communication occurred through brainwaves.

The use of hypnosis is a fine art that requires certain mastery of it before these procedures can be used by investigators. It is important that the investigators understand the ramifications and the proper application of hypnosis to achieve the most information from the subjects.

We need more hypnotists in this very fertile field and I encourage all professional neophytes to begin. Errors will occur, but if the hypnotists abide by good age regression principles, they will obtain good information!

Practice makes perfect. Re-read the transcripts. Look for the pit-falls I have described and as you learn to avoid them, we will have many more experienced hypnotists available to answer the call of our dedicated field investigators.

WHAT ARE THE IMPLICATIONS OF UFO EXPERIENCES?

R. Leo Sprinkle

ABSTRACT

The history of the author's involvement with UFOs is discussed. A research project of the author (the identification and psychological studies of persons who claim to experience psychic impressions of UFO phenomena) is described. The "reality" of and possible interpretations of abduction accounts received under hypnosis is commented upon.

INTRODUCTION

Several years ago, when the "rash" of television programs on medical emergencies was only an "itch", one fearless physician was portrayed as a righteous critic of two colleagues: the other two physicians were discussing their plans to talk to a patient who, according to their diagnosis, was suffering from a terminal illness. The consultant pointed out to his colleagues that the symptoms displayed by the patient could also be diagnosed as those of an ailment from which the patient could recover --- if appropriate medical procedures were followed. In dramatic tones, he asked (in effect) : "Since the symptoms of both diseases are the same, why not assume that the patient is suffering from the curable disease and do what you can to assist the patient, in the event that the patient is able to recuperate?"

In my opinion, a similar dilemma faces investigators of UFO witnesses. Shall we assume that UFO experiences are "nonsense" or shall we assume that significant knowledge may be obtained by investigating these experi-

ences? Shall we assume that UFO witnesses are lying and mistaken, or shall we assume that UFO witnesses are sincere and describing a "real" experience? Which hypothesis should be accepted as the research hypothesis?

I believe that we should be tentative or "half-sure" in our conclusions, but committed or "whole-hearted" in our search (Allport, 1962). I believe that the better hypothesis to explore is the hypothesis that UFO witnesses are sincere and, thus, they are describing "truth" as they perceive it to be.

THE PROBLEM

The problem, of course, is that UFO experiences are an affront to our sense of decency, our notion of "common sense reality". Some investigators (Klass, 1974; Menzel & Taves, 1977) prefer to view the evidence of UFO experiences from the hypothesis that the UFO witness is lying, or is mistaken, and the UFO investigator is misguided. Certainly, the hypothesis of hoax is appropriate for some UFO reports. However, I have talked with only one UFO witness who seemed to

be involved in a hoax. Ruppelt (1956, p. 211) reported 1.66% hoaxes in the USAF Project Bluebook investigations with 26.94% "unknowns". If the majority of UFO witnesses are neither lying nor engaged with hoaxes, then we are faced with strange and complex observations (Hynek, 1972, 1979; McCampbell, 1976; Salisbury, 1979; Vallee, 1975) which lead to controversy and contradiction (Condon & Gillmor, 1969; Fisher, 1978; Jacobs, 1976, Sagan & Page, 1972; Saunders & Harkins, 1968; Willcox, 1976).

What are the implications of UFO experiences? The implications of UFO experiences are varied, depending upon the viewpoint of the investigator (Sprinkle, 1967). Some investigators view the controversy of UFO reports as a "nonsense" problem; some view the controversy as a problem for physical scientists; some, as a problem for behavioral scientists; some, as a problem for social scientists; some, as a problem for psychiatrists and spiritualists.

There are economic, military, political, and religious implications, as well as scientific implications in the evidence on UFO experiences.

For the purpose of this paper, I shall summarize my comments under the headings of personal implications, professional implications, implications for the use of hypnotic time regression procedures, speculations, and tentative conclusions. For other comments, the interested reader is referred to various articles and chapters as listed in the Appendix.

PERSONAL IMPLICATIONS

In the autumn of 1950, a fellow student (Joe Waggoner) and I were leaving Hellums Hall, the Arts & Sciences Building of the University of Colorado, Boulder; we were coming from a lecture in General Semantics, and we were practicing what we had learned about the observation of "reality". We asked ourselves questions similar to the

following: "What do you see over there?" "I see what I call a tree." "How do you describe it?" "I see what I call branches, leaves, trunk." "At what level of reality or level of observation are those descriptions" etc. Then, we asked ourselves, "What's that?". Above us, we observed what seemed to be an object which was round in shape and metallic of surface, the apparent object covered the area of a finger nail at arm's length; no sound was associated with the object; the object was moving from south to north; we could not estimate its size; if the object were the size of a jet airplane, then it would be moving faster than jet planes flew in those days. We watched the object for several seconds, and I observed a flash of light (reflection?) on the edge of the object which faced the setting sun. Later, as we discussed our observations, we puzzled about our interpretations of the event: it didn't look like an airplane or balloon; what was it? A flying saucer? No, it couldn't be; only kooks see flying saucers! Perhaps it was a "secret" military device, or something equally unusual and unknown to the public. I hardly desired to think about it --- certainly I did not desire to talk about it to anyone. I had been a scoffer in regard to UFO reports, but now I found myself becoming a "skeptic": I was puzzled, and I had doubts about the significance of UFO reports.

In the summer of 1956, my wife Marilyn and I observed a strange aerial phenomenon over Boulder, Colorado as we were driving back from Denver. Shortly after sunset, as we topped a hill overlooking Boulder, we saw what we assumed was a planet, an "evening star". We both remarked about the brilliance of the red glow; suddenly, the "star" began to move (back and forth, as Marilyn described it, with a "rocking" or "falling leaf" motion, as I perceived it). I stopped our car; we got out; we watched the "object" or "light" as it moved and hovered, moved

and hovered, etc. Apparently, the light had descended because it was between us and the Flat Irons (Rocky Mt. foothills). We could see no lines or ropes; we could hear no sound which we could associate with the phenomenon. I could not identify or understand the event which we were experiencing. After that observation, I became an "unwilling believer": I knew that UFO observations were "real", but I was puzzled about the level of "reality" or the significance of these observations. I began to read books and articles about UFO reports (as my wife, previously and unsuccessfully, had encouraged me to do). Upon completing doctoral studies in 1961, I decided to join investigative organizations and to conduct studies on the characteristics of UFO observers. My personal questions was: "What kind of characters am I associating with when I think of myself as a UFO observer?" My professional question was: "Is there evidence to support the 'psychosis hypothesis': the hypothesis that only kooks see flying saucers?"

PROFESSIONAL IMPLICATIONS

In 1962-3, I conducted a survey of persons interested in UFO reports (Sprinkle, 1969); I came to the tentative conclusion that the responses of participants were similar to the responses of norm groups on the Rokeach Dogmatism Scale. I decided to learn more about the characteristics of UFO observers themselves, and I became a Consultant to the Aerial Phenomena Research Organization (co-founded by Jim and Coral Lorenzen).

In 1964, one of my colleagues was concerned about my professional stance: "Leo!", he asked, "What are you trying to do? Lose any reputation you may gain? How can you study such topics as ESP, hypnosis, and UFO reports?" Jokingly, I replied, "Well, what we can do is to locate a

person with psychic abilities; have him or her sit in front of a map; with hypnotic procedures, we will suggest that the person gain impressions of the area where there will be a UFO 'flap'. Then we'll go to that area and record our observations!" My friend groaned and turned away; however, I thought to myself, "Hey! That's a good idea!"

I wrote to several noted professors, asking if they saw any connection between UFO research and psychical research. Their responses were not encouraging. So, I began a five-year research study: during the first year, I planned to locate a group of 100 persons who claim to experience psychic impressions of UFO phenomena; next, I planned to identify those persons who seem to exhibit a combination of reliable psychological characteristics, strange claims of UFO experiences, and unusual psychic abilities; then, I would work closely with these persons, using hypnotic procedures, to assist them in exploring and understanding the significance of their psychic impressions.

With the assistance of several UFO and parapsychological research organizations who published the notice about the research study, I received replies from 63 persons who were willing to participate in the survey: Questionnaire on UFO Sightings and ESP Experiences; Adjective Check List; Strong Vocational Interest Blank. Later, another group of 19 persons, who had been referred by other UFO investigators, participated in the survey: Questionnaire, Adjective Check List, Minnesota Multiphasic Personality Inventory, 16 Personality Factors Test, and Strong Vocational Interest Blank. Now, ten years later, approximately 150 persons have participated in the survey, including men, women, adolescents; well-educated and poorly-educated; persons from a variety of vocational and cultural backgrounds. From the viewpoint

of definitive conclusions, the results are not impressive; after all, what can one expect from a questionnaire study? However, from the viewpoint of professional curiosity, the results are most interesting (Sprinkle, 1976).

In general, the participants "look good" on paper. Their profiles of measured vocational interests are more similar to the varied patterns of professional persons, rather than the persons who are limited to technical or outdoor interests. The profiles of personality inventories indicate "normal" patterns of scores, rather than neurotic or psychotic reactions. Some of the participants score like "creative" persons, with wide ranging interests, and above-average on scales such as "Ego Strength", "Intraception", etc. I have concluded, tentatively, that there is little evidence to support the "psychosis" hypothesis that only kooks see flying saucers. I have had the opportunity to interview some of the participants; in general, I am impressed with their intelligence, sincerity, and courage.

In addition to the thousands of UFO reports I have read, and the hundreds of UFO witnesses with whom I have shared information, I have interviewed approximately fifty persons in hypnotic sessions; we used hypnotic time regression procedures in the attempt to gain more information about the UFO experience itself, as well as to reduce any anxiety and tension associated with the UFO experience and/or the reactions of other persons to the claims about the UFO experience.

Approximately twenty-five of these persons have obtained information during the hypnosis sessions which supports their claims of "abduction" experiences: the claim that, during a UFO sighting, there is an amnesic or "loss of time" period; later, during dream states, meditation, or hypnotic procedures, the UFO witness recalls that during the "loss of time" exper-

ience, he or she was taken on board a landed craft, examined by humanoids or alien beings, and released with the suggestion that he or she would remember nothing of the experience.

Table 1 summarizes the investigation and rating of the "character" of the UFO witnesses who described "abduction" experiences during hypnosis sessions.

IMPLICATIONS OF HYPNOTIC PROCEDURES

The implications of UFO experiences as possible observations of "spacecraft" are exciting; however, the possibility that alien beings are piloting or controlling these craft, and abducting and examining human specimens, is thrilling to some persons and terrifying to other persons.

My personal and professional bias is to accept, tentatively, the claims of UFO abductions as "real"; however, I do not know if these "abductees" have experienced physical abduction, or whether they have experienced "out of the body" events. In either case, the experiences seem "real" to the "abductee".

Hypnotic procedures appear to be appropriate techniques for exploring the memories of these experiences, as well as helpful procedures for releasing emotional reactions which are associated with the UFO experiences. The classic case of Betty and Barney Hill has been described by Fuller (1966). A recent review of the literature has been presented by Sprinkle (1976). However, some UFO investigators are skeptical about the accuracy of recall during hypnotic regression procedures. For example, Allan Hendry, of the Center for UFO Studies, conducted a survey among UFO investigators about their views on the usefulness of hypnotic procedures; he concluded (Hendry, 1978, p. 5) "...Hypnosis is not a well-understood phenomenon and, at this point, it can not be stated defini-

CASE	YEAR	POLY-GRAPH EXAM.	PSYCHOL. INVENTORIES	PSYCHIATRIC EXAM	EST. OF CHARACTER ^b	UFO EXPERIENCE ^c
1	1967				Poor	Physical?
2	1968				Fair	Physical?
3	1968		X ^a		Good	Physical?
4	1974	X	X	X	Excellent	Physical?
5	1975				Fair	Physical?
6	1975				Fair	Physical?
7	1975				Fair	Physical?
8	1976				Good	OBE?
9	1976				Good	OBE?
10	1976	X	X		Excellent	Physical?
11	1976	X	X ^a		Excellent	Physical?
12	1976	X	X ^a		Excellent	Physical?
13	1976				Good	Physical?
14	1977		X		Excellent	Physical?
15	1977		X		Excellent	Physical?
16	1977		X		Good	OBE?
17	1978		X		Good	Physical
18	1978		X		Good	Physical?
19	1978		X		Good	Physical?
20	1978				Excellent	Physical?
21	1978				Excellent	Physical?
22	1978				Excellent	Physical?
23	1978		X		Excellent	Physical?
24	1978				Excellent	Physical?
25	1978				Fair	Physical?
26	1978				Excellent	Physical?
27	1978				Excellent	Physical?

See next pg. for
explanation of
superscripts.

TABLE 1: INVESTIGATION OF UFO "ABDUCTION" CASES:
INTERVIEWS AND HYPNOSIS SESSIONS

(from previous page)

a Psychological Inventories: Results of these inventories have not been received.

b Character: Subjective ratings of participants' self-awareness, integrity, and willingness to assist investigators.

c UFO Experience: Physical reality? Paranormal (out of body experience) reality?

tively whether or not the accounts provided by UFO witnesses under hypnosis are entirely accurate. Certainly, hypnosis is a useful tool but one whose limitations and capabilities have not yet been calibrated."

Despite the difficulties of obtaining valid information from UFO witnesses, hypnotic procedures offer a method by which these experiences can be explored. Of course, there are ethical, as well as scientific, questions which are posed by the use of hypnotic procedures in UFO research. Interested investigators, witnesses, and hypnosis practitioners are referred to a paper (Sprinkle, 1977) entitled: "Hypnotic Time Regression Procedures in the Investigation of UFO Experiences". The paper appears as an appendix in the book by the Lorenzens ABDUCTED! (NY: Berkley Press, 1977, pp. 191-222). Interested persons can obtain a copy by writing to this address:

R. LEO SPRINKLE
Division of Counseling & Testing
Box 3708, University Station
Laramie, WY 82071

Any interested psychologist is encouraged to conduct his or her investigations of UFO experiences. Perhaps those of us who have delved into the mass of UFO reports are beginning to perceive an outline of the pattern of reports; if so, we need support from

other investigators. Perhaps we have made important errors in our observations and procedures. If this is the case, we need criticisms and suggestions from other investigators.

A word of caution to any interested psychologist: If you seek certainty, be careful! UFO research appears to be characterized by controversy and absurdity. If you are curious and like to explore a good mystery, come on in! And if you do decide to investigate UFO experiences, what can you expect to learn?

SPECULATIONS

Here are the speculations of James E. Frazier (personal communication, 1978) about the significance of "contact" experiences between UFO percipients and the possible intelligence behind the UFO phenomenon:

Purpose of Contacts: filtering of knowledge to people of Earth.

Method of Operation: A certain type of person is being abducted and implanted with information which is to serve as a bridge to understanding the "extraterrestrial" perspective on Earth. Implantation involves an area of the mind which cannot be tapped by hypnosis unless so permitted by the "extraterrestrials". The knowledge is designed to be doled out in a step by step fashion, to the proper people of Earth and at the proper time. This is all controlled by "keys" and "cues" implanted along with the knowledge.

Long term contact is maintained with the contactees through tensor beam communication, telepathy, trances, repeated abductions, and face-to-face encounters with "extraterrestrials" living on Earth.

Motivation of the Method: To filter information on a grass roots level to the common people of Earth. Exploitation, sensationalism, and misuse of informa-

ees who have little use or understanding for the knowledge. Also, each contactee is given a "bit" of knowledge, or a "piece of the great puzzle" requiring he or she to unite with other contactees and combine the knowledge with facts already established by Earth scientists.

Relationship Dynamics between Extraterrestrials and Earthlings: The dynamics of the relationship are similar to a counseling and guidance paradigm. The guidance involves psychological guidance leading to self-determinism and spiritual-metaphysical experience, along with scientific knowledge and technical application of knowledge.

The Body of Knowledge: The information can be classified into four or five basic areas:

- 1) archaeological, involving clues to the study of prehistory events and patterns of study;
- 2) geological, involving earthquakes and land mass shifts;
- 3) meteorological, involving current weather conditions as they are affected by magnetic forces;
- 4) genetic, involving cloning;
- 5) biological, involving extension of life-span, regeneration of tissue and general "body-building" of man;
- 6) scientific, involving space travel - their way - electromagnetic fields of Earth and their relationship to bio-magnetic fields and their combined relationship to electromagnetic properties of matter, energy, and thought;
- 7) spiritual knowledge, involving experience of consciousness beyond the body: telepathy and other paranormal

phenomena.

Each contactee is given his or her own piece of this vast body of knowledge; he/she is instructed to research the past civilizations of Earth and discover indications that this knowledge did, in fact, exist on Earth at one time.

Then he/she is challenged with presenting the knowledge again to mankind, in a way which proves beneficial to all mankind, without causing division or exploitation with people or societies and governments of the world.

If true, this is a brilliant plan and leads us, by logic, to shift study from UFO sightings and contactees -- to the knowledge presented through contactees.

TENTATIVE CONCLUSIONS

If UFO investigators have not perceived correctly the general outline of the UFO phenomenon, then we are wrong and wasting our time. But if this general outline is correct, then we have guidelines by which we can analyze and compare the significance and meaning of UFO reports. Hypnotic procedures offer us a method by which we can explore the memories of UFO contactees and evaluate the meaning of their UFO experiences.

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